



Telecom Workshop – Board of Commissioners Jefferson County PUD

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August 9, 2016



Agenda

- Objectives
- Rates
- Options – Telecom Network Considerations
- Transition to Ownership and Operations
- Site Options and Proposals
- Next Steps

Objectives

- Review Proposed Rate Schedule
 - Comparisons
 - Examples
 - Path to Adoption
- Options Discussion
- Noanet Network – Timing, BTOP, Transition
- Next Steps

Rates – Jefferson PUD Proposed

Ethernet Transport – 1 port included

Bandwidth	MRC	MRC	MRC	NRC
	1 year	3 year	5 year	
10 Mbps Port	\$135	\$125	\$100	\$100
100 Mbps Port	\$300	\$250	\$200	\$100
1 Gbps	\$850	\$750	\$600	\$100

Rates – Clallam PUD

Ethernet Transport

Capacity	# Ports	MRC
1 Mb	2	\$160.00
10 Mb	2	\$200.00
100 Mb	2	\$400.00
1 Gb	2	\$800.00
10 Gb	2	\$1,800.00

Rates – Franklin PUD

Ethernet Transport

Bandwidth	MRC	MRC	NRC
	With Term of 1-35 Months	With Term of 36-60 Months	
25 Mbps	\$120	\$100	\$100
50 Mbps	\$195	\$175	\$100
100 Mbps	\$250	\$225	\$100
1 Gbps	\$900	\$800	\$100
Subsequent Port	\$20 each	\$20 each	\$0

Rates – Example

- Customer has 3 locations
 - Each location requires transport
 - Each route uses server at fire station to connect
 - 1 Gb
- Each Route charged \$850
 - Includes 1 port in that rate
 - If additional ports required at customer premises, then shall be negotiated on a case by case basis

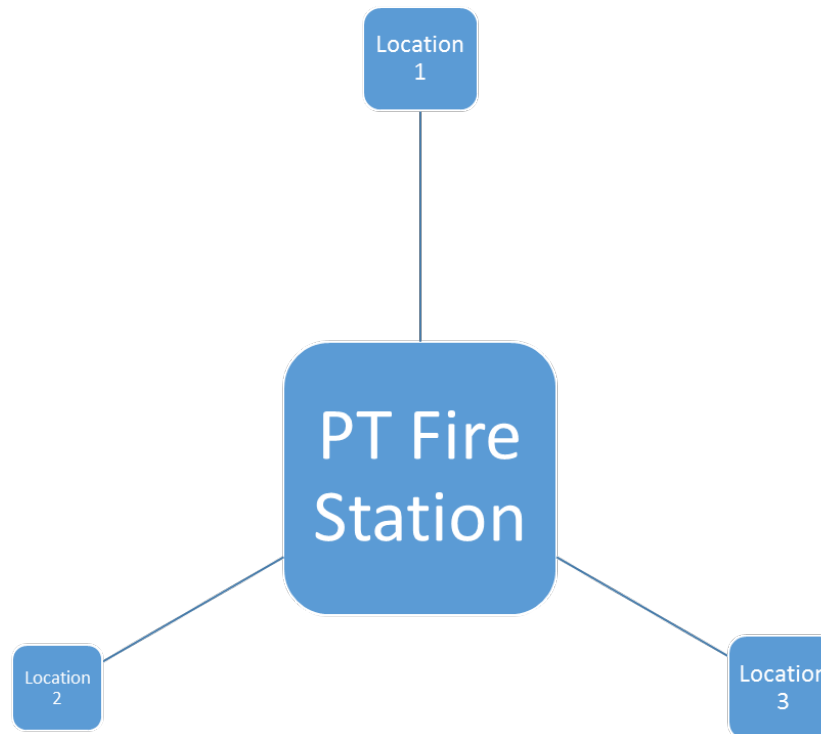
Rates – Example – Customer with 3 Locations

Monthly

$$3 \times \$850 = \$2,550$$

Non-Recurring Charge (NRC)

