Fiber to the Home North America
Telecom Service Providers' Workshop

Verizon FTTH
"FiOS"

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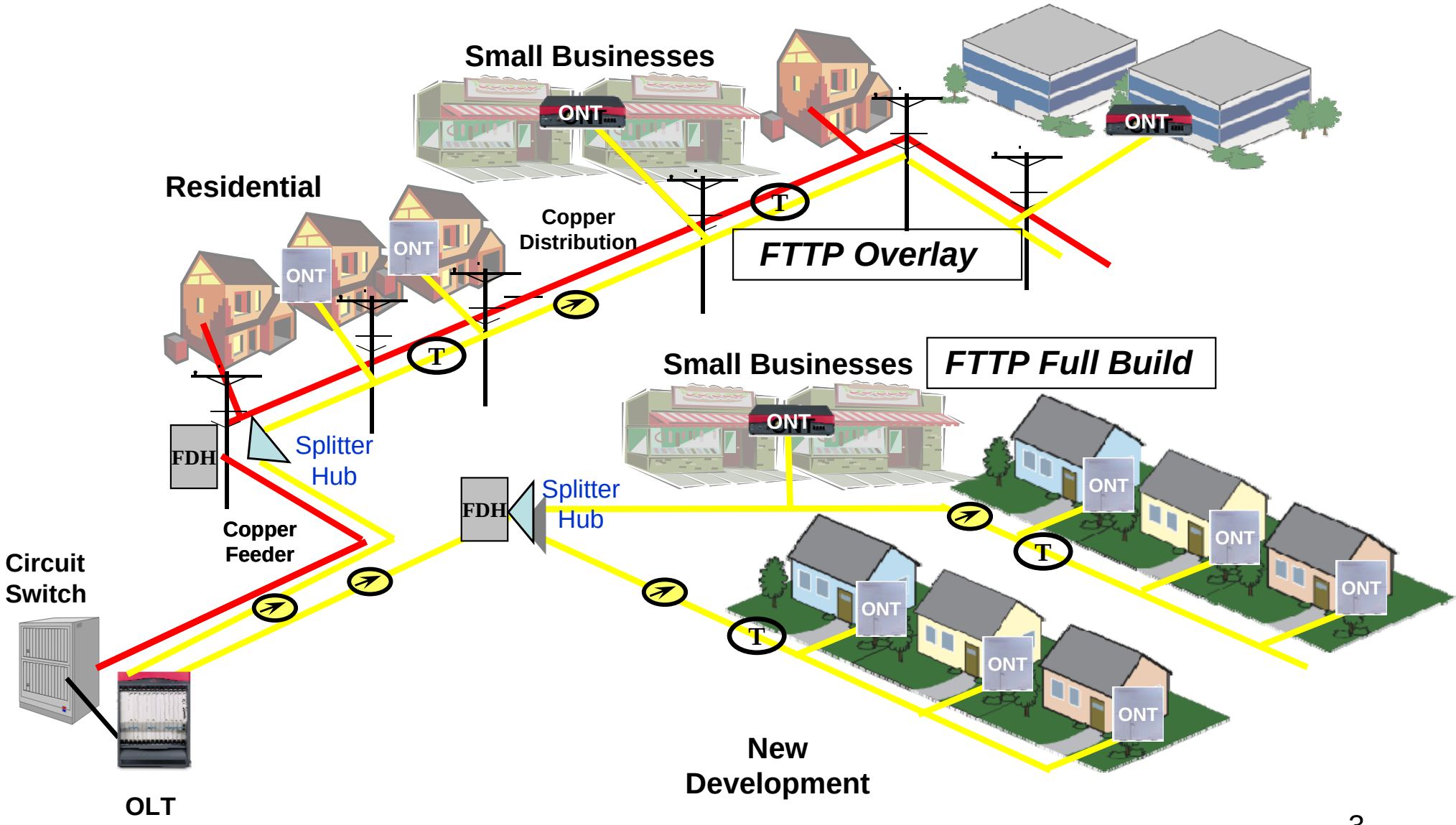
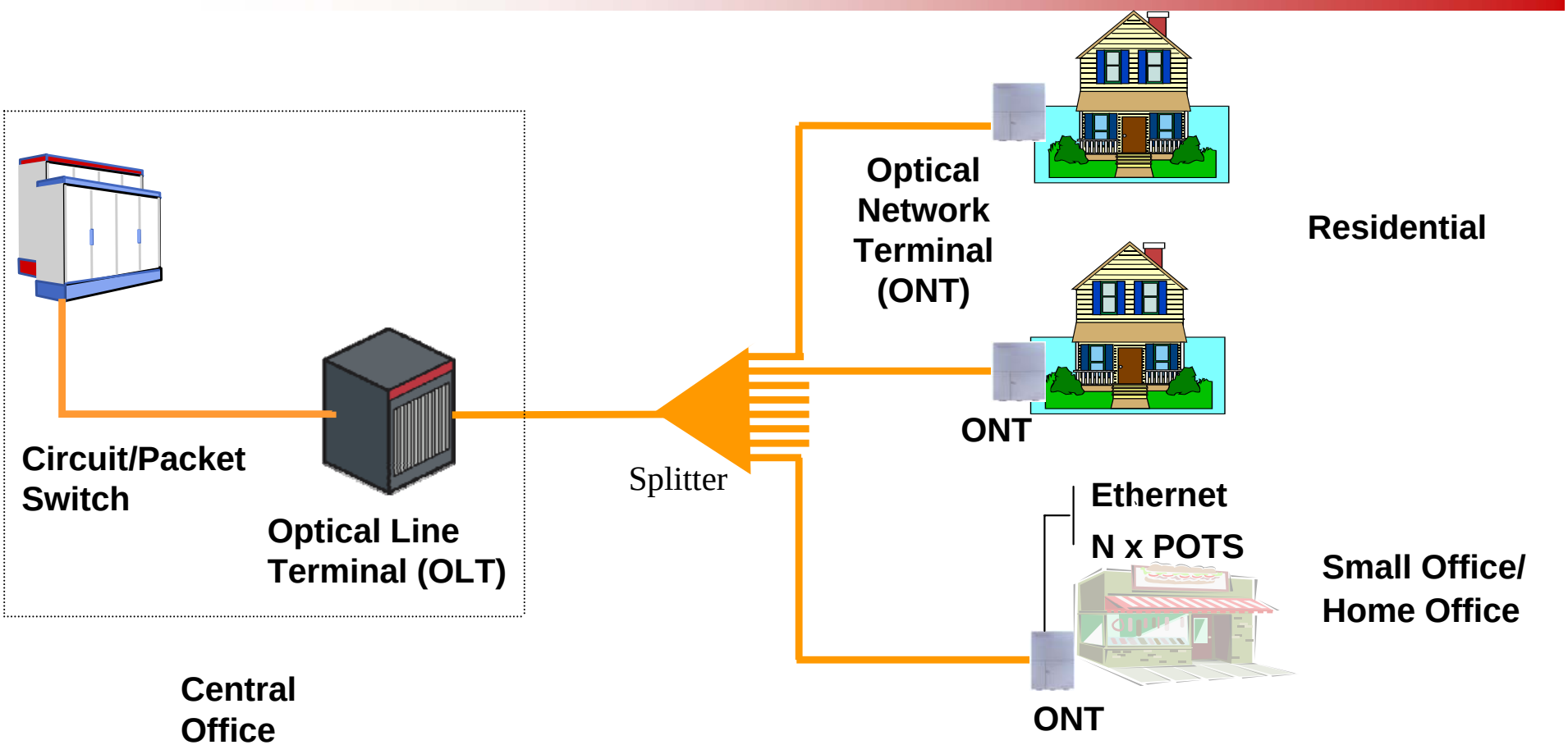
FiOS

