Technical Panel
of the
Nebraska Information Technology Commission

Tuesday, March 8, 2005 - 9:00 a.m.
Varner Hall - Board Room
3835 Holdrege St., Lincoln, Nebraska

AGENDA

Meeting Documents:
Click the links in the agenda
or click here for all documents (X.X MB - xx pages)

1. Roll Call and Meeting Notice

2. Public Comment

3. Approval of Minutes* - February 8, 2005

4. Project Reviews*

- FY2005-2007 BIENNIAL BUDGET REQUESTS
  Workers Compensation Court (Summary Sheet | Revised Project Proposal)

5. Standards and Guidelines

- Discussion: Review of Requests for Exemption
  - Commission on Public Advocacy: E-mail Standard Exemption Request

6. Discussion - Revised White Paper: "Converting distance learning networks to a high bandwidth flexible infrastructure"

7. Update: NITC Strategic Initiatives

8. Discussion: Technical Panel Charter and Membership

9. Regular Informational Items and Work Group Updates (as needed)

- Accessibility of Information Technology Work Group
- CAP
- Security Work Group
- Statewide Synchronous Video Network Work Group

10. Other Business

11. Next Meeting Date

Tuesday, April 12, 2005

10. Adjourn

* Denotes Action Item

NITC and Technical Panel Websites: http://www.nitc.state.ne.us/

Meeting notice posted to the NITC Website: 11 FEB 2005
Meeting notice posted to the Nebraska Public Meeting Calendar: 11 FEB 2005
Agenda posted to the NITC Website: 3 MAR 2005

TECHNICAL PANEL

Nebraska Information Technology Commission
Tuesday, February 8, 2005, 9:00 a.m.
Varner Hall, 3835 Holdrege
Lincoln, Nebraska
PROPOSED MINUTES

MEMBERS PRESENT:

Mike Beach, Nebraska Educational Telecommunications Commission
Brenda Decker, Chief Information Officer, State of Nebraska
Steve Henderson, Department of Administrative Services, State of Nebraska
Christy Horn, University of Nebraska, Compliance Officer
Kirk Langer, Lincoln Public Schools
Walter Weir, University of Nebraska

CALL TO ORDER, ROLL CALL, AND MEETING NOTICE

Mr. Weir called the meeting to order at 9:05 a.m. The meeting notice was posted to the Nebraska Public Meeting Calendar and the NITC web sites on January 19, 2005 and that the meeting agenda was posted to the NITC web site on February 3, 2005. All members were present at the time of roll call.

PUBLIC COMMENT

Mr. Weir announced and congratulated Brenda Decker who was appointed as the new CIO for the State of Nebraska. Steve Schafer was acknowledged as the first CIO for the State of Nebraska and was thanked for his service.

APPROVAL OF JANUARY 11, 2005 MINUTES

Mr. Henderson moved to approve the January 11, 2005 minutes as presented. Mr. Beach seconded the motion. Roll call vote: Beach-Yes, Decker-Yes, Horn-Yes, Langer-Yes, Henderson-Yes, and Weir-Yes. Results: 6-Yes and 0-No. Motion was carried.

Standards and Guidelines - Groupware Architecture: Lotus Notes Standards for State Government Agencies - Recommendation to the NITC

This agenda item was tabled.

PROJECT REVIEWS - SECRETARY OF STATE RECORDS BOARD GRANT - ONLINE PROPERTY TAX PAYMENT SYSTEM

Ms. Decker moved that the Technical Panel, having reviewed the State Records Board grant application entitled "Online Property Tax Payment System" and based on the technical information provided, finds that:

- **The project is technically feasible.**
- **The proposed technology is appropriate for the project.**
- **The technical elements can be accomplished within the proposed time frame and budget.**

Ms. Horn seconded the motion. Roll call vote: Weir-Yes, Henderson-Yes, Horn-Yes, Langer-Yes, Decker-Yes, and Beach-Yes. Results: 6-Yes and 0-No. The motion was carried.

PROJECT REVIEWS - SECRETARY OF STATE RECORDS BOARD GRANT - KEARNEY COUNTY ENHANCED WEB PAGE

Mr. Beach moved that the Technical Panel, having reviewed the State Records Board grant application entitled "Kearney County Enhanced Web Page" and based on the technical information provided, finds that:

- **The project is technically feasible.**
- **The proposed technology is appropriate for the project. However, the Technical Panel recommends a closer examination of the use of existing hardware. We are concerned that as usage increases the existing systems and bandwidth might not be sufficient to keep up with demand.**
- **The technical elements can be accomplished within the proposed time frame and budget.**

Ms. Horn seconded the motion. Roll call vote: Horn-Yes, Langer-Yes, Henderson-Yes, Weir-Yes, Beach-Yes, and Decker-Yes. Results: 6-Yes and 0-No. The motion was carried by majority vote.

PROJECT REVIEWS - SECRETARY OF STATE RECORDS BOARD GRANT - SSC ELECTRONIC FILING SYSTEM

Ms. Horn moved that the Technical Panel, having reviewed the State Records Board grant application entitled "SSC Electronic Filing System (South Sioux City)" and based on the technical information provided, finds that:

- **The project is technically feasible.**
- **The proposed technology is appropriate for the project. However, the Technical Panel recommends a closer examination of the use of existing hardware. We are concerned that as usage increases the existing systems and bandwidth might not be sufficient to keep up with demand.**
- **The technical elements can be accomplished within the proposed time frame and budget.**

Mr. Henderson seconded the motion. Roll call vote: Langer-Yes, Horn-Yes, Decker-Yes, Beach-Yes, Weir-Yes, and Henderson-Yes. Results: 6-Yes and 0-No. The motion was carried by majority vote.

INFORMATIONAL ITEMS

Accessibility, Christy Horn. Accessibility will be important in distance education. At the April Technical Panel meeting, Ms. Horn will provide a presentation regarding website tools to assess accessibility. Ms. Horn will check the Network Nebraska web site for accessibility.

CAP, Brenda Decker. At last month's meeting, there was a presentation from a scheduling software vendor. A contract has been signed for redundant Internet1 service – Level 3. The second access path out of Lincoln will be awarded soon. A request has been received from ESU 10 regarding costs for Network Nebraska. A meeting was held in North Platte regarding the benefits of Network Nebraska for Mid-Plains Community College. Network Nebraska is looking to expand into Tier II communities and will be looking at more expansion within next 60-90 days.

Security Work Group. No report today. Mike Carr, Security Officer, University of Nebraska, commented that an RFP has been developed to do a security audit.

Statewide Video Synchronous Work Group, Mike Beach. The Work Group has not met formally but has been involved in discussions of the white paper. Scheduling software options, tracking legislative bills and funding options are topics of focus for the work group.

WHITE PAPER DISCUSSION: "CONVERTING DISTANCE LEARNING NETWORKS TO A HIGH BANDWIDTH FLEXIBLE INFRASTRUCTURE"

Persons in attendance for the discussion (persons with * provided remarks):
Nigel Buss, North/Northeast Consortia*; Mike Carr, University of Nebraska; Mike Danahy, ESU 2*; Charles Doyle, SNDLC*; Wayne Fisher, NDE; Susan Forslund, ESU 3; Roger Hahn, Nebraska Information Network*; Gene Hand, Public Service Commission; Dennis Linster, Wayne State College*;
Don Mihulka, University of Nebraska; Scott Neff, Dark Fiber Solutions*; Mike Ough, ESU 2; Bill Phillips, ESU 3; Tom Rolfes, NITC*; Shirley Schall, SWDLC*; Al Schneider, ESU 5; Jayne Scofield, DAS-DOC; Deb Swanson and Travis Wagner, Qwest Communications; Michael Winkle, NET*; Diane Wolfe, ENDLC*; and Jeff Wooters, ESU-NOC*

Mr. Beach and Mr. Rolfes provided background information and a history of the white paper's development. At a meeting held on November 5, 2004 in Kearney with consortia members, it was by consensus to put concerns and issues in a white paper. The paper is still in draft form. The white paper would be used as a communication tool to legislators and policy makers. It will be beneficial to use in conjunction with NDE's legislative bills. After today's discussions, next steps will need to be discussed and taken.

Individuals provided information on the progress, successes and shortfalls of distance education in their sector and/or area of the state. Some of the issues and areas of concern raised were:

- E-Rate - jeopardizing the benefits of e-rate filings;
- Shift of local and regional control to a state entity;
- State negotiation of costs;
- Consortium member districts will lose their control over which classes are offered and to whom;
- Diversity of the distance education enhancement task force regarding representation of K-12 districts;
- Confidentiality of transport;
- Quality of audio and video services;
- Lack of available competition for bidding process in some areas of the state;
- Bandwidth costs – paying for what is needed versus what is available;
- Scheduling priorities;
- Equipment costs and lifetime funding. It is a requirement to keep paperwork for seven years. This will increase administrative costs;

- In addition to the NITC, the Technical Panel and CAP, it was recommended to include the signatures of the stakeholders involved within the final draft of the white paper.

After discussion, it was agree to take the following next steps:

- An E-rate task force will be organized. Mr. Fisher will take the lead.
- Individuals are to provide "specific" changes to the document to Mr. Rolfes by February 18th so that changes can be made and the document can be reviewed by CAP (Collaborative Aggregation Partnership) and the Technical Panel prior to the NITC March 15th meeting.
- Marketing efforts. Individuals in attendance were asked to communicate these efforts to their sectors.

OTHER BUSINESS

There was no other business.

NEXT MEETING DATE/TIME AND ADJOURNMENT

The next meeting of the NITC Technical Panel will be held on Tuesday, March 8, 2004, 9:00 a.m. at Varner Hall, 3835 Holdrege, in Lincoln.

With no further business, Ms. Decker moved to adjourn the meeting. Mr. Henderson seconded the motion. All were in favor. Motion was carried by unanimous voice vote.

The meeting was adjourned at 11:38 a.m.

Meeting minutes were taken by Lori Lopez Urdiales and reviewed by Rick Becker and Tom Rolfes, Office of the NITC.

Agency	Project	FY2005-06	FY2006-07
Workers' Compensation Court	Court Re-engineering - Adjudication (REVISED)		$ 534,066

SUMMARY OF REQUEST (Executive Summary from the Proposal)

This project will procure, develop, install, and support Court Re-Engineering enhancements in the Adjudication section of the court. These enhancements will be based upon the results from current internal re-engineering analysis and the recommendations from a consultant to be engaged in Fiscal Year 2006. From the current internal analysis and court priorities, the first software products to be introduced to the court will be from one or more of the Key Technologies currently identified in the internal analysis that cannot be achieved with existing resources. This projects key technology is Computer Managed Workflow.

FUNDING SUMMARY

	FY2005-06 (Year 1)	FY2006-07 (Year 2)	FY2007-08 (Year 3)	FY2008-09 (Year 4)	Future	Total
2. Contractual Services						
2.4 Other		$ 100,000.00				$ 100,000.00
5. Training		$ 36,382.50				$ 36,382.50
6. Travel		$ 12,127.50				$ 12,127.50
8. Capital Expenditures						
8.1 Hardware		$ 30,000.00			$ 20,000.00	$ 50,000.00
8.2 Software		$ 355,556.25	$ 103,607.44	$ 108,787.81	$ 109,790.00	$ 677,741.50
TOTAL COSTS	$ -	$ 534,066.25	$ 103,607.44	$ 108,787.81	$ 129,790.00	$ 876,251.50
Cash Funds		$ 534,066.25	$ 103,607.44	$ 108,787.81	$ 129,790.00	$ 876,251.50
TOTAL FUNDS		$ 534,066.25	$ 103,607.44	$ 108,787.81	$ 129,790.00	$ 876,251.50

PROJECT SCORE

Section	Reviewer 1	Reviewer 2	Reviewer 3	**Mean**	Maximum Possible
III: Goals, Objectives, and Projected Outcomes	14	10	13	12.3	15
IV: Project Justification / Business Case	23	20	20	21.0	25
V: Technical Impact	19	16	20	18.3	20
IV: Preliminary Plan for Implementation	9	7	8	8.0	10
VII: Risk Assessment	10	7	8	8.3	10
VIII: Financial Analysis and Budget	19	18	18	18.3	20
			TOTAL	**86**	100

REVIEWER COMMENTS

Section	Strengths	Weaknesses
III: Goals, Objectives, and Projected Outcomes	- Good discussion of potential measurement/assessment methods - This proposal describes the use of workflow tools to manage and respond to events in the WCC. The proposal seeks to overlay workflow on its existing case management system.	

Section	Strengths	Weaknesses
IV: Project Justification / Business Case	- Good discussion of alternatives considered - Project justification are documented.	- Provided explanation of problems with current process, not benefits of proposed process - With the exception of computer assisted decision process and event triggers, the problems listed to be addressed by workflow appear to be systems design issues. There is no discussion as to how the WCC will overlay workflow on its existing system design. A task driven system can be achieved without investment in workflow tools. This should be reflected in a ROI analysis.
V: Technical Impact	- Good understanding of technical strengths and weaknesses - Proposed workflow solution integrates well with existing systems.	- Vision appears to include customer (attorney/claimant, etc) self service at a future point. Not sure scalability has received enough attention, if this is future expectation. - The state has selected an enterprise workflow tool that is recognized in the project proposal. Narrative appears to discount the use of that tool in the WCC architecture. This sets the stage for workflow software that operates only in the WCC architecture. A ROI analysis should clarify this business decision.
VI: Preliminary Plan for Implementation	- Selection process and implementation plan are well documented.	- Timelines seem reasonable for a "buy", but too short if a "build" solution is chosen. Difficulty of implementing new business process ("changes in mindset") may be understated. - In an earlier review of this project, this reviewer noted that software selection took place before completing the workflow analysis. This proposal is now in keeping with that observation.
VII: Risk Assessment	- The impact of the introduction of workflow management is well documented, with appropriate planning to minimize risk.	- Technical risks and business process acceptance risks may be understated - This project describes the acquisition and assimilation of workflow software within the computing environment of the WCC. Without a thorough understanding of other initiatives, it is difficult to assess how this technology will mesh with other technologies of the WCC. The answer appears to be one of the outcomes of the engagement of the consulting engineer. The document mentions the evaluation of an in-house solution using existing software and workflow feature inherent in Oracle. This evaluation should be completed before purchasing additional software.
VIII: Financial Analysis and Budget	- Dollar estimates seem low to me but the budget appears to be well documented. - Current and future hardware and software costs are identified in the proposal.	- Budget appears to assume purchase of COTS system…if a build decision is made costs will likely be higher - Cost model does address ROI. Software maintenance at 30% of initial purchase seems high, but the figure must be trusted.

Nebraska Information Technology Commission

Project Proposal Form

New or Additional State Funding Requests
for Information Technology Projects

FY2005-07 Biennium

Project Title	**Court Re-engineering – Adjudication – Revised**
Agency/Entity	**Nebraska Workers' Compensation Court**

About this form…
The Nebraska Information Technology Commission ("NITC") is required by statute to "make recommendations on technology investments to the Governor and the Legislature, including a prioritized list of projects, reviewed by the technical panel, for which new or additional funding is requested." In order to perform this review, the NITC and DAS-Budget Division require agencies/entities to complete this form when requesting new or additional funding for technology projects. For more information, see the document entitled "Guidance on Information Technology Related Budget Requests" available at http://www.nitc.state.ne.us/forms/.

Electronic versions of this form are available at http://www.nitc.state.ne.us/forms/.

For questions or comments about this form, contact the Office of the CIO/NITC at:

Mail: Office of the CIO/NITC
521 S 14th Street, Suite 200
Lincoln, NE 68508
Phone: (402) 471-3560
Fax: (402) 471-4608
E-mail: info@cio.state.ne.us

Submission of Form
Completed forms must be submitted by the same date biennial budget requests are required to be submitted to the DAS Budget Division. Completed project proposal forms must be submitted via e-mail to info@cio.state.ne.us. The project proposal form should be submitted as an attachment in one of these formats: Microsoft Word; WordPerfect; Adobe PDF; or Rich Text Format. Receipt of the form by the Office of the CIO will be confirmed by e-mail. If an agency is unable to submit the application as described, contact the Office of the CIO prior to the deadline, to make other arrangements for submitting a project proposal form.

Section I: General Information

Project Title	Court Re-engineering – Adjudication
Agency (or entity)	Nebraska Workers' Compensation Court

Contact Information for this Project:

Name	Randall Cecrle
Address	1221 N Street, Ste 402, PO Box 98908
City, State, Zip	Lincoln, NE 68508-8908
Telephone	402-471-2976
E-mail Address	IT.Manager@wcc.state.ne.us

Section II: Executive Summary

Provide a one or two paragraph summary of the proposed project. This summary will be used in other externally distributed documents and should therefore clearly and succinctly describe the project and the information technology required.

This project will procure, develop, install, and support Court Re-Engineering enhancements in the Adjudication section of the court. These enhancements will be based upon the results from current internal re-engineering analysis and the recommendations from a consultant to be engaged in Fiscal Year 2006. From the current internal analysis and court priorities, the first software products to be introduced to the court will be from one or more of the Key Technologies currently identified in the internal analysis that cannot be achieved with existing resources. This projects key technology is Computer Managed Workflow.

Section III: Goals, Objectives, and Projected Outcomes (15 Points)

1. Describe the project, including:
   - Specific goals and objectives;
   - Expected beneficiaries of the project; and
   - Expected outcomes.

   Goals, Objectives, Outcomes
   The court has several internal re-engineering projects in various stages of development. Each project has identified key technology(s) that are critical to the project that will later have broader use in other sections of the court. This project's key technology is:

   Computer Managed Workflow.

   A computer managed workflow will result in an optimized flow of activities within the Clerks Office, Judicial Support, and Judges sections of the court. Inputs and outputs will be streamlined to provide just-in-time information and work events. Workflows will be managed graphically which will allow for self-documentation of processes, modeling and testing of changes to procedures, and immediate implementation. A Rules Engine will control the execution of routing logic of work and event notifications. Work activities will be automated to the extent that is appropriate. Each Judge or court staff person will have individualized work queues that will reflect pending actions that are associated with the "days" work. Court management will be able to see the status of an individual docket with overdue activities. Case-load management will be enhanced through the collection and analysis of historical activities.

   Beneficiaries will include court staff and judges and all external stakeholders of the court, including attorneys, insurance companies, injured employees, and employers.

   As caseload grows, the court expects to handle the increased load with minimal staff additions. Activity notices will be immediate to the next processing step. Overdue activities will create alerts to staff, management, and judges. Depending upon pre-set criteria, certain dockets will be able to flow through different paths and to different court members.

2. Describe the measurement and assessment methods that will verify that the project outcomes have been achieved.

   Times between, time to process, number of steps and repeated steps will be used to measure efficiency. Real-time assignment workload levels will assist in routing and re-routing work. Easy of understanding the workflows will determine whether the workflows are self-documenting. Event notifications will be immediate and work queues should only reflect the "days" work. Correctly routed work and notifications will determine whether the Rules Engine is functioning properly.

3. Describe the project's relationship to your agency comprehensive information technology plan.

   This project was discussed in Section 4.A. Strategies and Future Direction as prepared by the court's Presiding Judge and listed in 4.C. Future IT Projects.

Section IV: Project Justification / Business Case (25 Points)

4. Provide the project justification in terms of tangible benefits (i.e. economic return on investment) and/or intangible benefits (e.g. additional services for customers).

   The Adjudication re-engineering analysis identified the following problems:

   The current system requires multiple screens to assign a new case. Screens are not designed to facilitate the task. The system is not task flow driven. The current screen design was built around the structure of data and not around the task which has an impact on productivity.

   The current task management review is not searchable by date. There is no ability to search for all tasks by employee, by day to manage the system at a macro level. Reporting system is not flexible.

   All current decision-making is manual. The current computer system does not have intelligent rules and queries to assist with the decision making process.

   The current system does not have active triggers to notify change of status. Various sections of the court must run daily reports to be aware of docket status change. There is not an electronic calendar for notification of events.

   The current system doesn't allow an individual judge to analyze his/her case load.

5. Describe other solutions that were evaluated, including their strengths and weaknesses, and why they were rejected. Explain the implications of doing nothing and why this option is not acceptable.

Over the last three years, this court invested substantial time and effort to analyze and strategize moving towards a “paperless” court. This work included an extensive analysis of the possibility of collaboration with the Nebraska Supreme Court and Information Management Services (IMServices) in its efforts to increase ability to electronically file and store documents and information on a statewide basis. That effort at collaboration showed that extensive collaboration was not possible because of extensive differences in the specific missions of the Nebraska Workers’ Compensation Court and all other courts of the state of Nebraska. Some of the differences in mission relate to significant agency type functions of the court arising from statutory obligations in the Nebraska Workers' Compensation Act. These functions relate to coverage and claims enforcement, re-education and retraining oversight, dissemination of information, and the process used to review and approve or disapprove applications for lump sum settlements. Another key difference is that the court’s statewide jurisdiction requires statewide judicial mobility, which significantly complicates scheduling and information dissemination on a case-by-case basis.

Based upon the analysis by the court, computer managed workflow is the appropriate strategic solution. Workflow software is fairly mature. Further analysis planned for in the next biennium by an outside consultant, Requests for Information, and Requests for Proposal will determine whether existing off-the-shelf software can be effectively integrated with the current court computer systems and will meet the courts requirements. Off-the-shelf software will require that the court conform to procedural and technical constraints of each unique system. Additional application server hardware will be required.

The court in December 2004 became aware of recently improved features in the Oracle Database and Application Server. As part of the solution selection process which will look at off-the-shelf solutions, the court will also evaluate these improved Oracle features in combination with its existing programming software to determine whether the problems can be solved in an acceptable manner and requirements can be met. Given that the courts current business software systems are almost 100% “in-house” developed, this solution would provide the possible benefit of tighter integration with existing systems at potentially lower development/purchase and on-going costs. There is the possibility that certain requirements may not be immediately met because of the need for custom development.

The court will evaluate what is available at the state’s enterprise level through services provided by IMServices.

Doing nothing leaves the current problems unsolved. It also does not position the court to handle increased workload without the adding of additional staff.

6. If the project is the result of a state or federal mandate, please specify the mandate being addressed.

Not applicable.

Section V: Technical Impact (20 Points)

7. Describe how the project enhances, changes or replaces present technology systems, or implements a new technology system. Describe the technical elements of the project, including hardware, software, and communications requirements. Describe the strengths and weaknesses of the proposed solution.

   The key technologies are all enhancements to our current Microsoft Windows Application and Oracle Relational Database environment. Because the court's offices in Lincoln are on 100 megabit data communications, band-width is not an issue.

   Computer Managed Workflow will require the installation of new software technology on an application server. Because of the structure of the court, the court's three-tier Microsoft Windows Client – Application Server – Database Server model is still the appropriate underlining technology on which to incorporate. The courts current production environment is the Microsoft Windows Win32 construct. The solution must provide the ability for the court to continue to function in that environment. Looking to future expansion to workflows outside the court (attorneys, insurance companies, etc.) the solution must also allow for the movement to a Microsoft .NET environment and their future "Smart Client" technology. Web Services and Service Oriented Architecture (SOA) must also be supported or planned for to integrate effectively and efficiently with our current technology. The solution must also be compatible with the state's Enterprise directory system. The court has developed its own case management system on Win32 and Oracle and is integrating document management directly into that system. The workflow solution must be able to access data stored in Oracle and execute programs developed for the Win32 platform. The solution must also allow for access to the "user work queues" from "in-house" developed business software programs.

   The strength of the current Microsoft Win32 solution provides the court a feature rich, robust application. Microsoft .NET / Smart Client, Web Services, and SOA will allow the court to extend from Win32 to an Internet-based application for those situations were appropriate. At the same time it adds new function points that could fail and make trouble-shooting more complicated. Interfacing with a non-homogenous system based upon a JAVA-based third-party system with the rest of the court systems could prove challenging, but may be addressed through Web Services.

   The courts re-engineering analysis has laid out a roadmap for the court to be paperless by 2011. In order for there to be usable data for the court, as many digital documents as possible must be "intelligent"; that is they must have structured content embedded within them that can be program extractable (e.g. XML). Scanning and optical character recognition does not provide sufficient usable data/information and is not the solution. The court is therefore planning on implementing e-filing systems in future projects. Case-management, document management, and workflow management are underlining technologies that must be in place for e-filing to be successful. Workflow is a potential infrastructure platform for e-filing upon which a custom e-filing system could be developed. When the court reaches the point in its strategic roadmap where end user e-filing becomes a project, it will evaluate software functionality available within the court, the State, and third-party companies.

8. Address the following issues with respect to the proposed technology:
   - Describe the reliability, security and scalability (future needs for growth or adaptation) of the technology.

Computer Managed Workflow must prove to be highly reliable or it will have an adverse effect on productivity. In evaluating and choosing a solution the court will insure that production tools are available to verify that all nodes are functioning, that the solution is able to integrate with the state's Enterprise Directory for identity management, that the solution includes secured work queues for staff to control their assignments, and that the solution is scalable to allow for future implementation in a secured internet environment that would allow for use by attorneys and other external parties.

   - Address conformity with applicable NITC technical standards and guidelines (available at http://www.nitc.state.ne.us/standards/) and generally accepted industry standards.

The court participated in a joint project with IMServices to define accessibility development standards for Microsoft Windows development. Those same standards with other published standards will be used when procuring third-party software solutions. Other standards and guidelines will be reviewed at appropriate times during the projects.

   - Address the compatibility with existing institutional and/or statewide infrastructure.

IMServices and Department of Communications will be brought in to review any new technologies for compatibility.

Section VI: Preliminary Plan for Implementation (10 Points)

9. Describe the preliminary plans for implementing the project. Identify project sponsor(s) and examine stakeholder acceptance. Describe the project team, including their roles, responsibilities, and experience.

