

IT Project Proposal Report - Detail
Agency: 047 - NE EDUCATIONAL TELECOMMUNICATIONS COMM.
Budget Cycle: 2009-2011 Biennium **Version: AF - AGENCY FINAL REQUEST**

IT Project : Public Media Project - Phase 2

General Section

Contact Name : Michael Winkle	E-mail : mwinkle1@unl.edu	Agency Priority : 1
Address : 1800 North 33rd Street	Telephone : 402-472-3611	NITC Priority :
City : Lincoln		NITC Score :
State : Nebraska	Zip : 68503	

Expenditures

IT Project Costs	Total	Prior Exp	FY08 Appr/Reappr	FY10 Request	FY11 Request	Future Add
Contractual Services						
Design	11,000	0	0	11,000	0	0
Programming	0	0	0	0	0	0
Project Management	0	0	0	0	0	0
Data Conversion	0	0	0	0	0	0
Other	5,000	0	0	5,000	0	0
Subtotal Contractual Services	16,000	0	0	16,000	0	0
Telecommunications						
Data	0	0	0	0	0	0
Video	0	0	0	0	0	0
Voice	0	0	0	0	0	0
Wireless	0	0	0	0	0	0
Subtotal Telecommunications	0	0	0	0	0	0
Training						
Technical Staff	3,500	0	0	3,500	0	0
End-user Staff	0	0	0	0	0	0
Subtotal Training	3,500	0	0	3,500	0	0

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Expenditures

IT Project Costs	Total	Prior Exp	FY08 Appr/Reappr	FY10 Request	FY11 Request	Future Add
Other Operating Costs						
Personnel Cost	0	0	0	0	0	0
Supplies & Materials	3,500	0	0	3,500	0	0
Travel	0	0	0	0	0	0
Other	3,500	0	0	3,500	0	0
Subtotal Other Operating Costs	7,000	0	0	7,000	0	0
Capital Expenditures						
Hardware	55,000	0	0	55,000	0	0
Software	22,000	0	0	22,000	0	0
Network	0	0	0	0	0	0
Other	10,500	0	0	10,500	0	0
Subtotal Capital Expenditures	87,500	0	0	87,500	0	0
TOTAL PROJECT COST	114,000	0	0	114,000	0	0

Funding

Fund Type	Total	Prior Exp	FY08 Appr/Reappr	FY10 Request	FY11 Request	Future Add
General Fund	114,000	0	0	114,000	0	0
Cash Fund	0	0	0	0	0	0
Federal Fund	0	0	0	0	0	0
Revolving Fund	0	0	0	0	0	0
Other Fund	0	0	0	0	0	0
TOTAL FUNDING	114,000	0	0	114,000	0	0
VARIANCE	0	0	0	0	0	0

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EXECUTIVE SUMMARY:

To serve Nebraskans by keeping pace with today's rapidly evolving technology, NET is requesting \$114,000 in capital funds and \$60,000 in annual operating funds to implement Phase 2 of the Public Media Project by adding software and storage components that will complement the communications technology redesign at the Capitol and NET, and allow greater public access to Legislative and Judiciary proceedings and communications from the Executive branch. The same investment will allow NET to create a repository for video content produced by educational and non-profit organizations within the state.

In increasing numbers, Nebraskans are expanding their use of new media "spaces" to access information important to them as citizens and as individuals. New media venues such as Cable Video on Demand, Internet Video and Audio on Demand, Podcasting, Vodcasting, and mobile platforms such as cell phones and PDA's are becoming as important to Nebraskans as traditional broadcast and cable. To reach Nebraskans on all current and emerging media platforms, it is necessary to increase public access to the live media funded by Phase 1 of the Public Media project by extending the content availability through proven new media and internet technologies. This proposal provides those capabilities through cost-efficient applications that will streamline routine production and distribution tasks including capture, logging, editing, transcoding, asset management, archiving and content administration.

The engine driving the archive is a digital rights management system (DRM) coupled with digital media publishing software, hard drive storage, and a web content management system (WCMS) which will optimize the State of Nebraska's investment in content, and more effectively distribute information important to Nebraska's civically and culturally-engaged individuals and organizations.

GOALS, OBJECTIVES, AND OUTCOMES (15 PTS):

The Public Media archive project will become the repository for video content produced by public entities within the state of Nebraska. In addition it will be open to contribution by non-profit organizations that wish to have their content available to the public. The goals of the project are:
Increase available video and audio content to the public. Create a user-friendly contribution system whereby public entities can donate content to the archive. Support cross-platform compatibility to accommodate the widest possible segment of the public. Engineer a system that allows contributors to make content available while maintaining it on their own storage. Increase public knowledge and value by making public records easily accessible and searchable.

