

**LB 1208 Implementation Planning
Cost Structure and Billing Issues for
Network Nebraska
November 22, 2006**

SUMMARY

In 2006, the Legislature enacted LB 1208, which established responsibilities and financial incentives for a statewide distance education network. Under LB 1208, the Chief Information Officer (CIO) for the State of Nebraska must bid for equipment and software, develop and maintain a telecommunications network to be called Network Nebraska, and provide access “to each school district, each educational service unit, each community college, each state college, and the University of Nebraska. Access may be provided through educational service units or other aggregation points.”

LB 1208 also directs the CIO to “establish a cost structure based on actual costs plus administrative expenses and shall charge participants according to such cost structure.” *This cost structure represents the only source of funding for any expenses incurred by Network Nebraska.*

This report summarizes a cost structure and addresses related billing issues. The purpose of this report is to:

- Develop cost estimates for providing access to the statewide distance education network;
- Develop models for allocating costs among participants;
- Address any issues pertaining to costs and billing.

Much of the information in this report was prepared by the LB 1208 Cost Structure and Billing Work Group. The work group met six times to review budgets, develop cost models, and discuss issues.

Developing a cost structure involves many factors, including a long list of assumptions, budget estimates for the expenses of Network Nebraska, e-rate eligibility, LB1208 financial incentives, and the size of school districts. Key elements of the cost structure include:

- Allocating costs solely on the basis on the number of sites connecting to Network Nebraska. Compared to other options, this provides the maximum benefit for medium and large school districts, with only a very small reduction of benefits to small districts.
- A participation fee of \$2,400 per site, which is not e-rate eligible.
- An interregional transport (backbone) fee of \$4,500 per site per year, which is e-rate eligible. The average net cost of the interregional transport fee after e-rate and state aid reimbursements (part of the LB1208 financial incentives) would be 5.4% -- \$243 per site per year. (This is an estimate that will change as contracts are established for interregional transport.)

- The cost structure will generate revenue to cover the expenses of Network Nebraska, but will not provide funding for other entities including ESUs. Local school districts and other participants will have other costs in addition to the participation fee and interregional transport costs.

MEMBERSHIP OF THE COST STRUCTURE AND BILLING ISSUES WORK GROUP

- Steve Schafer, Office of the CIO (Lead)
- Tom Rolfes, NITC (DEC Lead)
- Rick Golden, NU (NND Lead)
- Michael Beach, NETC (SSS Lead) – until September 20, 2006
- Jayne Scofield, Office of the CIO (SEA Lead)
- Heath Hollenbeck, Office of the CIO (EDB Lead)
- Bob Huber, NETC (VCB Lead)
- John Stritt, ESU 10 (OEB Lead)

MEETINGS

- June 20, 2006
- July 11, 2006
- August 22, 2006
- September 9, 2006
- September 29, 2006
- October 6, 2006

ASSUMPTIONS

The following assumptions are essential to the proposed cost structure. Changes to any of these assumptions could impact budgets and the choice of methods for recovering costs from participants.

1. Access to Network Nebraska. The cost structure assumes the following definition of access to Network Nebraska. This definition insures that entities receiving the financial benefits of LB 1208 will help pay the costs of network management and administration. Access to Network Nebraska is defined as:
 - a. High bandwidth (>30 Mbps) connectivity at the site premise;
 - b. Utilizing interregional transport (statewide backbone) for Internet access and synchronous video distance learning;
 - c. Paying a fair share of costs for Network Nebraska (interregional transport costs and Network Nebraska participation fee).
2. E-Rate Eligibility. The method for allocating costs (including transport costs, network management equipment and staff, and administrative costs) should maximize e-rate eligibility and minimize any disincentives for participation. The cost structure assumes that interregional transport costs are eligible for e-rate reimbursement, even if those costs are initially billed to the state and then re-billed to participants as a separate fee. The cost structure assumes expenses