All project plans below are tentative and may be revised based upon the recommendations and outcome of a consultant who will be brought in during Fiscal Year 2006 to review current analysis and strategic plans. The consultant will assist the court in deeper business process analysis and preliminary evaluation of alternative technical implementations such as Web Services (WS), Service Oriented Architecture (SOA), Business Process Management (BPM), and Business Process Execution Language (BPEL). A solution will be chosen using standard State Request for Proposal procedures and Proof-of-Concept testing of both third-party software and in-house solutions. The goal is to have selected/procured a solution in Fiscal Year 2006.

Fiscal Year 2007 is tentatively targeted for installation, training, and design and testing of the pilot re-engineered workflow. During the design and testing of the pilot workflow the court will gain critical knowledge necessary to plan for integration with existing systems and custom development. During Fiscal Year 2008 and beyond, fully functional workflows will be designed, developed, tested, and implemented into production. At this point it is not known how long the production roll-out will take.

Internal Court stakeholders have participated in the initial analysis or have been closely informed of the strategy. External stakeholders have not yet been approached, but current plans include having focus group sessions with key external stakeholders during Fiscal Years 2005 and 2006.

The project sponsor is the Courts Presiding Judge. He has actively and directly participated in the analysis phase of the re-engineering. The Information Technology project leader/primary developer has not yet been chosen, but will be one of the Court's Senior or Lead Application Developers. The design team will be comprised of the Presiding Judge, Clerk of the Court, Judicial Support Manager, selected staff from the Clerk of the Court's Office, Judicial Support, Legal and Coverage and Claims sections. The Information Technology Manager / Database Administrator will function as data analyst and will participate heavily in system engineering. Contract programming resources will be used if appropriate and funds are available. Policy issues that need to be addressed will be taken to the Presiding Judge and Court Administrator.

The below table represents the existing internal experience upon which the courts project team will be based.

Experience

Title	Total	In Current Position
Lead Application Developer (IT Project Leader)	15+	2
Presiding Judge	BS in Agricultural Economics, MS Economics Juris Doctorate Private Business Owner - 10 County Commissioner - 4 Private attorney - 12 WCC Judge - 8	4
Clerk of the Court	40+	20
Judicial Support Manager	15	3
Clerk of the Court and Judicial Support Staff	10+	5+
Legal Staff	5+	5+
Coverage and Claims Staff	6+	6
IT Manager/DBA	28	9

10. List the major milestones and/or deliverables and provide a timeline for completing each.

- Fiscal Year 2006 – Consultant Engagement and Procurement process completed.
- Fiscal Year 2007 – Installation, training, and design and testing of the pilot re-engineered workflow.
- Fiscal Year 2008 and beyond - Fully functional workflows designed, developed, tested, and implemented into production.

11. Describe the training and staff development requirements.

For all the key technologies, not only will there be major training requirements, but changes in mindset on how to perform the duties. Workflow will require staff training in the use of graphic flowchart / diagramming tools to build the workflows. Staff training will also be required on how to use the new software. IT Staff will need to be trained on implementation, maintenance, and administration.

12. Describe the ongoing support requirements.

A Workflow system will require annual software support and upgrade fees, planning for hardware updates, etc. Purchased software will need to under upgrade/maintenance agreements.

Section VII: Risk Assessment (10 Points)

13. Describe possible barriers and risks related to the project and the relative importance of each.
14. Identify strategies which have been developed to minimize risks.

(Combined Answer)

- Acceptance of the change by court personnel brought about by automating workflows.
    - Managers are involved in projects.
    - Staff is involved in design and selection processes.
    - Implemented software is friendly to work with.
- Solutions may have an unintended adverse impact on other areas of adjudication.
    - All impacted areas and sections are involved in impact analysis.
- Implementation of workflow could cause the loss of knowledge of how the court systems functions at the over-all level.
    - Periodic reviews of workflows need to be performed with staff to retain an understanding of the full process flow.
    - Workflow diagrams and rules definitions must be easily understood.
- A workflow system may have slow system performance.
    - The criteria for product select needs to state performance requirements.
    - Proof of concept testing will be required before a final product decision is made.
    - Response times must be monitored and appropriate corrective action taken.
- Software maintenance costs will escalate in future years.
    - Maximum maintenance cost increases are negotiated as part of any contracts.
    - Initial costs estimates were budgeted higher than usual.
- Consultant engagement will not produce any conclusive results.
    - The court has been attending AIIM, ARMA, E-Court, Oracle, Microsoft, and Borland conferences during the past six years and is gaining knowledge that will assist in the selection of a consultant and participation in the process.
    - Other outside agencies (such as IMServices) will be asked to participate where appropriate and neutrality can be achieved.
- The selected solution could not meet requirements once placed in production.
    - The court has participated in several Requests for Proposal (RFP's) with IMServices and other agencies over that last several years and has learned from these experiences.
    - The selection process will include a Proof-Of-Concept phase that will provide hands-on testing of a preliminarily selected solution based upon a actual workflow. The court completed a full process Adjudication Process analysis several years ago and has documented process flows available to choose from for the Proof-Of-Concept.
    - The court will evaluate an in-house solution based upon its existing software development platform of Borland Delphi Programming Software and Oracle Database/Application Server software. Both support Microsoft .NET, Web

Services, etc. Oracle also provides workflow features in its database and application server that will be evaluated.

Section VIII: Financial Analysis and Budget (20 Points)

15. Financial Information

Financial and budget information can be provided in either of the following ways:

(1) If the information is available in some other format, either cut and paste the information into this document or transmit the information with this form; or

(2) Provide the information by completing the spreadsheet provided below.

Instructions: Double click on the Microsoft Excel icon below. An imbedded Excel spreadsheet will be launched. Input the appropriate financial information. Close the spreadsheet. The information you entered will automatically be saved with this document. If you want to review or revise the financial information, repeat the process just described.

Excel Spreadsheet
(Double-click)

Financial information appears at the end of the docuement.

16. Provide a detailed description of the budget items listed above. Include:
    - An itemized list of hardware and software.
    - If new FTE positions are included in the request, please provide a breakdown by position, including separate totals for salary and fringe benefits.
    - Provide any on-going operation and replacement costs not included above, including funding source if known.
    - Provide a breakdown of all non-state funding sources and funds provided per source.

See side notes on spreadsheet above for line-item explanations.

- Hardware estimates are based upon recent purchases.
- The software and professional services estimates were based upon Requests For Information (RFI) sent to three leading vendors whom provide workflow products. These vendors ranged in the medium to high-end category of product offerings. The following preliminary criterion was provided to the vendors to respond.
    - 50 User production license
    - 10 User development license
    - Server software hosted on a 2-CPU Intel / Windows Server platform
    - Client/Server or .NET based product.
    - Need Installation Costs, Administration Training Costs, Startup Training Costs for In-house 10 Users
    - Professional Services costs for installation and customization.
    - Additional Costs not included in software license (such as database license, etc.)

- The three product responses to the RFI are all agnostic, off-the-shelf offerings that can be integrated with the courts current systems. A Process Flow Diagrammer and Rules Engine are key functional features of all agnostic, off-the-shelf offerings. The court does not want to develop this functionality and does not plan on developing in-house a full-blown workflow management system.
- Court Information Technology staff all have experience in project management in various size projects. Project management and System Development Life Cycle (SDLC) are management tools of all court technology projects.
- Software maintenance costs were estimated higher than standard to cover unknown contingencies.
- Requests for Information were sent to two consultants with experience in workflow management. Based upon preliminary proposals the consultant engagement cost is estimated to be $50,000. The engagement will be funded out of reallocated continuation dollars and were not included in the Budget spreadsheet.

17. Please indicate where the funding requested for this project can be found in the agency budget request, including program numbers.

Program Number 530.

Nebraska Information Technology Commission
Project Proposal Form
Section VIII: Financial Analysis and Budget

(Revise dates as necessary for your request.)

	Estimated Prior Expended	Request for FY2005-06 (Year 1)	Request for FY2006-07 (Year 2)	Request for FY2007-08 (Year 3)	Request for FY2008-09 (Year 4)	Future	Total	
1. Personnel Costs							$ -	
2. Contractual Services								
2.1 Design							$ -	
2.2 Programming							$ -	
2.3 Project Management							$ -	
2.4 Other			$ 100,000.00				$ 100,000.00	**2.4 Other**
3. Supplies and Materials							$ -	Professional Contract Services to assist in the installation, configuration, etc. of purchased software
4. Telecommunications							$ -	
5. Training			$ 36,382.50				$ 36,382.50	
6. Travel			$ 12,127.50				$ 12,127.50	
7. Other Operating Costs							$ -	
8. Capital Expenditures								
8.1 Hardware			$ 30,000.00			$ 20,000.00	$ 50,000.00	**8.1 Hardware**
8.2 Software			$ 355,556.25	$ 103,607.44	$ 108,787.81	$ 109,790.00	$ 677,741.50	Year 2 is the initial hardware purchase, Future represents hardware replacement costs.
8.3 Network							$ -	
8.4 Other							$ -	**8.2 Software**
TOTAL COSTS	$ -	$ -	$ 534,066.25	$ 103,607.44	$ 108,787.81	$ 129,790.00	$ 876,251.50	Year 2 is the initial software purchase. Subsequent years represent the annual maintenance agreement costs.
General Funds							$ -	
Cash Funds			$ 534,066.25	$ 103,607.44	$ 108,787.81	$ 129,790.00	$ 876,251.50	
Federal Funds							$ -	
Revolving Funds							$ -	
Other Funds							$ -	
TOTAL FUNDS	$ -	$ -	$ 534,066.25	$ 103,607.44	$ 108,787.81	$ 129,790.00	$ 876,251.50	

Rick Becker

From: Jim Mowbray [jmowbray@ncpa.state.ne.us]
Sent: Tuesday, February 08, 2005 11:20 AM
To: info@cio.state.ne.us
Cc: ron.ritchey@hhss.ne.gov
Subject: Request for exemption
Follow Up Flag: Follow up
Due By: Tuesday, March 01, 2005 05:00 PM
Flag Status: Flagged

To Whom It May Concern:

Pursuant to Email Standards 4.2 we are requesting an exemption. The reason for the exemption is unique and specific to this agency.

The Nebraska Commission on Public Advocacy is not a typical state agency in terms of our documents being a part of the public domain. We represent individual clients who are charged with criminal offenses. Our staff consists of six attorneys, two support staff and one investigator. The attorneys and staff are regulated by the Code of Professional Responsibility which mandates that all attorney/client communications are strictly confidential. Those communications include any written correspondence either by word documents or email communications. No one from outside this office can view or have access to those confidential communications in any form or manner. If these attorney/client communications were to be disclosed the attorney's in this agency would be subject to discipline and could lose their license to practice law.

If our email is stored on the state's servers then access is possible by someone other than the staff of this agency, which would violate Canon 4 of the Code of Professional Responsibility. It is no different than when we store our closed files off site, we must insure that no one has access to these files. I realize that other agencies have attorneys working for them, and they use the state system, but that is different from this office, because they do not have an individual client, they represent the State of Nebraska, not a private client. In other words, to the best of my knowledge, we are the only agency that has attorneys' who represent individual private clients.

I contacted the Federal Public Defender for the State of Nebraska and asked him how the federal government deals with this issue. He told me that they too have an email standard similar to the State's, but what they do is put the two or three servers that handle the public defenders' offices emails on site in one of the public defender's offices. That way, the emails are not off site, and no one has access to them except the staff of the public defender system.

I realize that there may other options, that you may feel would work, however, unless the option is putting a state server in this office, the only alternative is to make our in house server our mail server.

If you should have any questions, or need to discuss this further, please contact me.

James R. Mowbray
Chief Counsel
Nebraska Commission on Public Advocacy
P.O. Box 98932
Lincoln, NE 68509
402-471-7778

DRAFT

~~Converting distance learning networks to a high bandwidth, flexible infrastructure~~

Upgrading Traditional Distance Learning Classrooms for integration into a High Speed Flexible Data Infrastructure

(ENDLC/ESU2)

A White Paper
by the Staff of the Nebraska Information Technology Commission
and the Collaborative Aggregation Partnership (CAP)

December 10, 2004
(Revised March 7, 2005)

Table of Contents

INTRODUCTION

This white paper has been drafted by the staff of the Nebraska Information Technology Commission and the members of the Collaborative Aggregation Partnership (CAP) in an attempt to communicate the history, challenges and ~~uncertain~~ future facing a majority of Nebraska's distance learning consortia as they approach the end of their distance learning contracts. This white paper will suggest an upgrade plan and sustainable networking topology that will rely upon cooperation among K-12 districts, ESUs, higher education partners, and selected agencies of the State of Nebraska. The goal of the project will be the establishment of a high bandwidth, wide area network that will allow for a variety of asynchronous and synchronous distance learning and other education-related applications and services for at least 270 of the 293 public high schools~~The goal of the project will be the establishment of a statewide synchronous videoconferencing network and a high bandwidth, wide area network for at least 270 of our 293 high schools~~ and their 43 ESU, informal education and higher education partners. Although this white paper primarily focuses on the interoperability needs of the high schools and colleges using JPEG and MPEG2 video compression technology, the statewide education network could eventually serve every school building, district, and college.

Key assumptions include:

- That upgrading all 180 JPEG sites to H.264 video within a finite length of time (July ~~2006~~2006-August ~~2007~~2008), regardless of their original contract termination date, would be ~~beneficial~~advantageous;
- That ~~telephone companies will agree to forgive the remaining time on existing JPEG contracts with little or no penalty, providing that~~ the capital investment for H.264 codecs and school/aggregation routing equipment comes from ~~outside~~ state, federal, or foundation funding sources and that the recurring revenue ~~stream~~ amount is roughly equivalent to the amount prior to conversion;
- That converting a commercial video data service (JPEG + T-1 data) to a high bandwidth (45Mbps or greater), flexible use network where the school or regional aggregation center would be responsible for their choice of applications and apportioned bandwidth would be ~~beneficial~~advantageous;
- That maintaining the monthly recurring costs for the schools' flexible use, high bandwidth (45Mbps or greater) network services at a cost similar to the current statewide average ($1325/month--video + $216/month--T1 data = $1541/month~~--full 45Mbps~~) would be ~~beneficial~~advantageous;
- That proliferating the IP videoconferencing applications to elementary schools and middle schools, and the ability to interconnect schools with higher education, health care, Internet2 entities outside Nebraska, and other state agencies would be ~~beneficial~~advantageous;
- That preserving the existing programmatic relationships between schools already using video distance learning and to convert the infrastructure to a flexibly provisioned data network capable of serving emerging technology applications would be beneficial;

- That using Network Nebraska, the statewide multi-purpose telecommunications backbone, to the fullest extent possible; delivering Internet1, Internet2, streaming video, IP videoconferencing, and secure data transfer to participating entities and/or groups of participating entities would be beneficial;

- That the level and amount of involvement and intervention by selected state agencies and Network Nebraska to reach the solution described will largely be determined by the local school districts, educational service units ~~and ~~, distance learning consortia, and Legislature, upon mutual agreement by the affected state agencies.

BACKGROUND

Beginning in 1992, groups of Nebraska ~~high schools~~school districts began organizing themselves into eleven consortia for the purpose of delivering distance learning classes using interactive videoconferencing, mainly to high school classrooms. With the addition of one new consortium in 2002, 12 regional distance education consortia in Nebraska now provide video and data services to approximately 270 ~~high schools~~school districts. The number of ~~high schools~~school districts within each consortium ranges in number from six (6) to 72. The consortia ~~accepted~~ combined local funds with state and federal grant funds to establish video distance learning, with an obligation to pay recurring costs over the life of ~~a~~ 10-year contracts with telecommunications providers. The consortia are independent entities organized under inter-local agreements by participating school districts. Each has its own board of directors and distance learning director, acting as an executive officer. The distance learning directors' salaries are paid all, or in part, by the participating school districts or co-located Educational Service Unit.

The initial investment to build the distance education networks included about $17.5 million of state lottery funds and federal funding. The Legislature, as recently as 2001, appropriated an additional $3 million of state lottery funds to complete the system by adding another 44 school districts ~~high schools~~. Together, the ~~13~~ 12 regional consortia spend over $3 million per year for video service contracts with providers. These costs average approximately $1325 per ~~high~~ school district per month for the video service, ranging from $900 per month to $1800 per month.

Beginning with the fall semester of 2006 the original video service contracts for the distance learning consortia will start to expire. ~~In~~ By ~~July~~ August 2006, the contracts of the Southwest Nebraska Distance Learning Consortium and~~,~~ the Niobrara Valley TelePartnership~~, and the Northeast Nebraska Distance Learning Consortium~~ will end, affecting ~~85~~ 55 sites. Another ~~six~~ seven distance learning consortia service contracts will expire through 2010, affecting ~~95~~ 125 more sites. The 21 districts served with MPEG2 technology already have ATM (asynchronous transfer mode) technology. An early technical assessment is that each of these 21 schools will need one codec card to upgrade their systems to compatibility with H.263/H.264 video technology. The 111 K-12 sites that have H.263/H.264 video over 100 Mbps cable-provided circuits are already upgraded. [See Appendix #3]

Currently, the 12 consortia utilize three different video technologies and are not able to provide interconnectivity between consortia. Nine telephone company-provided, JPEG consortia

comprise 152 high schools and 28 ESU, higher education and informal education partners. All of these contracts for 45 Mbps (DS-3) circuits are due to expire between 2006 and 2010, with no replacement or upgrade funding models in place. Two telephone company-provided, MPEG2 consortia comprise 21 sites using 45 Mbps ATM infrastructure with contracts not due to expire until 2012. Each of these 21 sites will presumably need an H.264 codec card inserted into their video compression device to assure their interoperability with the other distance learning high schools. ~~One large~~A cable company-provided consortium of 67 school districts in southeast Nebraska, 21 other cable-based schools near Kearney, and eight Lincoln Public Schools sites have already upgraded to H.263/H.264 video technology using 100Mbps or 1000Mbps full duplex circuits. Also, almost every school district with JPEG or MPEG2 video service and educational service units ~~is~~ are purchasing from 1.5Mbps to 3.0Mbps of Internet access over these same circuits ~~as~~ with an additional monthly charge.

The distance learning consortia offer a total of more than 600 classes per year, providing over 6,000 students and 2,300 adult learners with coursework including such subjects as foreign language, social sciences, mathematics, language arts, agriculture, and natural science. For rural Nebraska, especially, video distance learning is a key strategy for offsetting teacher shortages in certain subjects, offering advanced classes, and even providing elements of the core curriculum in order to maintain accreditation. The current distance learning systems concentrate on offering high school and college credit classes mainly to high school juniors and seniors, affecting nearly 10% of the students of this age group across the state, who opt to take video distance learning classes.

Distance learning holds even greater potential in the future with an integrated statewide system. A statewide synchronous video system would expand the opportunities for sharing classes among more schools across the State and accessing the instructional resources at a much greater number of higher education institutions. A statewide synchronous video system that is integrated with digital media and ~~broadband~~ high bandwidth access to Internet1 and Internet2 would open up a wealth of educational resources across the state and from the nation and world. The flexible bandwidth of the resulting network would allow teachers to download streaming video clips to supplement daily lessons, ~~"dial-up"~~access streaming video, and conduct interactive videoconferencing with experts and scientists from across the globe with minimal prior planning. ~~,~~ The teachers would also be able to participate in virtual field trips to distant sites (e.g. Smithsonian Institution, Mt. St. Helen's), gain access to web-based eLearning resources, and conduct videoconferences between groups of students from all over the United States. [See Appendix #1]

SWOC Analysis

Strengths of the Existing Distance Learning Consortia Arrangement

The strengths most often associated with the existing distance learning consortia are:

- Fiber optic cable was installed from ~~the central telephone offices~~telecommunications service providers into a majority of the State's K-12 ~~high schools~~school districts;
- Commercial video/data service contracts and interlocal agreements were pioneered;
- ~~Large grants~~Local funds, combined with state and federal grants, were procured to purchase and install distance learning equipment and infrastructure;
- High-quality video distance education has been delivered to schools on a reliable basis;
- Cooperation and interdependence are highly developed among participating school districts;
- Quality teaching resources have been shared with schools that would not otherwise be able to hire highly qualified teachers.

Weaknesses of the Existing Distance Learning Consortia Arrangement

The weaknesses most often associated with the existing distance learning consortia are:

- Course exchange is localized rather than regionalized or statewide, and prospective higher ed partners have some difficulty reaching schools within their service areas;
- The ~~B~~bartering or trading of classes between schools ~~creates inequity between larger schools (originating more than receiving) and smaller schools (receiving more than originating)~~fails to incentivize larger, self-sufficient, or more progressive districts to offer synchronous or asynchronous learning opportunities;
- Bell schedules and school calendars of schools involved in synchronous video instruction remain unsynchronized, thereby sacrificing precious instructional minutes;
- ~~Consortia~~ Several consortia boundaries and sizes do not correspond with any other political subdivision or management structure and fail to take advantage of economies of scale available through regionalization;
- In most consortia, ~~E~~existing technology fails to take full advantage of the bandwidth available to schools;
- ~~There were hardly any plans to~~Most consortia did not create a locally sustainable upgrade and funding plan at the outset of the original contract relationships.

Opportunities facing the Existing Distance Learning Consortia Arrangement

The opportunities most often associated with the future distance learning relationships are:

- The ability to develop ~~a~~ regional education cooperatives that enable~~s~~ learners to accomplish seamless transfer between high school and college, and enables administrators to procure all the educational opportunities needed within the cooperative;
- The ability to connect additional schools or groups of schools to Network Nebraska for intrastate and interstate connectivity as well as cost savings from lower priced Internet and access to Internet2;

- The ability to provide a common central scheduling or asset management software to streamline the process for reserving and activating video classrooms;
- The ability to enter into contracts that would provide flexible use of the existing bandwidth, capable of supporting multiple ~~streams of~~ data services (including videoconferencing, streaming video, Internet1, Internet2 and other types of digital traffic) at the discretion of end users;
- The ability to regionalize future resource allocation, technical support, network management, and load balancing of Internet bandwidth [See Appendix #2];
- The ability to maximize the use of eLearning management software and digital media resources to augment synchronous video instruction.
- ~~The ability to negotiate early contract termination for at least four of the nine consortia (95 sites) allowing them to upgrade by 2007 to a fully interoperable video technology.~~

Challenges facing the Existing Distance Learning Consortia Arrangement

The challenges most often associated with the present distance learning consortia are:

- Current JPEG technology in nine consortia serving 180 K-12 and higher education sites operates at a very high bandwidth, is not efficient, is obsolete and will ~~not be supported by the industry after~~likely suffer increased down time due to equipment failure before existing contracts expire;
- Providers have indicated that there ~~will~~ may be major price increases when the existing 10-year video service contracts expire in the nine JPEG consortia;
- Current network topology limits schools using JPEG or MPEG2 technology to just one class at a time, with only a very small capacity available for Internet1 and Internet2;
- ~~The cost of u~~Upgrading to new technology that makes more efficient use of network bandwidth ~~is expensive~~involves considerable capital investment;
- Incompatible video technologies and the lack of interconnections among distance learning consortia limit the sharing of classes to those schools within each regional consortium;
- Spreading IP videoconferencing technology to more elementary and middle schools and allowing it to proliferate within high schools will involve building LAN upgrades as well as campus infrastructure upgrades.

STATEWIDE SYNCHRONOUS VIDEO NETWORK

Current Status

The NITC has been working on the concept of a statewide synchronous video network since 1999. In fact, part of the Legislature's concern that led to formation of the NITC was the choice of incompatible technologies in some of the distance learning consortia. Originally, this was a problem of analog vs. digital technologies. Now it is a problem of incompatible JPEG, MPEG2, and H.263/H.264 video protocols. Through the efforts of the NITC and its work groups, the following steps have been taken to move Nebraska closer to the vision of a statewide system:

- NITC Video Compression Standards, February 2002 (moved Nebraska from four video standards to two);

- NITC Video Compression Standards, September 2004 (moved Nebraska from two video standards to one);
- The Statewide Synchronous Video Work Group, composed of K-12, higher education, state agencies, telehealth, and informal education, has met five times to further the goal of interoperability through implementation of the NITC video standards and discussion of related upgrade issues;
- NITC Synchronous Video Network Strategic Initiative / Strategic Plan;
- Special request to Congressman Osborne to obtain $9.8 million for upgrade of the synchronous video network;
- Prioritization of the NDE Distance Learning: Infrastructure, Programming and Training Budget Request as one of five key I.T. projects to the Governor and Legislature;
- Facilitating the November 5, 2004~~,~~ meeting with distance learning consortia directors and telecommunications vendors to discuss networking options;
- Development of this white paper to help describe the technology, implementation, and management of a high bandwidth, wide area network that will allow for a variety of asynchronous and synchronous distance learning applications and services to be delivered to numerous education entities; and
- Numerous meetings and briefings with involved entities to describe the elements of the project.

