



# **LNSU TECHNOLOGY CONNECTIVITY NETWORK STRATEGY**

# E-Rate Change: Universal Services Act (USAC)

E-Rate Began in 1997

Refunds Costs by School

Based on F&R Rates

E-Rate Modernization 2015

Refunds Costs by SU

Weighted Support F&R Rates

& Community Program

Blended & Scaled Rates

Integrated, Economical, Efficient

<b>OLD “ORDER”</b>	<b>NEW “ORDER”</b>
Telecommunications	Telecommunications Phase-Out
Cell Phones	Cell Phones Only If No WIFI
“Legacy” Technologies	20% Less-Review in 2 Years
Internet Access	Geared Toward Robust Broadband
Tier II Equipment (Rare)	Category II Equipment (Universal)
Phone Systems & Servers	WIFI Network Access Points Routers, Switches, Firewalls etc



## Goal 1: Affordable Access to High Speed Internet

- Encourages Integration of Wide Area Networks
- Requires Internet of 100 Mbps/1000 Students
  - WE ARE ALREADY THERE!
  - Currently: 50 Mbps Elementary, 500 Mbps Secondary
- E-Rate Long Term Goal- 1Gbps/1000 Students
- LNSU FY16 Plan Will Provide 500 Mbps Elementary and 1Gbps Secondary

# Goal 2&3: Efficiency & Effectiveness

- “Consortium” Approach Over Individual District
- SU is the Measured Level,  
Not the School District

Current Percentage Old E-rate		New Order E-Rate	
	80%		
Eden Johnson	} 70%	} 80%	
Waterville			
Hyde Park Cambridge	} 73%		
LNSU			
LUSD			



# Current Structure

- Schools Have Own Servers- NEED REPLACING
- Schools Have Direct Internet w/Separate Costs
- No Direct Centralization of Services...
  - Encrypted Tunnel to LUSD-Slows Response
- Each School Has Own Firewall-6
- Each School Has Own Anti-Virus Costs-6
- Each School Has Own Content Filter Costs-6

# Proposed Structure

- Lamoille Union Campus Hosts
  - Firewall (Enterprise Level)- 1/NOT 6
  - Server Replacement- 2/NOT 6
  - Content Filtering & Anti-Virus Subscription- 1/NOT 6
  - Generator \$17,000 cost-E-rate Eligible 80%=\$3,400 Net
  - Elementary and Central Office Services
  - Data Backed-Up Off-Site (Cambridge)
    - Generator
    - Data Room
    - Location is secure and Distant from Campus
- All Elementary School Networks Connected
- Centralization of Services (Virtual Machines Saved \$)
- Direct Connection to LUSD-Fast Response
  - **5 TIMES FASTER!!!**

# Network Connectivity Fairpoint

Current Network Topology		Total Monthly SU-Wide Costs					Proposed Network Topology		Year 1	Total Monthly SU-Wide Costs			
Service	Price	Quantity	Total Price	Erate Reimbursement	Net		Service	Price	Quantity	Total Price	Erate Reimbursement	Erate Reimbursement	
50 Mbps Internet Connections	\$ 1,557.00	3	\$ 4,671.00	0.7	\$3,269.70		2 Gbps Internet Connection	\$2,111.57	1	\$ 2,111.57	0.8	\$ 1,689.26	
50Mbps Internet Connection	\$ 1,557.00	2	\$ 3,114.00	0.8	\$2,491.20		2 GB EVC for ELAN	\$ 906.02	1	\$ 906.02	0.8	\$ 724.82	
500 Mbps Internet	\$ 3,079.43	1	\$ 3,079.43	0.72	\$2,217.19		500 M UNI's for ELAN	\$1,438.44	5	\$ 7,192.20	0.8	\$ 5,753.76	
							1 GB UNI for EDIA	\$1,692.33	1	\$ 1,692.33	0.8	\$ 1,353.86	
							1 GB EDIA and EVC	\$2,501.34	1	\$ 2,501.34	0.8	\$ 2,001.07	
Eden Centrex			\$ 230.74	0.8	\$ 184.59	S A M E	Eden Centrex			\$ 230.74	0.6	\$ 138.44	
HPES Centrex			\$ 226.63	0.7	\$ 158.64		HPES Centrex			\$ 226.63	0.6	\$ 135.98	
Waterville Centrex			\$ 207.18	0.7	\$ 145.03		Waterville Centrex			\$ 207.18	0.6	\$ 124.31	
Cambridge Centrex			\$ 274.92	0.7	\$ 192.44		Cambridge Centrex			\$ 274.92	0.6	\$ 164.95	
Johnson Centrex			\$ 350.00	0.8	\$ 280.00		Johnson Centrex			\$ 350.00	0.6	\$ 210.00	
LUHS District 18			\$ 395.00	0.7	\$ 276.50		LUHS District 18			\$ 395.00	0.6	\$ 237.00	
FCC Maintenance			\$ 828.00	0	\$ -	Eliminate							
SPS Maintenance			\$ 133.27	0	\$ -		SPS Maintenance			\$ 133.27	0	\$ -	
			\$ 13,510.17		\$9,215.29					\$ 16,221.20		\$ 12,533.45	
			Net Payment	\$ 4,294.88						NetPayment	\$ 3,687.75		
										Difference	\$ (607.13)		

