

SOLVE FOR



It's fiber to anywhere.



FTTH vs. Fixed Wireless

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How Important is High Speed Internet?

WHAT APARTMENT RENTERS WANT

Renters seek amenities for every lifestyle. Here's what they like, love, and can't live without.



NMHC NATIONAL MULTIFAMILY HOUSING COUNCIL

KINGSLEY ASSOCIATES

nmhc.org/residents

38 MILLION
apartment renters nationwide

1.6 MILLION
more renters today than five years ago

TOP 5

COMMUNITY AMENITIES:

Parking	94%
Pool	83%
Fitness Center	82%
Secured Community Access	80%
Recycling	80%

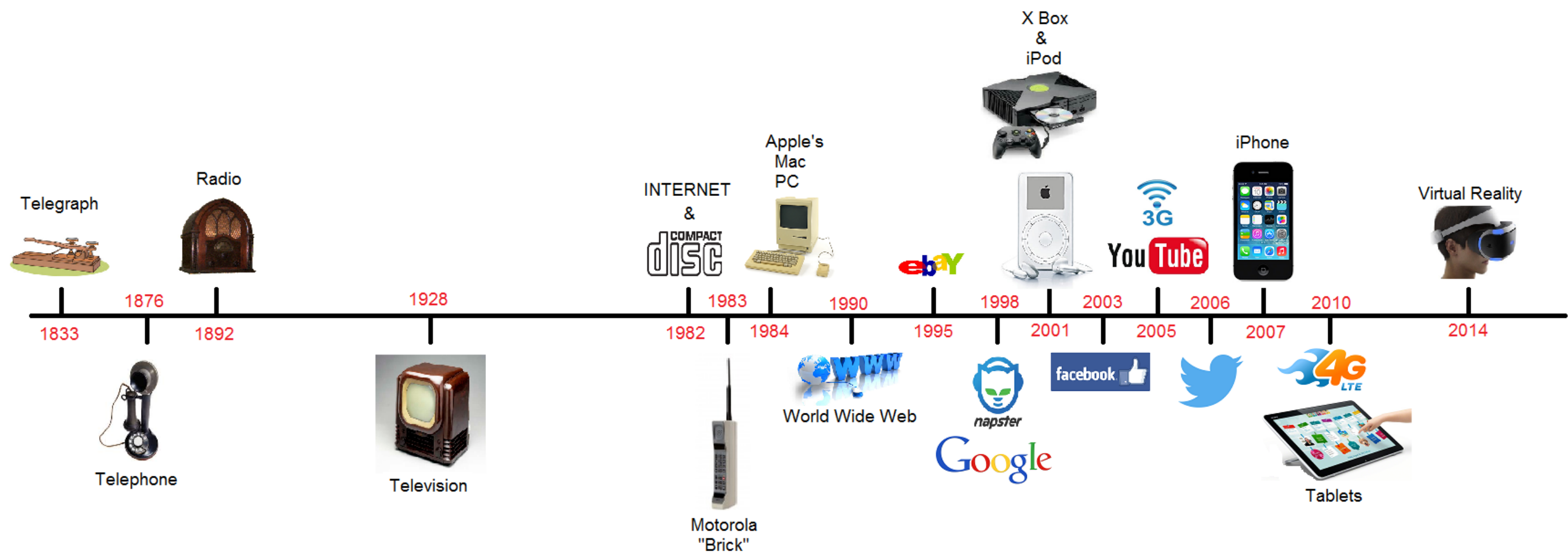
TOP 5

HOME AMENITIES:

High-Speed Internet	94%
Walk-in Closet	89%
Soundproof Walls	88%
Patio or Balcony	87%
Washer/Dryer in Unit	87%

- Customers are no longer transparent to what type of network a provider uses to deliver their services.
- Customers want four things from their provider
 1. A bill that where the price stays the same
 2. The services provided are stable and consistent
 3. Responsive support
 4. Mobility

