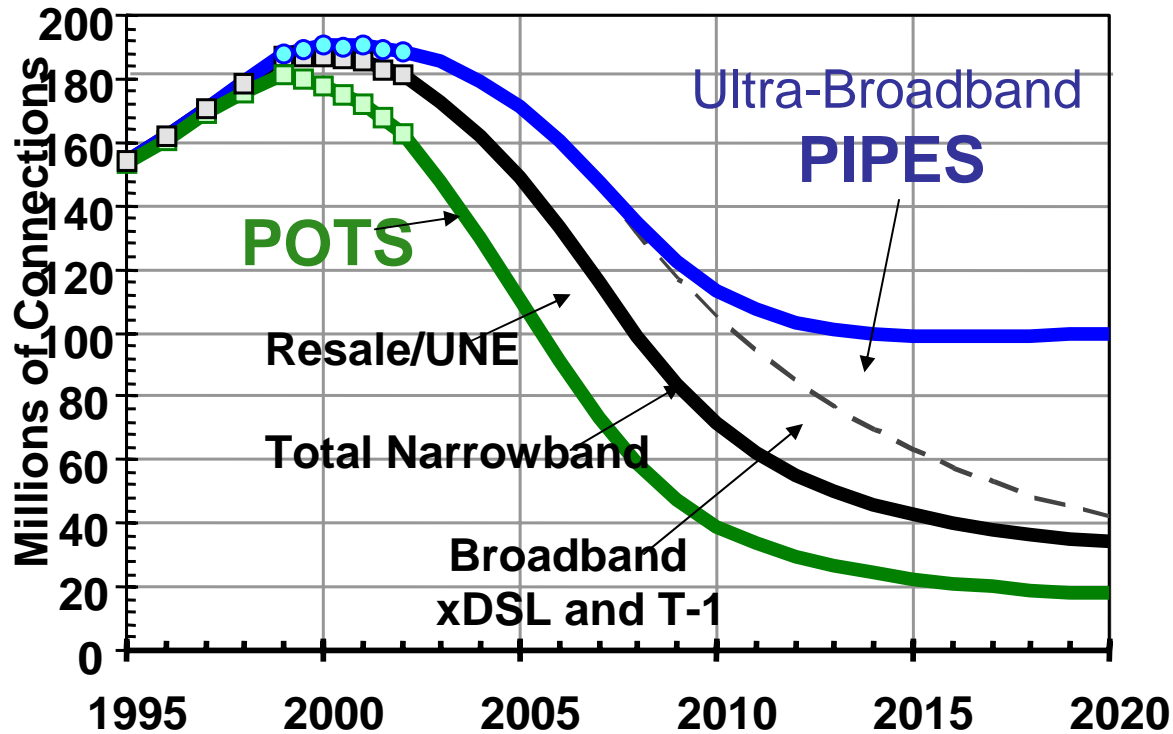


Transforming the Network: Implications for Telecom Power

**APEC 2005
Austin, TX**

March 10, 2005

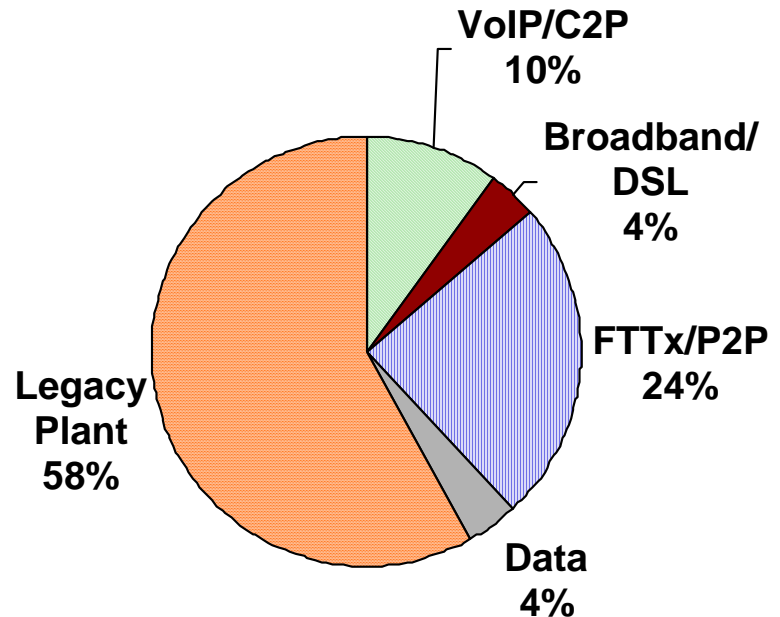
POTS to PIPES



- Circuit switches to packet (C2P)
- Narrowband POTS to broadband PIPES (P2P)
- “Triple-Play” services: POTS + Internet + TV on unified networks
- Reduce costs: redirect capex and reduce opex