- related to network management, administration, and overhead are not e-rate eligible.
3. Interregional Transport Costs. The budget uses estimates that are at the higher end of the potential range for communication costs for the statewide backbone. Other network designs might reduce these costs.
 4. Network Management. The cost model provides for a “hybrid” network management model with centralized equipment and regional responsibilities for network operation and support. The term, “centralized” refers to the design of the network, rather than support options. A network typology with centralized equipment for network management will also support a confederated management model. Centralized equipment could be located anywhere on the network. The draft cost model assumes a centralized network design, because it is expected to require less equipment expenses than a regional model. Help desk support would be provided at the regional level.
 5. Network Administration. The cost model provides for a “hybrid” approach to administration: central contracting with communications providers, ESU role for e-rate assistance to school districts, and local filing for e-rate reimbursements. The administrative model should take advantage of relative strengths of different entities and serve to maximize e-rate eligibility of costs. State government has an advantage in the area of contract negotiation and pricing for data circuits. ESUs (and distance education consortia) have an advantage in expertise of e-rate requirements and working relationships with school districts.
 6. Participation Rates. The cost structure assumes that only those school districts that are members of regional distance education consortia will participate in Network Nebraska. Additional participation by school districts and other entities that do not have distance education today would expand content and provide a larger base for sharing costs.
 7. Uniform Costs. Allocation of distance education circuit costs to the local site should be the same for all participants within a region.

ROLE OF EDUCATIONAL SERVICE UNITS (ESUs)

Effective July 1, 2007, ESUs assume the responsibilities for the distance education consortia. Combined with their previous duties, this makes ESUs a critical partner in developing the statewide distance education network. The anticipated role for ESUs includes:

- Support of codecs (installation of codecs will be included as an option in the purchase price).
- Installation and support of edge devices, unless these are part of a lease service from telecommunications providers. Edge devices will be configured to comply with a set of common standards relating to security and other network policies.
- Installation and support of ESU-owned firewalls and filtering devices which sit behind the edge devices.

The cost model does not include any cost recovery by Network Nebraska for ESUs. ESUs have the option of using other funding sources, including Core Services Fund for

Technology and Distance Learning, Infrastructure Fund, local levies, or additional charges to school districts.

SUMMARY OF COSTS

Developing a statewide distance education network involves several types of cost. Some costs, such as interregional transport costs will be eligible for e-rate reimbursement. Other costs, including network operations and administration, are not eligible for e-rate. E-rate eligibility also determines the availability of state aid to education to pay 85% of the local share of e-rate eligible costs, pursuant to LB 1208.

Based on the assumptions summarized above, the total annual costs of providing a statewide system when fully operational include:

- Costs eligible for e-rate reimbursement
 - Interregional transport costs: \$1,200,000

- Costs not eligible for e-rate reimbursement:
 - Network Equipment: \$120,000
 - Network Management Staff: \$390,000
 - Administration and Indirect Costs: \$125,000

On average, local K-12 participants will pay only 5.4% of costs that are eligible for e-rate reimbursement. The e-rate program reimburses 64% of eligible costs statewide, and state aid reimburses 85% of the remaining amount ($64\% + [85\% * [1 - .64]] = 5.4\%$). Some K-12 districts do not qualify for the additional state aid for distance education.

It may be possible to lease the network equipment from telecommunications providers, which may make those costs eligible for e-rate reimbursement.

The cost estimates do not include funding for either a project director or an e-rate specialist. Finally, the cost estimates are based on an assumption that only school districts that use distance education today will participate in the statewide distance education network. Participation of other school districts and entities would lower the costs for all participants by sharing some of these costs.

FEE STRUCTURE

The cost structure incorporates two fees. The interregional transport fee would include the charges from telecommunications providers for the statewide backbone. These costs are e-rate eligible. The Network Nebraska participation fee would include the costs of network management and administration. This fee would not be eligible for e-rate reimbursement.

The table, below, summarizes the level of fees necessary to recover the estimated budget for Network Nebraska, based on the assumptions regarding participation rates, network management, and network administration.

Option	Student Count		Number of Sites	
	Weight	Annual Cost Per Student	Weight	Annual Cost Per Site
Interregional Transport Fee (e-rate eligible)				
Option A	100%	\$8.50	0%	\$0
Option B	50%	\$4.25	50%	\$2,250
Option C	0%	\$0	100%	\$4,500
Network Nebraska Participation Fee				
Option A	100%	\$4.75	0%	\$0
Option B	50%	\$2.38	50%	\$1,200
Option C	0%	\$0	100%	\$2,400

COST ALLOCATION OPTIONS

The Cost Structure and Billing Work Group used the estimated budget and the list of districts that currently have distance education classes to calculate how much each district would have to pay in order to participate in the statewide distance education network.

The work group examined several algorithms for allocating central costs among participants. The methods include:

1. Option A: 100% on student count;
2. Option B: 50% on student count and 50% on the number of sites;
3. Option C: 100% on the number of sites connected to the statewide distance education network.