Technology Timeline



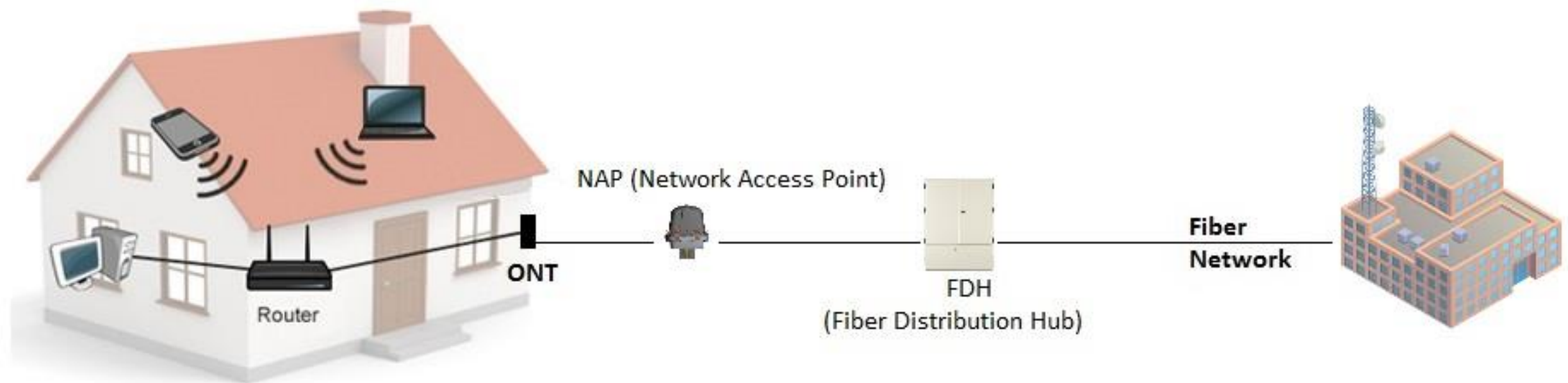
What Type of Network Architecture?

FTTH? Hybrid? Wireless?



- FTTC – Fiber To The Curb used the twisted pair in the last mile to deliver high speed bandwidth services
- FTTN – Fiber To The Node used coax in the last mile to deliver high speed bandwidth services
- Fixed wireless uses wireless technologies to deliver high speed bandwidth services
- Copper and coax have a difficult time keeping up with bandwidth demands. The copper world is now working on Category 8 cables, the 6th major upgrade since the 1990s
- After being introduced in 1997 with the capacity of 2 Mbps, customers using 802.11 Wireless Local Area Network (WiFi) standard have typically upgraded their modems multiple times in order to keep up with bandwidth demand

FTTH Network Diagram



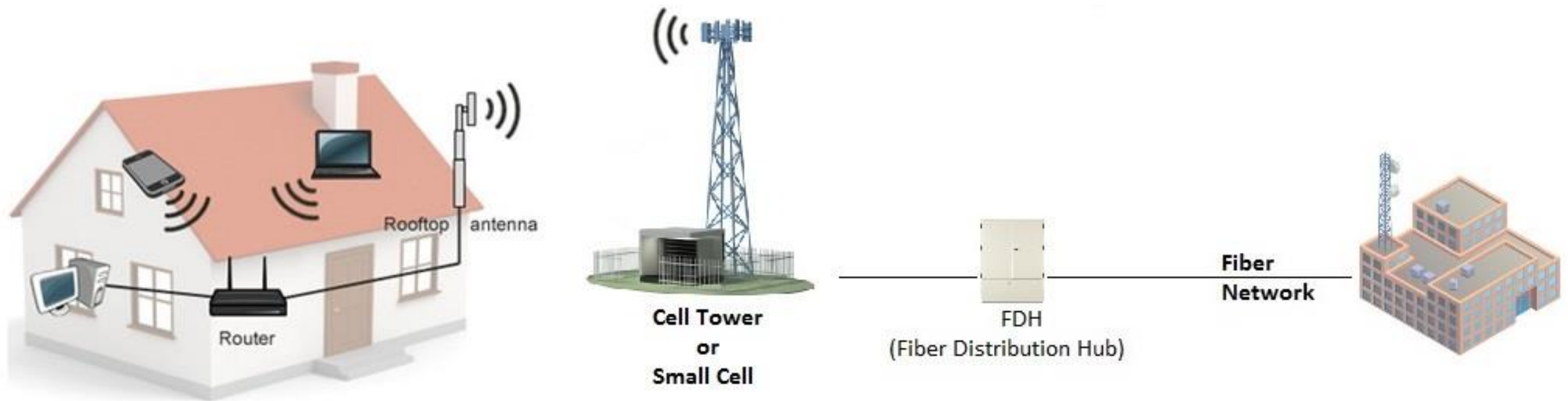
- Single-mode fiber has been the predominant type of fiber deployed in FTTH networks.
- Optical fiber was commercially introduced in the early to mid 1980s, and the basic design and construction has stayed the same.
- Fiber cables deployed in most networks during the 1980s are still commonly used today.
- Fiber technologies have significantly improved since the 1980s making fiber much more cost effective and easier to install today.