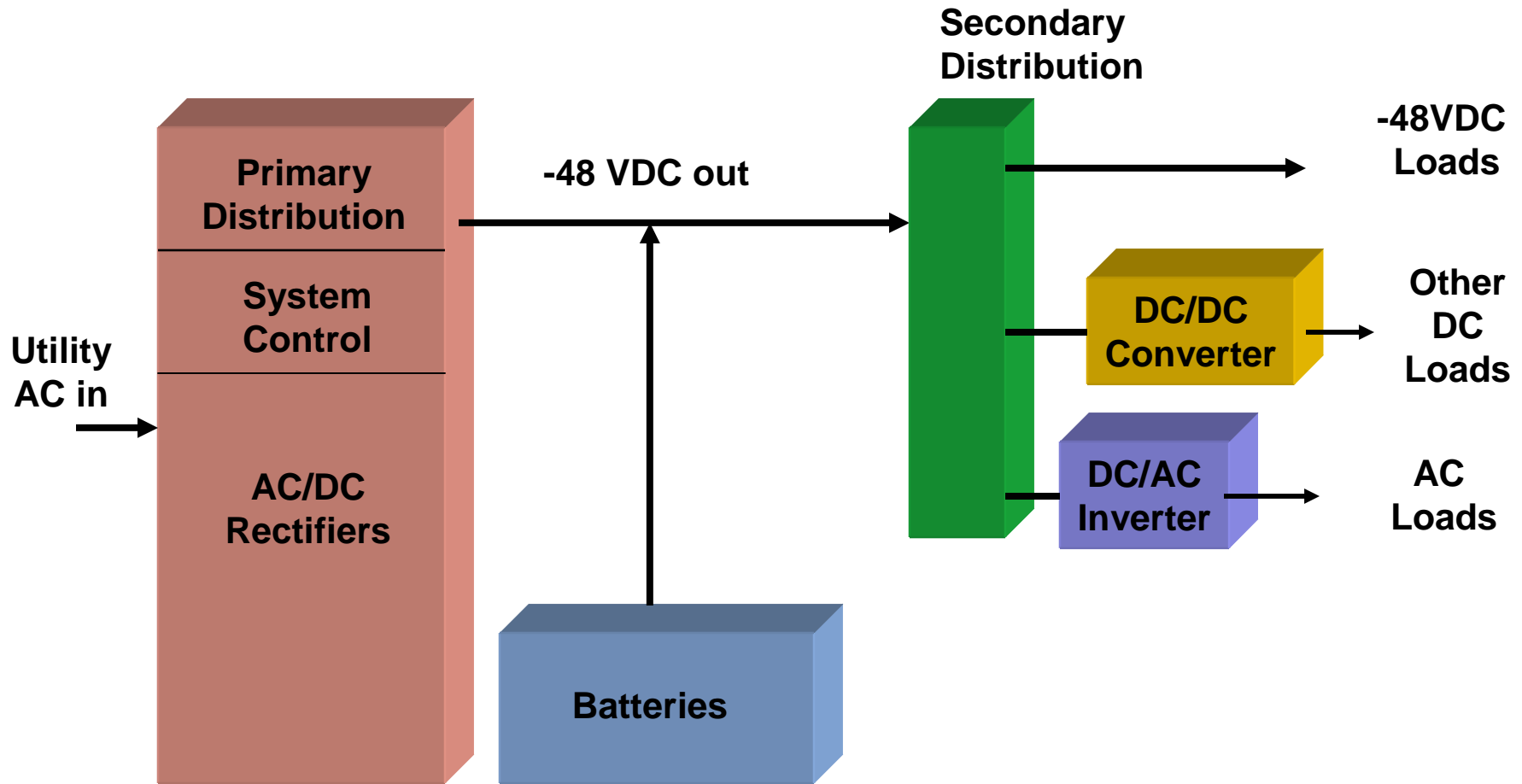
Major Telco Priorities

- Develop new revenue streams to replace POTS
- Offer service bundles to boost ARPU and profits
- Achieve significant and sustainable OPEX reductions
- Retain/win-back customers
- Shift CAPEX to new technologies ... C2P and P2P