~~In addition, the Nebraska Department of Education has submitted a biennial budget request for $10 million per year to support a statewide synchronous video network and related activities.~~ Currently (2-23-05), LB 689, sponsored by Senator Stuhr, with Education Committee Amendment 403 is on General File and due to be discussed on the floor of the Legislature. This bill:

- Creates the Distance Education Enhancement Task Force and names membership by 6/15/05:
  - Chair of the Education Committee (chair of the Task Force)
  - Chair of the Transportation and Telecommunications Committee
  - Chair of the Appropriations Committee
  - Two representatives from Educational Service Units
  - Two representatives from distance education consortia
  - One principal or superintendent
  - One representative from the Nebraska Department of Education (infrastructure)
  - One representative from the Nebraska Public Service Commission
  - One representative from the Nebraska Information Technology Commission
  - One representative from the Nebraska Educational Telecommunications Commission
  - One representative from the coordinating commission for postsecondary education
  - One representative from state colleges
  - One representative from community colleges
  - One representative from the University of Nebraska
  - One representative of the Governor
- Requires a report by the Task Force by December 31, 2005 to include recommendations to:
  - develop broadband, scalable telecommunications structure for use in distance learning classrooms
  - develop an IP-based network to connect all existing and future distance learning and videoconferencing facilities

- upgrade telecommunications equipment
- provide training and support programs for educators in the development and use of distance learning
- transfer of distance education coordination responsibilities from distance education consortia to ESUs
- provide for statewide coordination for distance education offerings
- identify potential funding sources
- establish an equitable and affordable financing system for equipment and usage
- establishes a system that allows districts to purchase distance education offerings
- establish statewide provision of other technology-based services

- Includes an intent to fund $10 million in FY 06, FY 07, FY 08

Future Options

Three options are being considered.

1) Allow each consortium to determine its own upgrade path with no State assistance. The distance learning consortia are independent entities that can renegotiate their own rates, terms and conditions. If they comply with the NITC video standards, they would be able to establish connections to Network Nebraska or other consortia in the future in order to exchange classes or other content. The downside to this option is the risk that without aggregated or volume bidding, the overall costs may be greater than through a collective bargaining process that aggregates contracts. Another risk is that consortia will respond to higher rates by reducing the amount of bandwidth, which restricts the future potential uses of their networks. Individual school districts may respond to higher rates by ~~dropping out~~reducing total bandwidth to the next most affordable threshold (two or three T-1 data circuits; 3-4.5 Mbps). ~~Total project~~Full tariff networking costs, including technology upgrade for synchronous video, for the affected sites in the nine JPEG consortia have been estimated by providers to be $~~55~~ 46 million over seven years of a new contract, as compared to $30 million over 10 years of the existing contracts. Existing sources of funding, such as federal e-rate monies and an average payment of $1541 per month from each high school, will cover some but not all of the $~~55~~ 46 million, leaving an estimated ~~$23~~ $33 million in upfront costs for equipment and networking. Individual consortia would be free to apply for competitive USDA-RUS grants to help assist with each upgrade although each grant has a limit of $500,000. Without any decrease in projected costs through negotiated bids or any financial support from outside sources, the estimated monthly recurring costs (before E-Rate) on the $55 million project for each site would be $4,020/month for 84 months. [See Network Funding Scenario #1]

2) Establish a statewide contract with no State funding assistance. Consortia have begun discussing having Network Nebraska (Collaborative Aggregation Partnership) act as a prime contractor to assist them in negotiating a replacement topology and achieving better cost-savings on service contracts. This would presumably help to attain lower project costs and achieve an integrated, statewide system within a much shorter time frame. It could lead to

additional connections to Network Nebraska and further aggregation of Internet purchasing. Yet, without outside funding such as a Congressional appropriation or additional lottery funds, neither the upfront nor the recurring costs would be affordable for many districts. This would further delay the infrastructure necessary to deliver the program elements of an essential Nebraska education. Besides non-participating schools, other excluded features would include scheduling software and transport costs to participate in Network Nebraska. Negotiation of a statewide contract would likely reduce the estimated network and synchronous video upgrade costs (over Option 1) to the affected schools but still could result in a recurring cost that is unaffordable to many schools. [See Network Funding Scenario #2]

3) Establish a statewide contract with additional funding for a statewide system. A central contract would lower costs through increased competition and access to technical expertise during contract negotiations. A central contract would provide a technical design that supports a statewide system and enables the service contracts of schools to be co-terminus for future funding upgrades and renegotiation purposes. Additional funding would help to keep overall costs affordable for all districts, create more flexibility for their existing bandwidth, and insure their participation in Network Nebraska. The estimated cost of this option is:
   - $9.3 million one-time costs to replace video codecs, add switches and routers to the school sites, and additional aggregation routers in each region;
   - an undetermined amount of upfront "buydown" costs that enable the 84-month, recurring costs to be affordable to participating schools;
   - Approximately $1.5 million per year ongoing costs to offset the Internet transport and backbone costs so that each school will have equitable access to Internet resources;
   - Approximately $2 million one-time costs to assist with critical Local Area Network upgrades for schools, on an as-needed basis;
   - Approximately $1.5 million to obtain a statewide scheduling/management system for synchronous video distance learning and videoconferencing;
   - Approximately $200,000 ongoing costs for training and support.

   Option 3 contains all the advantages of Option 2 with additional upfront and ongoing support to make the network system affordable to the participating schools. [See Network Funding Scenario #3]

Recommended Approach

The third option of Establishing a statewide contract with additional funding is the only one that will insure a comprehensive, integrated, statewide system with the greatest number of schools involved.

Successful upgrade of the wide area network affecting 180 sites would ensure that technology could continue to play a major role in the delivery of educational services and content for the next seven years and beyond. As schools begin to exhaust the 45 Mbps bandwidth, new networking options could be explored and contracted at that point. Failure to upgrade would almost certainly "sentence" a great number of schools to the absolute minimum of Internet

access, without the ability to access the software and data applications needed to deliver the essential elements of a Nebraska education.

NETWORK UPGRADE PLAN

The Network Upgrade Plan includes a proposed timeline of events, a discussion of the roles of the involved entities, and a possible funding portfolio to accomplish the project.

Proposed Timeline of Events

1. December 10, 2004-~~January 31~~February 18, 2005: Input and recommended revisions to this white paper are received from the distance learning consortia, ESU-NOC committee, higher education and informal education partners, and the Statewide Synchronous Video Network Work Group as well as from the consortium boards and member schools.
2. ~~January 31~~February 18-February 4~~2~~5, 2005: The staff of the NITC revises the white paper.

3. ~~3.~~March 8, 2005: The NITC Technical Panel recommends the white paper as ~~the preferred approach~~important background information to accomplishing a wide area, high bandwidth, flexibly provisioned network capable of delivering a number of services to Nebraska education entities.
4. March 15, 2005: The NITC recommends the white paper as important background material to the Distance Education Enhancement Task Force, if created by LB 689, as the members discuss the creation of a wide area, high bandwidth, flexibly provisioned network capable of delivering a number of services to Nebraska education entities.
4. 5. March 15-June 3, 2005: ~~The CAP holds pre-project meetings with the distance learning consortia directors, ESU-NOC members, and the principal telecommunications providers to review the network topologies, cost structure, lines of demarcation, and bandwidth/QoS management strategies.~~ LB 689 is monitored as it moves through the legislative process. Named organizations will respond if asked for membership suggestions for the Distance Education Enhancement Task Force.

**********Timeline events 6-8 dependent upon passage of LB 689**********

6. June 15-December 31, 2005: The Distance Education Enhancement Task Force meets to formulate recommendations to upgrade and coordinate distance education.
7. December 31, 2005: The Distance Education Enhancement Task Force submits its improvement plan to upgrade and coordinate distance education in Nebraska. The report shall include recommendations for policies and potential legislation to the Clerk of the Legislature.;
5.8. ~~February-~~January-April, 2006~~: The Nebraska Department of Education communicates updates relative to its legislative biennial budget request, as well as progress on securing other alternative funding sources to supplement the project.~~ Pending the

recommendations of the Distance Education Enhancement Task Force, the Legislature considers funding support for the distance education enhancement project;

**********All remaining events and the accompanying timeline are purely hypothetical and are provided in an attempt to demonstrate the feasibility of the overall project**********

6.9. ~~March 1-July 30, 2005~~May, 2006: Pending the funding and policy recommendations of the Legislature, t~~T~~he DAS-Division of Communications, in partnership with CAP, ESUs, and distance learning consortia, construct and release an RFP and bid process that provides for a master purchasing contract for wide area, high bandwidth, flexibly provisioned network circuits to all affected entities.

~~7.~~10. ~~August 1, 2005~~Date Uncertain: Bids are awarded by DAS-Division of Communications for a master purchasing contract for ~~the~~ 180 45 Mbps or greater tail circuits that will be activated from ~~2006-07~~2006-08.

~~8.~~11. November-December, 2005: First wave of school districts ~~Schools from five consortia areas (Southwest DLC, Niobrara Valley TP, North Central DLC, Northeast Nebraska DLC, Northeast Nebraska Learners Academy~~ file e-Rate form 471s for "~~Internet Access~~Telecommunications" ~~-~~from the Network Nebraska master contract, effective July 1, ~~2006~~2006.

~~9.~~12. May-August, 2006: ~~Approximately 85~~ First wave of H.264 codecs, ~~85~~ building routers, and ~~two~~ aggregation routers are installed in ~~the first wave of~~ K-12 and higher education sites, with DS-3 upgrades occurring from July 1-August 15, 2006.

~~10.~~13. July-August, 2006: Twenty-one H.264 cards are installed in the Mac500 codecs of the Sandhills Technology Education Partnership schools and the Crossroads Consortium schools.

~~11.~~14. November-December, 2006: ~~Schools from four consortia areas (Central NE DLC, Western NE DLC, Eastern NE DLC, Tri-Valley North DEC)~~Second wave of school districts file e-Rate form 471s for "~~Internet Access~~Telecommunications" from the Network Nebraska master contract, effective July 1, 2007.

~~12.~~15. May-August, 2007: ~~Approximately 95~~ Second wave of H.264 codecs, ~~95~~ building routers, and ~~three~~ aggregation routers are installed in ~~the second wave of~~ K-12 and higher education sites, with DS-3 upgrades occurring from July 1-August 15, 2007.

~~13.~~16. September 1, 2007: Over 300 education sites are united by a high bandwidth, wide area network, capable of point-to-point and point-to-multipoint IP videoconferencing, between schools and from schools to other entities.

Roles of the Involved Entities

The **Local Education Agency** (LEA) [e.g. school, ESU, college] is the end-user of the services and bandwidth available over the network. Currently, each school, ESU, or college maintains its own technical support staff. The level of support ranges from volunteer or stipended part time staff in smaller schools to multiple full-time staff in larger schools, ESUs and college campus network operations centers. Responsibilities of the LEA under the wide area, flexibly provisioned, high bandwidth network -would include maintaining a secure Local Area Network (LAN) extending to the Ethernet port on the router, including but not limited to effective virus protection, current Operating Systems with updates on all devices, properly licensed software,

uninterruptible power supplies, and device security. The LEA ~~will~~ would also maintain its own videoconferencing and distance learning equipment or contract for maintenance on the equipment. The LEA ~~will~~ would also own and maintain its building router using contracted vendor maintenance. The maintenance would include~~s~~ a current operating system, up-to-date access lists, appropriate reflective access lists, and redundancy of core devices to the extent possible. The LEAs ~~will~~ would have representation on the Network Nebraska Advisory Group (NNAG).

The **Distance Learning Consortia** (DLC) directors ~~would be the primary interface between the network upgrade project and the end-users.~~ currently function as schedulers, troubleshooters, eRate specialists, program developers, and the member schools' technical and contract liaisons to the telecommunication service providers.~~At the outset, their responsibilities would include interpreting and communicating the future capabilities and functionality of the network upgrade project, implicated costs, and applications available to the school districts and administrators.~~ As the wide area network upgrade is phased in, DLC directors would be responsible for developing training materials on the new IP video technology for school district staff and teachers. DLC directors would also help: Develop specifications and guidelines for the ~~purchase and~~ provisioning of a statewide asset management system for monitoring of videoconferencing facilities; develop specifications and guidelines for a web-based event clearinghouse of educational programs and opportunities; and guide schools with the purchase and deployment of additional IP video devices. The DLC directors would ~~eventually evolve into~~become coordinators of digital content, operating as the programmatic representatives for area schools. The DLC directors would have representation on the Network Nebraska Advisory Group (NNAG).

The **Educational Service Unit—Regional Network Operations Centers** (ESU-RNOC), once established, would be the interfaces between the high bandwidth, wide area networks serving the LEAs and the Network Nebraska backbone. Currently, the ESU network operations staff individually assist with such services as e-mail, Internet filtering, network security, technical troubleshooting, and hardware and software applications. As the ESU-NROCs are established, the regional ESUs and colleges could opt to leverage existing staff expertise and hire new expertise to manage and maintain regional services. Although there would likely be some regional aggregation of servers and routers, these devices would be able to be managed remotely. The ESU-RNOCs would extend service contracts to LEAs to help manage their bandwidth and resolve issues related to Network Nebraska usage. The ESU-RNOCs would manage ~~WAN~~ wide area network bandwidth usage/traffic within their regional aggregation. The ESU-RNOCs would manage/limit bandwidth usage/traffic when leaving the regional aggregations to traverse Network Nebraska. The ESU-RNOC would reserve the right to correct any network activity which compromises or potentially compromises the regional wide area network or Network Nebraska through insecure or illegal network use as well as non-educational or inappropriate network use. ~~would have the authority to disconnect a school that is negatively impacting the network as a result of viruses, denial-of-service attacks, etc.~~ The ESU-RNOCs would provide consultation and support to LEAs as mutually agreed. The ESU-NROCs would assure compliance with all contractual terms and conditions related to access and transmission on Network Nebraska. The ESU-RNOCs would have representation on the Network Nebraska Advisory Group (NNAG).

The **University of Nebraska Computing Services Network** (UNCSN) would be the main contact between the ESU-NROCs and the service providers. The staff of the UNCSN would receive requests for service and convert them into service orders, helping to insure that the requirements of the customer are being met by the primary and secondary providers. The UNCSN would be the aggregator of Internet demand and purchaser of Internet service for the public entities who ~~are customers of~~opt for this service through Network Nebraska. The UNCSN would also handle the routing of traffic to Internet2 among eligible entities. The UNCSN would staff the Level 2 Network Operations Center for education entities on Network Nebraska. The UNCSN would host the Network Nebraska website, www.networknebraska.net. The UNCSN would participate in the Network Nebraska Advisory Group (NNAG).

The **Department of Administrative Services—Division of Communications** (DAS-DOC) would be the main author of the Request for Proposal (RFP), with input and specifications provided by the DLCs and ESUs. The DAS-DOC would negotiate the master purchasing contract, allowing school districts and colleges or groups of school districts and colleges, to purchase services from the master purchasing contract. These services would include Internet access and/or transport from the major nodes (Norfolk, Omaha, Lincoln, Grand Island, Kearney, North Platte, Scottsbluff) of the statewide network and 45Mbps ~~Internet access~~or greater transport through high bandwidth, wide area networking circuits on a regional basis. The DAS-DOC would charge an administrative fee to end users or groups of end users for use of its services. This administrative fee is regulated by the Federal government and must be the same fee charged to any DAS-DOC customer; local, state, or Federal. The fee is currently 10% and cannot exceed actual costs. The DAS-DOC would participate in the Network Nebraska Advisory Group (NNAG).

Nebraska Educational Telecommunications (NET) would staff the Level 1 help desk and Network Information Center for Network Nebraska, answering the 1-888-NET-NEBR (888-638-6327) toll-free number. NET staff ~~can~~ would assist with the master purchase of the building codec, switching and router equipment as well as consulting on room integration issues. NET would be a likely provider of digital content over the terrestrial and satellite transmitter network. NET would participate in the Network Nebraska Advisory Group (NNAG).

The **Nebraska Information Technology Commission** (NITC) would act as a facilitator of the process, providing staff assistance as needed to arrange and hold meetings, build consensus, draft documents, communicate with involved entities, and provide briefings to potential users, stakeholders, providers, and policy makers. The Legislature created the NITC to guide the State's investments in information technology. The NITC Technical Panel has recommended video compression protocol standards to accomplish a statewide synchronous videoconferencing network and can respond to subsequent requests for other networking standards. The NITC would provide staff support for, and participate in, the Network Nebraska Advisory Group (NNAG).

The **Nebraska Department of Education** (NDE) would offer policy and programmatic guidance to make sure that the resulting network capacity and videoconferencing system ~~will~~ would be able to offer enough educational opportunities for schools to deliver the elements of an

essential Nebraska education, as described by the State Board of Education. The NDE would take the State lead on helping to secure funding to make the project feasible. NDE would offer policy and funding guidance on matters related to E-Rate eligibility. The NDE would participate in the Network Nebraska Advisory Group (NNAG).

The **Nebraska Public Service Commission** (PSC) would offer policy guidance and consultation to make sure that the services and pricing offered by the telecommunications providers comply with the PSC telecommunications rules and regulations. The role of the PSC is to make sure that every available service and pricing alternative is being considered by the industry in order to improve the project affordability for Nebraska schools. The PSC would participate in the Network Nebraska Advisory Group (NNAG).

The **Network Nebraska Advisory Group** (NNAG) would provide the conduit for LEAs, DLC directors, and ESU-NROC staff to provide input to Network Nebraska and the members of the Collaborative Aggregation Partnership. Quarterly face-to-face or videoconferencing meetings would be held to discuss upcoming events, issues, and performance of the network. Membership would be open to any end-user or customer of Network Nebraska. The NITC would charter the Network Nebraska Advisory Group with a list of responsibilities and duties.

Funding Portfolio

Providing a feasible funding portfolio is a critically important piece of this project. However, many variables cannot be defined at this juncture. The actual and eventual costs of equipment and networking cannot be known without performing a bid process. So, scenarios can only be presented at this time based upon the industry's best estimates.

Notes: Site router and switches, H.263/H.264 codec and scheduling software are likely to be ineligible for E-Rate reimbursement unless included in a service product from the telecommunications provider. ~~and therefore must~~If bid separately as equipment and software, they would have to be paid for at the outset of the project or amortized over the life of the contract. Higher education and informal education partners are ineligible for E-Rate and state K-12 funding, therefore their upgrade costs must be taken into consideration.

The NDE budget adjustment document outlined project estimates for the equipment, maintenance, training, and management of the system. These numbers would vary considerably by the time of implementation, depending upon amortization and negotiation of a master purchasing contract.

Sustainability

In most cases, the previous 10-year commercial video data service contracts of the DLCs failed to build in any escrow or funding to meet the future costs associated with equipment and technology upgrades at the culmination of the contracts. The next contracts for wide area, high bandwidth services must provide for some type of mechanism for funding technology upgrades at the end of the contract period.

Statewide Synchronous Video Network

Equipment Costs (as identified in the NDE Budget Adjustment request, 9-22-04)

Account Description by item	FY 06 Adj Req	FY 07 Adj Req	Est. Ongoing
School Site Router Hardware	$ 800,000	$ 800,000	$ 0
School Site Router Maintenance	$ 250,000	$ 250,000	$ 250,000
Aggregation Point Router Hardware	$ 1,300,000	$ 0	$ 0
Aggregation Router Maintenance	$ 200,000	$ 200,000	$ 200,000
School Site Codec Hardware	$ 1,500,000	$ 1,500,000	$ 0
School site Codec Maintenance	$ 200,000	$ 200,000	$ 200,000
Ancillary Equipment/LAN upgrades	$ 1,200,000	$ 1,700,000	$ 500,000
Scheduling/Management system	$ 745,000	$ 725,000	$ 350,000
Training and Support	$ 200,000	$ 200,000	$ 200,000
Subtotal	**$ 6,395,000**	**$ 5,575,000**	**$ 1,700,000**

Account Description by item	FY 06-07 Adj Req	Est. Ongoing	Responsibility
School Site Router Hardware	$ 1,600,000	$ 0	Outside Funds
School Site Router Maintenance	$ 500,000	$ 250,000	LEA
Aggregation Point Router Hardware	$ 1,300,000	$ 0	Outside Funds
Aggregation Router Maintenance	$ 400,000	$ 200,000	Network NE
School Site Codec Hardware	$ 3,000,000	$ 0	Outside Funds
School site Codec Maintenance	$ 400,000	$ 200,000	LEA
Ancillary Equipment/LAN upgrades	$ 2,900,000	$ 500,000	Outside Funds
Scheduling/Management system	$ 1,470,000	$ 350,000	Outside Funds
Training and Support	$ 400,000	$ 200,000	ESUs/DLC
Subtotal	**$11,970,000**	**$ 1,700,000**	

Account Description by Source	FY 06-07 Adj Req	Est. Ongoing
~~Lottery Fund~~	~~$10,270,000~~	~~$ 850,000~~
Outside Funds	$10,270,000	$ 850,000
Network Nebraska	$ 400,000	$ 200,000
Local Education Agencies	$ 900,000	$ 450,000 ($228/month/site)
ESUs/DLC Directors	$ 400,000	$ 200,000
Subtotal	**$11,970,000**	**$ 1,700,000**

Statewide Synchronous Video Network

Networking Costs

Account Description by Service	Total Contract (7 yrs)
Qwest Network Price	$ 30,634,227
NIN Network Price	$ 15,400,000
Subtotal	**$ 46,034,227**

Network Funding Scenario #1 (assuming full estimated cost of network, $3342/month local contributions, no time value of money, with no buydown)

Account Description by Source		7yr Contract
Total Estimated Network Costs		$ 46,034,227
Est. Local Contribution Before E-Rate ($3342/mnth x 84 mnths x 164 sites)	-	$ 46,034,227
Gap in Network Funding		$ 0

Network Funding Scenario #2 (assuming 20% discounted cost of network, $2673/month local contributions, no time value of money, with no buydown)

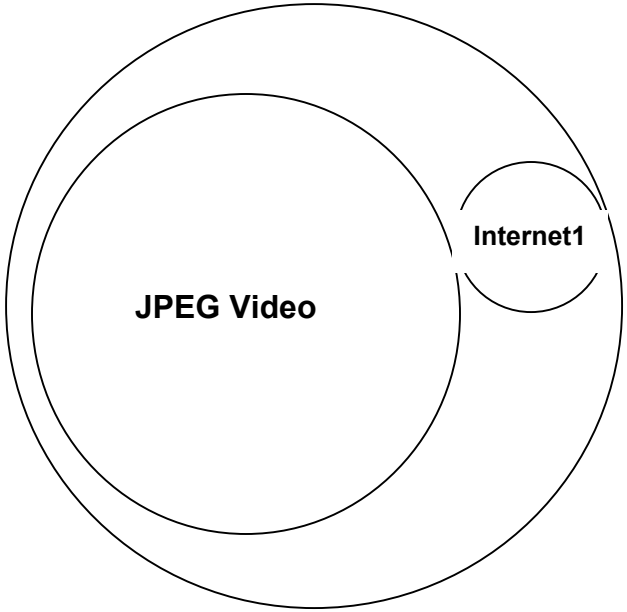
Account Description by Source		7yr Contract
Total Estimated Network Costs		$ 36,827,377
Est. Local Contribution Before E-Rate ($2673/mnth x 84 mnths x 164 sites)	-	$ 36,827,377
Gap in Network Funding		$ 0

Network Funding Scenario #3 (assuming 20% discounted cost of network, $1541/month local contributions, leveraging time value of money, with buydown)

Account Description by Source		7yr Contract
Total Estimated Network Costs		$ 36,827,377
Est. Local Contribution Before E-Rate ($1541/mnth x 84 mnths x 164 sites)	-	$ 21,228,816
Gap in Network Funding		$ 15,598,561
Credit for Time Value of Money (9% x 7 yrs = Future Value Factor of 1.8280)	-	$ 7,065,431
Difference (Buydown)		$ 8,533,130
~~Less 60% E-Rate Discount Upfront~~	~~-~~	~~$ 5,119,877~~
~~Cash Upfront~~		~~$ 3,413,253~~

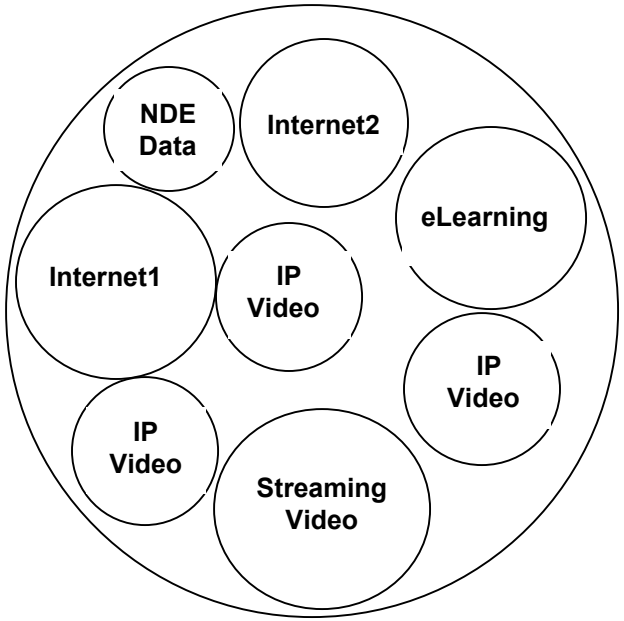
~~Cash Upfront~~Difference (Buydown) would have to come from a combination of Local, State, and Federal sources.