Fixed wireless is an attempt by providers to eliminate the portion of the network from the network access point (terminal) to the home. This is where the most cost is incurred when hooking up customers to a FTTH network. However is it the best option?

Fixed wireless example: **AT&T GFAST**

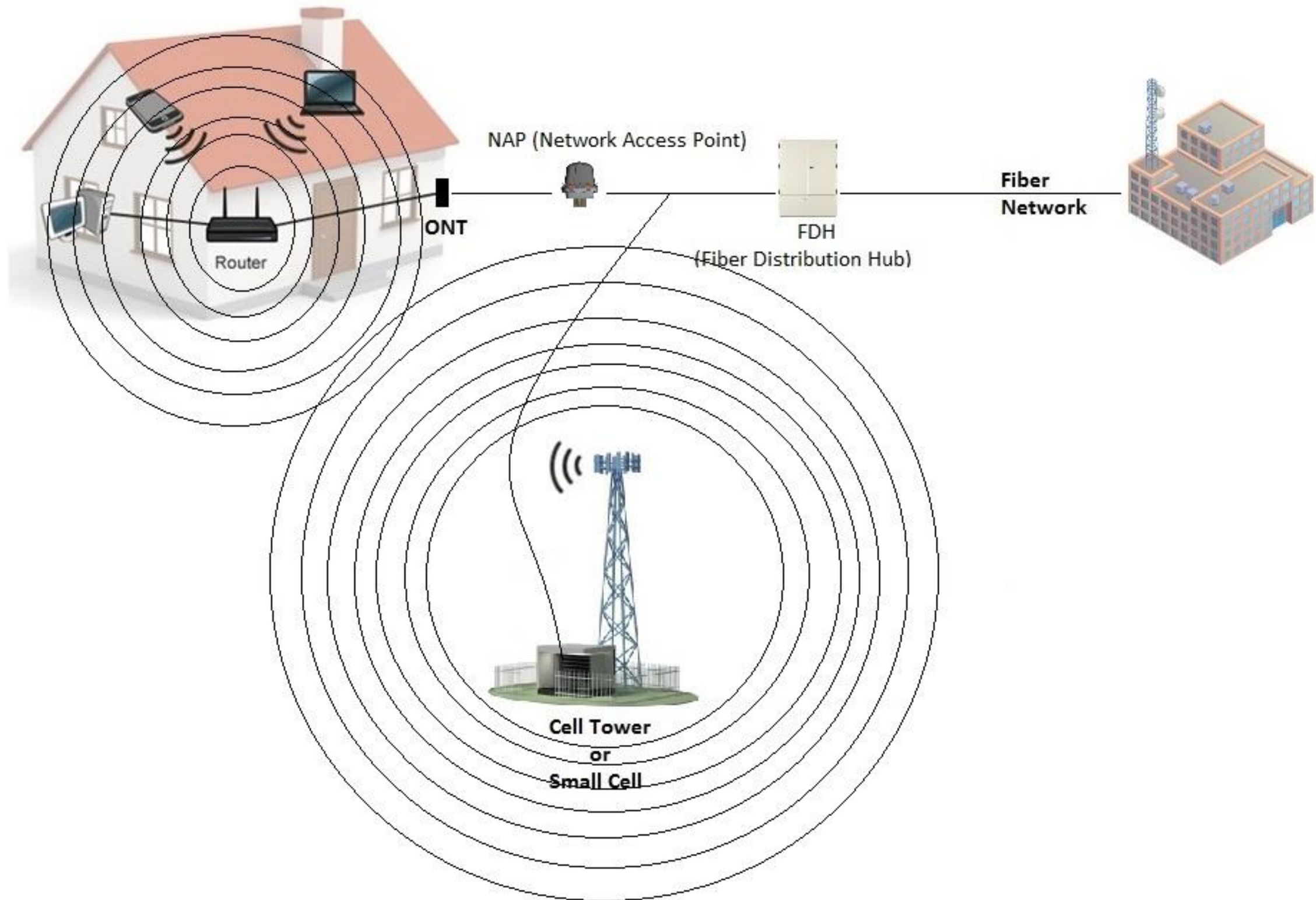
- Up to 150 Mb @ 1300 feet/400 meters = 10 pole spans (Roughly 40 homes served)
- Up to 1 Gig @ 230 feet/70 meters = 2 pole spans (Roughly 4 homes served)