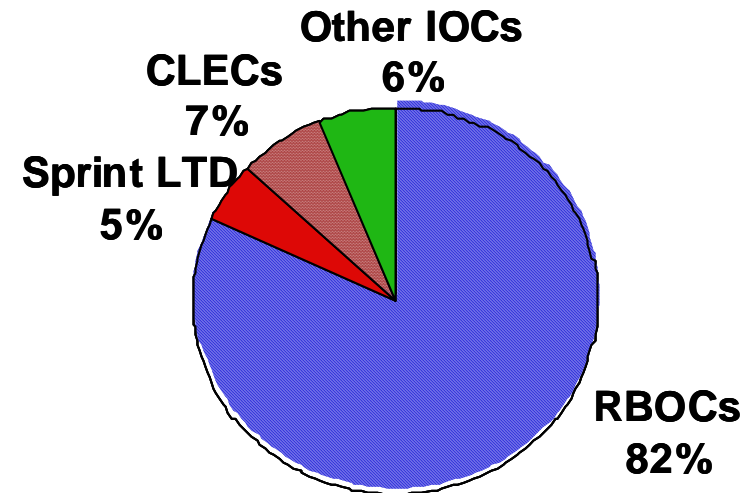
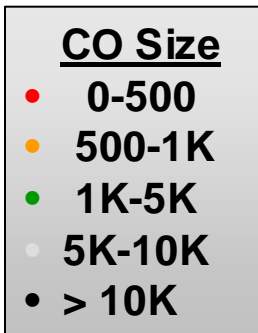
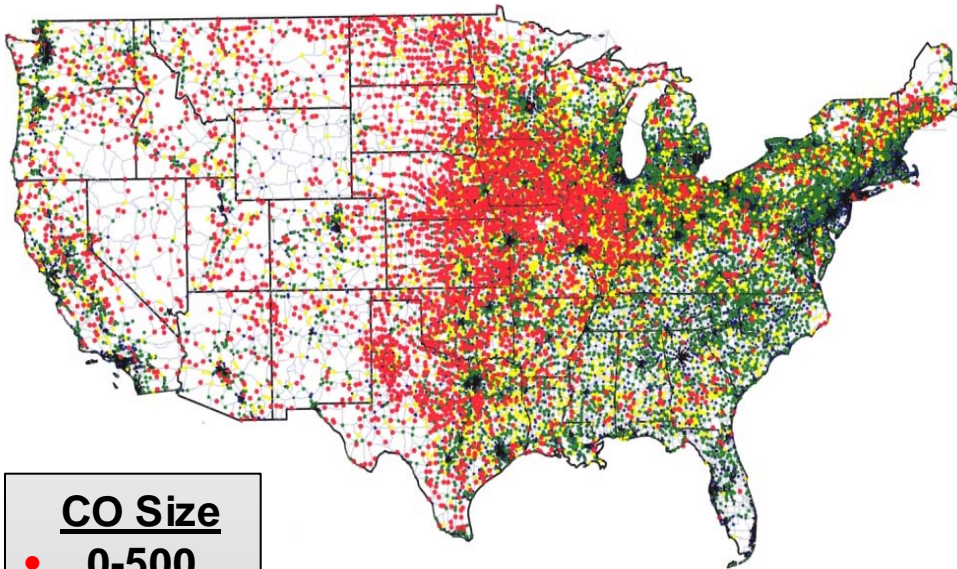
RBOC 2005e CapEx = \$16.0 billion

DC Power Systems



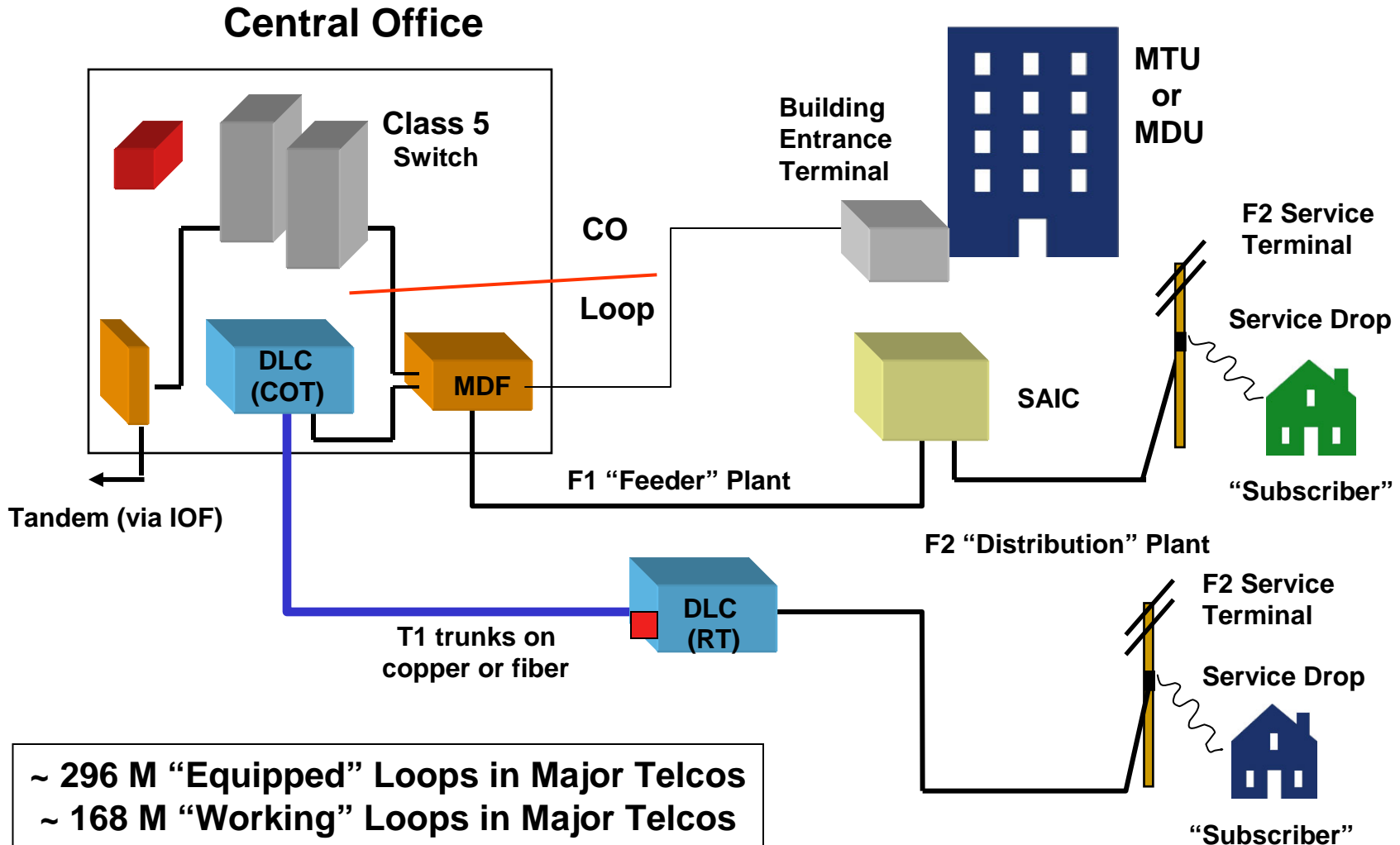
... only the packaging changes!

