Connecticut Education Network

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Connecticut Education Network
Talk Overview

Composition of the CEN Project

Network Architecture Primer

Status & Rollout
Connecticut in 2000

- 3.4 million residents
- Highest per-capita income
- No existing education/research network
- 160 School Districts, 1,050 school buildings
- 39 Institutions of Higher Education
- 300 independent libraries
The 2000 Legislative Charge

- Build “State of the Art” network
- Connect every
  - Public School
  - Public and Private Higher Education
  - Library
- Complete in 5 years
Organizing Structure

- Project charged to State’s Department of Information Technology (DOIT)
  - Great collaboration with other state agencies
- Early “volunteer” efforts & contract help
- Daily operations with DOIT
- Advanced Services through UConn
- SEGP through UConn and Yale
Early Planning & Implementation

- Site visits to multiple schools in every school district (160)
- Network Architecture Policy
  - “Optical/IP” – Nothing less than OC3
  - Engineer for “peak” usage
  - Matrix of services for K12/Libraries/HiEd
  - Keep it simple ( ? ! ? )
## CEN Basic Services

<table>
<thead>
<tr>
<th></th>
<th>BITS &amp; ISP</th>
<th>FILTERING</th>
<th>FIREWALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>K12</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Higher Ed</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Libraries (&amp; Gov’t)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Connecticut Education Network

- Initial approach was leased circuits (POS & ATM)
- State budget crunch(s) force move to “bond eligible” purchases
- Dark Fiber IRU’s and owned equipment
- Fibertech Contract
  - Flat-Rate, $3500/mile/strand anywhere in the State
  - Strand mapping, engineering, make ready, construction, splicing and testing included
  - Operations for 20 years on separate $300/yr maintenance fee
  - Initial project about 100 miles of backbone and 40 laterals (40 mi)
Presently, CEN extends to:

- 42% of K-12 students
- 40% of higher education students
- Connect to 18 library systems
Phase II Fiber Build Project
CEN Transport Topologies

Core Site #1

Higher Ed Site #1

Higher Ed Site #2

Core Site #2

K12 Site #1

K12 Site #2

K12 Site #3

To Core #3

To Core #4
Hartford Area Network Topology
By 8/30/2004, CEN will extend to:

- 82% of K-12 students (464,000+)
- 88% of higher education students (150,000+)
- Connect to at least 58 library systems

And, by July 2005:

- Network complete to 100% of K12, Libraries and Higher Education
Current Backbone Expansion
Other CEN projects:

- Emergency Response *(microwave alternative)*
- Call Center capacity for Public Safety
- Town Meetings and Remote Hearings
- HDTV transport & Public Affairs Video
Next Steps:

- “In District Networks” – our last mile
- Advanced Features beyond our edge
- MPLS?
- and . . .
Reaching out to Neighbors & Aggregation Points