45 megabit DS-3 fiber
(old JPEG and T-1 Internet)



$1325/month JPEG video
$ 216/month T-1 Internet

45 megabit DS-3 fiber
(new Flexible Use)

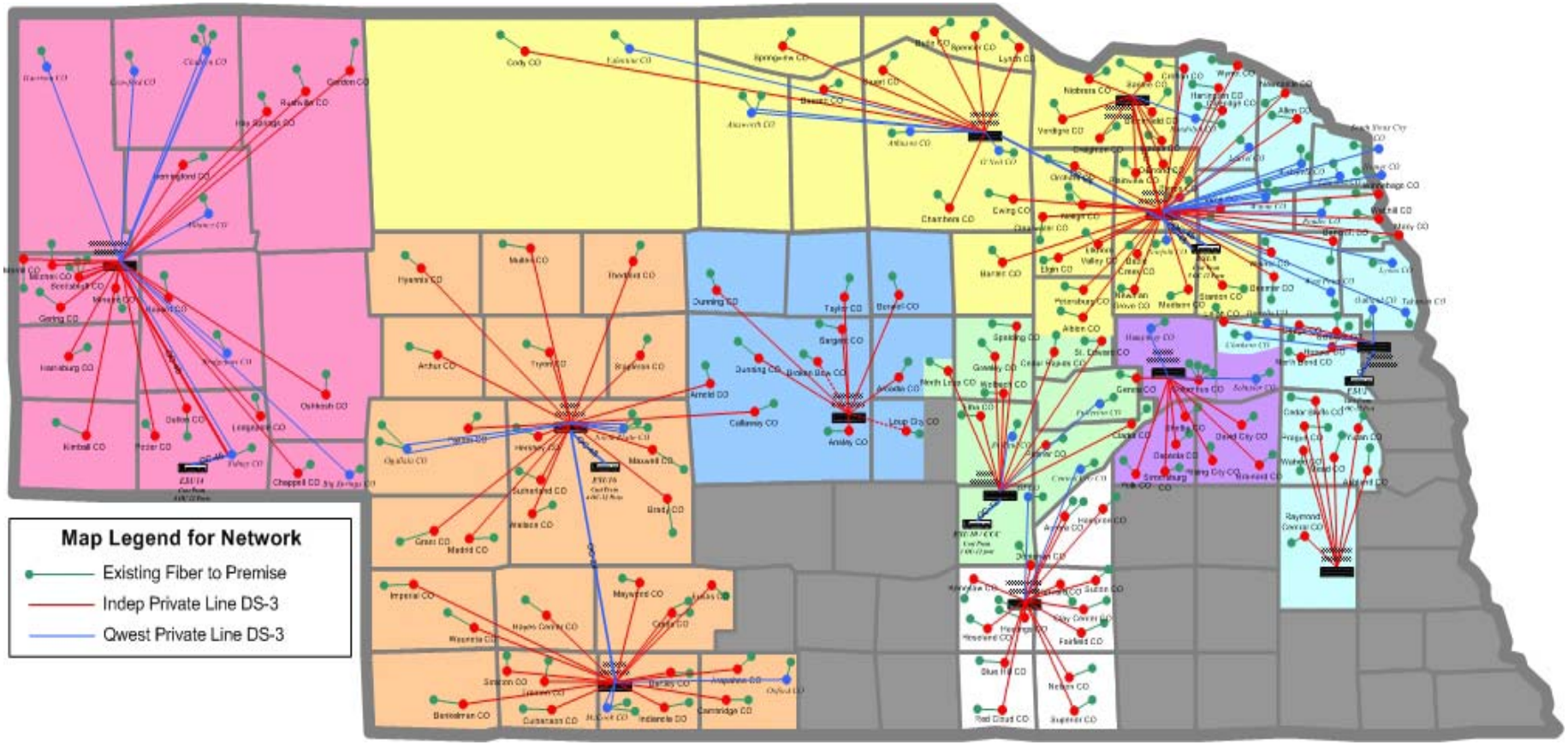


$1541/month full use of fiber capacity for IP Video, Internet1, Internet2, streaming video, eLearning, NDE data

Technology Conversion for Nebraska Education Network

[Formerly the Distance Learning Network]

Nebraska's Telephone / Telecommunications Industry



High School or Community-School/School	Bandwidth	Video Protocol	ESU Area	Dist. Learning Consortium	Contract Expires	Community College Area
Aurora	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Aurora-Edgerton Explorit Center	45 Mbps	JPEG				Central CC
Blue Hill	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Central City	45 Mbps	JPEG	7	CNDEC	2008	Central CC
Clay Center	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Doniphan-Doniphan/Trumbull	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Fairfield-South Central Unified 5	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Hampton	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Harvard	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Hastings-Adams Central	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Hastings-Central Community College	45 Mbps	JPEG				Central CC
Hastings-ESU 9	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Kenesaw	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Nelson-South Central Unified 5	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Red Cloud	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Roseland-Silver Lake	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Superior-South Central NE Unified 5	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Sutton	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Giltner (NO DL)	1.5 Mbps		9			Central CC
Hastings Senior High (NO DL)	11 Mbps		9			Central CC
Brainard-East Butler	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Columbus	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Columbus-Central Community College	45 Mbps	MPEG2	7			Central CC
Columbus-ESU 7	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Columbus-Lakeview	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
David City	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Genoa-Twin River H.S.	1.5 Mbps		7			Central CC
Humphrey	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Osceola	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Polk-High Plains	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Rising City	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Schuyler Central	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Shelby	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Stromsburg-Cross County	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Allen	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Ashland-Ashland/Greenwood	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Bancroft-Bancroft/Rosalie	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Cedar Bluffs	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Clarkson	45 Mbps	JPEG	7	ENDLC	2009	Central CC
Coleridge	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Crofton	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Dodge	45 Mbps	JPEG	2	ENDLC	2009	Metro CC
Emerson-Emerson/Hubbard	3 Mbps	H.264	1	ENDLC	2009	Northeast CC
Fremont (NO DL)	1.5 Mbps		2	ENDLC	2009	Metro CC
Fremont-ESU 2	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Hartington	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Homer	3 Mbps	H.264	1	ENDLC	2009	Northeast CC
Hooper-Logan View	45 Mbps	JPEG	2	ENDLC	2009	Metro CC
Howells	45 Mbps	JPEG	7	ENDLC	2009	Central CC
Laurel-Laurel/Concord	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Leigh	45 Mbps	JPEG	2	ENDLC	2009	Central CC
Lyons-Lyons/Decatur Northeast	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Macy-Umo n ho n Nation	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Mead	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Newcastle	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
North Bend	45 Mbps	JPEG	2	ENDLC	2009	Metro CC

Oakland-Oakland/Craig	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Omaha-Metropolitan Community College	45 Mbps	JPEG				Metro CC
Pender	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Prague	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Raymond-Raymond Central	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Scribner-Scribner/Snyder	45 Mbps	JPEG	2	ENDLC	2009	Metro CC
South Sioux City	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Tekamah-Tekamah/Herman	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Wahoo	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Wakefield	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Wakefield-ESU 1	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Walthill	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Wayne	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
West Point	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Winnebago	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Winside	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Wisner-Wisner/Pilger	45 Mbps	JPEG	2	ENDLC	2009	Metro CC
Wynot	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Yutan	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Ponca (NO DL)	1.5 Mbps		1			Northeast CC
Lincoln-Bryan Learning Community	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-East H.S.	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Lincoln H.S.	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-LPSDO	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Northeast H.S.	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-North Star H.S.	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Southeast H.S.	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Southwest H.S.	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Science Focus School	1000 Mbps	H.264	18	LDLC	2014	Southeast CC
Atkinson-West Holt Rural H.S.	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Bartlett-Wheeler Central	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Butte-West Boyd Unified	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Chambers	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Clearwater-NE Unified District 1	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Elgin	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Ewing	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Lynch	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Neligh-ESU 8	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
O'Neill	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Orchard-NE Unified District 1	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Petersburg-Boone Central (nonrenewal?)	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Spencer-West Boyd Unified	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Stuart	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Ainsworth	45 Mbps	JPEG	17	NCDLC	2008	Northeast CC
Ainsworth-ESU 17	45 Mbps	JPEG	17	NCDLC	2008	Northeast CC
Bassett-Rock County H.S.	45 Mbps	JPEG	17	NCDLC	2008	Northeast CC
Cody-Cody/Kilgore	45 Mbps	JPEG	17	NCDLC	2008	Mid-Plains CC
Springview-Keya Paha	45 Mbps	JPEG	17	NCDLC	2008	Northeast CC
Valentine	45 Mbps	JPEG	17	NCDLC	2008	Mid-Plains CC
Bloomfield	45 Mbps	JPEG	1	NE.NEDLC	2007	Northeast CC
Creighton	45 Mbps	JPEG	1	NE.NEDLC	2007	Northeast CC
Niobrara	45 Mbps	JPEG	1	NE.NEDLC	2007	Northeast CC
Osmond	45 Mbps	JPEG	8	NE.NEDLC	2007	Northeast CC
Plainview	45 Mbps	JPEG	8	NE.NEDLC	2007	Northeast CC
Randolph	45 Mbps	JPEG	1	NE.NEDLC	2007	Northeast CC
Santee	45 Mbps	JPEG	1	NE.NEDLC	2007	Northeast CC
Verdigre-NE Unified District 1	45 Mbps	JPEG	1	NE.NEDLC	2007	Northeast CC

Wausa	45 Mbps	JPEG	1	NE.NEDLC	2007	Northeast CC
Albion-*Boone Central (unconsolidating?)*	45 Mbps	JPEG	7	NE. NELA	2007	Central CC
Battle Creek	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Madison	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Neligh-Neligh/Oakdale	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Newman Grove	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Norfolk-Northeast Community College	45 Mbps	JPEG			2007	Northeast CC
Norfolk-Northeast Community College	45 Mbps	JPEG			2007	Northeast CC
Norfolk-Northeast Community College	45 Mbps	JPEG			2007	Northeast CC
Norfolk-Northeast Nebraska Arts Council	45 Mbps	JPEG			2007	Northeast CC
Norfolk	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Pierce	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Stanton	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Tilden-Elkhorn Valley	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Wayne-Wayne State College	45 Mbps	JPEG			2007	
Wayne-Wayne State College	45 Mbps	JPEG			2007	
Ansley	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Arcadia	45 Mbps	MPEG2	10	STEP	2012	Central CC
Broken Bow	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Burwell	45 Mbps	MPEG2	10	STEP	2012	Northeast CC
Dunning	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Loup City	45 Mbps	MPEG2	10	STEP	2012	Central CC
Merna-Anselmo/Merna	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Sargent	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Taylor-Loup County H.S.	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Adams-Freeman H.S.	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Arlington	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Auburn-ESU 4	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Beatrice	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Beatrice-ESU 5	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Beatrice-Homestead National Monument	100 Mbps	H.264			2011	Southeast CC
Beatrice-Southeast Community College	100 Mbps	H.264			2011	Southeast CC
Bennington	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Blair	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Bruning-Bruning/Davenport H.S.	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Chester-Thayer Central M.S.	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Cook-Nemaha Valley	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Crete	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Davenport-Bruning/Davenport M.S.	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Dawson-Dawson/Verdon	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Daykin-Meridian	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
DeWitt-TriCounty	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Deshler	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Dorchester	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Elkhorn	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Exeter-Exeter/Milligan H.S.	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Fairbury	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Fairmont-Fillmore Central M.S.	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Falls City	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Firth-Norris	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Friend	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Geneva-Fillmore Central H.S.	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Gretna	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Hebron-Thayer Central H.S.	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Henderson-Heartland	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Humboldt-Humboldt/Table Rock/Steinauer	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Johnson-Johnson/Brock	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Lewiston	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC

Lincoln-NDE	100 Mbps	H.264			2011	
Lincoln-Southeast Community College	100 Mbps	H.264			2011	Southeast CC
Louisville	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Malcolm	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
McCool Junction	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Milford	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Milford-ESU 6	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Milford-Southeast Community College	100 Mbps	H.264			2011	Southeast CC
Murdock-Elmwood/Murdock	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Murray-Conestoga	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Nebraska City	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Nebraska City-Visually Impaired	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Odell-Diller/Odell Secondary	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
Omaha-ESU 3	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Omaha-Henry Doorly Zoo	100 Mbps	H.264				Metro CC
Omaha-Millard North	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Omaha-Millard South	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Omaha-Millard West	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Omaha-Westside Dist. 66	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Palmyra	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Pawnee City	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Plattsmouth	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Seward	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Shickley	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Stella-SE Consolidated	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Sterling	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Syracuse-Syracuse/Dunbar/Avoca	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Tecumseh	100 Mbps	H.264	4	SE.NEDLC	2011	Southeast CC
Utica-Centennial	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Valley-Waterloo/Valley	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Waterloo-Waterloo/Valley	100 Mbps	H.264	3	SE.NEDLC	2011	Metro CC
Waverly	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Weeping Water	100 Mbps	H.264	3	SE.NEDLC	2011	Southeast CC
Wilber-Clatonia	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Wymore-Southern H.S.	100 Mbps	H.264	5	SE.NEDLC	2011	Southeast CC
York	100 Mbps	H.264	6	SE.NEDLC	2011	Southeast CC
Auburn (NO DL)	1.5 Mbps		4			Southeast CC
Bellevue East (NO DL)	1.5 Mbps		3			Metro CC
Bellevue West (NO DL)	1.5 Mbps		3			Metro CC
Fort Calhoun (NO DL)	1.5 Mbps		3			Metro CC
Omaha Benson (NO DL)	3.0 Mbps		19			Metro CC
Omaha Bryan (NO DL)	3.0 Mbps		19			Metro CC
Omaha Burke (NO DL)	3.0 Mbps		19			Metro CC
Omaha Central (NO DL)	3.0 Mbps		19			Metro CC
Omaha North (NO DL)	3.0 Mbps		19			Metro CC
Omaha Northwest (NO DL)	3.0 Mbps		19			Metro CC
Omaha South (NO DL)	3.0 Mbps		19			Metro CC
Papillion-LaVista (NO DL)	100 Mbps		3	SE.NEDLC	2009	Metro CC
Papillion-LaVista-South (NO DL)	4.5 Mbps		3			Metro CC
Ralston (NO DL)	100 Mbps		3	SE.NEDLC	2009	Metro CC
Springfield-South Darpy Dist. 46 (NO DL)	1.5 Mbps		3			Metro CC
Arapahoe	45 Mbps	JPEG	11	SW.NEDLC	2006	Central CC
Arnold	45 Mbps	JPEG	10	SW.NEDLC	2006	Mid-Plains CC
Arthur-Arthur County H.S.	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Bartley-Southwest Public Schools	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Benkelman-Dundy County H.S.	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Brady	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Callaway	45 Mbps	JPEG	10	SW.NEDLC	2006	Mid-Plains CC

Cambridge	45 Mbps	JPEG	11	SW.NEDLC	2006	Central CC
Culbertson-Hitchcock Co Unified	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Curtis-Medicine Valley	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Curtis-NE College of Tech Ag	45 Mbps	JPEG				
Eustis-Eustis/Farnam	45 Mbps	JPEG	11	SW.NEDLC	2006	Mid-Plains CC
Grant	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Hayes Center	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Hershey	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Hyannis	45 Mbps	JPEG	16	SW.NEDLC	2006	Western CC
Imperial-Chase County H.S.	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Indianola-Southwest Public Schools	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Madrid-Wheatland	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Maxwell	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Maywood	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
McCook	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
McCook-MidPlainsCC	45 Mbps	JPEG				Mid-Plains CC
McCook-MidPlainsCC	45 Mbps	JPEG				Mid-Plains CC
Mullen	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
North Platte	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
North Platte-ESU 16	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
North Platte-MidPlains CC	45 Mbps	JPEG				Mid-Plains CC
North Platte-MidPlains CC	45 Mbps	JPEG				Mid-Plains CC
North Platte-UN West Central Research	45 Mbps	JPEG				
Ogallala	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Ogallala-ESU 16	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Oxford-Southern Valley	45 Mbps	JPEG	11	SW.NEDLC	2006	Central CC
Paxton-Consolidated	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Stapleton	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Sutherland	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Thedford	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Trenton-ESU 15	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Trenton-Hitchcock Co. Unified	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Tryon-McPherson County H.S.	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Wallace	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Wauneta-Wauneta/Palisade	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Cedar Rapids	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Elba	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
Clarks-High Plains Community M.S.	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Columbus-ESU 7	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Fullerton	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Greeley-Greeley/Wolbach	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
Scotia-North Loup Scotia	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
Palmer	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Spalding	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
St. Edward	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Wolbach-Greeley/Wolbach	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
Alma	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Amherst	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Axtell	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Bertrand	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Cairo-Centura H.S.	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Cozad	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Elm Creek	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Elwood	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Franklin	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Gibbon	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Gothenburg	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Grand Island (NO DL)	1.5 Mbps		10			Central CC

Grand Island-Central Community College	100 Mbps	H.264				Central CC
Hildreth-Wilcox/Hildreth	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Holdrege	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Holdrege-ESU 11	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Kearney	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Kearney-ESU 10	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Kearney-UN-Kearney	100 Mbps	H.264				
Lexington	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Litchfield	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Loomis	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Minden	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Ord	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Overton	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Pleasanton	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Ravenna	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Shelton	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
St. Paul	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Sumner-Sumner/Eddyville/Miller H.S.	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Wilcox-Wilcox/Hildreth	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Grand Island NW (NO DL)	1.5 Mbps		10			Central CC
Wood River (NO DL)	1.5 Mbps		10			Central CC
Alliance	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Bayard	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Bridgeport	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Chadron	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Chadron-Chadron State College	45 Mbps	JPEG				Western CC
Chappell-Creek Valley	45 Mbps	JPEG	14	WNDLC	2009	Western CC
Crawford	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Dalton-Leyton H.S.	45 Mbps	JPEG	14	WNDLC	2009	Western CC
Gering	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Gordon	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Harrisburg-Banner County H.S.	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Harrison-Sioux County H.S.	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Hay Springs	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Hemingford	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Kimball	45 Mbps	JPEG	14	WNDLC	2009	Western CC
Lodgepole-Creek Valley	45 Mbps	JPEG	14	WNDLC	2009	Western CC
Minatare	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Mitchell	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Morrill	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Oshkosh-Garden County H.S.	45 Mbps	JPEG	14	WNDLC	2009	Western CC
Potter-Potter/Dix H.S.	45 Mbps	JPEG	14	WNDLC	2009	Western CC
Rushville	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Scottsbluff	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Scottsbluff-ESU 13	45 Mbps	JPEG	13	WNDLC	2009	Western CC
Scottsbluff-Western NE Community College	45 Mbps	JPEG				Western CC
Sidney-ESU 14	45 Mbps	JPEG	14	WNDLC	2009	Western CC
Sidney (NO DL)	1.5 Mbps		14			Western CC
Big Springs-South Platte H.S. (NO DL)	1.5 Mbps		14			Western CC

Summary Data

Number of H.S. with 45 Mbps JPEG	152	
Number of H.S. with 45 Mbps MPEG2	20	
Number of H.S. with 100 Mbps	97	
Number of H.S. with 1.5-3.0 Mbps	23	
Number of ESUs with 45 Mbps JPEG	11	
Number of ESUs with 45 Mbps MPEG2	1	
Number of ESUs with 100 or 1000 Mbps	6	
Number of Hgher Ed/Informal Ed Sites	26	(17 JPEG, 1 MPEG2, 8 H.264)
	336	

Consortium	Acronym	Contact	E-mail
Central Nebraska Distance Education Consortium	CNDEC	Chris Petroff	cpetroff@esu9.org
Crossroads Distance Education Consortium	Crossroads	Beth Kabes	bkabes@esu7.org
Eastern Nebraska Distance Learning Consortium	ENDLC	Diane Wolfe	dmwolfe@mail.esu2.org
Lincoln Distance Learning Consortium	LDLC	Kirk Langer	klanger@lps.org
Niobrara Valley TelePartnership	NVTP	Nigel Buss	nbuss@esu8.org
North Central Distance Learning Consortium	NCDLC	Nigel Buss	nbuss@esu8.org
Northeast Nebraska Distance Learning Consortium	NE.NEDLC	Nigel Buss	nbuss@esu8.org
Northeast Nebraska Learners Academy	NE. NELA	Nigel Buss	nbuss@esu8.org
Sandhills Technology Education Partnership	STEP	Rich Schlesselman	rschless@esu10.org
Southeast Nebraska Distance Learning Consortium	SE.NEDLC	Charles Doyle	cdoyle@esu5.org
Southwest Nebraska Distance Learning Consortium	SW.NEDLC	Shirley Schall	sschall@esu15.org
TriValleyDistance Education Consortium-N&S	TVDEC	John Stritt	jstritt@esu10.org
Western Nebraska Distance Learning Consortium	WNDLC	B.J. Peters	bpeters@esu13.org

Date of Last Revision: March 7, 2005

Nebraska Information Technology Commission
Strategic Initiatives

Strategic Plan For
Network Nebraska

Objectives

The primary objective of this initiative is to develop a broadband, scalable telecommunications infrastructure that optimizes the quality of network services to every public entity in the State of Nebraska.

Benefits

Through aggregation of demand, adoption of common standards, and collaboration with network services and applications, participants can achieve many benefits, including:

- Lower network costs;
- Greater efficiency for participating entities;
- Interoperability of systems providing video courses and conferencing;
- Increased collaboration among all K-20 educational entities;
- New educational opportunities;
- Competitiveness with surrounding states; and
- Better use of public investments.

Current Status

The Division of Communications, the University of Nebraska, Nebraska Educational Telecommunications Commission, Department of Education, Public Service Commission, and the Nebraska Information Technology Commission have formed the Collaborative Aggregation Partnership (CAP) to guide and implement Network Nebraska. The Division of Communications and University of Nebraska have entered into a memorandum of agreement to formalize their participation in this joint effort.

Using existing resources and aggregating existing demand from state government and the University of Nebraska, CAP has developed a multipurpose core backbone extending from Norfolk, Omaha, Lincoln, Grand Island, Kearney, North Platte, and Alliance. A shared circuit also connects Scottsbluff to the backbone at Grand Island.

State and University circuits have been moved to the backbone to take advantage of the economies and efficiencies offered by aggregation. The K-20 community has started to migrate to this service as contracts have allowed. Project 42 (consisting of ESUs 10, 11,

15 and 16) has purchased services from Network Nebraska to serve the schools in their areas.

A contract has been signed for Internet 1 service that will allow Network Nebraska to begin to offer lower rates to network participants. This could significantly increase participation in Network Nebraska. Internet 2 service is also available to educational participants through the University of Nebraska.

Future

The major components of this initiative include:

1. Development of a scalable, reliable, and secure telecommunications infrastructure that enables any type of eligible entity (i.e. local and state government, public and private K-12 and higher education, health care institutions) to purchase the amount of service that the entities need, when they need it, on an annual basis;
2. Establishment of a catalog of value-added applications that enables eligible entities to pick and choose services that are pertinent to them (e.g. Internet1, Internet2, and videoconferencing);
3. Investigate possible implementation of a network operations center that offers a helpdesk, network diagnostics, and engineering assistance in order to ensure acceptable qualities of service;
4. Investigate establishment of a billing or accounting center to accept service orders, extend service agreements, provide consolidated billing, and to maintain customer accounts.

Recommended Actions

(NOTE: These recommendations are still subject to change, pending additional advice from those entities that are participating in this strategic initiative.)

Action items for Network Nebraska for the remainder of FY 2005.

1) Develop and offer Internet I services to eligible network participants by January 10, 2005
   - University of Nebraska signs contract with provider for Internet I services no later than August 31, 2004.
   - Division of Communications purchases Internet I services from the University no later than September 15, 2004.
   - Collaborative Aggregation Partnership (CAP) agrees on rates to be charged to eligible network participants for Internet I services no later than September 15, 2004.
   - Working through the NITC and the various Councils, CAP will distribute information related to the new Internet I charges to eligible network participants during the months of October, November and December 2004.

- Orders will be taken by CAP for new service and the circuits will be provisioned during the months of October, November and December, 2004.
- Internet I service turned up the first working day of January, 2005 for initial orders.

a. Lead Entity: CAP, in cooperation with staff of UNCSN and DOC, and assisted by NITC Councils.
b. Timeframe: August, 2004 – January, 2005.
c. Funding: No additional funding required for this action item.
d. Status (March 2005): Network Nebraska Internet service has been extended to eligible participants at a unit price approximately 50% of the October 2003 unit price. In addition, a service provider was contracted to provide redundant service out of the Omaha area.

2) Identify Tier II communities that offer opportunities for aggregation for services onto the network – ongoing.

- Both the University and the State will begin by providing a list to CAP of the communities where service is currently being provisioned that indicates the total amount of bandwidth currently being consumed no later than September 15, 2004.
- CAP will analyze the listings for opportunities to aggregate the existing service when coupled with other opportunities within the community no later than November 15, 2004.
- CAP will order service for the next Tier II community aggregation no later than January 15, 2005.
- New service will be provisioned by the provider and the move of existing service will be coordinated by CAP with the customer between January and March of 2005.
- Opportunities for the next Tier II community will be explored and started over again no later than May 15, 2005.

a. Lead Entity: CAP.
b. Timeframe: September, 2004 – May, 2005
c. Funding: No additional funding required for this action item.
d. Status (March 2005): Additional Tier II communities are still being considered. Wayne, Nebraska is aggregating Internet service from municipal and education entities through wireless service provided by Wayne State College.

3) Create a Service Level Agreement for use by CAP and the eligible network participants no later than November 1, 2004.

- CAP will work with appropriate legal counsel to establish a Service Level Agreement that will detail the service that is being provided to the client. These meetings will take place thru August and September with a final draft document due September 30, 2004.
- CAP will review the document with agency and university leadership, as well as the Chair of the NITC with final approval no later than October 15, 2004.
- CAP will make the final adjustments to the document and the document will be ready for distribution to eligible network participants by November 1, 2004.

a. Lead Entity: CAP, in cooperation with University of Nebraska and State of Nebraska legal staff.
b. Timeframe: September-November, 2004
c. Funding: Cost for legal services assumed by UNCSN and DOC.
d. Status (March 2005): Service Level Agreement has been developed and distributed to eligible network participants.

4) Create a Network Nebraska Level 1 Helpdesk no later than November 1, 2004.