The Public Media archive's intended beneficiaries are Nebraska citizens needing access to content produced by public entities. In addition government entities would be able to access content created by other government entities which would promote increased cooperation and better understanding between departments.

After a successful implementation the expected outcomes of this project are:

- Increased availability of content in both quantity and audience
- Ability to search content across departments to locate content that might be relevant to a need but created by an unexpected source.

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- Unprecedented access to content by the general public

The success of the project will be determined by a variety of metrics, including hours of content available, number contributors, number of visitors, feedback from usability focus groups, and direct feedback from users.

In the first year NET will have a minimum contribution of 80 hours of video content, with 150 hours being the intended target. Additionally we would promote the service to other entities and encourage them to contribute media to the archive. Expected growth rate in subsequent years would be heavily dependent upon the number of contributors and the number of hours NET is able to contribute and is impossible to accurately predict.

User traffic to the archive will also be a key metric in measuring the success of the project. A standard of 5000 unique visitors per month would indicate a successful adoption of the service. This information would be determined by analyzing the logs of the servers maintaining the archive.

In addition to the statistics NET would solicit feedback on improving the service and determining its value by identifying key individuals for feedback, as well as soliciting feedback on the archive web page directly.

A significant item in NET's strategic plan is to increase impact and reach through programs and services, and the Public Media archive is a key initiative designed to fulfill that strategy. This project is listed in NET's agency technology plan for FY 07-09 under planned future projects for 07-08. (Content Management System)

PROJECT JUSTIFICATION / BUSINESS CASE (25 PTS):

The proposed digital media publishing solution and web content management system will allow "mission-similar" partners to adapt the best of their content for widespread distribution across multicast and broadband services. This distribution has the potential to raise the profiles of the organizations and extend the reach of their programs, making them more cost-effective to the presenters and broadening their service to the citizens of Nebraska.

The digital rights management system coupled with a digital media publishing solution will allow partners throughout the state to provide content to the people in a wide range of "channels" without knowledge of sophisticated code. The specific goals and objectives are to:

Increase the amount of content which can be delivered to the people of Nebraska.

Thousands of hours of content have been created by public agencies and organizations across the state. Most of this content has limited channels of distribution, such as live broadcast or internet streaming, face to face settings or underutilized tape libraries. Following implementation of the DRM and storage system, this content would be collected, ingested, and stored on servers for internet playback.

Metadata would be uploaded by the partners through a simple web interface to allow users to search for, filter, and play the files they want. Common metadata elements would be producing organization, title, key words, publication date, rights information, and expiration date.

The digital media publishing solution would automatically transcode, convert files from one format to another, providing video which can be distributed to viewers using different platforms and connection speeds. This allows for the widest possible audience for the content.

Once the files are ingested, metadata stored, and transcoded. The videos would be available through an easily navigated web portal created by a web content management system.

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The rights management system also allows for content to be distributed to specific groups rather than the general public at large. It also allows for fee-based access to content, should a partner require.

In addition to being hosted on a video portal, the content could be linked to the content provider's website for further exposure. The digital media publishing solution can also make the content available to additional audiences through portable devices such as iPods and cell phones.

The overarching goal of this project is to enable the citizens of Nebraska to become even more aware of important information and, as a result, make them more culturally and civically engaged.

The following solutions were evaluated and considered to address publishing content on the web:

The web publishing tool

- 1) Custom designing a publishing tool, the player technology and addressing integration with a CDN service.

Strengths:

- a) The tool would be geared specifically to NET's needs and existing technology
- b) NET developers would own and develop their own code.

Weaknesses:

- a) NET does not have internal talent on staff to develop the code
- b) NET would need to devote at least two FTEs to develop the code for this tool.
- c) Training staff in-house as programmers to code the project would significantly delay the project.
- d) NET would have to develop custom players as streaming formats change – Extensive development would be required to address this aspect. The player formats and browser compatibility technology is already in place with vendor solutions.
- e) Staffing costs would be higher than purchasing a vendor provided solution

- 2) Using a vendor provided solution that provides the publishing tool, the player technology, content hosting and content hosting.

Strengths:

- a) Turnkey solution - platform and tools are already developed so staff could immediately begin using the technology to publish and channelize video and content to the web.
- b) Proven technology widely adopted by very large media organizations

Weaknesses:

- a) The solution is designed to be an end to end package which makes the architecture much more restrictive and less flexible.
- b) The solution is more than needed for emerging creators of content with mixed media needs, solutions would silo creators into one content type.
- c) Limit the capability to leverage storage at different locations.
- d) Cost is for vendor solution is very high

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The following options were considering providing a web content management system solution:

The WCMS:

- 1) Purchasing a customized solution developed by a similar entity in the public broadcasting community.

Strengths:

- a) Purchasing a solution from an entity with similar needs would decrease the need to do additional development.
- b) The web CMS/DRM would be available immediately for use.