Local Exchange Carriers



- Regional Bell Operating Cos (RBOCs)
- Independent Telcos (IOCs)
- Competitive Local Exchange Carriers (CLECs), including Cablecos

Access Network Infrastructure

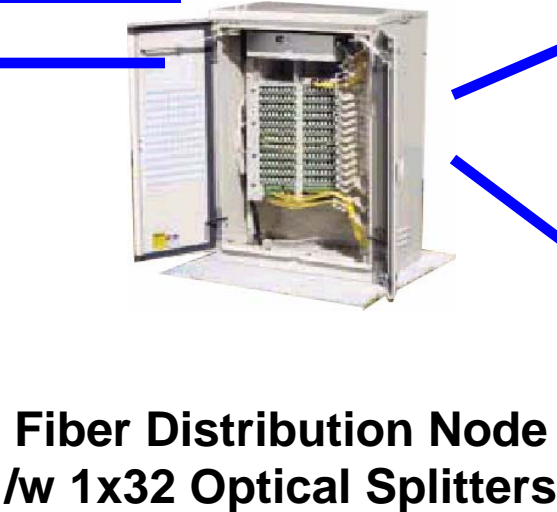
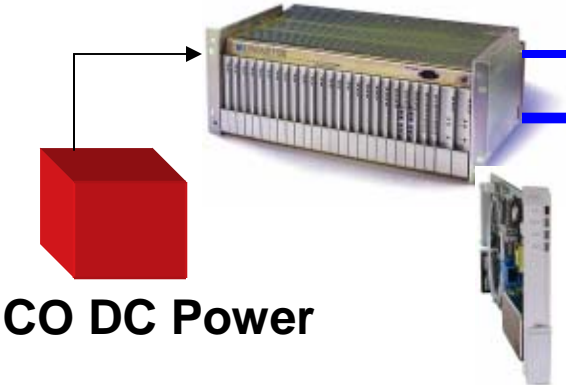


Fiber-To-The-Premise (FTTP)

