

Converged Networks FTTx & 5G

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Dean Pettigrew

Director, Emerging Markets,
Network Cable & Connectivity

Industry Trends



FTTX
IoT
8K video
DOCSIS 4.0
Cloud
HFC
CONVERGENCE
IPTV
FTTH
5G
cell densification
smart cities
gigabit Wi-Fi
autonomous vehicles
Big Data
virtual reality
EDGE COMPUTE
wearables
digital economy
LTE
C-RAN

Infrastructure and Network Considerations



- Initial **Product Cost**
- Cost and Ease Of **Installation**
- Ease Of **Operations and Maintenance**
- Supports Current and **Future Applications**
- Capacity and Density





Economic benefits of network convergence

“The net cost of fibre-optic crosshaul and backhaul can be reduced by 65 to 96 percent by deploying an optimized converged fiber network in advance.”

Fiber to the Home
Council Europe

Convergence—the next frontier

Fibre network convergence will enable service providers to deliver a wider range of services and offer innovative services

One build-out for multiple service delivery platforms.

Sharing physical assets between fixed and wireless

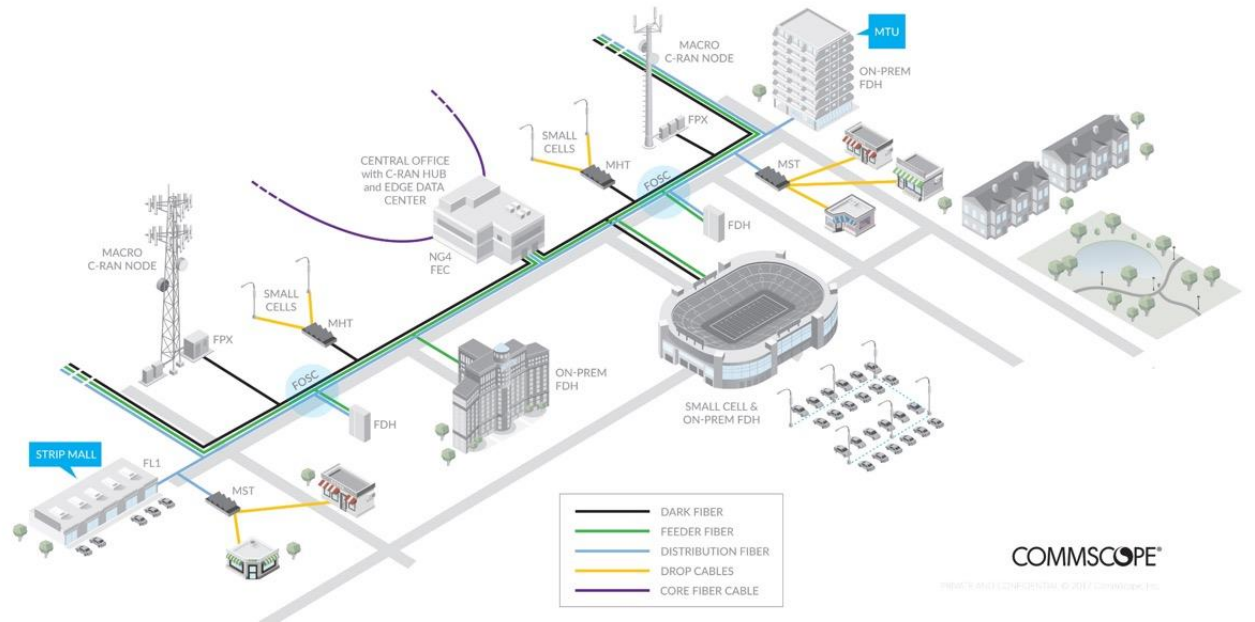
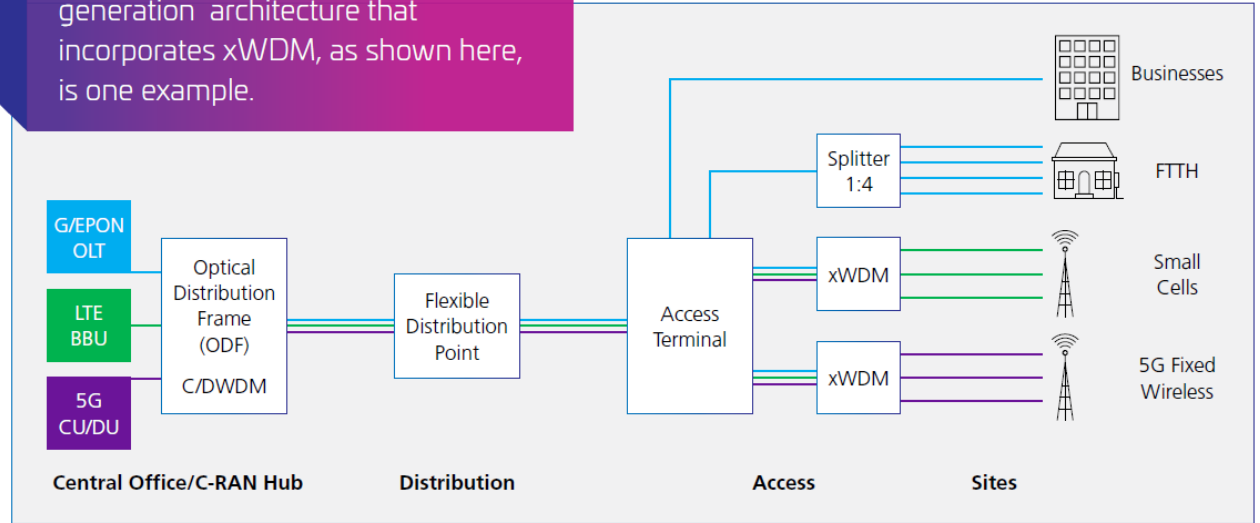
Small cells moving deeper and deeper into the network