# 3 Yr Cost Across District

	Current	Proposed	Difference	Change
Cost	\$119,406.17	\$144,887.18	\$25,481.01	
Bandwidth HS	500 Mbps	1000 Mbps (1Gbps)		Doubles the Bandwidth
Bandwidth Elementary	50 Mbps	500 Mbps		10X
Increase Per Year (Averaged)	(Across all Districts)		\$8,493.67	(Legacy Reimbursement Continues to be Reduced)
But...Savings Firewall, Content Filtering & Servers		\$1,500/school \$20,000 Across All Schools		



# Cambridge Internal Costs

Cambridge 39600						
	Total	E-Rate	Shared Net	Individual E_Rate	Out of Pocket	
Shared Firewall	\$37,300.00	\$29,840.00	\$ 2,984.00	\$ 1,989.33	\$ 497.33	
Shared Firewall	\$24,320.00	\$ -	\$ 9,728.00	\$ -	\$ 1,621.33	
10 Access Points	\$ 7,420.00			\$ 5,936.00	\$ 1,484.00	
29 Hive Manager on Line*	\$ 4,524.00			\$ 3,619.20	\$ 904.80	
1 HP 2920 POE Switch	\$ 1,428.00			\$ 1,142.40	\$ 285.60	
Smart UPS	\$ 1,139.00			\$ 911.20	\$ 227.80	
	<b>\$14,511.00</b>			<b>\$ 11,608.80</b>	<b>\$ 2,902.20</b>	
					<b>\$ 2,404.27</b>	<b>Mandatory</b>

FY16 BUDGET: \$6,239 more budgeted for FY16  
 \$5,000 For Server & Firewall (no longer necessary)

# Eden Internal Costs

	<b>Total</b>	<b>E-Rate</b>	<b>Shared Net</b>	<b>Individual E_Rate</b>
Shared Firewall	\$ 37,300.00	\$ 29,840.00	\$ 2,984.00	\$ 1,989.33
Shared Firewall	\$ 24,320.00	\$ -	\$ 9,728.00	\$ -
6 Aps Wireless Access Points	\$ 4,494.00	\$ 3,595.20		\$ 3,595.20
6 Hive Manager	\$ 990.00	\$ 792.00		\$ 792.00
Smart UPS	\$ 285.00	\$ 228.00		\$ 228.00
6 cat 6e Wire Runs	\$ 1,800.00	\$ 1,440.00		\$ 1,440.00
	<b>\$ 69,189.00</b>	<b>\$ 35,895.20</b>		<b>\$ 8,044.53</b>
				<b>\$ 1,989.33</b>

