CO Strategies for Speeding FTTH Deployments
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TE Connectivity
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Agenda

• Challenges in the Central Office/Headend
• Existing Network Configurations
• Network Challenges
• The Rapid Network
• Rapid Network Applications
• Conclusion
Home Run Topologies

OLT

CENTRAL OFFICE

ODN

OUTSIDE PLANT

ONT

CUSTOMER PREMISE

PON Architecture

Optical Line Termination

1x32 Coupler

Fiber Service Area Interface

Active Ethernet

Active Ethernet

Fiber X-Conn

Fiber X-Conn

Fiber Service Area Interface

19.97 Million

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Home Run Topology

• Less Truck Rolls
• Most Work Done in One Location
• Simplifies Network Upgrades

• More Fiber in One Location
Network Configurations

Direct Connect with Patch Cords in FGS

- Adapter Only Fiber Termination Panel
- Cross-Connect Fiber Patch Cord
- Pre-Term Panel with IFC Cable
- Fiber Distribution Frame (ODF)
- Rear Splice
- To OSP
- FiberGuide System
- Long Length Individual Patchcords
- Active Equipment
- Electronic Equipment Bay

Front View

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Network Configurations

Direct Connect with Multifiber Cable on Ladder Rack

- Adapter Only Fiber Termination Panel
- Cross-Connect Fiber Patch Cord
- Pre-Term Panel with IFC Cable
- Fiber Distribution Frame (ODF)
- Splice
- To OSP
- Ladder Racking
- Lace Cable to Ladder Rack
- Active Equipment
- Electronic Equipment Bay
- Double Ended Multi Fiber Cable, Made to Order, Field Installed
- Cable Clamp / Breakout
- Electronic Equipment Bay
- To OSP
Network Configurations

*Intermediate Panel with Patch Cords in FGS*

- Adapter Only Fiber Termination Panel
- Cross-Connect Fiber Patch Cord
- Pre-Term Panel with IFC Cable
- Fiber Distribution Frame (ODF)
- Splice
- To OSP

- FiberGuide System
- Long Length Individual Patchcords

- Intermediate Fiber Distribution Panel, Adapter Only
- Active Equipment
- Electronic Equipment Bay

- Fiber Patchcords

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Network Configurations
*Intermediate Panel with Double Ended IFC on Ladder Rack*

- Adapter Only Fiber Termination Panel
- Double Ended IFC Cable, Made to Order, Field Installed
- Ladder Racking
- Lace Cable to Ladder Rack
- Cable Clamp
- Pre-Term Panel with IFC Cable
- Front Fiber Distribution Frame (ODF)
- Rear Splice
- To OSP

- Intermediate Fiber Distribution Panel, Adapter Only
- Active Equipment
- Electronic Equipment Bay
- Fiber Patchcords
Network Configurations

*Intermediate Term/Splice Panel with IFC on Ladder Rack*

- **Adapter Only Fiber Termination Panel**
- **Single Ended IFC Cable, Made to Order, Field Installed**
- **Ladder Racking**
- **Lace Cable to Ladder Rack**
- **Cable Clamp**
- **Pre-Term Panel with IFC Cable**
- **Fiber Distribution Frame (ODF)**
- **To OSP**
- **Intermediate Fiber Distribution Panel, Term/Splice**
- **Active Equipment**
- **Electronic Equipment Bay**
- **Fiber Patchcords**
Fiber Network Deployment Challenges

• Site survey to determine exact IFC cable length
• Challenge determining proper catalog number to order
• Maintaining cable Product ID’s and Configurations for different Panel Configurations
• Lead-time for IFC’s
• Pulling large fiber cables with bundle of connectors
• Loading 72 single fiber connectors into back of both panels
• Remaining IFC cable slack in overhead
The Rapid Network

• Combines the IFC cabling concept with fiber distribution panel with built in slack storage

• Multi Fiber Push On Connector (MPO) connector technology speeds installation

• Micro cable design allows large amounts of cable to be stored in a small space

• RapidReel™ spooling technology allows customer to unspool exactly the amount of cable needed from the panel leaving the remaining cable safely stored within the panel
The Rapid Network