Leverage off FTTH network builds and pooling off baseband resources

FTTx networks to augment fibre capacity to support 5G small cells

Utilizing Passive WDM with multiple wavelengths onto a single fibre for 5G applications

A shared infrastructure can take many forms. Using a next-generation architecture that incorporates xWDM, as shown here, is one example.



Convergence—the next frontier

The way we use networks is evolving

Stable and high-performance is required

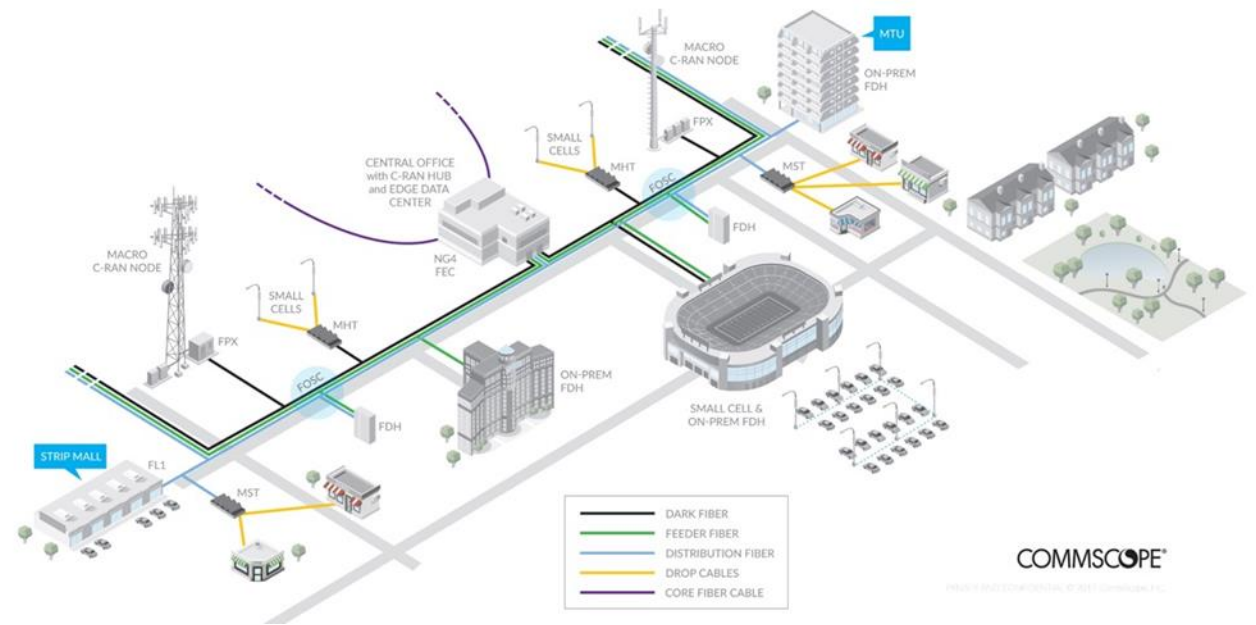
Open up increased revenue streams

Multiple PON technologies over a common infrastructure

Existing infrastructure quality needs to be considered, day one costs are only part of the TCO story