- Members of CAP will estimate the numbers of calls that they are currently taking regarding information about Network Nebraska over the months of July and August 2004. That information will be collected by the CAP chair at the September 2004 meeting.
- A subcommittee of CAP consisting of the technical people will conduct a review of help desk software during the months of August and September. A recommendation will be brought to the CAP group at the October 2004 meeting.
- CAP has determined that the Level 1 Helpdesk will reside at NET. In order to transfer calls between the members of CAP, the NET telephone system will need an upgrade. This upgrade will be accomplished no later than October 31, 2004.
- A toll-free number will be installed for use by the Level 1 Helpdesk and eligible clients. The toll-free number will be ordered by September 15, 2004 and turned up for service no later than November 1, 2004.

a. Lead Entity: Nebraska Educational Telecommunications staff, in cooperation with CAP.
b. Timeframe: July-November, 2004
c. Funding: Cost for the toll-free number (888-NET-NEBR or 888-638-6327) service and cost for toll free calls minimal.
d. Status (March 2005): Call center is up and running staffed by NET.

5) Create a Network Nebraska Website no later than December 15, 2004.

- CAP will identify URL for website no later than August 15, 2004.
- The office of the NITC will identify initial information for the web site and present the information to CAP at the September 2004 CAP meeting.
- After approval from CAP, a “test” web site will be developed by and hosted at Nebraska On-Line no later than October 15, 2004.
- CAP members will test the web site and make suggestions to the NITC staff through November 30, 2004.
- Final changes will be made to the web site and the site will be unveiled to the users no later than December 15, 2004.

a. Lead Entity: University of Nebraska Computing Services Network staff, in cooperation with CAP and staff of the NITC.
b. Timeframe: August-December, 2004
c. Funding: No funding required for this action item.
d. Status (March 2005): Network Nebraska website, www.networknebraska.net is posted and fully functional. Additional documents and resources are being added and linked as needed.

6) Meet with the Technical Subcommittee of the Nebraska Statewide Telehealth Network to discuss issues related to network administration and management.
   a. Lead Entity: Technical Panel
   b. Timeframe: May 31, 2005
   c. Funding: No funding required for this task
   d. Status (March 2005): Ongoing.

Date of Last Revision: March 4, 2005

Nebraska Information Technology Commission
Strategic Initiatives

Strategic Plan
Nebraska Statewide Telehealth Network

Objective

The Nebraska Statewide Telehealth Network will provide the opportunity for all hospitals and public health departments to connect, providing access to consultations with medical specialists, continuing medical education, transmission of digital clinical information, bioterrorism alerts and training for homeland security and other emergency management issues.

Benefits

The Nebraska Statewide Telehealth Network (NSTN) will implement the vision of a high-speed health video telecommunication information system capable of erasing distance as a barrier to access to high quality health care for all people in Nebraska. Research shows that telehealth telecommunications services will:

- Increase the ability to diagnose patients' illnesses;
- Improve the quality and administration of medical services;
- Strengthen rural physicians' ties to specialty care;
- Alleviate the isolation of rural providers;
- Enhance the ability to attract and retain primary care physicians, medical professionals and support staff;
- Facilitate the training of health professionals in rural communities; and
- Enable patients to stay close to home for their care.
- Improve access to consultations with mental health practitioners, radiologists, and other medical specialists.

In addition, the Nebraska Statewide Telehealth Network will enable the delivery of bioterrorism alerts and training to hospitals and public health departments across the state.

Current Status

- The Nebraska Hospital Association, in partnership with the Nebraska Public Service Commission, Nebraska Health and Human Services System, Nebraska Information

Technology Commission and Office of the Chief Information Officer, Nebraska Division of Communications, University of Nebraska, University of Nebraska Medical Center, Nebraska hospital telehealth hubs and hospitals, Central Nebraska Area Health Education Center, telecommunications providers, the Nebraska Information Network, and the Universal Services Administrative Company (Federal Universal Service Fund Administrator), is leading an effort to create a statewide telehealth network.

- In August 2004, connections between hub hospitals and their connecting rural hospitals were initiated; in addition other sites such as the Nebraska State Office Building were included. This initial test of the system is part of a systematic process for connecting all Nebraska hospitals, which are currently participating in Nebraska-based telehealth systems. Additionally, all hospitals that wish to participate will be incorporated into the system as they have the capability at their individual site.

- All rural hospitals have been offered the opportunity to purchase video conferencing equipment. This funding has been made available through various federal grant programs and through funding provided through the Nebraska Health and Human Services System. Additionally, options are being explored to fund endpoint video equipment in the public health departments. Currently, memorandums of understanding are being sought by the public health departments with their local hospitals to provide connectivity.

- The Public Service Commission is expected to approve plans for providing support for the Nebraska Statewide Telehealth Network through the Nebraska Universal Service Fund in September 2004. This funding will be part of a funding mechanism that includes the Universal Services Administrative Company, the Nebraska Public Service Commission and the individual hospitals.

- The Nebraska Office of Rural Health is planning a telehealth workshop on Sept. 10 in Kearney to help rural hospitals prepare to use the Nebraska Statewide Telehealth Network.

Future

- All Nebraska hospitals and health departments will be connected to the Nebraska Statewide Telehealth Network in 2005-2006.

- Additional telecommunications infrastructure will be deployed to enable the efficient operation of the Nebraska Statewide Telehealth Network. The plan submitted to the Nebraska Public Service Commission in July 2004 by the Nebraska Hospital Association includes the following components:

    - Connection routers at six hub sites;
    - Accord bridge added at one site;
    - Endpoint routers at 68 endpoint hospitals ;
    - Scheduling software;
    - Endpoint firewalls at 68 endpoint hospitals;

- Firewalls at 7 hub sites;
- Gatekeeper technology;
- Installation costs for T-1 lines and fiber for endpoint hospitals; and
- Connectivity of the statewide network

- The plan submitted to the Public Service Commission plan envisions a network backbone connectivity scheme for 2004-2005 consisting of the following:

  - Scottsbluff to Grand Island --- 4 T-1 lines
  - North Platte --- Dark Fiber Solutions - 100 mbps line
  - Kearney to Grand Island --- 6 T-1 lines
  - Grand Island to Lincoln --- 4 T-1 lines
  - Grand Island to Omaha --- 6 T-1 lines
  - Grand Island (St. Francis Medical Center) to Central Nebraska AHEC --- 6 T-1 lines
  - Dark Fiber Solutions connection in Grand Island --- 100 mbps line
  - Lincoln (St. Elizabeth Regional Medical Center) to Omaha (UNMC) --- 1 T-1 line*
  - Lincoln (BryanLGH Medical Center) to Omaha (UNMC) --- 1 T-1 line*
  - Norfolk to Omaha --- 6 T-1 lines

  *While this may initially be one T-1 line per location, an increase in subsequent years is likely.

- Rural hospitals that currently have multiple lines connecting them to two different hub hospitals will be able to access the services of any hub hospital in Nebraska through just one line in 2005-2006.

- Use of the network for consultations and continuing medical education will increase.

Recommended Actions

(NOTE: These recommendations are still subject to change, pending additional advice from those entities that are participating in this strategic initiative.)

A. Integrate Nebraska Statewide Telehealth Network with statewide synchronous video network and Network Nebraska. The value of a network increases as more connections are added. Connecting the Nebraska Statewide Telehealth Network with the proposed statewide synchronous video network creates more value than the sum of their values as independent networks. Integrating the Nebraska Statewide Telehealth Network with Network Nebraska may lead to more efficient use of state resources and potential cost savings or cost avoidance.

Actions include:
1. Identify options for integrating the Nebraska Telehealth Network with the statewide synchronous video network and Network Nebraska.
   a. Lead Entity: Technical Panel

b. Timeframe: May 31, 2004
c. Funding: No funding required for this task.
d. Status (March 2005): The Nebraska Statewide Telehealth Network has formed a group to address network scheduling and is exploring the possibility of coordinating efforts with the Statewide Synchronous Video Workgroup to ensure compatibility with education.

B. Provide continued support for telehealth through the Nebraska Universal Service Fund. On December 17, 2002, the Nebraska Public Service Commission approved the use of up to $900,000 a year from the Nebraska Universal Service Fund to support telehealth. A detailed plan for support for the Nebraska Statewide Telehealth Network was submitted to the Commission by the Nebraska Hospital Association ion July 9, 2004. The plan is expected to be approved in September. 2003-2004 support requested from the Nebraska Universal Service Funding is $145,570. The total projected cost for the period July 1, 2004 through June 30, 2005 is $813,766.23.

Actions include:
1. Report on any changes to legislation or regulations that would impact continued support of telehealth through the Nebraska Universal Service Fund to the Community Council and Nebraska Information Technology Commission at least annually.
a. Lead Entity: Telehealth Subcommittee
b. Timeframe: September 1, 2005
c. Funding: No funding required for this task

Status (March 2005): Possible legislation affecting the Nebraska Universal Service Fund is being monitored. LB 751 introduced by Senator Foley would require the State Treasurer to transfer all funds in excess of 20 million dollars from the Nebraska Telecommunications Universal Service Fund. LB 722's Committee Amendment 442 would create a Public Infrastructure Utilization Task Force with funding of $250,000 to $350,000 from the Nebraska Universal Service Fund.
d.

C. Ensure continued support for telehealth from the federal Universal Service Fund by monitoring federal legislation impacting the Universal Service Fund. The Rural Health Care Fund of the federal Universal Service Fund is a key funding component of the Nebraska Telehealth Network. Approximately $536,000 of federal support will be provided for 2003-2004.

Actions include:
1. Monitor legislation, regulations, or other threats to the continued support of telehealth through the federal Universal Service Fund and update the Community Council and Nebraska Information Technology Commission at least annually.
a. Lead Entity: Telehealth Subcommittee
b. Timeframe: September 1, 2005
c. Funding: No funding required for this task

Status (March 2005): Possible legislation affecting the Universal Service Fund is being monitored. Significant changes to the Telecommunications Act of 1996 including the Nebraska Universal Service Fund are expected to be introduced.

D. Encourage continued cooperation of all entities involved in the development and management of the Nebraska Statewide Telehealth Network by facilitating meetings on specific issues as needed. Partners include hospitals across the state of Nebraska, the Nebraska Hospital Association, the Nebraska Health and Human Services System; the Nebraska Information Technology Commission/Office of the Chief Information Officer; the Nebraska Division of Communications; The University of Nebraska, the Nebraska Public Service Commission, and telecommunications providers.

Actions include:

1. Report on any issues or problems, and if necessary facilitate meetings to bring interested parties together to discuss and resolve the issue.
    a. Lead Entity: Telehealth Subcommittee
    b. Timeframe: September 1, 2005
    c. Funding: No funding required for this task
    d. Status (March 2005): No action needed.

E. Provide assistance to hospitals and to the Nebraska Hospital Association to address issues pertaining to network administration and management. Members of the Technical Panel and CAP, the entity responsible for the development and administration of Network Nebraska, have provided technical assistance to the Nebraska Statewide Telehealth Network. As both Network Nebraska and the Nebraska Statewide Telehealth Network develop and address administration and network management, the Technical Panel may be able to provide assistance to the Nebraska Statewide Telehealth Network. Opportunities to leverage resources should be explored.

Actions include:

1. Meet with the Technical Subcommittee of the Nebraska Statewide Telehealth Network to discuss issues related to network administration and management.
    a. Lead Entity: Technical Panel
    b. Timeframe: May 31, 2005
    c. Funding: No funding required for this task
    d. Status: No action taken. A meeting will be scheduled later this spring.

F. Provide assistance in promoting the use of the network to doctors, administrators, and health care providers. A workshop on telehealth targeting hospital technical staff and administrators was held in Grand Island on April 27, 2004. Another workshop is scheduled for September 10 in Kearney. Sponsors of the workshops have included the Nebraska Office of Rural Health and Central Nebraska Area Health Education Center. Many of the entities involved in health and medical education participate in the NITC's Telehealth Subcommittee. The NITC Telehealth subcommittee should serve as a vehicle for encouraging and coordinating educational and promotional programming to advance the use of telehealth.

Actions include:

1. Form a subcommittee to develop a plan for future educational programming.
    a. Lead Entity: Telehealth Subcommittee
    b. Timeframe: November 15, 2004
    c. Status (March 2005): A subcommittee has been formed.

2. Organize at least one educational program on an issue related to the delivery and expansion of telehealth.

a. Lead Entity: Telehealth Subcommittee

b. Timeframe: September 1, 2005

c. Status (March 2005): Workshops were held Sept. 10 and Feb. 18. A workshop is being planned for the Panhandle later this spring.

Date of Last Revision: March 4, 2005

Nebraska Information Technology Commission
Strategic Initiatives

Strategic Plan for the
Statewide Synchronous Video Network

Objective

The objective of this initiative is to achieve a statewide synchronous video network capable of enhancing educational opportunities and citizen services through the exchange of interactive video between and among various sectors.

In order to accomplish this, a number of tasks must be completed.

- Identification of a single audio and video standard for low-bandwidth distance learning and videoconferencing;
- Acquisition of upgrade or replacement equipment and/or software that ensures compliance with the audio and video standard;
- Development or purchase of a scheduling system or enterprise resource management program that allows potential users to A) know the location and availability of resources, and B) set up or reserve ad hoc or regularly scheduled events with other entities;
- Development of a network bandwidth management system or network operations center that assures pre-determined qualities of service, depending upon the type of video traffic;
- Development of an event clearinghouse that allows promotion, marketing, and registration for interactive video events;
- Development of training modules for new users;
- Development of a cost and funding algorithm to allow shared use of the statewide backbone for interstate distance education and videoconferencing.

Benefits

Since 1992, various entities within the State of Nebraska have spent an estimated 20 million dollars on interactive video capture and display equipment, fiber connectivity, and engineering design charges to provide for distance learning and videoconferencing. Considered cutting edge technology in the early years of operation, this investment resulted in over 300 high-quality, videoconferencing classrooms using multiple, incompatible video protocols spread over numerous separate political subdivisions. These service regions were established when groups partnered together to set up

interlocal agreements in order to receive grant funds, enter into contracts and hire staff to exchange high school and college classes. Other smaller videoconferencing networks were set up by other state agencies and hospitals but were not interoperable with the school and college sites.

In order for Nebraska to maximize the potential of its investment in interactive videoconferencing and to create unprecedented educational opportunities, all videoconferencing sites in this State must be in compliance with the State video compression standard and stakeholders must agree to work collaboratively to enhance the benefit for all end users.

Current Status

Currently, Nebraska enjoys one of the most robust distributions of local connectivity and bandwidth among any of its rural neighbors. This equates to 192 DS-3 (45 megabit per second, JPEG and MPEG2 video) circuits to high schools served by telephone companies and 112 high school sites that are served by cable companies with 100 megabit per second, full duplex, fiber circuits with H.263 video. Only about 10 high schools are left in rural areas of the State without high bandwidth connections, many at their own choosing. Other state agency and telehealth videoconferencing circuits consist of single or double dedicated T-1 (1.55 megabit per second) lines.

Nebraska high school distance learning classrooms are some of the busiest in the nation; with each classroom being used about 50% of the school day across the entire system. Taking high school credit courses and higher education dual credit and college credit courses at a distance, students are able to fulfill graduation requirements and expand their high school experiences with opportunities that are unavailable at their local high school. Some high schools permit community and adult education classes in the evening hours.

Distance learning consortia (interlocal agreements between neighboring districts) often are able to share the talents of one qualified instructor across several schools and sections of students each semester.

Unfortunately, due to the high costs of transporting high bandwidth (JPEG) video signals, distance learning consortia have been unable to afford course exchange with consortia in other parts of the State, thus limiting their credit course offerings and educational opportunities.

The original 10-year contracts between the distance learning consortia and the telephone company providers for JPEG video service will begin expiring in the Spring of 2006. With no chance of contract extensions for JPEG video service, the schools will need to upgrade to an H.323 Internet Protocol communication standard, new codecs (Coder-Decoders) to accommodate the H.263/H.264 video standards, and switch/router technology at the school site to manage the resulting data network. The later of the JPEG consortium contracts are not due to expire until 2009 but the industry has chosen to no longer manufacture nor repair JPEG video equipment, thus prompting an early conversion of these contracts to IP video.

Whereas Nebraska's (telco provided) interactive video efforts have been mostly localized with high bandwidth video, most other States have converted or are converting to IP video and have been trying to realize further educational programming through ad hoc enrichment activities and use of Internet2.

The current network will not be able to meet the future distance learning applications and the bandwidth needs for the Internet and Internet2. Therefore it is necessary to convert to the next generation distance learning (data) network.

Future

Nebraska has enormous potential to assemble one of the country's best telecommunications networks for education, health care, and government. The Nebraska Information Technology Commission and its advisory groups have fostered a collaborative environment for participative decision making among several major subsectors. The Collaborative Aggregation Partnership, a team of University of Nebraska, Division of Communications, and Nebraska Educational Telecommunications staff have been successful in negotiating statewide backbone contracts for scalable bandwidth for public entities. Technological developments and breakthroughs in routing technology in the past two years have greatly enhanced the quality of service related to IP-based, H.26X video compression.

The new Statewide Synchronous Video Network design incorporates the requirements established by the Statewide Synchronous Video Network Work Group of the Nebraska Information Technology Commission. This network design has the flexibility to support both proprietary and standard protocols, and allows the school full access to the available bandwidth. The network can grow to meet any bandwidth or application requirements, and has any optical interface available from Ethernet to OC192.

This network design is consistent with the goals of the Nebraska Information Technology Commission and will integrate into Network Nebraska. Most importantly for those who qualify, this network is eligible for E-rate discounts. All consortiums and member schools benefit because this is a plan toward statewide services and interconnectivity. Not only is video bandwidth available, but also data applications such as the Internet and Internet2. Asynchronous distance learning applications such as Blackboard, WebCT or Angel become a reality with the bandwidth that will be made available, and multiple classrooms become much more affordable.

The contracts for the current distance learning networks begin to expire in the next two years. This network is leading edge technology, is of carrier grade quality, and is scalable to meet any growth demands.

The vision of the future statewide synchronous video network includes the umbrella capacity for any interactive video unit to be able to interconnect with any other interactive video unit, regardless of location. The vision of the future also includes assurances for network security and quality of service within a particular sub-network (i.e. telehealth, State Patrol, K-12 distance learning). Most end users are in agreement that the State should purchase or contract for a single software scheduling system that can remotely

turn on a specific video unit, log system usage statistics, allow promotion of ad hoc education events, and secure permission for usage from local site coordinators.

Recommended Actions

(NOTE: These recommendations are still subject to change, pending additional advice from those entities that are participating in this strategic initiative.)

A. Identification of a single audio and video standard for low-bandwidth distance learning and videoconferencing.

Actions include:

1. Approval of the H.263/H.264 video compression protocol and G.722, G.722.1, and G.728 audio compression protocols by the Nebraska Information Technology Commission.
   a. Lead Entity: NITC Technical Panel
   b. Timeframe: September 9, 2004
   c. Funding: No funding required for this task
   d. Status (March 2005): Completed.

B. Acquisition of upgrade or replacement equipment and/or software that ensures compliance with the audio and video standard.

Actions include:

1. Development and submission of a Congressional funding request to fund upgrade of classroom and networking resources necessary to bring K-12 and higher education distance learning facilities into compliance.
   a. Lead Entity: NITC Technical Panel's Statewide Synchronous Video Work Group
   b. Timeframe: September 3, 2004
   c. Funding: Actual request estimated at $13 million; no funding required to develop the request.
   d. Status (March 2005): Congressional request of $9.8 million was submitted on September 8, 2004. The funding request was declined.

2. Designation of a fiscal entity to oversee bidding, ordering, delivery and installation of equipment.
   a. Lead Entity: To be named.
   b. Timeframe: March 2005
   c. Funding: No funding required for this task.
   d. Status (March 2005): The white paper, "Converting distance learning networks to a high bandwidth, flexible infrastructure" provides several options for bidding and procurement of equipment and services. The Distance Education Enhancement Task Force, if created as described in LB 689, would provide recommendations for this action item by December 31, 2005.

3. Equipment RFP, bidding, ordering, delivery and installation of equipment
   a. Lead Entity: To be named
   b. Timeframe: August 2005 - July 2006
   c. Funding: Funding to oversee this task included in Congressional request.
   d. Status (March 2005): The Distance Education Enhancement Task Force, if created as described in LB 689, would provide recommendations for this action item by December 31, 2005.

C. Development or purchase of a scheduling system or enterprise resource management program that allows potential users to know the location and availability of resources, and/or set up or reserve ad hoc or regularly scheduled events with other entities.

Actions include:

1. Research scheduling systems and enterprise resource management programs.
   a. Lead Agency: NITC Technical Panel's Statewide Synchronous Video Work Group
   b. Timeframe: September 2004-December 2004
   c. Funding: No funding required for this task.
   d. Status (March 2005): Research continues on this action item.

2. Purchase or develop a scheduling system and/or enterprise resource management program.
   a. Lead Entity: To be named.
   b. Timeframe: Summer, 2005
   c. Funding: To be determined.
   d. Status (March 2005): The Distance Education Enhancement Task Force, if created as described in LB 689, would provide recommendations for this action item by December 31, 2005. Timeframe likely to be delayed until summer, 2006 at the earliest.

D. Explore options for a network bandwidth management system or network operations center that assures pre-determined qualities of service, depending upon the type of video traffic.

Actions include:

1. Explore options for a network operations center that assures particular qualities of service.
   a. Lead Entity: Network Nebraska (Collaborative Aggregation Partnership)
   b. Timeframe: Ongoing
   c. Funding: Funding to complete this task to be determined.
   d. Status (March 2005): The Distance Education Enhancement Task Force, if created as described in LB 689, would provide recommendations for this action item by December 31, 2005.

E. Development of an event clearinghouse that allows promotion, marketing, and registration for interactive video events.

Actions include:

1. Development of a web-based clearinghouse that allows originators to post events and users to register for or view the date, time and frequency of individual events.
   a. Lead Entity: Statewide Synchronous Video Work Group
   b. Timeframe: Fall, 2006
   c. Funding: To be determined.
   d. Status (March 2005): The Distance Education Enhancement Task Force, if created as described in LB 689, would provide recommendations for this action item by December 31, 2005.

F. Development of training modules for new users.

Actions include:

1. Development of training modules to accompany equipment orientation.
   a. Lead Entity: NITC Technical Panel's Statewide Synchronous Video Work Group, in cooperation with commercial equipment manufacturer.
   b. Timeframe: June-August, 2006 (Corresponding with equipment deployment)
   c. Funding: To be determined.
   d. Status (March 2005): The Distance Education Enhancement Task Force, if created as described in LB 689, would provide recommendations for this action item by December 31, 2005.

G. Development of a cost and funding algorithm to allow shared use of the statewide backbone for interstate distance learning and videoconferencing.

Actions include:

1. Research models from other States' education networks.
   a. Lead Entity: NITC Technical Panel's Statewide Synchronous Video Work Group, in conjunction with Network Nebraska (Collaborative Aggregation Partnership)
   b. Timeframe: Ongoing
   c. Funding: No funding required for this task.
   d. Status (March 2005): The Distance Education Enhancement Task Force, if created as described in LB 689, would provide recommendations for this action item by December 31, 2005.

Date of Last Revision: March4, 2005

Nebraska Information Technology Commission
Strategic Initiatives

Strategic Plan

Community IT Planning and Development

Objective

As one strategy to remain competitive in the global economy, Nebraska communities can use information technology to enhance economic development opportunities and quality of life. Nebraska businesses can utilize information technology to expand markets, reduce costs, and improve efficiency.

Benefits

Information technology is transforming the economy and society, creating a completely new paradigm. Businesses are using telecommunications to speed up transactions, reduce costs, and expand their markets. Consumers are buying books, CDs, food, gifts, and clothing online. Families are exchanging photos vie e-mail. Students at all levels are taking courses via distance learning technologies. Telemedicine is making mental health services and other specialist services available in remote, underserved areas of the state.

A coordinated effort to address the need for information technology training and development for citizens, businesses, communities, and local governments is needed to help Nebraska meet the challenges of the Information Age. These challenges include:

Encouraging the adoption of technology by citizens. According to a number of indicators and polls, however, Nebraskans are slower to adopt technology than the U.S. as a whole. In September 2001, approximately 45% of Nebraska households were online. In comparison, approximately 50% of U.S. households were online. Nearly half (49%) of Nebraska households with children (ages 3-17) had Internet access at home, ranking Nebraska 31 out of the 50 states in 2001.

Rural areas have historically lagged behind urban and suburban areas in Internet use. A study by the Pew Internet & American Life Project found that only 52% of rural residents use the Internet, compared to 67% of urban residents, and 66% of suburban residents. The difference in Internet use among urban areas can be in part explained by the demographic make-up of rural areas. Rural areas have a higher proportion of older,

less wealthy, and less educated residents than urban and suburban areas. These groups are less likely to be online.

Although Internet use by African Americans and Hispanics is increasing, both African Americans and Hispanics are also less likely to use the Internet than whites. English-speaking Asian-Americans are the most likely to use the Internet.

Women and girls are as likely to use the Internet as men and boys, but are less likely to take advanced computer classes in high school and to major in computer science or engineering in college. The Nebraska Girls and Technology Status Report sponsored by the American Association of University Women (AAUW) of Nebraska in collaboration with the Nebraska Commission on the Status of Women found that although girls and boys enroll in computer introduction and application courses in equal numbers, boys outnumber girls by more than 3 to 1 in most of the more technology-oriented courses: computer languages, computer science and computer-aided drafting. Girls are even outnumbered by more than 2 to 1 in web design and development courses.

Accelerating the deployment of advanced services. In 2003, 86% of the state's population had access to broadband either through cable modem, DSL, or fixed wireless broadband services. These services typically provide speeds of one to two megabits per second. In four to five years, some experts estimate that broadband with speeds of 25 to 40 megabits per second will be needed. In the future, mobile wireless data networks and Voice Over IP services will become increasingly important.