Fixed Wireless Diagram

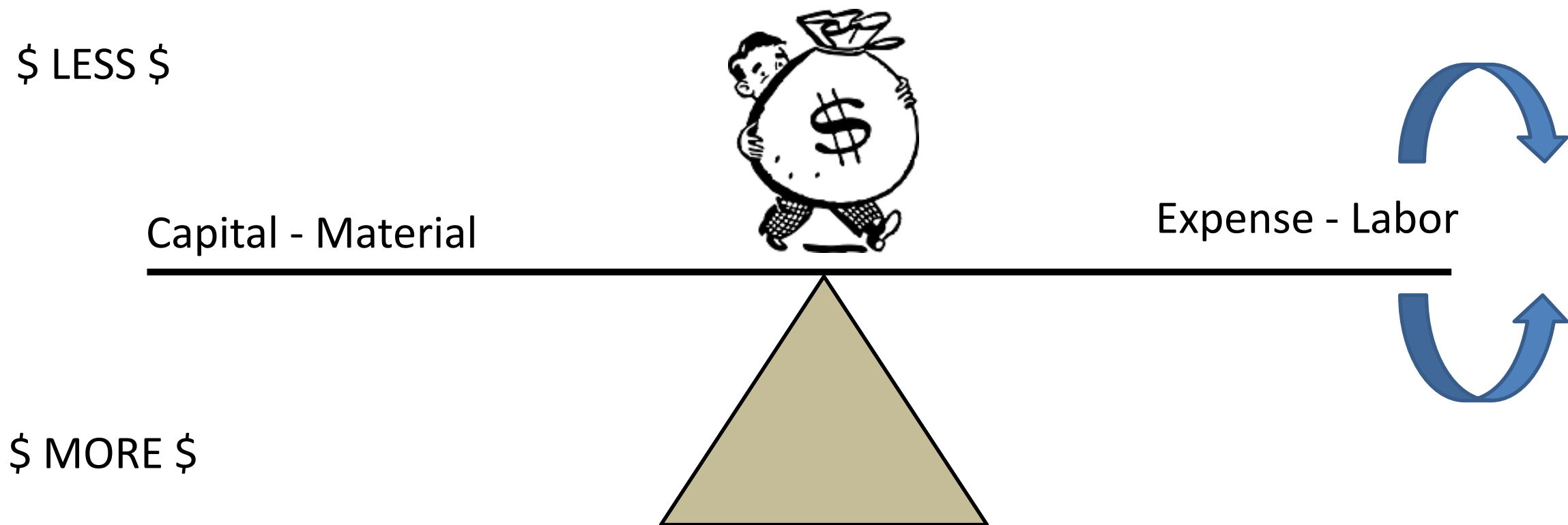


- Wireless and FTTH network integrated together
 - Would “future proof” the network for increasing bandwidth demands
 - Offers true 1 Gig service to customer premises
 - Consumers would have the ability to move seamlessly between the mobile and FTTH network
- The integrated network will address two factors that will always exist
 - Consumers will continue to demand higher bandwidth speeds
 - Consumers want the ability to be mobile