Weaknesses:

- a) The entity providing the solution would have control over the code and functionality of the platform.
- b) The entity may stop development of the code and terminate support.
- c) Limits the agency's ability to automate certain features.
- d) Cost to purchase the code and supported solution is very high.
- e) Cost for operating system and hardware would be very high

Implications of doing nothing:

If NET continues to manually provision the management of digital content rights, including the publishing of this content to the web, archiving and cataloging this content, these processes will inhibit NET's ability to provide the necessary management needed to allow the Public, Educational Community and State Government to make use of the Content.

State statute 79-1315 Laws 1963 defines duties of NET, including "To maintain a library of films and videotapes which depict persons who appear to be significant or prominent in Nebraska history." NET created the Heritage Library, which now includes over 500 hours of unique Nebraska content, to comply with statutory requirement. NET has begun digitizing the contents of the library for preservation purposes. This proposal will provide the distribution capabilities that will allow public access to the library.

TECHNICAL IMPACT (20 PTS):

The Public Media Archive enhances NET's current distribution channels via television, Radio, and the Internet by providing additional content from and NET and other contributors to the State and its citizens. This will be accomplished by implementing new technologies such as a Web Content Management System and a Digital Media Publishing System. NET will also leverage our existing network, storage infrastructure, and Content Delivery Network (CDN) providers, which are highly scalable.

Web Content Management System

A **Web content management system** (WCMS or Web CMS) is a content management system (CMS) software, usually implemented as a Web application, for creating and managing HTML content. It is used to manage and control a large, dynamic collection of Web material (HTML documents and their associated images). A WCMS facilitates content creation, content control, editing, and many essential Web maintenance functions. Usually the software provides authoring (and other) tools designed to allow users with little or no knowledge of programming languages or web coding to create and manage content with relative ease of use. Most systems use a database to store content, metadata, and/or

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artifacts that might be needed by the system.

The Web Content Management System(Web CMS) will meet the following requirements:

- An easy and intuitive contribution platform without any web programming or coding skills
- Provide a user friendly web portal to content
- Provide search engines such as Google and Yahoo the ability to index content for searching
- Use of templates for contribution and portal design
- Compatibility with our Digital Media Publishing System and Content Delivery Network provider

Digital Media Publishing System

A Digital media Publishing System is also known as a content delivery platform. It is a subscription based content service that utilizes embedded software to deliver web content.

The Digital Media Publishing System(DMPS) will meet the following requirements:

- Ability to support a wide range of audio and video formats
- Ability to distribute content utilizing industry leading Content Delivery Network providers such as Akamai and Limelight
- Compatibility with our Web CMS
- Provide a packaged DRM solution

DMPS Software requirements:

- The DMPS will be supported using software from a hosted subscription vendor such as THEPLATFORM
- Backup agent for disaster recovery
- Vmware ESX license, which will provide a high level of redundancy and scalability

DPMS Hardware requirements:

- Server capable of running Vmware ESX (Dell PowerEdge 2950)
- NET will expand our current Xiotech storage infrastructure to meet the needs of this project.

Content Delivery Network

A **content delivery network** or **content distribution network** (*CDN*) is a system of computers networked together across the Internet that cooperate transparently to deliver content most often for the purpose of improving performance, scalability, and cost efficiency, to end users.

NET will also be us using our existing Content Delivery Network provider Akamai, but in the future we will look into leveraging PBS's business relationship with Limelight another CDN. These are both subscription based services.

Reliability:

- All hardware and software provider's offer 24/7 support. Storage is high performance distributed storage with built in redundancy.
- Content Delivery Network and Digital Media Publishing vendors offer a SLA with 99.9% availability
- NET will backup content weekly and retain for a year, which will allow us to recover most content if needed.

Security:

NET will secure content and systems hosted by NET using industry standard practices(Firewalls, Antivirus, Intrusion Detection System,etc) NET has met both State and PCI security requirements.

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Scalability:

The Web CMS, DPMS, CDN and storage are all subscription services so as the needs of the Public Media Archive increase we can purchase additional services on demand. Storage is an ever increasing need when distributing content especially video. Our current storage infrastructure will scale to 168TB. Also, as new larger drives are developed we can integrate these into our infrastructure thus exceeding our current limitations.

Conformity:

All systems meet with the NITC technical standards and guidelines. Proposed solutions were designed and supported used accepted industry standards.

Compatibility:

All systems will be using robust IP based technologies, which will function on both NET and the State's networks.

PRELIMINARY PLAN FOR IMPLEMENTATION (10 PTS):

In FY '09-'10, the archive capacity of system will be increased to accommodate storage of the digital assets.

In FY '09-10, the web content management system will be purchased and installed.

Also in this year, content will be solicited from partners. Content existing on tape will be digitized in preparation for ingest into the digital media publishing solution. Metadata will also be collected for ingest into the digital rights management system.