The work group also considered using a split of 67% on student count and 33% on the number of sites and the reverse (33% on student count and 67% on the number of sites).

For purposes of presentation, the work group focused on Options A, B, and C, listed above. Each option provides several sets of numbers and analyses, including:

- The costs of distance education **With** and **Without** financial assistance provided by LB 1208;
- Whether a district is eligible for state aid or not, which determines the availability of some forms of assistance through LB 1208;
- The size of district: small (500 students and 1 distance education site), medium (5,000 students and 1 site), and large (15,000 students and 3 sites);
- The first year of participation, when a district is eligible for the LB 1208 equipment reimbursement (\$20,000 per site);
- The third year of participation, when the district would begin receiving other reimbursements and incentive payments from LB 1208.

The table, below, summarizes the net benefit of LB 1208, when these many variables are considered.

Net Benefit of LB 1208 for Different Scenarios						
Options for Allocating Costs¹	Districts Eligible for State Aid			Districts Not Eligible for State Aid		
	Size of School District			Size of School District		
	Small	Medium	Large	Small	Medium	Large
Year 1						
Option A (100% / 0%)	\$16,095	(\$19,050)	(\$57,150)	\$16,095	(\$19,050)	(\$57,150)
Option B (50% / 50%)	\$16,035	(\$1,560)	(\$4,680)	\$16,035	(\$1,560)	(\$4,680)
Option C (0% / 100%)	\$15,980	\$15,980	\$47,940	\$15,980	\$15,980	\$47,940
Year 3						
Option A (100% / 0%)	\$6,740	(\$16,701)	(\$50,103)	(\$1,905)	(\$37,050)	(\$111,150)
Option B (50% / 50%)	\$6,718	(\$5,025)	(\$15,075)	(\$1,965)	(\$19,560)	(\$58,680)
Option C (0% / 100%)	\$6,701	\$6,701	\$20,103	(\$2,020)	(\$2,020)	(\$6,060)

¹The first number in the parenthesis for each option is the % of costs allocated by student count. The second number is the % of costs allocated by number of sites. Option A allocates 100% of costs based on student count. Option C allocates 100% of costs based on the number of sites.

Under the assumptions used to prepare these numbers, allocating all costs based on the number of sites would greatly benefit larger school districts with only a small adverse impact to small districts. There are several factors that explain why allocating costs based on the number of sites appears to be widely beneficial:

1. Generally, the benefits in LB 1208 are structured so that a benefit to one school district does not reduce benefits to other participants. One exception is the incentive payments of \$1,000 for each DE class. Because funding for this program is fixed, at some point the incentive payments would be prorated. Also, a state aid reimbursement for LB 1208 participation comes from the larger state aid program.
2. Larger districts have a much higher ratio of student count per number of sites.
3. Costs of participating in distance education are driven by the number of sites. This is true for equipment for the classroom and local circuit costs.
4. All of the benefits in LB 1208 are also dependent on the number of sites, including equipment reimbursement, incentive payments for DE classes, and state aid reimbursement of the local share of e-rate eligible costs.

A cost structure based on the number of sites is also easily transferable to higher education and non-educational participants in Network Nebraska.

Another financial factor not reflected in these numbers is the ability of participating districts to establish a fee and recoup some of their instructional costs for providing classes. This would be in addition to the LB 1208 incentive payments for participating in DE classes.

BILLING QUESTIONS

There are three models to choose from. One is for the state to pay all expenses and bill those costs to participating school districts. A second model is for providers to bill school districts directly. A third model is for the state to pay expenses and then bill those costs to ESUs, which would then pass those costs to participating school districts.

E-rate considerations, logistics of dealing with large numbers of school districts, and established relationships will encourage a hybrid solution. A likely approach would include:

- Providers billing school districts directly for local circuit costs, although the contracts will be held by the state;
- The state paying interregional transport costs and then allocating those costs plus a share of central operations and management costs either to the ESU or each school district.

COMPARISON OF BENEFITS

List of Services of Districts Participating in Regional Distance Education Areas

- Video conferencing / DE -- Regional
- Limited Internet (1 T1)

List of Services of Districts Participating in the Statewide Distance Education Network

- Video conferencing / DE -- Statewide
- Broadband Internet (DS3)
- Statewide Scheduling
- Internet 2 -- educational research network
- Network monitoring and support
- Contract management