Blended Network Diagram

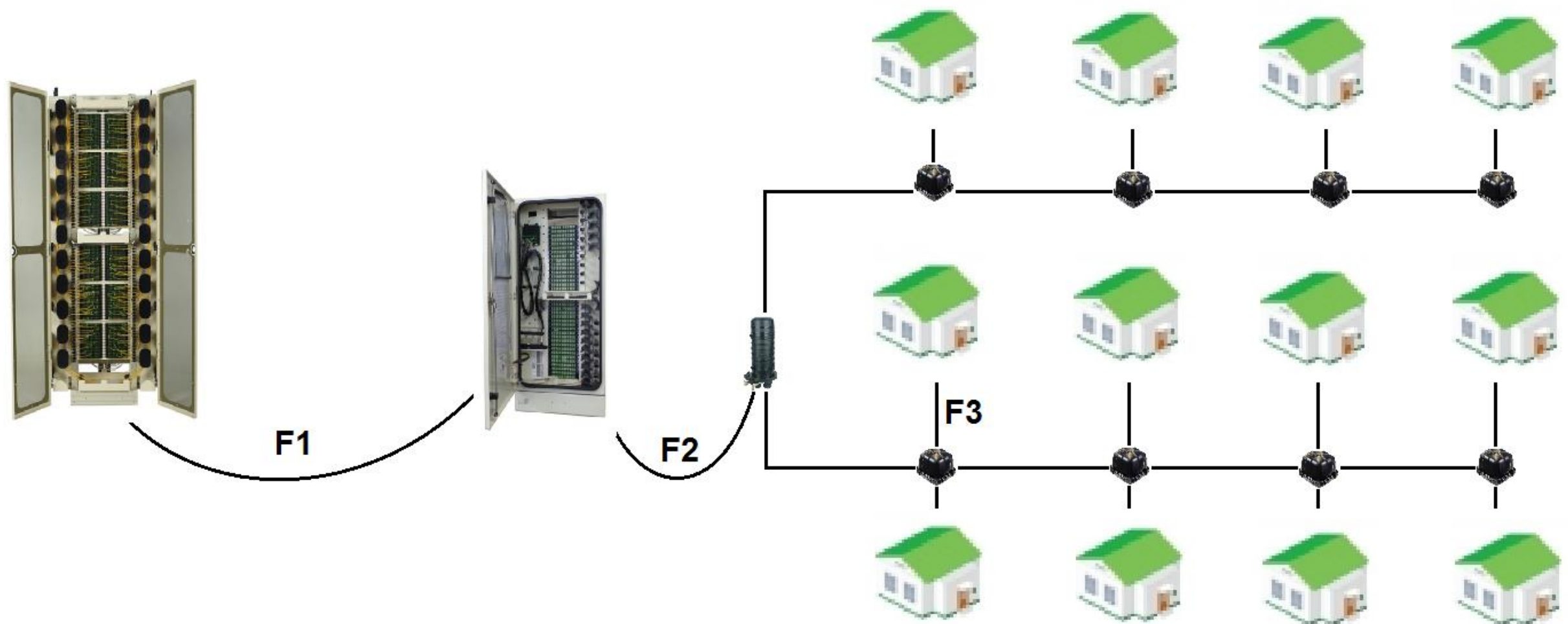


Tipping Point



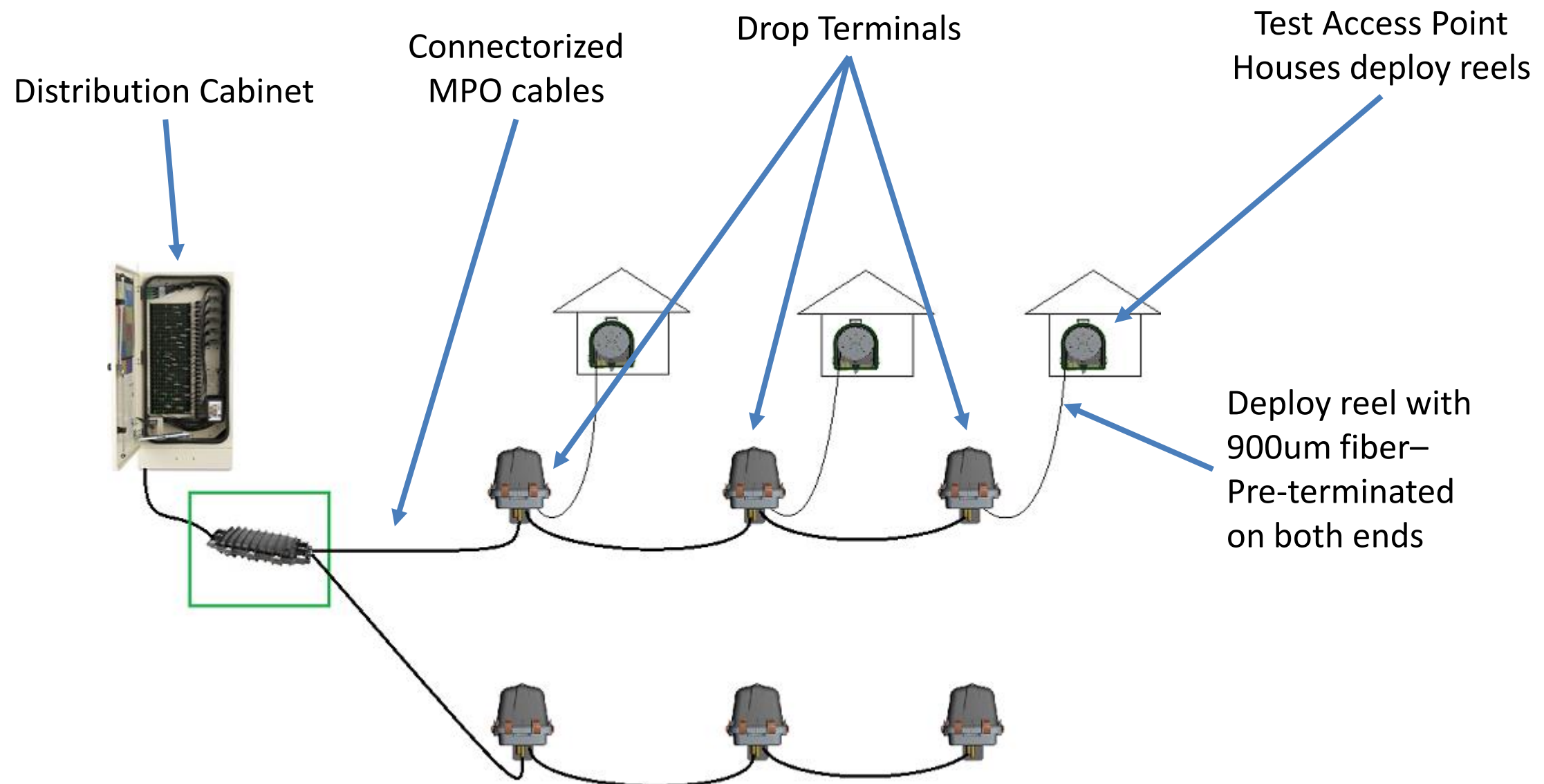
70% of the total cost to build your network is labor

Dissecting the Cost of a FTTH Network

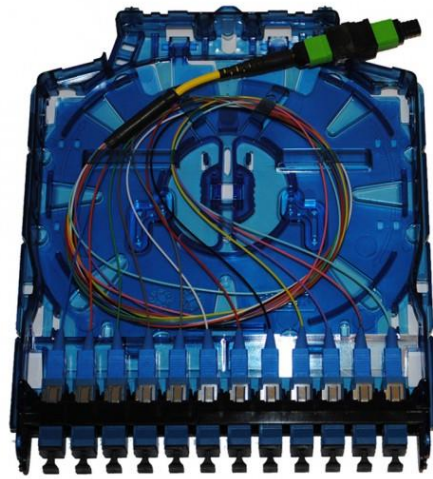


Modular Technology/Plug-and-Play/FTTH

YOURx™-Terminals are the network access points between the distribution cabinet and the homes. Rather than splicing in each NAP, pre-connectorized MPO cables are deployed to connect each YOURx-Terminal. On the drop side, deploy reels with 900um fiber plug into the terminal on one end and terminate at the TAP demarc point on the other end.



