Rate Design for Public Benefit

The transition from service-based rates to loop rates on Chelan PUD's Broadband Network

Sep. 20, 2016

No action required today

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Philosophy

- Simplify rates and align costs with drivers by charging based on Broadband usage
- Provide an incentive to Service Providers to reach more homes and businesses than today
- Support revenue at current levels and grow revenue as usage requires additional investment

Background

- 2012 Strategic Plan for Fiber
  - Recommended better alignment of cost with providers

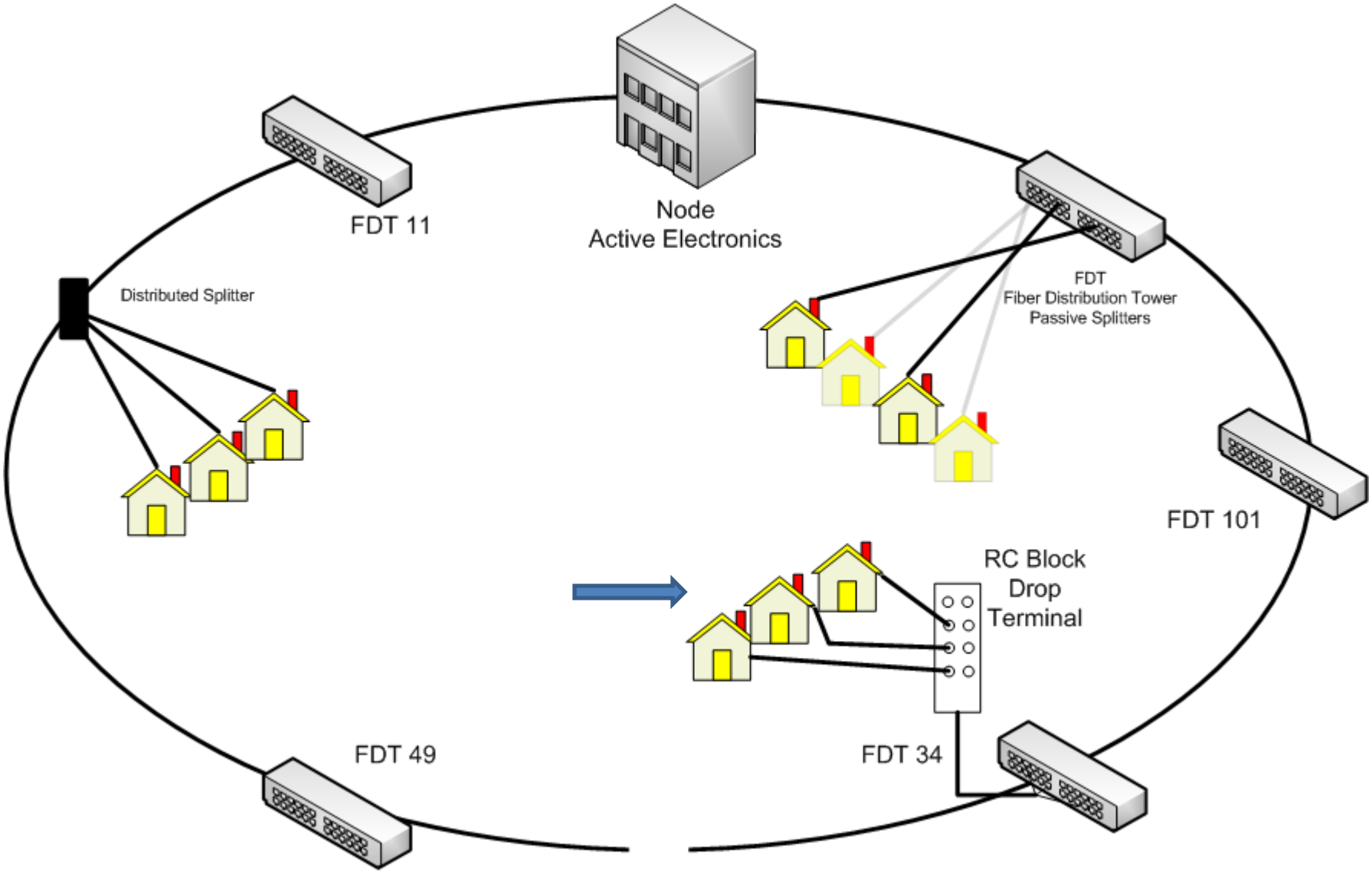
    Complete: Board action June 2012
  - Recommended rate increases

    Complete: Board action June 2012 and March 2014
  - Recommended selling Video Head End

    Complete: Board action August 2015
  - Recommended transition to Loop Rates

What is a loop?