**MPO Connectors**

- Stub end connectorized with 12 fiber low-loss multi-fiber push-on connectors (MPO)
- MPO cable assembly from Rapid Panel connects to MPO adapter ports in ODF frame for a semi permanent connection, reducing installation time over single fiber connectors
- Front connector access at Rapid Panel and far end solution are standard single fiber connectors, ensuring effective network access and reconfiguration flexibility
- Meets standards for Telcordia GR-1435-CORE, IEC 61754-7 and TIA/EIA 604-5
- Ships with integrated pulling eye attached (40lb pull force)
The Rapid Fiber Panel Solution

*Micro Cable*

- 12-Fiber 3.0mm Diameter MicroCable (Dual Zip = 24f.)
  - 70% Space savings within FiberGuide when compared to 1.6MM jumpers
  - 85% space savings within ladder racking compared to standard IFC cable
- Meets GR-409 Horizontal Backbone cable requirements
- Plenum Rated cable can be routed in FiberGuide or on Ladder Racking with IFC cable
- Smaller cable diameter makes slack storage much easier when needed
- Singlemode utilizing Reduced Bend Radius fiber
The Rapid Network

- Rapid Reel™ technology allows cable slack to be accommodated within panel
- Panels orderable in 100’ increments, dramatically reducing orderable part numbers
- Greatly reduces criticality of site survey process of measuring cable length
- Each shelf can be pulled independently of the other or they can all be pulled at the same time
- Rear latch prevents accidental movement of reel when panel is in service
- Cable can be pulled out of any of the four corners of the panel, no special ordering
The Rapid Network with MPO

- Fiber Termination Panel with internal MPO Pigtails
- Fiber Distribution Frame (ODF)*
- Pre-Term Panel with IFC Cable*
- MPO Adapter
- FiberGuide or Ladder rack
- Cable length in 100ft increments
- Active Equipment
- Splice
- To OSP

Electronic Equipment Bay
The Rapid Network with MPO

- Fiber Termination Panel with internal MPO Pigtails
- Cross-Connect Fiber Patch Cord
- Pre-Term Panel with IFC Cable*
- Fiber Distribution Frame (ODF)*
- Cable length in 100ft increments
- Electronic Equipment Bay
- Rapid Panel Loaded Chassis
- Rapid Panel MPO Adapter
- Rapid Reel
- FiberGuide or Ladder rack
- MPO Connector
- Active Equipment
- Fiber Patchcords
- To OSP*
The Rapid Network without MPO

- Fiber Termination Panel with Adapters
- Fiber Distribution Frame (ODF)*
- Cable length in 100ft increments
- Electronic Equipment Bay
- FiberGuide or Ladder rack
- Active Equipment
- Pre-Term Panel with IFC Cable*
- Front
- Rear
- Splice
- To OSP
The Rapid Network without MPO

- Fiber Termination Panel with Adapters
- Fiber Distribution Frame (ODF)*
- Individual Connectors Loaded into Back of Panel
- Cross-Connect Fiber Patch Cord
- Pre-Term Panel with IFC Cable*
- Front
- Rear
- Cable length in 100ft increments
- Electronic Equipment Bay
  - Pulling Sock Over Fanout & Connectors
  - Rapid Reel
  - Fanout Secured to Panel
  - FiberGuide or Ladder rack
  - Rapid Panel Loaded Chassis
  - Fiber Patchcords
- Active Equipment
- To OSP

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Rapid Product Application

Ladder Racking System

ODF Line-up

FiberGuide Raceway System

Rapid Panel in Electronic Equipment Bay
The Rapid Network

Rapid Panel

High Density Frame Solution

Medium Density Frame Solution

Low/Medium Density Panel Solution
One Solution for Multiple Applications

Fixed
Panel

Rapid
Panel
MST

Wall Box

Wall Box

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Rapid Panel at Equipment
Rapid Tie Bay Application
Rapid OSP Application
Rapid Customer Premise Application
The Rapid Network

- Less Manpower/Lower Skill Set Requirement
- Connectors Better Protected
- Faster/Easier Deployments
- Simplifies Ordering
- Less Inventory
- Small Footprint
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