

Jefferson PUD Telecom Workshop

Aug 30, 2018

NoaNet Mission - Leverage relationships and resources to develop and operate a world class open access information technology platform and network that enhances people's lives and business opportunities in the State of Washington and facilitates member utility operations.



Agenda

- * Introduction (CEO Remarks)
- * Overview of Member Local Loop
- * PUD Telecom Operating Models - Summarized
- * NoaNet & Member Success Stories
- * Member Best Practices
- * Implementation Considerations – Risk/Reward
- * Open Discussion

It's a good time to discuss this topic?

Communities are demanding quality broadband for economic and social benefit.

Political support is growing



"What we've found in the history of our state is that public investment in basic infrastructure, when the private market hasn't filled a need, can be very productive," he said. "It worked with our hydroelectric system, with transportation, with (the internet itself), which started with a public investment. A small public investment can leverage private investment, to the benefit of all." – Jay Inslee

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Basic ingredients of any NoaNet member fiber network business

Infrastructure (Footprint)

- * Building Fiber Infrastructure requires significant capital commitment
- * Member Primary Infrastructure - Fiber
- * Member Secondary Infrastructure - Wireless
 - * Wireless in to residences and businesses
 - * Point to Point (infill where fiber is cost prohibitive)
- * Operations and Maintenance (Monitor-Break-Fix)
- * Capital Requirement – varies based on model and will be discussed later in the presentation

Products and Pricing

- * Business Class Ethernet Transport Solutions
- * Business Class Access Internet
- * Dark Fiber
- * Colocation
- * Solutions (ICB)

Consumers

- * Access Service Providers (SMB-Enterprise)
- * Terrestrial Carriers
- * Wireless Carriers (Macro and Small Cell)
- * Vertical Markets - (GOV, EDU, MED PUB SAFTEY, UTILITY, etc.)
- * NoaNet – Generally the largest buyer of member telecommunications services for resale to our customers.
- * Residential

Operating a wholesale telecom model comes with challenges but not insurmountable.

Challenges

- * Funding CapEx for infrastructure, especially in very small, low density communities.
- * Competitive Non Discriminatory Product & Pricing
- * Limited number of Service Providers engage-invest in rural markets.
- * Member and NoaNet are reliant on Service Provider to extend affordable pricing and to support customers ongoing requirements.
- * Maintaining revenues to cover costs to operate telecom infrastructure reliably
- * Overbuild by another carrier, potentially devaluing PUD fiber asset
- * Nobody on staff dedicated to telecom operations

Potential for retail authority in some form?

- * Kitsap PUD Model
- * New Legislation giving PUD's additional authorities?

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PUD Telecom Operating Models - Summarized

- * **Minimal Growth/Investment** – make existing fiber available via lit or dark service with minimal operating or capital costs coupled with low risk footprint expansion plans/investment model.
- * **Growth-Investment Model** – member telecom business manages appropriate levels of operating, procurement, telecom technical and accounting resource to serve customers demand and operate the assets. Required systems include business-accounting and technical operating support systems (monitoring and break-fix) to manage and meet growth requirements of telecom assets and services. Most importantly, a finance model that support the capital and operating costs required to maintain existing infrastructure and competitive footprint expansion model that encourages customers to connect.
- * **NoaNet Network Coordinated Services** – members in both above categories utilize NoaNet at various levels to augment an internal staffing model. Services range from OSP Engineering and Construction Management to NOC-Operations, Network Engineering, Sales/Market Development, Billing.
- * **Converged** – The Benton Model – Via revenue share model, the member converges its telecom business functions, including Engineering, Operations, Sales and Billing into NoaNet. Member continues to support footprint expansion through line extension policies and near-net pilot projects.

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NoaNet and member success stories



Port of Benton
May 2018

Legend

- Splice Case
- 6 Port MST
- Access Point
- Term Panel
- Drop
- Underground

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NoaNet member best practices

- * **Business Modeling** – Develop a proforma that models costs, revenues and capital requirements.
Considerations for what costs could be carried by utility operations if shared use with telecom operations.
- * **Operating Model** – Assure that resources are allocated to support break-fix, upgrades and new infrastructure builds along with business and operating systems/procedures to process orders and bill customers.
- * **Product Pricing** – Previous NoaNet recommendations stand.
- * **Financial-Accounting (Risk Management)** – General ledger, evaluation and reporting to PUD leadership cost-revenue performance (P&L).
- * **Driving Adoption** – Adoption and consumption improves financial sustainability of member telecom assets. PUD can drive adoption through competitive product and pricing, customer service excellence and community outreach.

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An incremental approach to telecom using risk-reward as key factor.