$$3 \times \$100 = \$300$$



Rates

- Internet –

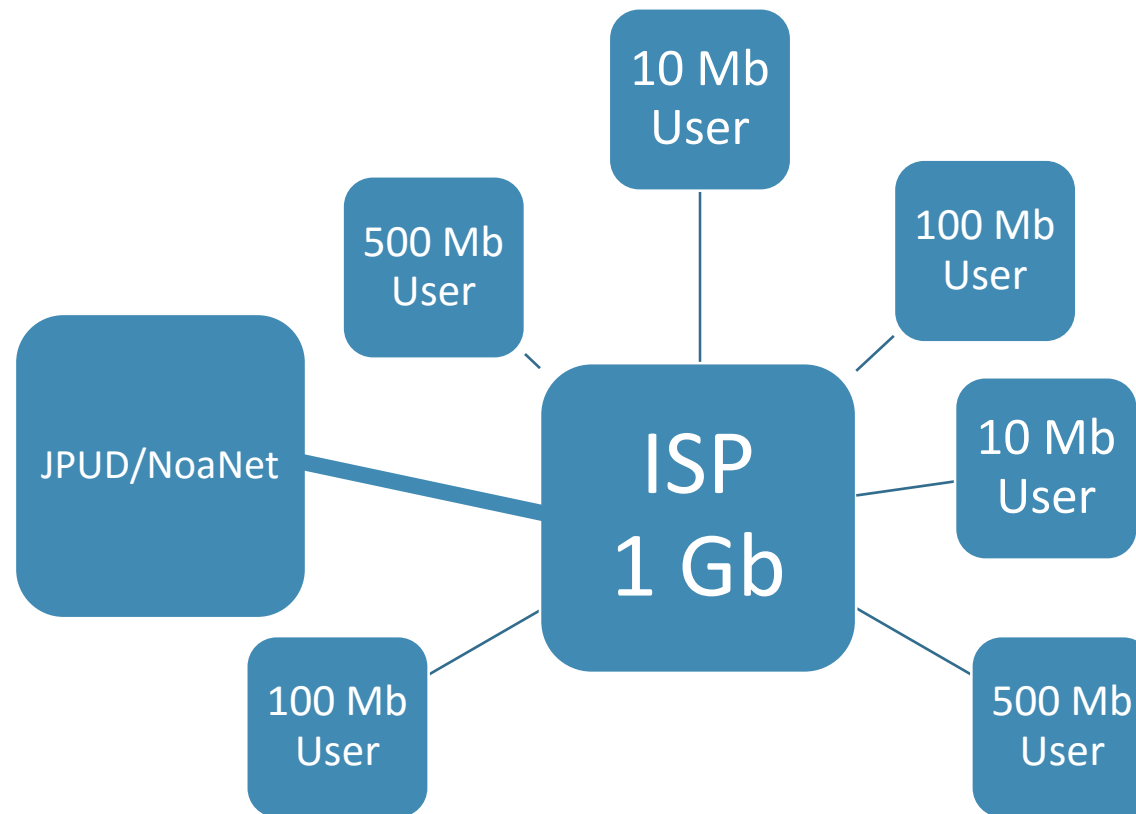
Minimum Commitment	Monthly Charge
0-1000 Megabit	\$5 per Megabit

Internet usage measured on a 95 percentile basis

Rates – Internet with Transport for ISPs

Customer-side

- Oversubscription model.
- Customer is charged for 95% percentile of their customers usage.
- As an example, if ISP's peak customer usage was 211 Mb, charge would be 95% of their usage or 200 Mb for the month.



Monthly Recurring Charge (MRC)

- Ethernet transport to ISP for 1 Gb = \$850
- Rate is \$5/Mb
- In this example, the charge would be: \$850 + (\$5/Mb x 200 Mb) or \$1,000
- Total MRC = \$1,850

Strategic Mission - PUD Approved

- MISSION

Deliver to the citizens of Jefferson County reliable electric, water, septic, and wholesale telecommunications services in a cost effective, sustainable, and customer driven manner.

- OPERATIONS GOALS

- Provide high quality, reliable, electric, water, septic and wholesale broadband telecommunications service.

Telecom Division – Options

What Should a Telecom Division Look Like?

- Excess Capacity Network?
 - SCADA
 - “Opportunistic Growth”
 - Continue to Serve Retail Service Providers, agencies
 - Must Meet BTOP Service Obligations
- Telecom Division (pay as you go)
 - Broader Scope –
 - Business Plan to Define Market Strategy
 - Investment and growth tied to revenue support

Telecom Division – Options

- Telecom Division – (Tax Supported?)
 - Same as above with Tax to support “Public Purpose”
 - FTTH options, extend to underserved portions of county
- Each option requires:
 - attracting Retail Service Providers
 - internal staffing to support the goals and policies approved
 - a business plan to guide business growth and opportunities

Future Possibilities -

- Community Network v. Residential/SME
 - Community Network (Serving Anchor Institutions +)
 - Staffing (in-house/contracted):
 - Outside Plant (rough estimate of 1 tech per 80-100 route miles)
 - Possible staff at electric utility for internal use
 - Network Operations (NOC) – Contract out?
 - Maintenance: Fiber only maintenance – may include network equipment
 - Limited Customer Support
 - Billing (Contract out)