- Definition of a loop
  - Local Loop
  - Digital Local Loop (DLL)
  - Wireless Local Loop
- Why it has significance in the Telecom world



Designing Loop Rates

- What has changed since the original recommendation
  - PUD has increased overall rates to Service Providers
  - We are seeing big growth in customer demand for broadband.

Demand for Broadband

- Cisco predicts that U.S. broadband demand will double in the next four years.
- Future demand for more broadband in the next few years driven by:
  - More online video and larger video files (4K and 8K video)
  - Virtual reality and advanced gaming
  - Machine-to-machine broadband (Internet of Things, cloud storage and cloud applications)
  - More working from home
  - Monitoring (security cameras and health monitoring)
  - The start of “telepresence”

*Telepresence refers to a set of technologies which allow a person to feel as if they were present or to have an effect via telerobotics at a place other than their true location

Demand for Broadband

- “Busy-hour” demand growing much faster than overall demand. Busy-hour traffic is now doubling every two years. This puts a huge strain on networks to satisfy speeds for prime-time video.
- Cisco predicts video traffic will be 82 percent of residential traffic by 2020. Much of this video is going to come from cellphones (but will still use landline WiFi networks).
- Cisco predicts by 2020 that average household will want 47 Mbps download (up from 24 Mbps today).

Rate Design

- Revenue recovery is based on two parts:
  - Fixed loop rate
  - Measured usage rate

An Example

- 100 Mbps Digital Local Loop
  - Monthly rate $12.00
  - Aggregated Bandwidth Rate $0.12/GB

- 1 Gigabit Digital Local Loop
  - Monthly Rate $15.00
  - Aggregated Bandwidth Rate $0.12/GB

Rates and Bandwidth Charges were designed to be revenue neutral to +.5% based on current usage history.

*Mbps = Megabits per second (Speed)

GB = Gigabyte (Capacity)

Benefits of the Proposed Rates

- Rate design provides an incentive to Service Providers to bring service to more homes and businesses. (Can profitably afford to provide only one or two services)
- Allows Service Providers to treat transport services as a cost center
    - Better structure their prices and services offerings
    - Create branding, marketing and sales strategies
    - Reduces dependencies on PUD pricing decisions
- Directly aligns service provider rates to the costs incurred by the PUD
- Something the service providers will like - as bandwidth usage increases over time, the cost of bandwidth per gigabit should drop (means periodic review of rates)

Other Changes to Wholesale Rates

- Technology standard updates to Virtual Local Area Network (VLAN): advanced services
- Lower VLAN rates to competitive market levels
- 10% Increase on Dark Fiber rates
- Introduce new Fiber services (Wave Division Multiplexing - Lamda Services) as a price competitive alternative to Dark Fiber
- Add one time Nonrecurring Charge (NRC) for provisioning Quality of Service (QoS) for IP-TV and Voice over Internet Protocol (VoIP)

*Wave Division Multiplexing (WDM) is a technology which multiplexes a number of optical carrier signals onto a single optical fiber by using different wavelengths (i.e., colors) of laser light.

Other Changes to Wholesale Rates

- Introduce a new rate for IP-TV
- Plain Old Telephone Service (POTS) rates will be reduced
- Include Non-recurring Fees and Charges schedule with Rate Schedule for clarity

Next Steps

- Presentation with detailed rate structure and draft resolution presented on Oct. 3

  (no action requested)
- Resolution presented for Board approval on Oct. 17
- If approved, rates, fees and charges will be effective Jan. 1, 2017

Questions?