Erate 2.1 – Category 1 Financials
Agenda

- Current Landscape in Texas and Category One
- Driving to Modernization Order Compliance
- Key Decisions to Success
- Resources Available to the Districts
- Securing the Future
Perfect Storm in Texas Education

Bandwidth Demands Continue to Grow for:
- Modern Teaching Applications
- Video Applications
- Internet Access
- BYOD Initiatives
- Extending the Network to the home (i.e. LTE initiatives)

E-Rate Guidelines for High Speed Broadband:
- Optical Networking Equipment now eligible for E-Rate Funding.
- 100MB today to 1Gb Internet Capacity per 1000 Students by 2018
- 10Gb WAN Capacity per 1000 Students by 2018.
(i.e. Houston ISD: 203,012 Students | 100% compliant means: WAN = 2 TB & Internet = 200 GB)

AT&T filed for and received approval to become unregulated by PUC – 10/2014
- No longer have to provide HB 2128 Pricing to K-16 and Libraries.
- Cannot change existing contracts but new pricing coming in as high as 8 times the HB 2128 pricing.
The New Challenge: FCC E-rate Modernization Order

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<tr>
<th>Broadband Access for Teaching, Learning and School Operations</th>
<th>2014-15 School Year Target</th>
<th>2017-18 School Year Target</th>
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<td>An external Internet connection to the Internet Service Provider (ISP)</td>
<td>At least 100 Mbps per 1,000 students/staff</td>
<td>At least 1 Gbps per 1,000 students/staff</td>
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<td>Internal wide area network (WAN) connections from the district to each school and among schools within the district</td>
<td>At least 1 Gbps per 1,000 students/staff</td>
<td>At least 10 Gbps per 1,000 students/staff</td>
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2017–2018 is HERE NOW!!!
Making the Key Decisions
#1 Managed or Dark?

**Managed**
- OPEX on-going, increases as bandwidth increases
- Completely managed by the provider
- One-throat to choke; SLAs and less headache
- 3–5 year contracts, constant bidding process

**Dark Fiber**
- CAPEX on-going; flat OPEX, yearly budgeting for growth
- Managed by partners or yourself in tandem or self-sufficient staff
- Architecture and monitoring the key to network resiliency vs. SLAs
- Minimum 7–10 year ROI/TCO, but then costs drop considerably
Hub & Spoke

- Simple design, usually pointed to two data centers or main sites for protection
- In fiber, easiest to bid out, but often the least fault tolerant
- Very effective at 10G and lower; distance an issue above 10G
- Equipment at remotes typically already in place, two core sites will need larger boxes

Ring

- Basis for most Service Provider networks to provide uptime and resiliency
- Focus on geographical core to reach all areas of the District; a few options in design related to costs and growth
- Adding future sites is fairly inexpensive, and moving Data Centers takes minimal effort
- Upfront costs for gear will typically be more, but allow greater growth
Making the Key Decisions
#3 Gathering Information

• BEFORE you submit a 470, you can speak with vendors to gain insight and information before you bid

• Work with Service Providers on expansion options, dark fiber vendors on architecture and sites, equipment vendors are appropriate gear and growth needed

• Have Rough Order of Magnitudes (ROMs) on pricing and design before you go to bid, so you can provide complete information to all those bidding

• All vendors must be given equal access - so share ALL RELEVANT network information; how much growth, current gear, possible site closings, etc.
Best Practices & Outcomes

• Hiring a consultant with experience in E-Rate Category 1 filing and networking expertise is a good option; takes pressure off your team & ensures equality

• Calling the top vendors back in for clarifying their bids to ensure there are no issues or discrepancies

• Consider a Carrier Hotel or Data Center for better access, pricing, and options

• Keep in mind this isn’t Managed vs. Fiber, as a mix may be the best option

• The Program believes you are the best judge of your District’s needs, and simply wants a fair, open process that brings about the most cost effective solution based on those needs: 15,000+ applications per year, they are ensuring process
## Category 1 Estimated Project Timeline

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Resources Available to Districts and Consortia

Video Series on the Category 1 Initiative:

Cisco & Netsync Bandwidth Calculator Tool

Netsync Return on Investment (ROI) Tool