Providing public access to computers and the Internet. Most libraries in Nebraska provide public access to computers and the Internet. However, in some communities access is restricted by the number of computers available and by limited library hours.

Using technology to provide government and community services. Local governments can use technology to more efficiently and effectively deliver community services.

Expanding educational opportunities. Distance learning technologies are expanding educational opportunities at all levels.

Improving access to health care through information technology. Through telehealth technologies, residents of rural areas can have better access to mental health and other specialist services. Home telehealth is one of the fastest growing applications of telemedicine, but is not yet widely used in Nebraska.

Incorporating technology-related development in to local development plans. While Nebraska's larger communities are using information technology to enhance economic development opportunities, many of Nebraska's smaller communities are just beginning to realize the importance of information technology to their economic viability.

Current Status

Community information technology development is currently addressed by several organizations including the University of Nebraska, Nebraska Information Technology Commission, the Center for Rural Affairs' REAP program, the AIM Institute, and the Nebraska Department of Economic development. Some of these efforts are loosely coordinated under the umbrella of Technologies Across Nebraska, a partnership of over 40 organizations led by the University of Nebraska and the Nebraska Information Technology Commission.

- Technologies Across Nebraska, a partnership of over 40 organizations led by the University of Nebraska and the Nebraska Information Technology Commission, has worked with 15 communities or regional groups over the past two years to develop technology plans. The impact of the IT Planning and Mini Grant program has been significant. Two communities received federal grants totaling over $400,000 to implement their plans. A new business has started in a third community. Several communities now have broadband services available. Other communities are focusing on the technology needs of small businesses, offering e-commerce and technology training. One community has developed a video conferencing center available to local businesses and residents. Efforts are made to connect participating communities with resources offered by Technologies Across Nebraska Partners, including the University of Nebraska Rural Initiative's internship program. Technologies Across Nebraska will expand the program to six additional communities this year.

- Technologies Across Nebraska has developed nationally recognized resources to help communities effectively use technology to enhance economic development, including the Community IT Planning workbook and the Community IT Toolkit. Technologies Across Nebraska's quarterly newsletter, *TANgents*, reaches 1,500 individuals.

- The University of Nebraska Rural Initiative has partnered with Congressman Osborne's office and the J. D. Edwards program to place interns in rural communities. Now in its second year, the program placed 12 interns in rural communities last summer. Many of the interns are helping local businesses and organizations effectively utilize information technology.

- Several entities currently offer e-commerce training. The University of Nebraska's Communities of the Future Team offers e-commerce training in communities. Community colleges and the Center for Rural Affairs' Reap program also offer e-commerce training. Through a federal grant, the AIM Institute is working with businesses in Fremont, Norfolk, and Columbus to develop or enhance Web sites. The Department of Economic Development has begun providing e-commerce training upon request to communities which have participated in the Business Expansion and Retention program. The Department of Economic Development's new Interasset program promises to provide technical assistance to rural businesses form strategic and growth objectives highlighting technology and international business relationships. The University of Nebraska Rural Initiative, Nebraska Rural Development Commission, and the Nebraska Information Technology Commission

are working together to promote and coordinate e-commerce training across the state.

- University of Nebraska's Communities of the Future Team offers e-government training in communities. The e-government program provides Internet training to local government officials and helps them understand how e-government can be used to more efficiently and effectively provide services and information to citizens.

- Through funding from the Secretary of State, Nebraska Online is assisting counties in developing Web. All but twenty-two counties in Nebraska now have Web sites. A number of additional counties are expected to develop Web sites within the next year.

- The Public Service Commission's Nebraska Internet Enhancement fund will provide assistance to communities, in partnership with telecommunications providers, to enhance advanced telecommunications services.

- Introductory computer and Internet training are offered by many entities including community colleges, the University of Nebraska's Communities of the Future Team, and public libraries.

- Public libraries also play an important role in providing public access to computers and the Internet. The Nebraska Library Commission maintains a database of public access sites in Nebraska available at http://www.nol.org/home/CIO/public_access/.

- The Nebraska Hospital Association is heading up an effort to develop a statewide telehealth network, which will connect all hospitals in Nebraska. Other partners in this effort include the University of Nebraska, the Nebraska Division of Communications, the Nebraska Health and Human Services System, the Office of the Chief Information Officer and the Nebraska Information Technology Commission, Nebraska hospitals, and the Nebraska Public Service Commission.

Future

Technology-related development is a continuous process, with significant progress being made. In the vision for the future, Nebraska communities will make even more effective use information technology, as evidenced by the following indicators:

- The number of cities and counties providing electronic access to information and services will increase.

- The number of communities developing local technology plans will increase.

- The number of businesses using e-commerce in Nebraska will increase.

- The number of households using the Internet will increase.

- The number of households and businesses subscribing to broadband Internet access will increase.

- All Nebraska hospitals will be connected through a statewide telehealth network.

Recommended Actions

(NOTE: These recommendations are still subject to change, pending additional advice from those entities that are participating in this strategic initiative.)

- **Support community IT development by working with the University of Nebraska and other Technologies Across Nebraska Partners.**
  Actions include:
  1. Work with at least 6 community or regional technology committees to develop IT plans through the IT Planning and Mini Grant program
     a. Lead Entity: Technologies Across Nebraska
     b. Timeframe: September 1, 2004- September 1, 2005
     c. Funding: $20,000 from the NITC Community Technology Fund
     d. Status (March 2005): Grants were awarded to Chappell, Cheyenne County, Cuming County, Hartington, Kearney, and Nemaha County. Each local committee is making significant progress on conducting community assessments.

  2. Provide continuing support for the 17 community and regional technology committees which have participated in the 2002-2003 and 2003-2004 IT Planning and Mini Grant programs.
     a. Lead Entity: Technologies Across Nebraska
     b. Timeframe: ongoing
     c. Funding: No funding required for this task.
     d. Status (March 2005): Continuing support is being provided via e-mail and telephone conversations.

  3. Promote technology-related development through the quarterly newsletter, TANgents.
     a. Lead Entity: Technologies Across Nebraska
     b. Timeframe: fall 2004, winter 2005, spring 2005, summer 2005
     c. Funding: No funding required for this task.
     d. Status (March 2005): The winter issue of TANgents was published in late January 2005 and is available at http://extension.unl.edu/tangents/tangents_contents1-05.htm .

  4. Work with the Nebraska Rural Initiative to identify options for the expanded use of youth to assist in IT development activities.
     a. Lead Entity: Technologies Across Nebraska and Nebraska Rural Initiative
     b. Timeframe: January 31, 2005
     c. Funding: No funding required for this task.
     d. Status (March 2005): A meeting is being scheduled with the Nebraska Rural Initiative.

- **Strengthen efforts to coordinate technology-related development programs and to better incorporate technology-related development into traditional economic development efforts.** Technology-related development is just one component of a successful economic development plan. Initial efforts in this area will focus on e-commerce training coordination.

  Actions include:
  1. Complete an inventory of e-commerce training programs, gap analysis and recommendations for coordinating e-commerce training.
     a. Lead Entity: Nebraska Information Technology Commission, Nebraska Rural Development Commission, and Nebraska Rural Initiative
     b. Timeframe: November 1, 2004
     c. Status (March 2005): Completed.

  2. Develop a handout with tips for choosing a Web designer.
     a. Lead Entity: University of Nebraska Rural Initiative and University of Nebraska Cooperative Extension
     b. Timeframe: November 1, 2004
     c. Status (March 2005): Completed.

  3. Develop an implementation plan for e-commerce coordination.
     a. Lead Entity: Nebraska Information Technology Commission, Nebraska Rural Development Commission, and Nebraska Rural Initiative
     b. Timeframe: February 1, 2005
     c. Status (March 2005): The Nebraska Rural Initiative is completing an implementation plan.

- **Request that funding for the Nebraska Information Technology Commission's Community Technology Fund be reinstated.** If fully funded, the Community Technology Fund would provide $200,000 in funding for community technology projects.

Date of Last Revision: March 7, 2005

Nebraska Information Technology Commission
Strategic Initiatives

Strategic Plan for the
Nebraska eLearning Initiative

Objective

The primary objective of this initiative is to promote the effective and efficient integration of technology into the instructional process and to utilize technology to deliver enhanced educational opportunities to students at all levels throughout Nebraska on an equitable and affordable basis.

This initiative also involves the establishment of a Nebraska eLearning Consortium to organize and facilitate the development and execution of a Pre-Kindergarten-Adult Education statewide eLearning strategy to:

- Connect eLearning innovators and leverage their expertise and experience;
- Build collaborative relationships between K-12 and Higher Ed educators;
- Develop discipline-specific and age-specific instructional design models;
- Encourage the development and sharing of instructional content; and
- Ensure the infrastructure required to support the deployment and ongoing support of eLearning is in place and available.

The eLearning Consortium would also be responsible for providing administrative and technical support to include:

- The negotiation of required hardware and software purchasing and licensing agreements;
- Development and implementation of deployment strategies; and
- Providing hosting, training, and technical support services as necessary.

The primary components of eLearning encompasses:

- Course Management Software. This technology supports the development and delivery of instructional content, assessment and grading, lesson planning, and provides learners with instructional support features to include interactive chat and threaded discussion groups, linkage to reference materials, etc.

- Content Management Software. This technology would serve as the basis for the establishment of a Nebraska eLearning Knowledge Repository to facilitate the sharing of educational content. This Knowledge Repository would provide the ability

to store, organize, classify, categorize, control access to, share, retrieve, and present digital content of all forms to include audio, video, graphical, and textual.

- Infrastructure. This includes the network, organizational, administrative, and support resources required to deploy and support eLearning statewide.

Benefits

Establishing a statewide eLearning strategy will provide students and teachers all over Nebraska access to rich instructional resources that are not currently available.

The benefits of a statewide eLearning system would include:

- The sharing of learning objects and other educational content and reference materials that would significantly enrich and deepen the learning experiences offered to Nebraska students, particularly those in the K-12 sector;
- Greater collaboration among educators at all levels;
- The building of extended educational communities of learning and support for ongoing professional development and lifelong learning opportunities;
- Creation of a dual-use training engine for other state agencies, political subdivisions, and adult continuing education;
- Development of diverse instructional and training modules ranging from the simple (how to operate a piece of machinery) to the complex (a web-based course to achieve technician certification).

Current Status

Higher education institutions have made significant investments and deployments of this technology. Survey data collected in 2002 by the staff of the Nebraska Information Technology Commission revealed that eight of 15 Nebraska independent colleges and universities were using some type of course management software. From the same data, all six community colleges, all three state colleges, and all four campuses of the University of Nebraska system were also using some commercial version of the software, ranging from Blackboard to WebCT to Jones eKnowledge. Course usage by students and faculty involvement has reportedly grown by over 10% per year.

In the 2002 data, K-12 schools were just beginning to explore the software using open source or single-district contracts. As of August 2004, a consortium of ESUs (the Nebraska Web-based Staff Development Affiliated Consortium -- NWSDAC) had contracted with CyberLearning Lab's Angel software to replace their 2003-04 contract with Blackboard. NWSDAC reports 15 of 18 Educational Service Units involved with the NWSDAC purchase agreement.

This report should also mention the early development of Class.com and the University Independent High School, which has continued to offer eLearning services to the present. Class.com has formed strategic partnerships with the Plano ISD eSchool (Texas), Virtual Greenbush AEA (Kansas), and Westside Virtual High School (Nebraska).

Nationally, 14 states have reported the creation of statewide virtual high schools with 25 more states with some type of statewide eLearning involvement.

Future

The ultimate future state of Nebraska's eLearning initiative is largely unknown. Higher education institutions still have potential for additional software penetration with additional seat licenses and also additional options for portals and enterprise versions.

If higher education growth is any indication, Nebraska K-12 schools are on the edge of a tremendous growth period with eLearning. There is unmet needs in rural areas of the State to achieve educational equity of opportunity and eLearning is one tool to assist. Nebraska's 300+ interactive video, distance learning classrooms could immediately adopt course management software for course organization, electronic assessments, and teacher-student and student-student communications.

Nebraska citizens and students would enjoy a much greater access to more flexible lifelong learning opportunities, should a statewide eLearning strategy be adopted. Additional educational opportunity often results in workforce development and enhanced economic vitality. Nebraska's economic engine will be improved through greater retention of high school and college graduates.

Recommended Actions

(NOTE: These recommendations are still subject to change, pending additional advice from those entities that are participating in this strategic initiative.)

A statewide eLearning Consortium to advance the Nebraska eLearning Initiative and improve coordination between K-12, higher education, and adult/continuing education will be established using the following action steps:

A. Organize a series of October 2004 Planning Workshops to bring together participants who have a stake in improving educational and training opportunities for Nebraska citizens through eLearning.

Actions include:

1. Planning Workshop Products:
   - An assessment of current 2004 Course management tool software usage among higher education and K-12 schools;
   - Synthesis of planning workshop contributions to reach a common vision statement for eLearning in Nebraska;
   - Perform a gap analysis between current usage and the future vision of eLearning in Nebraska.

a. Lead Entity: Staff of the Nebraska Information Technology Commission, working in cooperation with the NITC Education Council, and staff of the University of Nebraska Computer Services Network.
b. Timeframe: October 10-29, 2004
c. Funding: Travel expenses of $1500.
d. Status (March 2005): Six workshops were conducted between October 11 and 22, 2004. Summary documents will be posted to an Angel collaborative community site for threaded discussion among the workshop participants.

B. Develop a design document detailing the technology components, standards, costs and administration of a Nebraska eLearning Knowledge Repository for the sharing of educational content.

Actions include:

1. Development of an eLearning Knowledge Repository design document.
a. Lead Entity: Staff of the Nebraska Information Technology Commission, working in concert with the NITC Education Council, and staff of the University of Nebraska Computer Services Network.
b. Timeframe: June 30, 2005
c. Funding: No funding required for this action item.
d. Status (March 2005): In progress.

C. Work with education and staff development professionals to document strategies, techniques and tools used in course management and create a clearinghouse of eLearning best practices and training modules.

Actions include:

1. Creation of a clearinghouse of eLearning best practices and training modules.
a. Lead Entity: Staff of the Nebraska Information Technology Commission, working in concert with the NITC Education Council, and staff of the University of Nebraska Computer Services Network.
b. Timeframe: December 31, 2005
c. Funding: No funding required for this action item.
d. Status (March 2005): In progress.

Date of Last Revision: March 7, 2005

Nebraska Information Technology Commission
Strategic Initiatives

Strategic Plan For
Enterprise Architecture for State Government

Objectives

Enterprise Architecture is a structured process for deciding what information technology is needed for the enterprise and how to provide information technology services within the organization.

The objectives of enterprise architecture include:

1. Focusing attention on the strategic use of information technology to support the functions of state government (business needs);
2. Providing quality data to those who need it (data sharing);
3. Achieving compatibility among various systems (interoperability);
4. Improving savings and value from expenditures on information technology (efficiency).

Benefits

State government is complex. Its numerous operational units provide a wide range of products and services. Its many functions require relationships with federal agencies, other state agencies, local governments, and private partners. Authority is fragmented among three branches of government, independent agencies and political subdivisions.

Optimizing investments in information technology requires solutions that transcend organizational and jurisdictional boundaries. Enterprise architecture provides disciplined procedures for incorporating enterprise-wide considerations into decisions regarding information technology.

The purpose of Enterprise Architecture is to meet business needs, enhance data sharing, insure interoperability, and improve efficiency. EA accomplishes these objectives by establishing a governance process for EA decisions, documenting business drivers affecting the enterprise, identifying the principles that should guide IT investments, developing technical standards and guidelines, establishing a means for exceptions, and providing enforcement.

Current Status

Some aspects of Enterprise Architecture are in place. In particular, the NITC has a well-established process for developing, reviewing and adopting technical standards and guidelines. The Technical Panel (http://www.nitc.state.ne.us/tp/) of the NITC has sponsored several workgroups to prepare elements of a technical architecture. This includes accessibility standards and guidelines, a draft e-government architecture document, network architecture, video standards, and security policies and standards. A copy of existing documents is available at: http://www.nitc.state.ne.us/standards/index.html.

Several efforts are also underway that promote integration of information technology systems across the enterprise. These include:

1. Network Nebraska: An initiative sponsored by the NITC for consolidating data and video communications networks across the state.
2. CJIS Advisory Committee: Established by the Nebraska Crime Commission to promote data sharing across all elements of the criminal justice system. (http://www.nol.org/home/crimecom/)
3. GIS Steering Committee: Established by the Legislature to coordinate investments in GIS technology and databases. (http://www.calmit.unl.edu/gis/)
4. Juvenile Data Sharing Study: A joint effort by the State Government Council and the CJIS Advisory Committee to identify the need and opportunity for data sharing among state and local entities providing services to juveniles.
5. Steering Committee on Child Abuse and Neglect Information Exchanges: State and local agencies are developing solutions to improve data sharing relating to child abuse and neglect investigation and prosecution.

In addition, several agencies are making progress in developing enterprise architecture to guide decisions regarding internal IT systems. HHS' NFOCUS system is the product of an enterprise architecture that now encompasses 26 programs, with linkages to several external systems. The Department of Environmental Quality developed an agency-wide view of information requirements as the foundation for future systems development. The Department of Labor recently completed a "Strategic Technology Architecture Roadmap" before embarking on major changes to its applications. The State Patrol is evaluating its applications and technology in order to achieve better integration and reduce support requirements.

Although important, the sum of these activities falls short of being an enterprise architecture for state government.

In December 2003, the State Government Council (SGC) adopted a strategy for Enterprise Architecture, Shared Services and Standardization. As part of this strategy, the State Government Council will serve as a "committee-of-the-whole" to develop the enterprise architecture. The State Government Council looked at several approaches for enterprise architecture. There was consensus to investigate the tools and resources developed by the National Association of State CIOs (NASCIO), because they were designed for state government and reflect the need for a high level perspective, rather than one that is too detailed. There is also the advantage of getting assistance from

staff at NASCIO and working with other states that are using the NASCIO tools and resources.

Future

One of the tools available from NASCIO is a readiness self-assessment and maturity model. Based on answers to the EA Readiness Assessment, Nebraska state government has at least some of its Business and IT goals defined, and the EA Program is in the planning stages. There is some commitment to the EA process by executives, and the State Government Council (SGC) is serving as the impetus for developing an Enterprise Architecture. However, no budget exists for EA Program development.

Based on the NASCIO self-assessment and maturity model, Nebraska must undertake substantial work in eight categories. There are five levels in the maturity model. Only those steps necessary to achieve Level 3 in each category are reported here.

Administration – Governance Roles & Responsibilities. The purpose of architecture governance is to direct or guide architecture initiatives, ensure that organizational performance aligns with the strategic intent of the business, ensure IT resources are used responsibly and Technology Architecture-related risks are managed appropriately.

Current Level Summary – Based on the responses provided in the EA Assessment, the EA maturity level that most closely identifies your organization's current state for EA Administration is Level 2 – Repeatable Program. At Level 2, a need for Architecture "Governance" has been identified. The EA Program has begun to develop clear roles and responsibilities. Governance committees are starting to form.

Next Level Summary – The next level is Level 3 – Well-defined Program. At Level 3, Architecture "Governance" committees are established, and have well-defined roles and responsibilities. Authority of the governance committees is also aligned to work together smoothly.

Steps for Progressing to Level 3

- Formalize EA Administration roles and responsibilities
- Formally follow EA deliverables through processes to ensure committees are aligned and working smoothly together
- Verify that all responsibilities, aligned to an individual or group, are being done.
- Develop and conduct educational sessions for the EA Blueprint development teams (Domain committees)

Planning – EA program road map and implementation plan. Architecture Planning ensures the program is managed to assure the goals for implementation are realistic and achievable and the program is kept within scope.

Current Level Summary – Based on the responses provided in the EA Assessment, the EA maturity level that most closely identifies your organization's current state for EA

Planning is Level 2 – Repeatable Program. At Level 2, the organization has begun to develop a vision for Enterprise Architecture (EA) and has begun to identify EA tasks and resource requirements. The organization has also decided upon a methodology and begun to develop a plan for their EA Program.

Next Level Summary – The next level is Level 3 - Well-defined Program. At Level 3, EA Program plans are well defined and documented, including governance roles & responsibilities, the architecture lifecycle processes, a structured framework and timeline for developing the EA, and financial & staffing resource requirements. EA activities are also carried out according to the defined plan.

Steps for Progressing to Level 3:

- Create EA Program Plan
- Execute EA activities based on defined EA Program Plan
- Update plans based on changes to any of the plan criteria previously mentioned

Framework – processes and templates used for Enterprise Architecture. Architecture Framework consists of the processes, templates and forms used by those documenting the operations and standards of the organization.

Current Level Summary – Based on the responses provided in the EA Assessment, the EA maturity level that most closely identifies your organization's current state for EA Framework is Level 1 – Informal program. At Level 1, the organization is beginning to understand the need to create processes and templates to capture business drivers and technical standards. However, processes are ad hoc and informal, processes followed may not be consistent. There is no unified architecture process across technologies and lines of business.

Next Level Summary – The next level is Level 2 - Repeatable Program. At Level 2, the basic EA Program is documented. Processes are planned and tracked. The organization is beginning to reuse methods for capturing critical EA information.

Steps for Progressing to Level 3:

- Document the basic EA Program processes and templates
- Begin to track EA Program plan processes
- Track EA processes, actuals against planned
- Encourage reuse of basic EA Program templates
- Formally document Architecture Lifecycle Processes.
- Formally document EA Program Tools (Architecture Lifecycle Templates, Migration Strategy Templates, Classification Criteria Decision Tools)
- Produce Education Materials for the Architecture Lifecycle Processes and Tools
- Conduct Education Sessions for the Architecture Lifecycle Processes and Tools

Blueprint – collection of the actual standards and specifications. Architecture Blueprint refers to the completed documents that are prepared using the Architecture Framework processes, templates and forms. The Blueprint refers to the documented products and standards, together with their detail, classifications, impact statements, and migration strategies.

Current Level Summary – Based on the responses provided in the EA Assessment, the EA maturity level that most closely identifies your organization's current state for EA Blueprint is Level 0 – No Program. At Level 0, Business functionality is not documented and IT technology standards are not documented.

Next Level Summary – The next level is Level 1 - Informal Program. At Level 1, documentation of business drivers, technical standards, etc. is beginning to happen.

Steps for Progressing to Level 3:

- Research how other organizations capture business drivers and technology standards.
- Informally begin to document Business Drivers
- Informally begin to document Technology Standards
- Identify documented Business Drivers and strategic information
- Identify documented Technology Standards
- Determine ways to capture the various pieces of EA information in a consistent format and storage medium
- Consistently document Technology Standards and Guidelines using the EA Program Tools provided

Communication –education and distribution of EA and Blueprint detail. Communication is the element that ensures standards and processes are established and readily available to team members for reference and use. As an organization changes and programs evolve the continued communication ensures the EA program remains vital and operates optimally.

Current Level Summary – Based on the responses provided in the EA Assessment, the EA maturity level that most closely identifies your organization's current state for EA Communication is Level 0 – No Program. At Level 0, Senior Management and agencies are not aware of what enterprise architecture is, or the benefits.

Next Level Summary – The next level is Level 1 - Informal Program. At Level 1, the need to create greater awareness about EA has been identified.

Steps for Progressing to Level 3:

- Begin to talk to Senior Management groups regarding the benefits of Enterprise Architecture
- Create Enterprise Architecture Marketing Materials
- Conduct an Enterprise Architecture Marketing Campaign to Senior Management and Legislators
- Prepare and conduct workshops on sharing ideas, standards, and technology configuration specifications
- Share EA Blueprint information captured in reusable formats
- Develop a formal Communication process to ensure the EA Program is communicated and known throughout the organization
- Conduct EA Senior EA presentation showing actual results from EA Program
- Develop and conduct training sessions to educate committee members on the EA roles and responsibilities, processes and templates
- EA Blueprint is available to all stakeholders for analysis and review
- EA Variances are communicated out to all stakeholders

Compliance – adherence to published standards, processes and other EA elements, and the processes to document and track variances from those standards. Compliance must be reviewed periodically to be sure the business and IT programs and services are operating effectively.

Current Level Summary – Based on the responses provided in the EA Assessment, the EA maturity level that most closely identifies your organization's current state for EA Compliance is Level 0 – No Program. At Level 0, no compliance process exists within the organization.

Next Level Summary – The next level is Level 1 - Informal Program. At Level 1, the need for compliance to standards has been identified.

Steps for Progressing to Level 3:

- On a "target action" list, identify the need to comply with the developed guidelines, standards and legislation
- Identify the various ways that compliance is currently accomplished within your organization and document them.
- Document a consistent compliance process to ensure that changes in the enterprise are in line with the documented guidelines, standards, and legislation.
- Choose a pilot project to take through the compliance process. Ensure that the compliance process takes into account all of the steps required to ensure compliance and brings benefit to the team seeking information from the EA Program
- Observe the development of a business case to seek a variance from the guidelines, standards, and legislation.
- Document issues that came up regarding the development process and/or difficulties encountered
- Fully integrate the EA compliance process with the other EA Program Architecture Lifecycle Processes to ensure interoperability of the EA Program overall
- To keep the EA Blueprint vital, ensure that the various help requests and variances are tracked and feed into the Architecture Vitality processes
- Use the information documented during the observation of the Business Case development process to further define and improve the process
- Provide a business case template to aid in the development of consistent business cases across the enterprise

Integration – touch-points of management processes to the EA. Integration addresses the ability of the various entities (internal or external to the organization) to coordinate their efforts to the greatest benefit of the organization. This is a key factor, as great efficiencies are gained by identifying similar functions or operations, both inside and outside of an organization.