CO

OSP

CPE

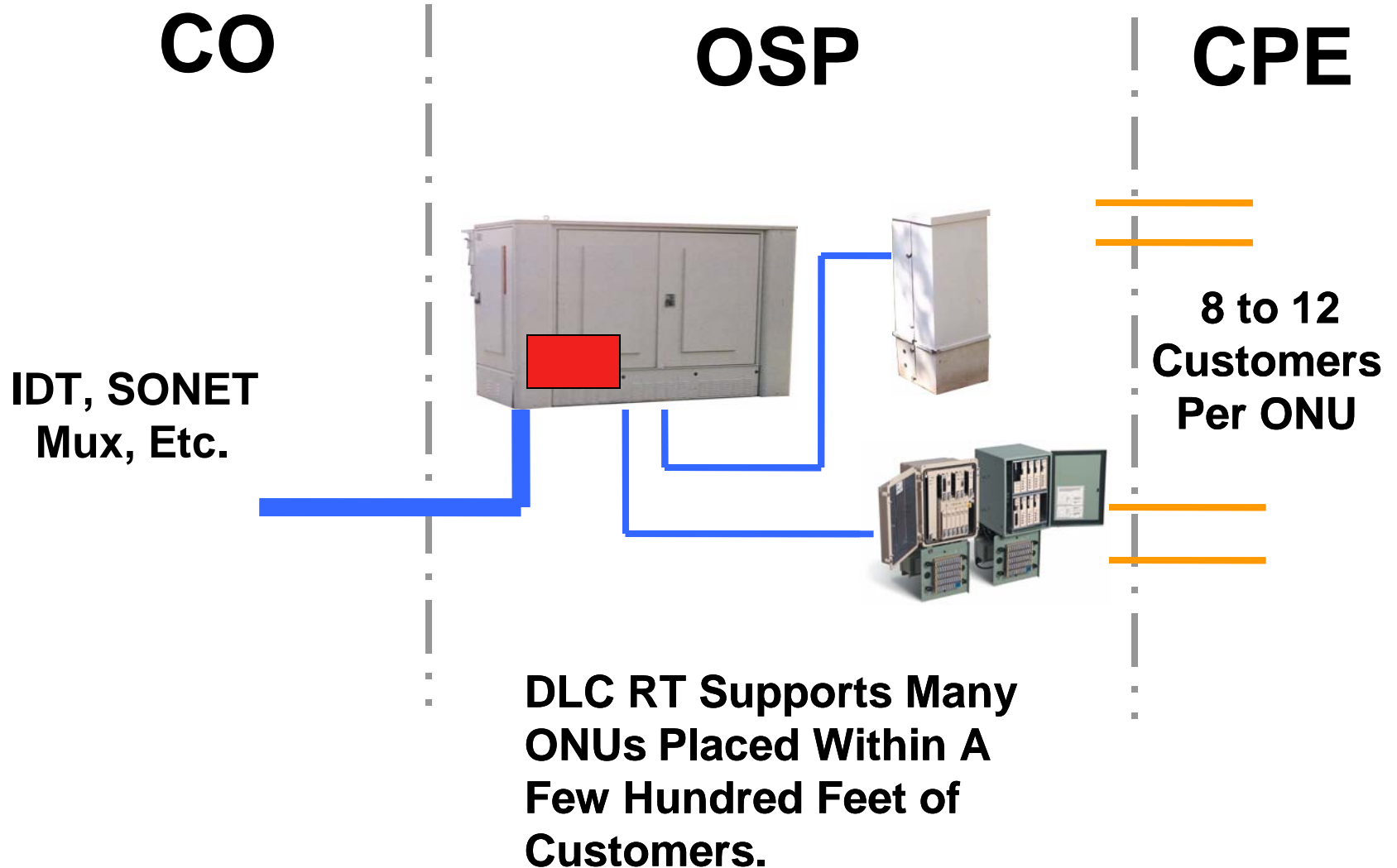


Up to 32 ONTs
Per Splitter