**FY16 BUDGET: \$5,000 For Server & Firewall (no longer necessary)**

# Waterville Internal Costs

	<b>Total</b>	<b>E-Rate</b>	<b>Shared Net</b>	<b>Individual E_Rate</b>
Shared Firewall	\$ 37,300.00	\$ 29,840.00	\$ 2,984.00	\$ 1,989.33
Shared Firewall	\$ 24,320.00	\$ -	\$ 9,728.00	\$ -
6 Aps Wireless Access Points	\$ 4,494.00	\$ 3,595.20		\$ 3,595.20
6 Hive Manager	\$ 990.00	\$ 792.00		\$ 792.00
Smart UPS	\$ 285.00	\$ 228.00		\$ 228.00
6 cat 6e Wire Runs	\$ 1,800.00	\$ 1,440.00		\$ 1,440.00
	<b>\$ 69,189.00</b>	<b>\$ 35,895.20</b>		<b>\$ 8,044.53</b>
				<b>\$ 1,989.33</b>

**FY16 BUDGET: \$3,500 For Server & Firewall (no longer necessary)**

# Hyde Park Internal Costs

	Total	E-Rate	Shared Net	Individual E	Out of Pocket
Shared Firewall	\$ 37,300.00	\$ 29,840.00	\$ 2,984.00	\$ 1,989.33	\$ 497.33
Shared Firewall	\$ 24,320.00	\$ -	\$ 9,728.00	\$ -	\$ 1,621.33
13 Aps	\$ 9,646.00			\$ 7,716.80	\$ 1,929.20
13 Hive Manager on Line	\$ 2,028.00			\$ 1,622.40	\$ 405.60
13 cat 6e wire runs	\$ 3,250.00			\$ 2,600.00	\$ 650.00
3 Cisco 2960X	\$ 11,052.00			\$ 8,841.60	\$ 2,210.40
	\$ 87,596.00			\$ 22,770.13	\$ 7,313.87

**FY16 BUDGET: \$20,000 For Server, Firewall (no longer necessary)  
Wireless Access Points, etc...**

# Lamoille Union Internal Costs

Form 470 464170001312397						
LUHS		95160 LUHS				
		ELEM/GMTCC	LUHS	E-Rate	Out of Pocket	
Hive Manager on Line 32@156	\$ 4,992.00		\$ 4,992.00	\$ 3,993.60	\$ 998.40	LUHS
UPS Batteries	\$ 8,030.00		\$ 8,030.00	\$ 6,424.00	\$ 1,606.00	LUHS
8 2960 Switches	\$ 24,553.92		\$ 24,553.92	\$ 19,643.14	\$ 4,910.78	
Firewall*	\$ 24,320.00	\$ 9,728.00			\$ 14,592.00	
\$24,320.00 of the Firewall costs Are not E-Rate eligible.	\$ 37,300.00	\$ 1,621.33 \$ 14,920.00	\$ 37,300.00	\$ 29,840.00	\$ 7,460.00	Elem/GMTCC Mandatory
		\$ 2,486.67		\$ 11,936.00	\$ 2,984.00	Mandatory
				\$ 1,989.33	\$ 497.33	Elem/GMTCC
				\$ 17,904.00	\$ 4,476.00	
<b>Form 470 285780001328813</b>						
20 APS	\$ 14,840.00		\$ 14,840.00	\$ 11,872.00	\$ 2,968.00	
Hive Manager OnLine	\$ 3,120.00		\$ 3,120.00	\$ 2,496.00	\$ 624.00	
20 Wire Runs	\$ 6,000.00		\$ 6,000.00	\$ 4,800.00	\$ 1,200.00	
<b>Form 470 667260001317335</b>						
Generator	\$ 17,660.00		\$ 15,011.00	\$ 12,008.80	\$ 5,651.20	
Ineligible	\$ 2,649.00				\$ 2,649.00	
			<b>Totals</b>	<b>\$ 79,141.54</b>	<b>\$ 25,083.38</b>	
					\$ 10,444.00	Firewall
					\$ 8,300.20	Generator
					<b>\$ 18,744.20</b>	<b>Total</b>

FY16 BUDGET: \$23,000 For Server, Firewall (Shared Cost by ADM)