Current Level Summary – Based on the responses provided in the EA Assessment, the EA maturity level that most closely identifies your organization's current state for EA Integration is Level 1 – Informal program. At Level 1, the need for integration to the EA Program Framework (Architecture Lifecycle Processes) has been identified. The various

touch-points between the Management Processes and the EA Program Framework have been mapped, however, no details exists to how the integration will work. Projects and purchases may be costly because they are done in isolation.

Next Level Summary – The next level is Level 2 - Repeatable Program. At Level 2, the organization has begun to identify common Business and system functions, which allows touch-points to be identified earlier in the project development life cycle.

Steps for Progressing to Level 3:

- Determine the benefits that the EA Program can bring to the other Management Processes
- Meet with the owners/stakeholders of other Management Processes. Talk to them about the benefits that can be received by integrating various processes
- Brainstorm various options for integrating their Management Processes with the EA Program Framework
- Determine next steps to help the integration to move forward
- Document the EA Program integration points:
- The documented integration points should be completed for all of the following Management Processes that exist in your organization, including strategic planning, capital planning, project management, change management, procurement, and budgeting.
- Make Architecture Compliance Review part of the project methodology

Involvement – support of the EA Program throughout the organization. Involvement must be part of an EA Program. Without the support of managers and employees who are expected to utilize and follow the defined process, the program is sure to fail.

Current Level Summary – Based on the responses provided in the EA Assessment, the EA maturity level that most closely identifies your organization's current state for EA Involvement is Level 0 – No Program. At Level 0, there is no program in place for Enterprise Architecture awareness. Several independent groups or individuals will be typically working to solve a single issue.

Next Level Summary – The next level is Level 1 - Informal Program. At Level 1 the organization has identified a need to make staff throughout the enterprise aware of the benefits and concepts of Enterprise Architecture.

Steps for Progressing to Level 3:

- Document the advantages of having Enterprise Architecture that are specific to your organization. If you have EA benefit statements or charters already developed, these can help in documenting the advantages.
- In the document, discuss the concept that all organizations have an architecture, however, having a successful, Enterprise Architecture is a matter of having the details of that Architecture explicitly defined and documented, rather than implicitly done based on everyone's Agencyal inclinations or understanding
- Speak to various management groups throughout the organization about the concepts of EA.
- Set-up web site to increase understanding of EA and solicit involvement
- As EA roles and responsibilities are identified, solicit volunteers and choose individuals to assist in the EA Program.

- Continue to provide the EA Blueprint information to the various organizational groups within your enterprise. Communicate to the members of these groups the benefits of having the EA Blueprint information for the critical decision-making process
- Continue to involve additional organizational individuals/groups in the EA roles and responsibilities. As people get involved they become proponents of the program

Recommended Actions

(NOTE: These recommendations are still subject to change, pending additional advice from those entities that are participating in this strategic initiative.)

The NASCIO methodology recognizes that developing Enterprise Architecture is a gradual, iterative process. Each version of the Enterprise Architecture builds on previous work. This section sets forth the detailed work plan for the next 6 months. Timeframes reflect high-level estimates without perfect knowledge of the tasks to be accomplished or the resources that will be available.

Actions Include:

1. Governance and Planning
    a. Lead Entity: CIO
    b. Tasks and Timeframes:
        i. Prepare draft roles and responsibilities for EA (September 16, 2004)
        ii. Prepare draft EA Program Plan (September 16, 2004)
        iii. Prepare draft changes to SGC Charter, if necessary (October 2004)
        iv. Publish version 1.0 of the EA (January 31, 2004)
    c. Funding: No funding required for this task
    d. Status (March 2005): Version 1.0 has been written and is ready for presentation to the State Government Council. Version 1.0 includes the topics of Governance and Planning and Business Architecture and Management Principles. Version 2.0 will focus on the technology architecture, including the topics of shared services, technology drivers and IT principles.

2. Compliance Plan
    a. Lead Entity: CIO
    b. Tasks and Timeframes:
        i. Document current compliance process (September 16, 2004)
        ii. Prepare draft of proposed changes to compliance process (October 2004)
        iii. Prepare draft of process and criteria for justifying a variance to the EA (October 31, 2004)
    c. Funding: No funding required for this task

d. Status (March 2005): The chapter on governance and planning in version 1.0 of the enterprise architecture includes a compliance strategy and the process for justifying a variance.

3. Integration Plan
    a. Lead Entity: CIO
    b. Tasks and Timeframes
        i. Prepare draft documentation of relationship of EA to project management (November 30, 2004)
        ii. Prepare draft documentation of relationship of EA to strategic planning and budgeting (December 31, 2004)
    c. Funding: No funding required for this task
    d. Status (March 2005): The chapter on governance and planning in version 1.0 of the enterprise architecture includes a discussion on integrating other processes with the enterprise architecture.

4. Technical Architecture Framework
    a. Lead Entity: CIO
    b. Tasks and Timeframes:
        i. Document EA program process and templates (December 31, 2004)
        ii. Document Architecture Lifecycle Process (December 31, 2004)
    c. Funding: No funding required for this task
    d. Status (March 2005): Deferred to a future version, when we have a better understanding of what is involved in developing and maintaining the enterprise architecture.

5. Technical Architecture Blueprint
    a. Lead Entity: CIO
    b. Tasks and Timeframes:
        i. Research and document business drivers (December 31, 2004)
        ii. Research and document existing technical standards (target date?)
    c. Funding: No funding required for this task
    d. Status (March 2005): The chapter on Business Architecture and Management Principles version 1.0 of the enterprise architecture summarizes the important business drivers affecting technology in Nebraska. A future version will document existing inventory and defacto technology standards.

6. Enterprise licensing
    a. Lead Entity: Tom Conroy
    b. Tasks and Timeframes:
        i. Solicit enterprise pricing for anti-virus software (August 31, 2004)
        ii. Enter into enterprise contracts with at least three additional vendors by June 30, 2005.
    c. Funding: No funding required for this task
    d. Status (March 2005): Enterprise agreements in place: IBM Software (ELA); IBM Hardware Maintenance (CHIS); Microsoft Software; IBM WSCA; Dell WSCA; HP WSCA; Gateway WSCA; 4 Vendors provide Temporary Information Technology Contract Help; KALOS (AS/400 hardware and software); MicroFocus (development environments); 9 Vendors provide

remote PC and network support on a time and material basis. Contracts with ESRI and Oracle are pending, as are additional WSCA vendors.

7. Shared services
    a. Lead Entity: TBD
    b. Tasks and Timeframes:
        i. Research opportunities for shared services, including criteria for deciding whether a service should be centralized or distributed (target date?)
        ii. Prepare an inventory of existing shared services (target date?)
    c. Funding: No funding required for this task
    d. Status (March 2005): In progress. This topic was discussed at the February State Government Council meeting and will be the focus at the March work session of the State Government Council.

Date of Last Revision: March 7, 2005

Nebraska Information Technology Commission
Strategic Initiatives

Strategic Plan For
E-Government

Objectives

In a memo to all agencies dated November 19, 2003 (http://www.cio.state.ne.us/e-gov/Automation.pdf), the Governor identified four management principles for e-government:

1. It should be easy for citizens and businesses to find information regarding government;
2. The administrative burden of complying with government requirements should be as minimal as possible;
3. Self-service should be an option, if at all feasible; and
4. Government should present an integrated view of government information and services.

E-government is a continuous process of using technology to serve citizens and improve agency operations. Technology creates new opportunities for major change, including self-service, integration of information and services, and elimination of time, distance and availability of staff as constraint to providing information and services. An enterprise approach and cooperation of multiple jurisdictions are critical to achieving the goals of e-government, in order to integrate information and services and allow the easy exchange of information.

Benefits

The primary benefits of e-government are:

1. Improved services for citizens and businesses.
2. Increased efficiency and effectiveness for agencies.

Current Status

Where we are...

Since the adoption of the first *E-government Strategic Plan* in 2000, state agencies have continued to make progress toward the vision of having Nebraska government be open

for business from any place and at any time through the use of e-government. The two major sources of this progress have been, first, from individual and collaborative agency initiatives and second, from enhancements to the state's Web portal, Nebrask@ Online (NOL). The following is a look at where we are in development of e-government services in state government. It is not intended to be a comprehensive list of all efforts but a general overview of the progress made since the first adoption of a strategic plan.

Looking at improvements in the state's Web portal, Nebrask@ Online, is a good starting point for this review because the portal is the front door for e-government in Nebraska. In 2000 the portal was redesigned to better serve citizens and businesses. The redesigned site presents information in categories, which reflected how users would most likely look for information and services. The idea behind the redesign was that users should be able to find the information they were seeking without having to know which specific agency or division of state government was responsible for that information or service. The goal was to get the user to the information they needed within two mouse clicks. The redesigned site was nationally recognized in 2001, 2002, and 2004 as a finalist in the "Best of the Web" competition, meaning the state's Web portal was in the top ten of state Web portals.

Building on the theme of categorizing information by topic, the next major revision to Nebrask@ Online involved creating "sub-portals" or "second-level portals." Each sub-portal provides a specific user group with information and value-added services of interest to that group. Sub-portals have been created for the following areas: business, citizen, education, and state employees.

Nebraska@ Online for Business was the first operational sub-portal, launched in May 2002. The site offers a number of features of value to the business community, two of which are a database of business forms and a customizable portfolio. The database contains information and links to more than 1200 state government forms that are used to regulate or otherwise interact with businesses. This database can be searched in a variety of ways, and can retrieve information without regard for the responsible agency. In this way, the user does not have to be familiar with which agency handles a form in order to obtain the information. An upgrade to Nebrask@ Online for Business and the forms inventory began in August 2004.

The other sub-portals -- Nebrask@ Online for Education, Nebrask@ Online for Citizens, and Nebrask@ Online for State Employees -- each provide the user group with an enhanced presentation and delivery of e-government information and services.

NOL has also implemented a "Payment Portal." This portal provides an enterprise approach to payment processing for e-government services. All online services can use a single payment portal to collect funds associated with the various e-government services provided. The portal will eliminate the need to recreate a payment system for each online application. The payment portal can process credit card, debit card or electronic check payments.

In addition to work on the state portal and sub-portals, NOL has developed and launched several specific e-government applications, including interactive electrical permits; water well registrations, more than 80 online professional license renewals for nine different agencies; and tax filing applications for income, sales and withholding taxes. Work is

underway on a one-stop business registration system that will provide a single Web interface for several agency registration processes.

Since publication of the first e-government strategic plan, state agencies have added considerable content and many interactive services to their websites. A few examples include:

- Game and Parks Commission – Online campground and lodging reservations (http://www.ngpc.state.ne.us/parks/permits/reserve.asp)
- Department of Revenue – Tax Forms and online tax filing options such as Individual Income Tax forms 1040NS, 1040N; Sales and Use Tax Form 10; and the 941N for withholding payments (http://www.revenue.state.ne.us/electron/e-file.htm)
- Depatment of Labor – UIConnect for unemployment insurance taxes (http://www.dol.state.ne.us/)
- Public Employees Retirement System – Access to Pension-Related Information (http://www.npers.ne.gov/home.jsp)
- State Treasurer – Child Support Website (https://www.nebraskachildsupport.state.ne.us/)
- Nebraska Supreme Court – Court Records Retrieval System
- Nebraska Workers' Compensation Court - Claims Administrator's Extranet First Report of Injury Search Application

This background information is intended to show the basic direction of e-government activities since 2000. A more complete listing of e-government services is available at: http://www.state.ne.us/egov.html.

Digital State Survey

One measure of the progress we have made in implementing e-government is to look to national reports on e-government. The Center for Digital Government has conducted a detailed survey of digital government in all 50 states, called the "Digital State Survey."[1] Looking at how Nebraska has scored provides a tool for measuring our progress. However, as with all surveys, there are elements of subjectivity in this survey -- what is deemed an important aspect of e-government for those conducting the survey may not necessarily align with our focus in Nebraska. With that note, here is table showing how Nebraska has scored:

Digital State Survey Results				
Category	**2000 Ranking**	**2001 Ranking**	**2002 Ranking**	**2004 Ranking**
Electronic Commerce / Business Regulation	28	25	Unranked (>25th)	Not Available
Taxation / Revenue	29	9 (tie)	1 (tied)	Not Available
Law Enforcement / Courts	12	Unranked (> 25th)	Unranked (> 25th)	Not Available
Social Services	9	5 (tie)	7 (tie)	Not Available
Digital Democracy	13	3	17	Not Available
Management / Admin.	10	22	Unranked (>25th)	Not Available
Education	K-12: 31st Higher Ed: 17th	20	14 (tied)	Not Available
GIS / Transportation	(New category in 2001)	Unranked (> 25th)	21 (tied)	Not Available
Aggregate Ranking	14th	17th	Unranked (>25th)	22

[1] http://www.centerdigitalgov.com/

To move into the top ten, Nebraska must accomplish the following:

- Prepare a comprehensive strategy for online licensing;
- Develop an online business registration system;
- Provide online criminal history background checks;
- Establish a marketing strategy to improve adoption rates;
- Require testing and management tools for accessibility;
- Require online privacy statements;
- Provide an online system where constituents can request services, report problems, complain about services, and complete citizen satisfaction surveys about state services;
- Develop and implement an enterprise architecture for information technology;
- Provide an enterprise approach for knowledge resource management (including content management, business process automation, directory services, registries and repositories, and digital archive), and
- Provide an enterprise approach to security services.

Future

Where we are going...

This plan is the State Government Council's communication of where Nebraska state government needs to direct its efforts to achieve the greatest benefits from e-government. The vision and goals for e-government are:

Vision: The State of Nebraska will be open for business from any place and at any time through the use of e-government.

Goal 1: Government-to-Citizen and Government-to-Business
Anyone needing to do business with state government will be able to go to the state's Web site, easily find the information or service they need, and if they desire, complete all appropriate transactions electronically.

Goal 2: Government-to-Government
State agencies will improve services and increase the efficiency and effectiveness of government operations through collaboration, communication, and data sharing between government agencies at all levels.

Goal 3: Government-to-Employee and Internal Operations
Agencies will examine internal operations to determine cost-effective e-government applications and solutions. The purpose of these efforts is to improve efficiency and effectiveness by replacing manual operations with automated techniques. Automating internal operations is often a prerequisite for improving public access to information and services.

How citizens and businesses use e-government.
These goals are consistent with the expectations of citizens and businesses. A recent survey found that approximately 71 million Americans had sought information from a

government Web site. This same survey also showed that 82% of Internet users "expect" to get the information or service they need from the agency's Web site.[2]

When businesses were surveyed about which activities they would like to perform online, 43% reported they would like to use the Internet to obtain or renew professional licenses and 39% wanted access to one-stop shopping to apply for all new business licenses and permits. Other services sought by business users, as reported by the survey, included: 38% access to criminal history background checks; 36% apply for a business permit; 34% obtain a limited criminal history report. Businesses sited the benefits of participating in e-government as: speed (51%); convenience - no line (43%); and better hours (22%).[3]

Citizens also reported improved interactions with government when using government Internet sites. Overall, 60% of government Web site users say such sites had improved their interaction with at least one level of government, and 45% said it had improved the way they interact with state government.[4]

The following table shows what government site users do at agency Web sites[5]:

What government site users do at agency Web sites

The percentage of those who use government Web sites who have ever done these activities at government sites...

Get tourism and recreational information	77%
Do research for work or school	70%
Download government forms	63%
Find out what services a government agency provides	63%
Seek information about a public policy or issue of interest to you	62%
Get advice or information about a health or safety issue	49%
Get information about potential business opportunities relevant to you or your place of employment	34%
Send comments about an issue to a government official	34%
Get information or apply for a government job	24%
Get information about elections, such as where to vote	22%
Get information that helped you decide how to vote in an election	21%
Get information about a lottery	21%
Get information about or apply for government benefits	20%
File your taxes	16%
Renew a driver's license or auto registration	12%
Renew a professional license	7%
Get a fishing, hunting or other recreational license	4%
Pay a fine	2%

Source: Pew Internet & American Life Project Government Web Site Survey, September 5-27, 2001. N=815. Margin of error is ±4%.

[2] Horrigan, J., *Counting on the Internet*, Pew Internet & American Life Project, http://www.pewinternet.org/, December 29, 2002

[3] *Benchmarking the eGovernment Revolution*, Momentum Research Group of Cunningham Communications (Commissioned by NIC), July 26, 2000.

[4] Larsen, E., *The rise of the e-citizen*, Pew Internet & American Life Project, http://www.pewinternet.org/, April 3, 2002.

[5] Ibid.

Best practices in other states.
As part of the Digital State Survey, the Center for Digital Government also looks at "best practices" in other states. The following is a list of some of these e-government best practices:

URL	Project Title	Category
http://www.michigan.gov/doingbusiness	Michigan Doing Business with the State (e-procurement system)	Architecture
http://www.oit.state.pa.us/oaoit/site/default.asp	Pennsylvania PA-Dynamic Site Framework (web content management tool)	Architecture
http://www.access.wa.gov	Washington Ask George (user friendly search tool)	Architecture
http://www.truckingks.org	Kansas E-Truck Stop (online access for motor carriers)	Business Portal
http://www.choosemaryland.org	Maryland Choosemaryland.org (business portal and site selection tool)	Business Portal
http://www.etides.state.pa.us/	Pennsylvania E-TIDES (common tax filing system for Revenue and Labor)	Business Portal
http://www.paopen4business.state.pa.us/	Pennsylvania Open for Business (online access for businesses)	Business Portal
http://www.townhall.state.va.us	Virginia Regulatory Town Hall (tracking rules and regulations)	Business Portal
http://www.sbe.state.va.us	Virginia Absentee Ballot Tracking	Citizen Portal
http://www.sots.state.ct.us/	Connecticut Campaign Finance Information System (electronic campaign filing system)	Citizens Portal
http://www.cyberdriveIllinois.com	Illinois Online Services for Motorists (central access to all MV-related services)	Citizens Portal
http://www.state.in.us/apps/lsa/session/billwatch/	Indiana BillWatch (bill tracking and e-mail updates)	Citizens Portal
http://legis.state.sd.us/mylrc/index.cfm	South Dakata My Legislative Research (customized bill tracking and e-mail notification)	Citizens Portal
http://www.coloradomentor.org/	Colorado Mentor Program (online resources for university admissions)	Education Portal
http://www.umuc.edu/	University of Maryland University College (online education model)	Education Portal
http://www.gis.state.ar.us/defaultIE.htm	Arkansas GeoStar (Internet-based GIS data clearinghouse)	GIS
http://www.sscgis.state.or.us/	Oregon Geospatial Data Clearinghouse	GIS
http://www.eva.state.va.us/	Virginia eVA (procurement system for state and local government)	Procurement
http://www.wa.gov/dis/academy/index.htm	Washington Digital Government Applications Academy	Training

Recommended Actions

(NOTE: These recommendations are still subject to change, pending additional advice from those entities that are participating in this strategic initiative.)
Goal 1: Government-to-Citizen and Government-to-Business

Citizen Portal Enhancements
The citizen portal, Nebrask@ Online for Citizens (http://www.nebraska.gov/citizen/), was launched in 2003. The following are specific actions and recommendations for value-added enhancements to this portal.

1.1 Work with the Secretary of State's Office to provide enhancements to election related information and services.
   a. Lead Entity: Nebrask@ Online Manager ("NOL") in cooperation with the Secretary of State's Office
   b. Timeframe: TBD
   c. Funding: Secretary of State / NOL

d. Status (March 2005): Completed. Enhancements made for November 2004 election.

1.2 Work with the Accountability and Disclosure Commission to provide for secure online filings and improved access to information.
   a. Lead Entity: NOL (in cooperation with the Accountability and Disclosure Commission
   b. Timeframe: January 31, 2005
   c. Funding: State Records Board Grant
   d. Status (March 2005): Improvements to information access completed, to be posted. Online filing on hold.

1.3 Work with the Legislature to provide additional tools to track legislative information. The Nebrask@ Online Manager is developing additional features, including the ability to track multiple bills from one location and the use of e-mail "push" technology.
   a. Lead Entity: NOL (in cooperation with the Legislature Council)
   b. Timeframe: November 1, 2004
   c. Funding: State Records Board Grant
   d. Status (March 2005): Completed.

1.4 Work with the Department of Motor Vehicles to provide for online vehicle registration and drivers license renewal. DMV is in the process of implementing two systems -- insured motorists database and digital drivers license system -- which will allow for the future deployment of these online services.
   a. Lead Entity: Department of Motor Vehicles
   b. Timeframe: TBD
   c. Funding: DMV
   d. Status (March 2005): No change.

1.5 Work with the Nebrask@ Online Manager and county officials to provide the means for online payment of property taxes and other local fees.
   a. Lead Entity: NOL (in cooperation with county governments)
   b. Target Completion Date: TBD
   c. Funding: NOL (Reinvested Revenue)
   d. Status (March 2005): State Records Board grant application submitted for a pilot project with six counties.

1.6 Prepare a comprehensive strategy for online licensing of regulated professionals.
   a. Lead Entity: Office of the CIO
   b. Target Completion Date: December 31, 2004
   c. Funding: NOL (Reinvested Revenue)
   d. Status (March 2005): Work ongoing.

Business Portal Enhancements

The business portal, Nebrask@ Online for Business (http://www.nebraska.gov/business/), was launched in May 2002. The following are specific actions and recommendations for value-added enhancements to this portal.

1.7 Working with the various agencies involved in business registration -- including the Secretary of State, Department of Revenue, and Department of Labor -- create an online system for business registration.
   a. Lead Entity: Office of the CIO
   b. Timeframe: TBD (Pending requirements analysis by NOL)
   c. Funding: NOL (Reinvested Revenue)
   d. Status (March 2005): Work group established. Analysis underway by NOL and agencies.

1.8 Prepare a report on the barriers and options for providing online access to certain, limited, criminal history information.
   a. Lead Entity: Office of the CIO (in cooperation with the Nebraska State Patrol)
   b. Timeframe: May 31, 2005
   c. Funding: NOL No funding needed for this analysis
   d. Status (March 2005): On hold.

1.9 Develop an online application for use by businesses attempting to find a suitable site for business development.
   a. Lead Entity: Office of the CIO
   b. Timeframe: TBD (Pending requirements analysis by NOL)
   c. Funding: State Records Board Grant or NOL (Reinvested or Enhanced Revenue)
   d. Status (March 2005): No change.

1.10 Improve the business forms database maintained by NOL and enhance the search capabilities.
   a. Lead Entity: NOL and Office of the CIO
   b. Timeframe: October 31, 2004
   c. Funding: State Records Board Grant
   d. Status (March 2005): Work on application completed, work on data is ongoing.

Education Portal

The Education Portal (http://www.nebraska.gov/education/) first became available to the general public in February 2003. The following are specific actions and recommendations for value-added enhancements.

1.11 Under sponsorship of the Education Council of the NTIC, The Nebrask@ Online Manager will work with the Education Council educational institutions to provide enhancements to the Education Portal, including but not limited to:
   - Information Technology Training Calendar;
   - Searchable database of educational courses, degrees, and programs;
   - Statewide application for admission to higher education institutions.

   a. Lead Entity: Office of the CIO / Education Council
   b. Timeframe: TBD
   c. Funding: State Records Board Grant
   d. Status (March 2005): Information Technology Training Calendar under development; Searchable Database project terminated, no plan to continue, another source provides similar information; Statewide Application for Admission, project terminated, no plan to continue.

1.12 The Department of Education is developing online teacher/administrator certification.
   a. Lead Entity: Department of Education
   b. Timeframe: November 2004
   c. Funding: NDE
   d. Status (March 2005): Completed.

Goal 2: Government-to-Government

2.1 Develop strategies to address the following government-to-government activities:
   - Intergovernmental Cooperation Groups. Expand upon current intergovernmental cooperative efforts like the CJIS Advisory Committee and GIS Steering Committee; and develop new cooperative groups for those agencies that have specific, shared interests.
   - Integration of Government Information and Services. Develop strategies for using Internet technologies to provide integrated access to information and services to citizens, businesses, employees, and other governmental entities.
   - Local Government Portal. Provide a one-stop Web site for information and services used by local governments.
   - Forms Automation. Work with state agencies and political subdivisions to identify and prioritize opportunities for automating forms that local government uses to interact with state government.

   a. Lead Entity: State Government Council
   b. Timeframe: July 2005
   c. Funding: None
   d. Status (March 2005):
   Intergovernmental Collaboration Groups: Status: The Juvenile Data Sharing Work Group (created by CJIS and SGC) sponsored a study to prepare a strategic plan for data sharing among entities providing services to children. That study will be finished in March 2005. The Steering Committee on Child Abuse and Neglect Information Exchanges prepared an interim report in October that recommended six short-term projects. MOAs for those projects have been signed (except for one) and those projects are now getting underway. Further information is available at: http://cio.nol.org/CTF/. In January, the Office of the CIO submitted an application to the National Governor's Association for a $50,000 grant to conduct a pilot project for using Global XML technology to enable existing systems to exchange data on child abuse cases. Nebraska's project is one of six out of 21 proposals, which was approved. We are waiting for the contract from NGA before initiating work.
   Local Government Portal: On schedule to be incorporated into overall NOL site redesign currently planned for June 2005.
   Integration of Government Information and Services: A Steering Committee is working on integrating the information system needs of the Foster Care Review Board into the NFOCUS system maintained by HHS.

Goal 3: Government-to-Employee and Internal Operations

3.1 State Employee Portal Enhancements. The State Government Council will identify specific improvements and value-added services to be incorporated into

the state employee portal, Nebrask@ Online for State Employees (www.nebraska.gov/employee/).

a. Lead Entity: State Government Council
b. Timeframe: July 2005
c. Funding: None
d. Status (March 2005): No change.