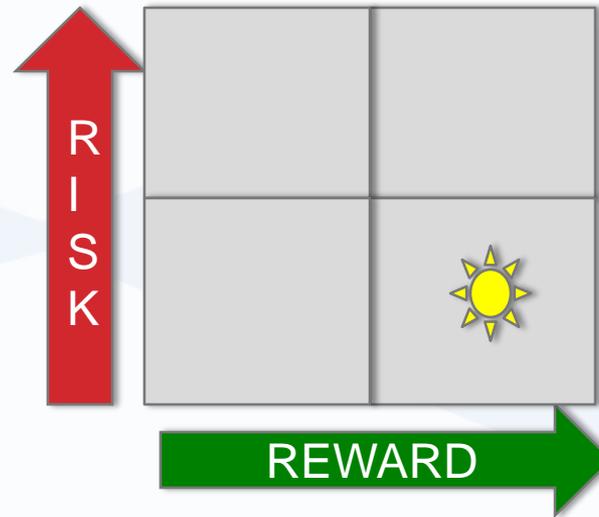
Implementation Options

- * Phase I – Utility Backbone (Low Risk – High Value)
- * Phase II – Commercial Districts (Med to Low Risk – Med Value)
- * Phase III – Residential (High Risk – Low Value) *political risk*

Implementation Considerations Risk-Benefit

Phase I – Utility Backbone (Low Risk – High Value)

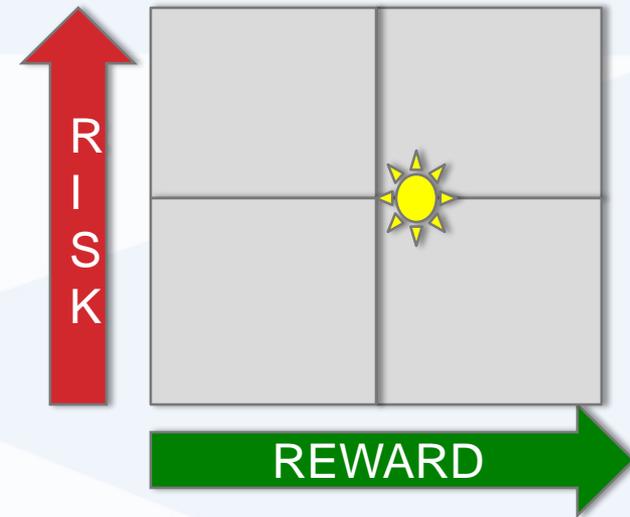
- * Build fiber to Utility assets for utility purposes
 - * Subs, Water Storage-Pump, Sewer,
 - * SCADA
 - * Monitoring
 - * Physical Security
- * ILEC SCADA cost reduced
- * Infrastructure to expand-upgrade
 - * Security
 - * Mobile Comms/Data



NoaNet member best practices

Phase II – Commercial Districts (Med to Low Risk – Med Value)

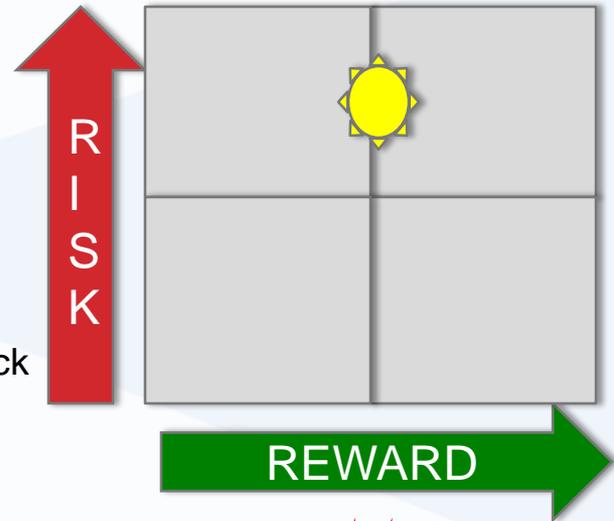
- * Business Connections –
 - * Expand from Utility backbone to serve business customers
 - * Line extension Policy
 - * Near net build-out promotion



NoaNet member best practices

Phase III – Residential (High Risk – Low \$ Value/High Political Value)

- * High capital with low revenues
- * Greenfield Developments are different than existing subdivision
- * Consider Access for Disadvantaged Population
- * Risk of incrementing. Once PUD invests in one residential build-out the rest of the consumers may expect PUD to build to them too.
- * Potential options to reduce PUD financial risk
 - * LUD's, Fiberhoods, Tax Credit, Grant Money
 - * WA STATE- Broadband Bill – Requesting Feedback
 - * Access for Disadvantaged Population



Open Discussion

Ground ourselves in today,

- * BTOP built initial infrastructure
- * JPUD-NN Jointly Operating for 5yrs
- * JPUD-NN operating in Option 1-2 today.
- * If growth model is chosen, determine risk-value option and develop appropriate line extension/capitalization model which requires revenue and resolution of NoaNet O&M to become revenue share is an option.

Where does JPUD go?

- * Continued utility uses and expansion into business district?
- * Residential with LUD-Fiberhoods?
- * Operationally, stay the course, Benton Model?

The End