Modular Technology/Plug-and-Play/Fixed Wireless

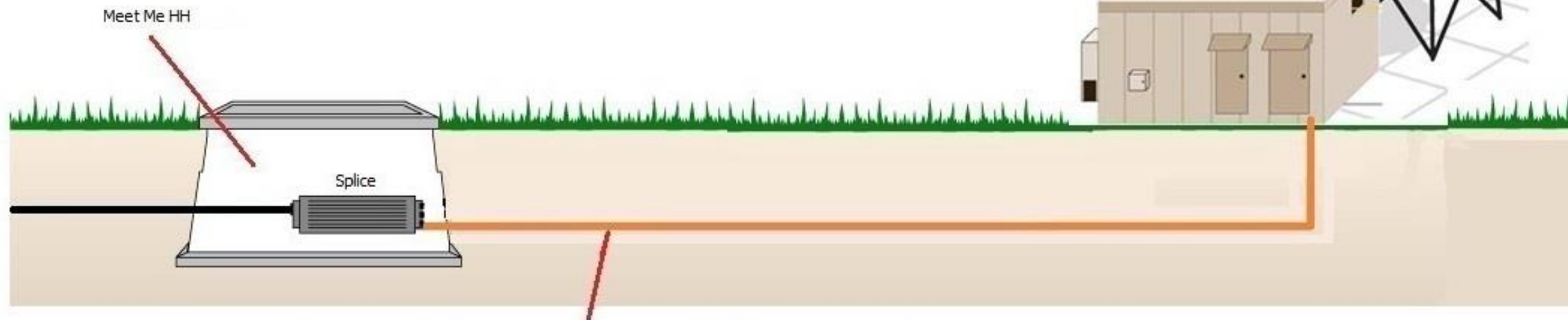
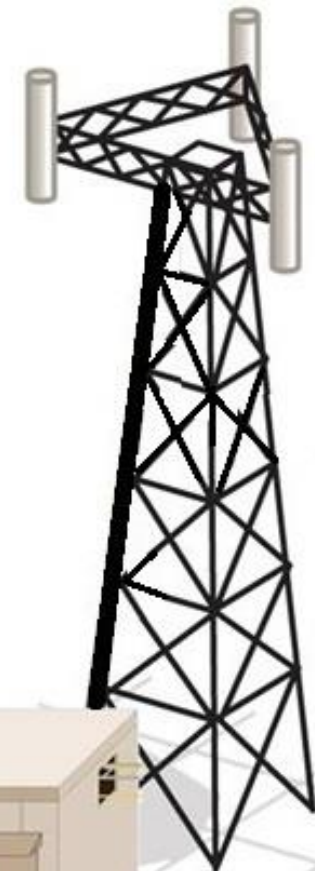