Future – Institutional Bandwidth

Estimates

	56 Kbps	768 Kbps	1 Mbps	10 Mbps	20 Mbps	50 Mbps	100 Mbps	1 Gbps
Video-conference between two users	Poor	OK		Good	Best			
Online higher education courses	Poor			OK	Good	Best		
Video-conferencing with several users	Poor			OK	Good	Best		
Telehealth (Remote X-rays, HD video consultations)	Poor					Good		Best

Source: New America Foundation - 2014

Future Possibilities -

- Residential/SME (FTTP)
 - Staffing (in-house/contracted):
 - Support sales and marketing of Retail providers (develop retail providers?)
 - Network Operations – Contract out?
 - Maintenance/technical staff may increase – customers may need more support –
 - Customer Service Staff?
 - Field Tech Support
 - Billing (Contract out?)
 - Telephone Service (Ooma/Vonage)
 - Video (3rd Party Providers)

Future – Individual Bandwidth

	56 Kbps	768 Kbps	1 Mbps	10 Mbps	20 Mbps	50 Mbps	100 Mbps	1 Gbps
Download MP3 music file (4 MB)	Poor (10 min.)	OK (42 sec.)	Good (32 sec.)	Good (3 sec.)	Best (1 sec.)			
Online software purchase (500 MB)	Poor (20 hr.)	Poor (87 min.)	Poor (67 min.)	OK (7 min.)	Good (4 sec.)	Good (80 sec.)	Good (40 sec.)	Best (1 sec.)
HD movie download (5 GB)	Poor (9 days)	Poor (15 hr.)	Poor (12 hr.)	Poor (67 min.)	OK (34 min.)	Good (14 min.)	Good (7 min.)	Best (40 sec.)
Skype video call	Poor	OK	Good	Best				
Stream HD video	Poor		OK	Good	Best			

Source: New America Foundation - 2014

Business Plan

- Develop a Business Plan for Operating, Maintaining Network
 - Existing system evaluation – beyond feasibility
 - Current Market and Future Opportunity
 - Wholesale business and residential markets
 - Costs to serve – Revenues to meet costs
 - Organizational Recommendations
 - Best structure to address business
 - Survey existing customers, stakeholders?
 - Fiscal Year '17
 - Beyond the “Balance Sheet” – education, healthcare, econ. Development
 - SWOT – Internal Strengths, Weaknesses + External Opportunities, Threats
 - Partners

Noanet Transfer

- Noanet Transfer
 - Terminates October 1, 2018
 - Identify All Assets to Be Assumed
 - Identify actual revenue and costs associated with running network
 - What will Noanet provide after assumption of network
 - Network Operations Center support?
 - Sales?
- Operations and Maintenance
 - ID Costs
- Billing Support
- FTE – Who is Responsible for Telecom?
 - Manage Noanet, Customer, Business Plan development/implementation

Noanet Transition

- BTOP
 - Obligation to serve unserved and underserved areas with BTOP funded assets
 - Non-discriminatory and Interconnection obligations –
 - Grant recipients shall provide access “at any technically feasible point along the network”
 - Operate BTOP funded assets consistent with “Federal Interest”
 - Financial Management, Asset tracking, Insurance, Stakeholder Communication
- Customers
 - Will current customer base be there when Interlocal expires?

Noanet Transition

- Bottom line –
 - JPUD owns the telecom network – Noanet operates it
 - Choice is: assume O&M obligations sooner or later
 - County-wide Anchor tenants benefit from Telecom Network
 - JPUD's electric department benefits from advanced fiber optic Telecom Network

Noanet Cash Flow – May 2016

Cash Flows Update

				Monthly	Annual
Revenue				\$19,667	\$209,002
NCS				\$(3,000)	\$(36,000)
Maintenance				\$(2,067)	\$(24,807)
Operations				\$(6,500)	\$(61,161)
Internet Feed				\$(200)	\$(2,400)
Colocation				\$(754)	\$(9,050)
Tower Space Rental				\$(4,690)	\$(56,280)
Net Cash					\$19,305

Miscellaneous Telecom Issues

- Mt. Craig Antenna site –
 - Tower site for radios needs to be decommissioned
 - Opportunity to provide fiber to substations, and connect customers served on current network
 - Outreach to customers and Retail Service Provider
- Port Townsend Wifi
 - Plan
- Network Extensions – Neutral Zone

Next Steps

- Board of Commissioners Rate Approval
- Begin Transition Discussions with Noanet
 - Report to Commissioners within 2 months
- Develop Budget Proposal for 2017
 - FTE?
 - Funding source
 - Business Plan development
- Miscellaneous Telecom Issues
 - Mt. Craig, Port Townsend Wifi, Neutral Zone Line Extension Policy

Questions?



PUD
Jefferson County
Public Utility District