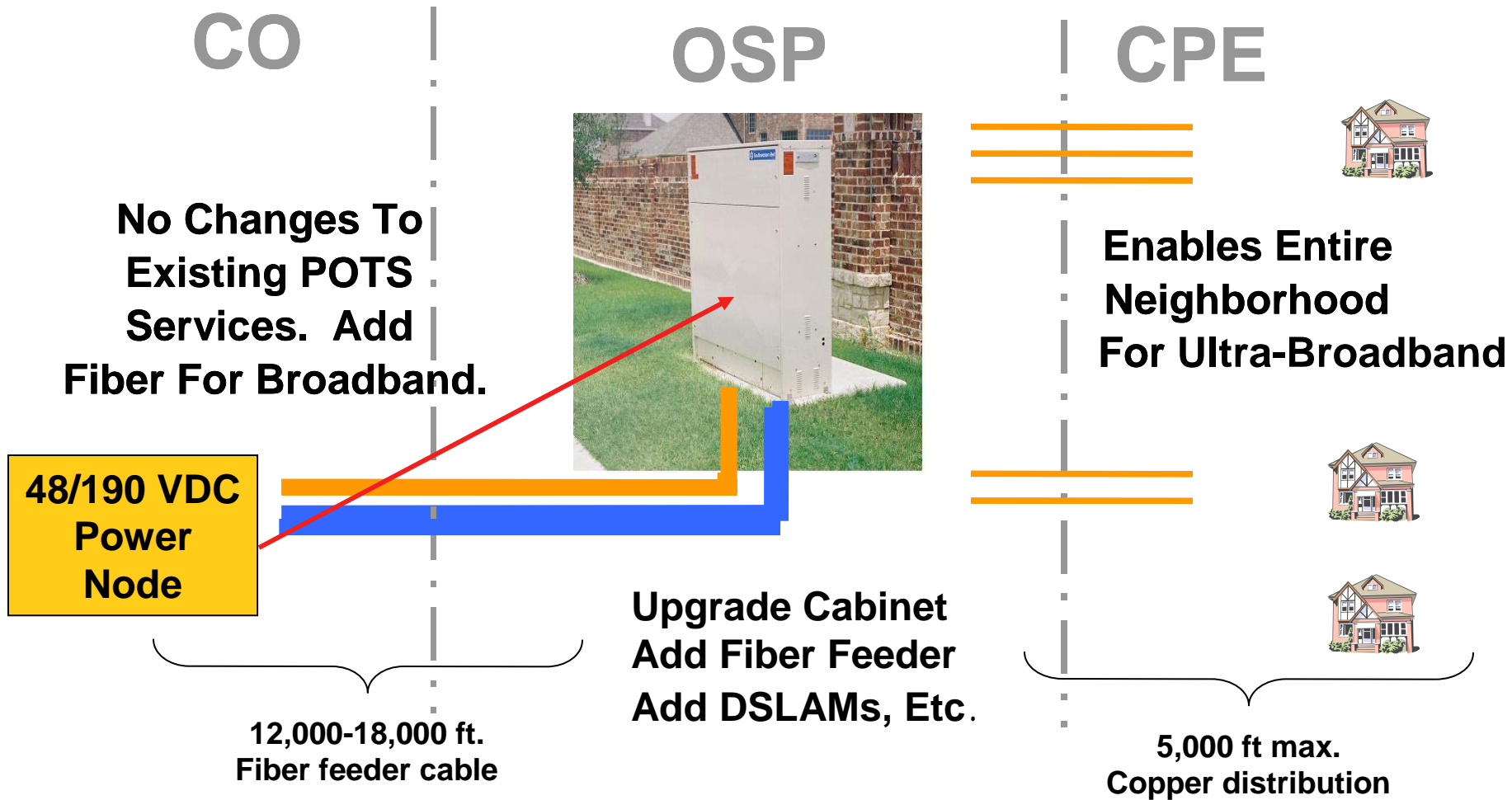


Utility AC

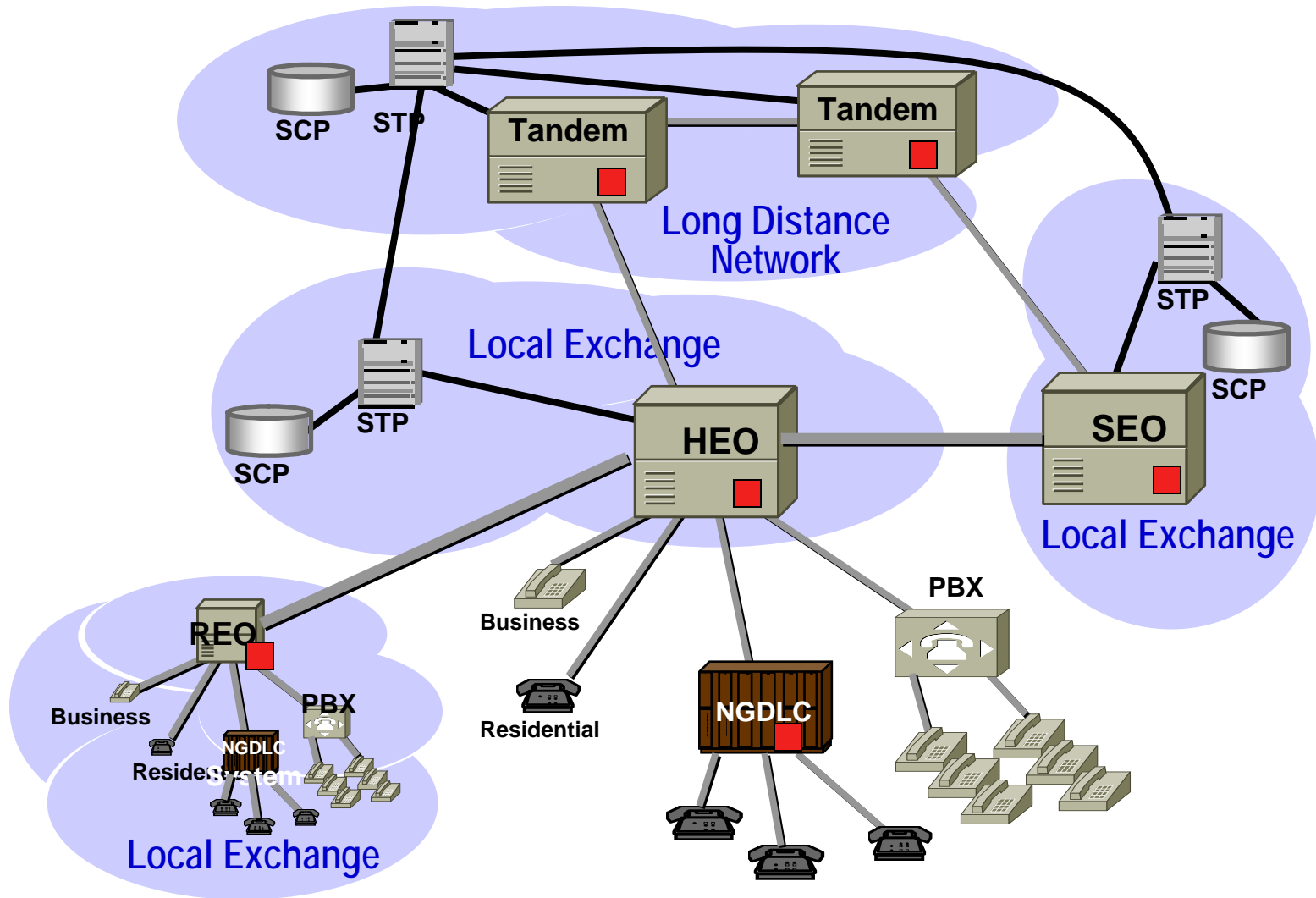
Fiber-To-The-Curb (FTTC)