- **FiOS (Fiber Optic Service)** is Verizon's fiber optic architecture that delivers a fiber optic connection to the customer's small business or home.
- **FiOS** provides a single-fiber optic connection for telephone, high speed data and video services.
- **FiOS** requires 3 network components located at the customer premises.
  - The **Optical Network Terminal** which converts the fiber connection to electrical connections, meaning standard telephone service, Ethernet for high speed data and Coax for video and video on demand services.
  - The **Optical Power Supply Unit** which powers the ONT and charges the battery in the Battery Back-Up Unit.
  - The **Battery Back-Up Unit.**
- Only 1 non-network element required – the **Battery**.
  - After a one year warranty period the customer in responsible for battery maintenance and replacement

FiOS Overlay & Greenfield Architectures



FTTP Architecture



Downstream Data Rate = 622Mbps
Upstream Data Rate = 155Mbps
Separate Wavelength for Video = 1550nm

FiOS: California Major Milestones

- Verizon began its FTTH build out in 1994 in Huntington Beach California and by year end offered fiber fed high speed internet and telephone service.
- In early 2007 Verizon began offering FiOS TV in Beaumont California.
- January 1, 2007 the Digital Infrastructure and Video Competition Act (DIVCA) becomes effective.
- In March 2007 Verizon received the first state-issued video franchise.
- By year end 2007 Verizon had passed more that 500,000 homes in California with FiOS service.
- On target to pass more than 1,000,000 California homes by year end 2008.

Public Policy & FTTH Deployment

- Widespread deployment of FTTH depends on supportive public policies.
- Regulatory or legislative decisions that burden future networks with legacy regulation will impair the economics of deployment.
- The marketplace for telecommunications, video, and high speed internet access is increasingly competitive.
- Policy makers should adopt policies and programs that will encourage investment in advanced networks and services.

Digital Infrastructure & Video Competition Act

DIVCA

- AB 2987 Passed by Legislature August 31, 2006.
- Established State issued video franchise authority.
- Signed by Governor September 29, 2006.
- Effective January 1 2007.
- The CPUC issues application rules on March 1, 2007.
- Verizon filed for state-issued video franchise on March 2, 2007.
- Verizon's application granted by the CPUC on March 8, 2009.
- Verizon holds State Video Franchise No 1.

Regulatory Issues

- Copper Retirement Docket
  - CalTel filed a petition with the CPUC requesting that the Commission establish restrictions on ILECs ability to retire copper facilities in a FTTH environment.
  - After almost 1 year of litigation the Commission declined to adopt restrictions on retirement of copper facilities.
  - The Commission ordered notification requirements and an obligation to negotiate in good faith with any CLECs that may wish to purchase or lease retired copper plant.
- Battery Back-up Docket
  - In response to legislation the Commission initiated an investigation into battery back-up of the PTSN.
  - FTTH on-premises battery back-up became a focus of the Commission staff and consumer groups.
  - In an interim decision the Commission stopped short of adopting specific performance standards for on-premises battery back-up.
  - The proceeding remains open to explore improving customer education regarding communications in emergency situations and battery back-up capabilities and limitations.

FiOS: Working with Municipalities

- Improved working relationships with the cites and homeowners
  - Our early discussions with the cites did not convey the order of magnitude of the construction activities required for city-wide deployment.
  - We did a great job of selling the benefits of FTTH, but not the associated disruption of the construction effort.
  - Early on our construction schedules were too aggressive. We just simply tried to do to much, to quickly, over to large an area.
  - This approach caused too much disruption within the city.
  - We now take a much more measured and coordinated approach to construction.
  - We now work hand in hand with the City Engineer and Public Works Department in project planning, network placement, timing and permitting.

FiOS: Economics Drive Investment

- Verizon California competes with other Verizon jurisdictions for scarce capital investment $.
- The economics of individual FTTH deployments are closely scrutinized.
- Network construction are costs always under pressure.
- Public policies that increase costs or add additional burdens to FTTH deployment will negatively impact California investment levels.