Clearfield 1 RU panel



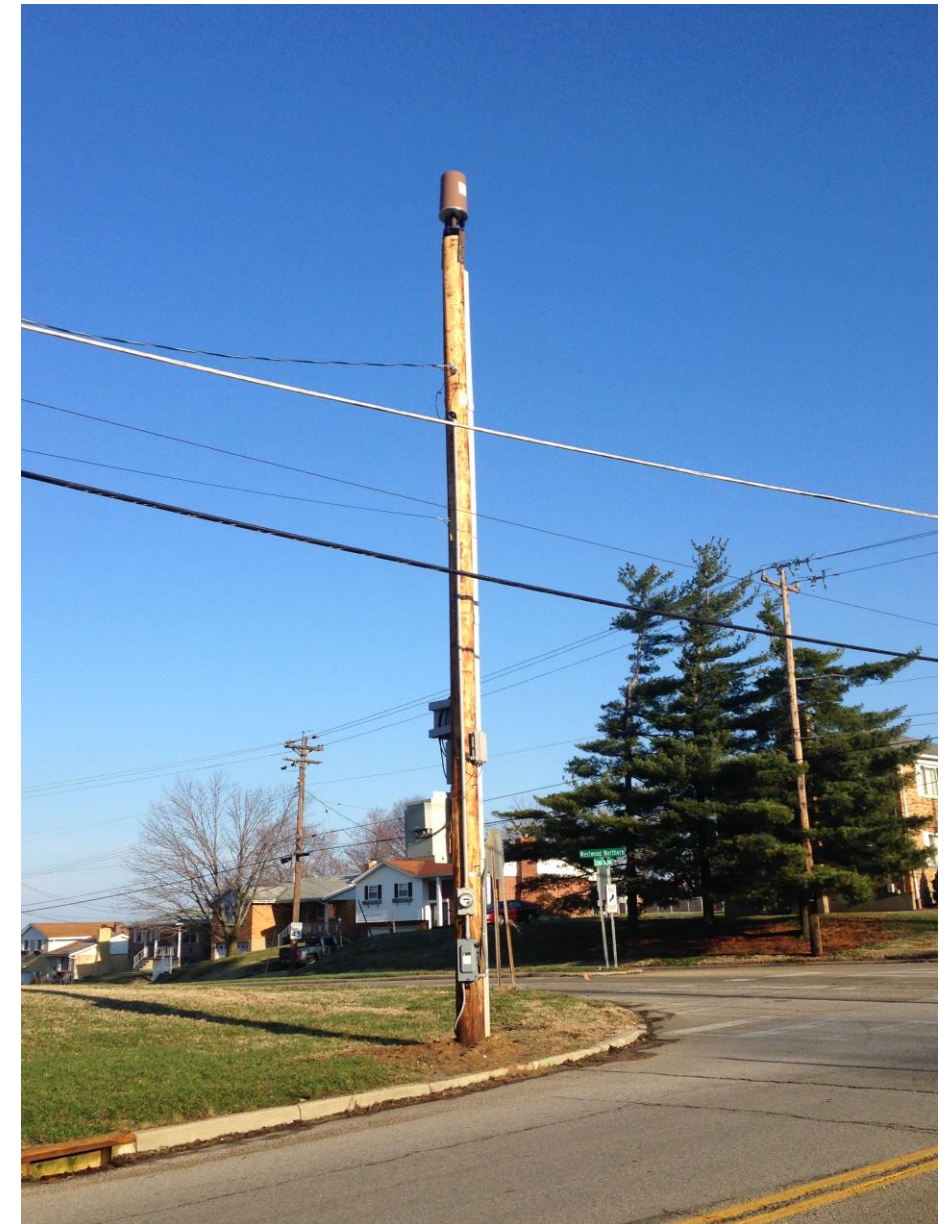
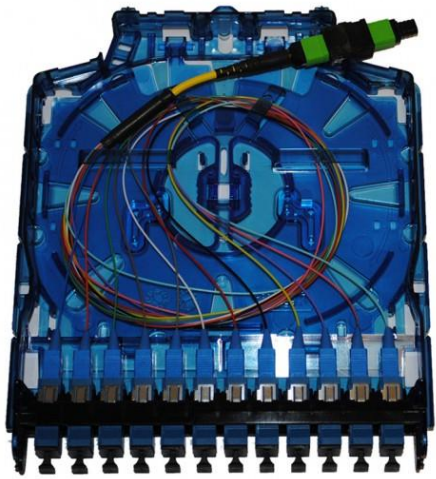
12 fiber MPO cassette

14mm Microduct with Pushable 12 fiber MPO cable



Clearfield 10mm Fieldshield microduct directly buried from shelter to meet me vault/HH

Modular Technology/Plug-and-Play/Fixed Wireless





Blending of the FTTH and the Fixed wireless technologies futures proofs your network and gives the customers the mobility they demand.

Whatever your choice is the need for a fiber rich network is quickly becoming a reality.