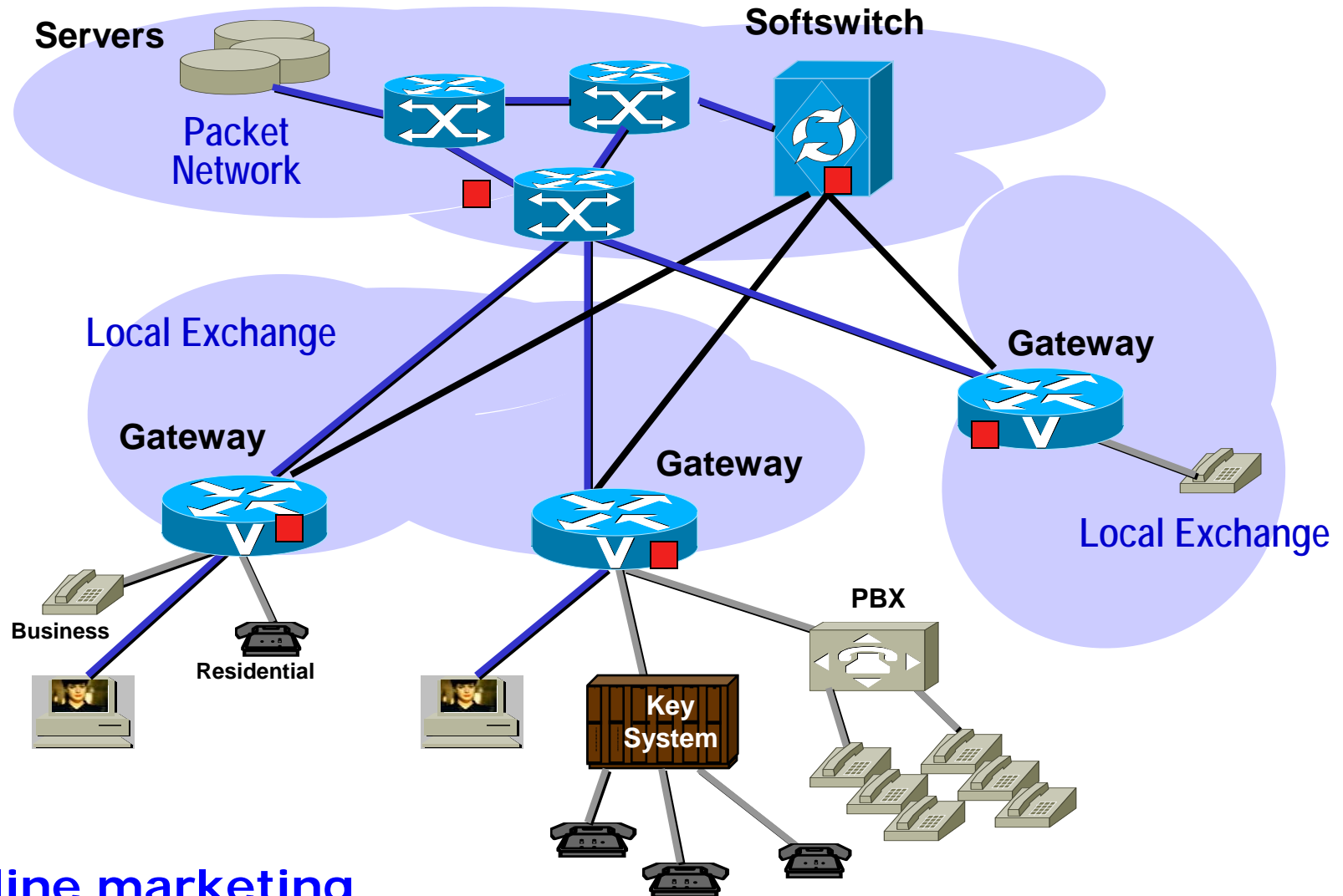
Fiber-To-The-Node (FTTN)