Other Actions and Recommendations

4.1 Develop a marketing strategy to increase public awareness and the use of e-government services.

a. Lead Entity: NOL
b. Timeframe: TBD
c. Funding: NOL (Reinvested Revenue)
d. Status (March 2005): A meeting was held with agency PIOs on October 1 to explore different strategies for marketing. NOL has hired a marketing director. NOL is developing recommendations for the next State Records Board meeting.

4.2 Prepare draft standards for all agency home pages to include privacy and security statements.

a. Lead Entity: Webmasters Work Group
b. Timeframe: December 2004
c. Funding: None
d. Status (March 2005): Webmasters Work Group developed draft standard under review by the State Government Council. Draft security statement to be reviewed by the State Government Council and State Records Board.

4.3 The SGC will work with other entities to investigate ways of providing authentication, especially for first time encounters with users.

a. Lead Entity: Office of the CIO
b. Timeframe: December 2004
c. Funding: TBD
d. Status (March 2005): No change.

Date of Last Revision: March 7, 2005

Nebraska Information Technology Commission
Strategic Initiatives

Strategic Plan For
Security and Business Resumption

Objectives

This initiative will define and clarify policies, standards and guidelines, and responsibilities related to the protection of the state's information technology resources. Information security and business resumption will serve statutory goals pertaining to government operations and public records. These include:

1. Insure continuity of government operations (Article III, Section 29 of the Nebraska Constitution; Nebraska Revised Statutes Sections 28-901 and 84-1201);
2. Protect safety and integrity of public records (Nebraska Revised Sections 28-911, 29-3519, and 84-1201);
3. Prevent unauthorized access to public records (Nebraska Revised Statutes Sections 29-3519, 81-1117.02, and 84-712.02);
4. Insure proper use of communications facilities (Nebraska Revised Statutes Section 81-1117.02); and
5. Protect privacy of citizens (Nebraska Revised Statutes Section 84, Article 7).

Information security refers to policies and procedures that are aimed at preventing problems that would threaten the safety and integrity of information resources. Business resumption refer to plans and activities aimed at responding to an event in a manner that mitigates the severity of problems and accelerates recovery.

Benefits

A strategy for security and business resumption of information technology systems is essential for meeting the statutory objectives listed above. In addition, there are several federal laws and regulations regarding privacy and security of information. These include HIPAA (Health Insurance Portability and Accountability Act), IT Requirements for Public Health Preparedness and Response for Bioterrorism (Center for Disease Control), Sarbanes-Oxley Act of 2002, Help America Vote Act of 2002 (HAVA), Graham-Leach-Bliley Act (GLBA), and the Family Education Rights and Privacy Act (FERPA).

Some of the federal laws carry substantial penalties. In particular, HIPAA imposes civil penalties of up to $25,000 per person, per year, per standard as well as criminal penalties from $50,000 and one year in prison to $250,000 and 10 years in prison (when malice, commercial advantage and personal gain are involved).

Security is also important for protecting critical systems that impact large numbers of people in the state. A few examples include:

- Unemployment assistance ($2.2 million paid out per week to 18,000 people)
- Child support ($4.4 million paid per week to 20,000 recipients)
- Medicaid claims (156,000 claims per week; $21.4 million payments per week)
- NFOCUS payments for multiple human services programs ($26 million paid each month for 185,000 cases)
- State accounting and payroll system
- Law enforcement
- Tax collection
- Homeland Security functions

The FBI conducts an annual survey of computer security issues affecting U.S. corporations, government agencies, financial institutions, medical institutions, and universities. The 2004 CSI/FBI Computer Crime and Security Survey included the following findings:

- 79% of survey participants reported one or more security incidents;
- 78% reported virus attacks;
- 59% reported insider abuse of Net access;
- 49% reported laptop/mobile theft;
- 39% reported system penetration;
- 37% reported unauthorized access to information;
- 15% reported abuse of wireless networks;
- 10% reported misuse of public web applications, and
- 7% reported web site defacement.

The 2004 survey is available at: http://i.cmpnet.com/gocsi/db_area/pdfs/fbi/FBI2004.pdf.

An additional justification for attention to computer security issues is the National Strategy to Secure Cyberspace, published by the Department of Homeland Security in February 2003. One of the priorities of the national cyberstrategy is "Securing Governments' Cyberspace." The foundation for the federal government's cybersecurity includes:

- Assigning clear and unambiguous authority and responsibility for security priorities;
- Holding officials accountable for fulfilling those responsibilities, and
- Integrating security requirements into budget and capital planning processes.

The national cyberstrategy encourages state and local governments to "establish IT security programs for their departments and agencies, including awareness, audits, and standards; and to participate in the established ISACs (Information Sharing and Analysis Centers) with similar governments."

Adequate security is also essential to expansion of e-government. Surveys show that concerns about security is one reason that the public is cautious about using on-line services, especially for conducting financial transactions or providing personal information.

Current Status

Every version of the Statewide Technology Plan of the NITC has included one or more action items pertaining to security for information technology systems. Past achievements include:

- Establishing the Security Work Group, with broad representation from state government and education sectors, to provide a forum for sharing information and developing standards and guidelines. Agendas and minutes are located at: http://www.nitc.state.ne.us/tp/workgroups/security/index.htm).
- Adopting a comprehensive set of security policies in January 2001 by the NITC. These policies include: Information Security Management, Access Control, Disaster Recovery, Education, Training and Awareness, Individual Use, Network Security, and Security Breaches and Incident Reporting.
- Publishing three security handbooks tailored to security officers, IS technical staff, and the general user.
- Offering training on the use of the security handbooks.
- Developing detailed information on:
    - Incident Response and Reporting Procedures;
    - Disaster Recovery Planning Procedures;
    - Wireless Local Area Network Guidelines;
    - Remote Access Guidelines.
- Sponsoring a Security Awareness Day (July 15, 2002).

All NITC policies, handbooks, procedures and guidelines are available at: http://www.nitc.state.ne.us/standards/index.html (under Security Architecture).

In 2002, the Nebraska Emergency Management Agency (NEMA) added a provision to the State Emergency Operations Plan that requires "Each state agency and local government (to develop) a continuity of operations plan and a disaster plan for information technology." In 2003, NEMA awarded $75,000 to the Department of Administrative Services (DAS) for a "Continuity of Operations Study". DAS has contracted with a company specializing in developing business continuity plans. The outcome will be a complete business continuity plan for all divisions of DAS. It will also provide a template that can be used for other agencies. By including a 'train-the-trainer' concept as well as involving multiple agencies in the project, DAS intends to encourage development of business continuity plans in all agencies.

The NITC has also funded two security audits. In March 2004, Omnitech conducted a limited security assessment of the state's network. The external vulnerability scan identified a total of 2,720 potential vulnerabilities with the following breakdown: 91 high-risk, 640 medium risk, and 1,989 low risk. Twelve agencies had one or more high-risk vulnerabilities. Agencies are in the process of evaluating the assessments and what steps they need to take. Not all of the potential vulnerabilities can or should be removed but all of the high and medium risk vulnerabilities will be accounted for by the agency responsible for the host that is vulnerable. In 2003, the results were 3,262 potential vulnerabilities (136 high risk, 1,182 medium risk, and 1,944 low risk). Seventeen agencies last year had one or more high-risk vulnerabilities.

These summary statistics indicate some progress in reducing the number of potential vulnerabilities, but the March 2004 results underscore the need for more attention on securing our information assets. These potential vulnerabilities may expose state government to the risk of disruption of services, legal liability, and financial loss.

Several agencies have undertaken special projects and initiatives to improve security of information technology systems. These include:

- Department of Administrative Services
  - Implemented layered security and firewall management of the state's network;
  - Developed directory services capability for better authentication and identity management;
  - Updating the disaster recovery plan for Information Management Services Division;
  - Distributing security notices from the Multi-State Information Sharing and Analysis Center to agency security contacts.
- Health and Human Services
  - Designated a security officer for information technology;
  - Implemented HIPAA Privacy and Security regulations;
  - Developing agency security policies and procedures;
- Department of Roads
  - Designated a security officer for information technology;
  - Updating the disaster recovery plan for information technology services;
  - Developing agency security policies and procedures.
- University of Nebraska
  - In collaboration with DAS-IMServices, NU is developing a shared, fast recovery capability, through mutual assistance of physically distant data centers. Fiber optic cable has been installed between the State and University.
  - Hired a University Information Security Officer
  - Work is progressing on the design and implementation of a Directory Service / Identify Management System.
  - Disaster recovery plan is going through major revisions to update and incorporate new options.
  - UN has implemented various firewalls in locations where it is needed.
  - Implemented a University-wide security focus group to share information, patch management, awareness training, incident reporting, and other educational opportunities.
  - University-wide licensing for McAffee Anti-Virus Software
  - Implemented various federally mandated regulations (HIPAA, GLBA, FERPA).
- Multiple Agencies
  - Implementing recommendations stemming from the March 2004 Network Perimeter Security Sweep.

Future

Security is a continuous effort to manage the risk to information systems. The expense of security safeguards must be cost effective and commensurate with the value of the

assets being protected. Security must be balanced against other business needs, such as providing public access or remote access to information.

The previous section demonstrates the progress that is being made. Further improvement in security and disaster recovery is needed in several areas:

- Monitor and reduce the number of vulnerabilities of computer systems;
- Provide better patch management, including enforcement of patch management policies;
- Promote survivability of systems as a security strategy;
- Demonstrate the ability to recovery critical computer systems following a disaster, including table top exercises of disaster recovery plans;
- Improve awareness on the part of users regarding security policies and sound security practices;
- Insure adequate security for wireless systems through encryption capabilities and other means;
- Deploy intrusion detection and protection technologies to protect critical infrastructure;
- Provide redundant services for critical infrastructure such as additional Internet access points;
- Plan for additional infrastructure to extend the distances for shared disaster recovery facilities.

Finding cost effective and workable solutions to these problems is essential to a good security program for state government.

Recommended Actions

(NOTE: These recommendations are still subject to change, pending additional advice from those entities that are participating in this strategic initiative.)

SECURITY

A. Conduct annual independent security audits

In the latest computer crime survey by the FBI, 82 percent of respondents indicated that their organizations conduct security audits. Multiple federal programs require periodic computer security audits, including HIPAA, HAVA, and Bioterrorism grants from the Center for Disease Control. Computer security audits are a widely accepted best practice across the public and private sector.

Actions include:

1. Request funding for the CIO to contract for security audits.
   a. Lead Entity: CIO
   b. Timeframe: September 1, 2004
   c. Funding: No funding required for this task
   d. Status (March 2005): Completed.
2. Investigate opportunities for aggregating efforts of several state agencies that face federal requirements for security audits.

a. Lead Entity: CIO
b. Timeframe: November 1, 2004 (and on-going)
c. Funding: No funding required for this task
d. Status (March 2005): Working with agencies.

3. Prepare RFP and Scope of Work
   a. Lead Entity: CIO (with assistance from Security Work Group)
   b. Timeframe: January 31, 2005
   c. Funding: If technical assistance is required for preparing the RFP, the cost will be paid either from the NITC grant or the budget of the Office of the CIO.
   d. Status (March 2005): RFP underdevelopment, to be released Spring/Summer 2005.
4. Conduct 2005 Security Audit
   a. Lead Entity: CIO
   b. Timeframe: April 30, 2005
   c. Funding: A grant application is pending before the NITC. The CIO is requesting funding for annual security audits as part of the FY2006 / FY2007 budget request.
   d. Status (March 2005): Pending release of RFP.

B. Implement centralized directory services

An analysis of security risks identified the need for an Enterprise Directory that provides identity management, single sign on, and role-based/policy-based authorization. In response to this need, IMServices is now implementing a directory services system that will be available to all agencies. Under the direction of the CIO and the NITC, a Work Group was established to make recommendations regarding business rules, polices and procedures for implementation. The system will provide single (or reduced) sign-on using role based authentication and authorization

Actions include:

1) Establish an authentication standard to be submitted to the NITC to seek approval by the March 2005 meeting
   a) Propose standard to State Government Council
      - Lead Entity: IMServices
      - Timeframe: September 16, 2004 meeting
      - Funding: No funding required for this task
      - Status (March 2005): Completed.
   b) Propose standard to NITC Technical Panel
      - Lead Entity: IMServices
      - Timeframe: December 14, 2004 meeting
      - Funding: No funding required for this task
      - Status (March 2005): Completed.

2) Content Management offerings to customers
   a) Implement the Content Management structure for all agencies -
      - Lead Entity: IMServices
      - Timeframe: March 31, 2005
      - Funding: IMServices
      - Status (March 2005): Work underway.

3) Two-factor authentication
   a) Propose standard to NITC Directory Workgroup
      - Lead Entity: IMServices
      - Timeframe: September 30, 2004 meeting
      - Funding: No funding required for this task
      - Status (March 2005): Timeline to be revised.
   b) Propose standard to SGC
      - Lead Entity: IMServices
      - Timeframe: December 2004 meeting
      - Funding: No funding required for this task
      - Status (March 2005): Timeline to be revised.

4) Pilot single sign-on
   a) Provide Web-Based Single sign-on (WSSO) guideline to any client/application that desires it.
      - Lead Entity: IMServices
      - Timeframe: September 30, 2004
      - Funding: IMServices
      - Status (March 2005): Timeline to be revised.

C. Implement incident reporting requirements

Very few agencies are complying with the NITC's incident reporting requirements. Centralized reporting serves the goal of increasing awareness of vulnerabilities and threats to state government as a whole. In particular, centralized reporting is necessary to discern patterns, identify areas of vulnerability, allocate resources, and develop statewide solutions. Centralized reporting does not substitute for internal reporting to management, reporting to law enforcement, or mobilizing a computer security incident response team (CSiRT). Agencies should develop procedures for internal and external reporting that will meet the needs of centralized reporting with little or no additional work.

Actions include:

1. Review incident reporting procedures to determine need for changes in what is reported and the reporting requirements.
   a. Lead Entity: CIO
   b. Timeframe: December 31, 2004
   c. Funding: No funding required for this task
   d. Status (March 2005): Completed. DOC developing an incident reporting process.

2. Communicate reporting requirements to agencies.
   a. Lead Entity: CIO
   b. Timeframe: March 31, 2005
   c. Funding: No funding required for this task
   d. Status (March 2005): Pending completion of previous item.

D. Network Security and Network Management

DAS Division of Communications (DOC) has made changes to implement a layered approach to network security. DOC and many agencies have focused more attention on network management, including patch management, virus protection, and intrusion detection.

Actions include:

1. Configure all public state IP addresses (164.119) behind the state's firewall complex
   a. Lead Entity: DOC
   b. Timeframe: December 31, 2004
   c. Funding: DOC
   d. Status (March 2005): Completed.
2. Implement an intrusion detection and prevention system on the State's Internet connection as a part of a layered defense.
   a. Lead Entity: DOC
   b. Timeframe: March 31, 2005
   c. Funding: DOC
   d. Status (March 2005): On schedule.
3. Investigate and recommend an enterprise solution to ensure that encrypted traffic adheres to State security requirements.
   a. Lead Entity: DOC
   b. Timeframe: March 31, 2005
   c. Funding: Funding not needed.
   d. Status (March 2005): On schedule.
4. Evaluate and recommend options for providing encryption to clients across the state's Wide Area Network
   a. Lead Entity: DOC
   b. Timeframe: June 30, 2005
   c. Funding: Funding not needed.
   d. Status (March 2005): On schedule.

BUSINESS RESUMPTION

E. Promote disaster planning for information technology systems, in conjunction with agency business continuity plans

Disaster recovery plans for information technology must be linked to an overall agency business continuity plan. A strategy for security and business resumption must encourage completion of agency business continuity plans in order for disaster recovery plans for information technology to be effective. Because many agencies depend on DAS for networking and computing services, it is essential that DAS develop a disaster recovery plan for its facilities and services.

Actions include:

1. Conduct an "executive overview" briefing (orientation exercise) to state agencies (using either the State Government Council or the Security Work Group as a

forum) explaining the progress and current and future activities in the development of disaster recovery plans.
   a. Lead Entity: DAS – IMServices, DAS Division of Communications, and CIO
   b. Timeframe: December 31, 2004
   c. Funding: No funding required for this task
   d. Status (March 2005): Pending completion of DAS contract with vendor.

2. Encourage agencies to develop agency business continuity plans and disaster plans for information technology by seeking funding sources, providing training on developing plans, and providing technical assistance. The focus should be at the business level.
   a. Task: Identify funding sources
      (1) Lead Entity: CIO
      (2) Timeframe: November 30, 2004
      (3) Funding: No funding required for this task
      (4) Status (March 2005): Pending completion of action item 1 above.
   b. Task: Identify next set of agencies for developing business continuity plans
      (1) Lead Entity: DAS Risk Management
      (2) Timeframe: February 1, 2004
      (3) Funding: The cost of preparing business continuity plans by agency is itemized in the DAS contract. Sources of funding have not been identified.
      (4) Status (March 2005): Pending completion of action item 1 above.

3. Identify and develop procedures for common elements that should be addressed in all or most business continuity plans and disaster recovery plans for information technology.
   a. Task: Investigate and communicate the availability of insurance to cover costs relating to replacement, repair and recovery services
      (1) Lead Entity: DAS Risk Management (subject to approval by DAS)
      (2) Timeframe: May 31, 2004
      (3) Funding: No funding required for this task
      (4) Status (March 2005): Pending completion of action item 1 above.
   b. Task: Develop and communicate policy and procedures for expedited purchasing of goods and services related to a disaster
      (1) Lead Entity: DAS Materiel with DAS IMServices as a critical stakeholder (subject to approval by DAS)
      (2) Timeframe: March 31, 2005
      (3) Funding: No funding required for this task
      (4) Status (March 2005): Pending completion of action item 1 above.

F. Implement shared disaster recovery facilities

Mission critical systems have three common requirements. Recovery times must be measured in hours, not days or weeks. Recovery facilities should be physically separated so that they will not be affected by a single disaster. There must be staff available to assist with the recovery efforts. Achieving these requirements is very expensive. Sharing disaster recovery facilities, and establishing a collaborative approach to disaster recovery is one strategy for managing costs. DAS IMServices

and the University of Nebraska are jointly developing a fast recovery capability using mutual assistance of physically separated data centers

Actions include:

1. Develop a shared recovery capacity serving state government and the University of Nebraska.
   a. Lead Entity: DAS IMServices and NU
   b. Timeframe: ongoing
   c. Funding: The cost and source of funding have not been determined.
   d. Status (March 2005): Initial hardware and communications capabilities in place. Additional implementation work ongoing.
2. Conduct a briefing for state agency information technology staff (orientation exercise) describing the disaster recovery activities that will be performed by IMServices and the disaster recovery testing that has been completed.
   a. Lead Entity: DAS IMServices
   b. Timeframe: March 31, 2005
   c. Funding: No funding required for this task.
   d. Status (March 2005): On time.

G. Encourage testing and updating of disaster plans

Testing is the only way to insure that a disaster recovery plan is adequate and the organization is able to implement its plan.

Actions include:

1. Evaluate current status of testing and recommend testing strategies for different kinds of systems
   a. Lead Entity: CIO
   b. Timeframe: June 30, 2005
   c. Funding: No funding required for this task.
   d. Status (March 2005): October 2004: DAS performed a “table-top” disaster recovery exercise; November 2004: NEMA sponsored a statewide table-top exercise; and April 2005: a NEMA sponsored DAS exercise is scheduled.

Nebraska Information Technology Commission

--Technical Panel Charter--

(Last Revised: June 7, 2004)

1. Introduction

The Technical Panel was created by LB 924 in 1998 as an advisory body to the Nebraska Information Technology Commission (hereafter referred to as "Commission").

2. Purpose

The purpose of this charter is to provide operational guidance to the Technical Panel members, clarify its relationship to the Commission, and to provide general information to all who read the proceedings and recommendations of the Technical Panel.

3. Authority

The Technical Panel of the Nebraska Information Technology Commission is codified at Neb. Rev. Stat. § 86-521. Section 86-521(2) provides:

> The technical panel shall review any technology project or request for additional funding recommended to the Nebraska Information Technology Commission including any recommendations by working groups established under sections 86-512 to 86-524. Upon the conclusion of the review of a technology project or request for additional funding, the technical panel shall provide its analysis to the commission. The technical panel may recommend technical standards and guidelines to be considered for adoption by the commission.

4. Commission Mission and Responsibilities (NEB. REV. STAT. § 86-516)

4.1 Commission Mission

"The mission of the Nebraska Information Technology Commission is to make the State of Nebraska's investment in information technology infrastructure more accessible and responsive to the needs of its citizens regardless of location while making government, education, health care and other services more efficient and cost effective." http://www.nitc.state.ne.us/

4.2 Commission Responsibilities:

4.2.1 Adopt policies and procedures used to develop, review, and annually update

a statewide technology plan;

4.2.2 Create a technology information clearinghouse to identify and share best practices and new developments, as well as identify existing problems and deficiencies;

4.2.3 Review and adopt policies to provide incentives for investments in information technology infrastructure services;

4.2.4 Determine a broad strategy and objectives for developing and sustaining information technology development in Nebraska, including long-range funding strategies, research and development investment, support and maintenance requirements, and system usage and assessment guidelines;

4.2.5 Adopt guidelines regarding project planning and management, information sharing, and administrative and technical review procedures involving state owned or state supported technology and infrastructure. Governmental entities, state agencies, and political subdivisions shall submit projects that directly utilize state appropriated funds for information technology purposes to the process established by NEB. REV. STAT. §§ 86-512 to 86-524. Governmental entities and political subdivisions may submit other projects involving information technology to the Commission for comment, review, and recommendations;

4.2.6 Adopt minimum technical standards, guidelines, and architectures upon recommendation by the technical panel;

4.2.7 Establish ad hoc technical advisory groups to study and make recommendations on specific topics, including work groups to establish, coordinate, and prioritize needs for education, local communities, and state agencies;

4.2.8 Make recommendations on technology investments to the Governor and the Legislature, including a prioritized list of projects, reviewed by the technical panel, for which new or additional funding is requested;

4.2.9 Approve grants from the Community Technology Fund and Government Technology Collaboration Fund; and

4.2.10 Adopt schedules and procedures for reporting needs, priorities, and recommended projects.

5. Technical Panel Mission and Responsibilities

5.1 Technical Panel Mission

The mission of the Technical Panel is to assist in the development of a statewide technical infrastructure that will be scalable, reliable, and efficient.

5.2 Technical Panel Responsibilities

5.2.1 Assist the Commission in developing, reviewing, and updating the statewide technology plan;

5.2.2 Review any technology project or request for additional funding recommended to the Commission including any recommendations by working groups established by the Commission;

5.2.3 Recommend technical standards and guidelines to be considered for adoption by the Commission;

5.2.4 Review requests for funding from the Community Technology Fund, the Government Technology Collaboration Fund, and other requests for funding for technology projects as directed by the Commission; and

5.2.5 Such other responsibilities as directed by the Commission.

6. Membership

6.1 Number of Members

The Technical Panel may include but not be limited to seven members approved by the Commission.

6.2 Representation

6.2.1 One representative from the Nebraska Educational Telecommunications Commission;

6.2.2 One representative from the Department of Administrative Services;

6.2.3 One representative from the University of Nebraska Computing Services Network;

6.2.4 State of Nebraska Chief Information Officer;

6.2.5 Executive Director of the Commission;

6.2.6 One member with expertise in assistive technology;

6.2.7 One member representing K-12 education; and

6.2.8 Other members as specified by the Commission.

6.3 Change in Membership

If a change in membership becomes necessary due to resignation, removal, or change of job status, the agency represented is responsible for nominating or recommending the replacement member to the Technical Panel.

7. Meeting Procedures

7.1 Chair(s)

7.1.1 A Chair, elected by the members, will conduct the meetings of the Technical Panel, oversee the establishment, operation and dissolution of committees, propose meeting agendas, and maintain the general operations of the Panel.

7.1.2 The Chair of the Technical Panel will serve until January 1, 2001; with subsequent one-year elected terms expiring on January 1 of each year.

7.2 Quorum and Action Items

An official quorum consists of at least 50% of the members or their alternates. No official voting business may be conducted without an official quorum. Issues shall be decided by a majority vote of the members present.

7.3 Designated Alternates and Non-voting Alternates

Each member of the Technical Panel shall designate one (1) official alternate to be approved by the Commission. This official voting alternate shall be registered with the Office of the Chief Information Officer and NITC and, in the absence of the official member, have all the privileges as the official member on items of discussion and voting.

7.4 Meeting Frequency

The Technical Panel shall meet not fewer than four times per year (quarterly).

7.5 Open Meeting Laws and Public Notice

7.5.1 Advance Notice

The Technical Panel shall give reasonable advance publicized notice of the time, place, and agenda of each meeting through the use of its web page, http://www.nitc.state.ne.us/. The agenda will also be available for public inspection during normal business hours at the Office of the CIO-NITC, 521 S. 14th, Suite 301, Lincoln, Nebraska.

7.5.2 Minutes and Voting

The Technical Panel shall keep minutes of all meetings showing the time, place, members present and absent and the substance of all matters discussed. Any action taken on any question or motion duly moved and

seconded shall be by roll call vote of the Technical Panel in open session, and the record shall state how each member voted or if the member was absent or not voting. The roll call shall be called on a rotational basis. Minutes shall be written and available for inspection within ten working days or prior to the next convened meeting, whichever occurs earlier.

Approved by the NITC on August 30, 1999. Amendments approved by the NITC on April 30, 2002. Statutory references revised June 7, 2004.