In FY '09-10, the DRM and the digital media publishing system will be acquired. Implementation will begin with a proposed installation deadline of March 1, 2010. Content and metadata will be ingested into the DRM, trans-coded in the digital media publishing solution, and integrated with the WCMS.

Public rollout of the public media archive is targeted for September 1, 2010.

Input to this plan has originated from all departments of NET involved with storage, networking and web content management as represented by the following individuals.

Overall project manager for the public media archive and delivery system is Terry Dugas, Manager of NET's Learning Services. Mr. Dugas has 29 years experience in both commercial and public broadcasting, including holding the position of Station Manager in both areas. He was overall project manager for a 7.5 million dollar grant from the Department of Defense.

Kate Tempelmeyer, Information Services Manager, will be project manager for the hardware and storage installation and network integration. Ms Tempelmeyer has strong technical and business qualifications with an impressive track record of more than 8 years of hands-on experience in strategic technology planning, budgetary development, project management, and system engineering strategies.

Scott Leigh, Senior Producer, Interactive Media Group, will be the project manager for the web content management system. Mr. Leigh the webmaster for NET. He has produced a wide variety of Web-based educational and training courses for external clients, has provided major revisions of Web-based materials for several divisions of UNL and manages the day-to-day operation of NET's Web sites.

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FY '09-10

Archive expansion

June 2009 – Identify specific equipment and storage needs to expand digital media archive capacity
August 2009 – Purchase equipment through State Purchasing Bid process
September- 2009 – Integrate additional storage capacity into enterprise content management system

Web content management system implementation

Summer 2009 – Identify specific web content management system software.
Fall 2009 - Purchase software through State Purchasing Bid process
January 2010 – Install software and equipment and implement training
April 2010 – Transition existing web sites to web content management system

Digital rights management and digital media publishing solution implementation

December 2009 – Identify specific DRM and digital media publishing solution software.
Spring 2010 - Purchase software through State Purchasing Bid process
July 2010 – Begin acquisition of content from partners and begin digitization
July 2010 – Development of DRM policies
August 2010 – Installation of software and integration with existing storage and network
September 2010 – Begin ingest of content and input of metadata

FY 10-11

July 2010 – Begin development of web portal for public media archive
September 2010 – Begin integration of digital publishing solution with web portal
October 2010 – Premiere portal to public.

As new software and hardware elements are deployed, formal training from the respective vendors and integrators will be provided to key staff in a “train the trainer” approach. These staff will provide wider training to other staff expected to use the content management systems. Training for end users (consumers) will not be required due to the intuitiveness of the system. However, appropriate help websites will be constructed if they are deemed necessary and we will also have the NET Customer Service Help Desk available to receive calls for help.

Within NET's budget there are designated line items for maintenance of the hardware and technical infrastructures. These will continue to exist . By expanding the existing system with new equipment and software NET can take advantage of maintenance agreements already in place. Following the expiration of the initial maintenance agreements for additional hardware and software, extended agreements would need to be negotiated and budgeted within NET's budget.

NET commits to supporting the Public Media Archive with the equivalent of two FTE positions. These duties will be distributed among several current NET positions. One position will act as a server administrator, hardware maintainer, and network troubleshooter providing technical support for the system components. The other position will be responsible for

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acquiring content from partners, supervising the ingest of content and metadata, transcoding, and providing programming support for the web portal.

RISK ASSESSMENT (10 PTS):

Risk: The accepted technology standards for distribution change between the project inception date and the project go-live date.

Impact: NET would have to redesign the Public Media Archive or spend more money to buy new equipment to support the newer standards.

Compensating Controls: Project leaders shall research technology standard trends continually up until project inception date, and also ensure that "Flexibility" is a criterion upon which possible solutions are judged.

Risk: NET consumers are not aware of or use the Public Media Archive.

Impact: NET will not have expanded its true distribution reach to its consumers, however it still will have expanded access to the content.

Compensating Controls: NET will make its audience aware of the new service through several different mediums over a period of time.

Risk: NET suffers a loss of Knowledge Capital by way of project member turnover.

Impact: The planning, implementation, or maintenance phase of the Public Media Archive project suffers.

Compensating Controls: Project leaders will hold regular meetings with all project members to discuss aspects of the project, and also establish an electronic repository for information.

Risk: NET fails to deliver a functional Public Media Archive due to technical reasons.

Impact: NET will have wasted and abused Nebraska Taxpayer monies.

Compensating Controls: Appropriate hardware and software installation contracts shall be included in the proposal, which come with guarantees from the vendors and integrators.

See "Compensating Controls" under item 13 to minimize and mitigate risk.

FINANCIAL ANALYSIS AND BUDGET (20 PTS):

See the Financial section for costs associated with this request.