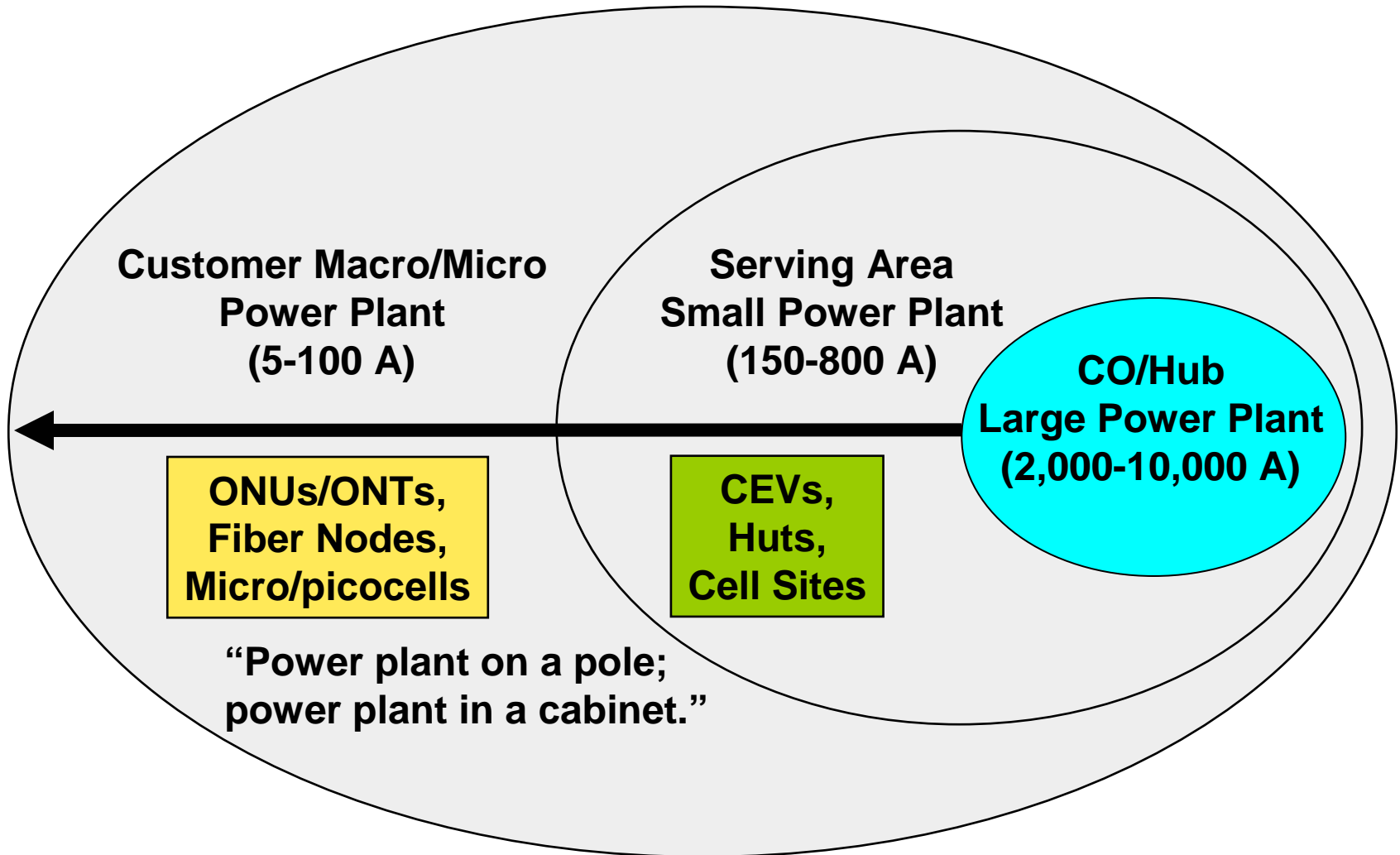
ILEC Network Before C2P



ILEC Network After C2P



DC Power System Trends



Power Product/System Features

- **Energy efficiency**
 - 90-92+%; thermal performance
- **Power density**
 - Smaller size, weight for same output
- **Ease of handling**
 - Installation, maintenance
- **Improved system control**
 - Remote operation
- **Standards compliance**

Telco Decision Factors

- **Packaging**

- Reduced size/weight in compact package

- **Performance**

- Increased power density
- High availability/reliability
- Energy efficiency
- Remote intelligence, hands-off operation

- **Price**

- Competitive first costs
- Lower life-cycle costs

Strategic Marketing

- **Know your customers**
 - Network topology, customer base, key issues/drivers
 - ‘Small is big!’
 - Sell telco-by-telco
 - Bigger carriers looking for capex, opex reductions
- **Develop value-adds**
 - Turnkey packages - Equipment + Services in one stop
- **Scope aftermarket opportunities**
 - Equipment add-ons, site management/maintenance
 - Growing outsource opportunities

Questions?

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(410) 654-1131

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