Selecting the right, flexible network topology

Will be key to reduce whole life costs



FTTx with converged network capability

Typically FTTx use cascaded split architecture in region

Minimal cable hauling

Simple point-to-point integration

Distribution fibre often standardized 12, 24, 48, 96

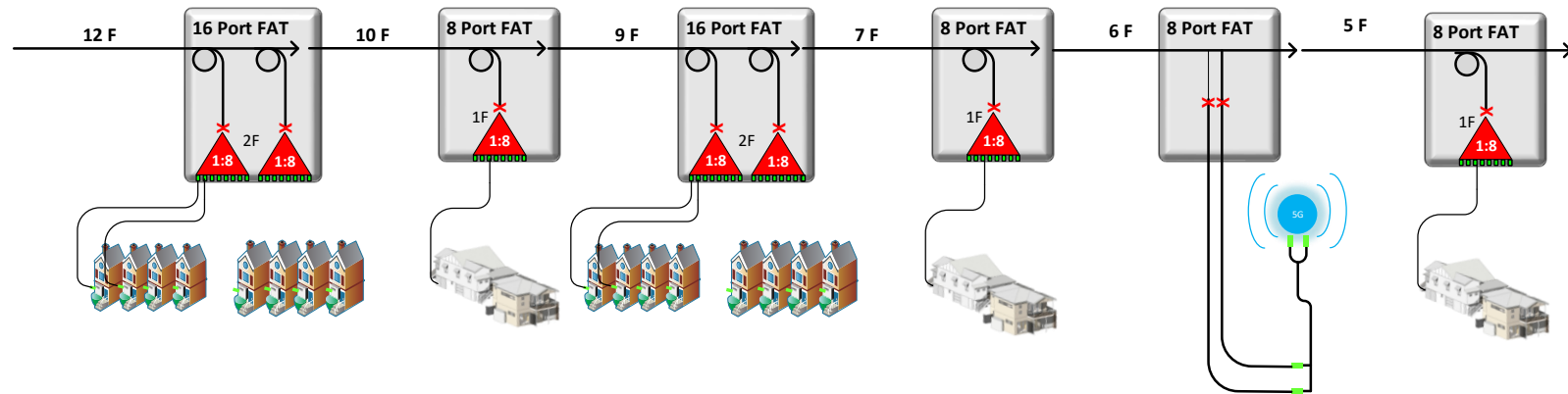
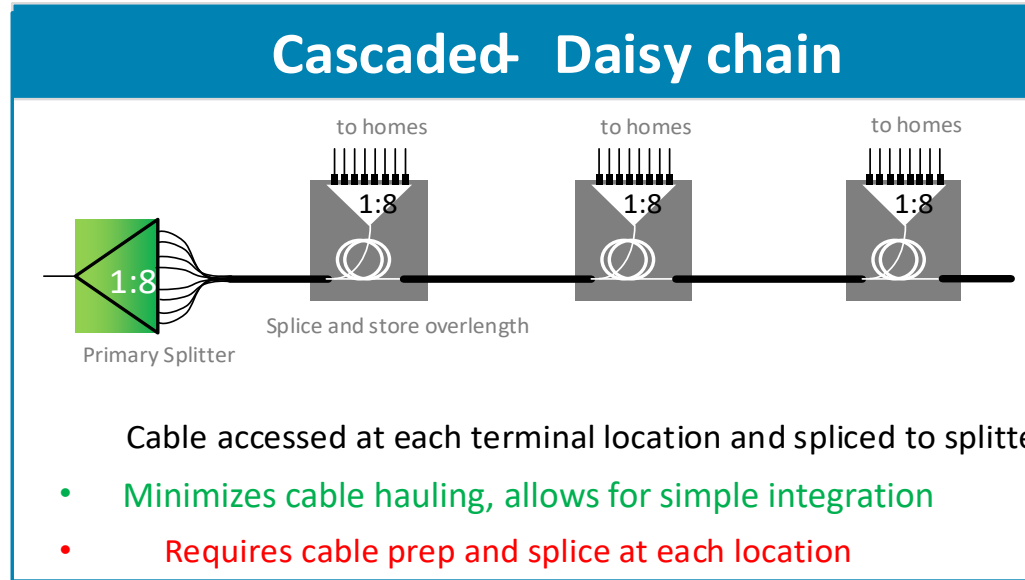
FTTx networks are ideally placed for small cell penetration

Key Considerations

Design networks that meet FTTx coverage and maximising potential small cell locations

Consider differing service level requirements for converged networks

Design for flexibility in fibre capacity



FTTx with converged network capability

Can risk over capitalisation of fibre assets based on standardisation

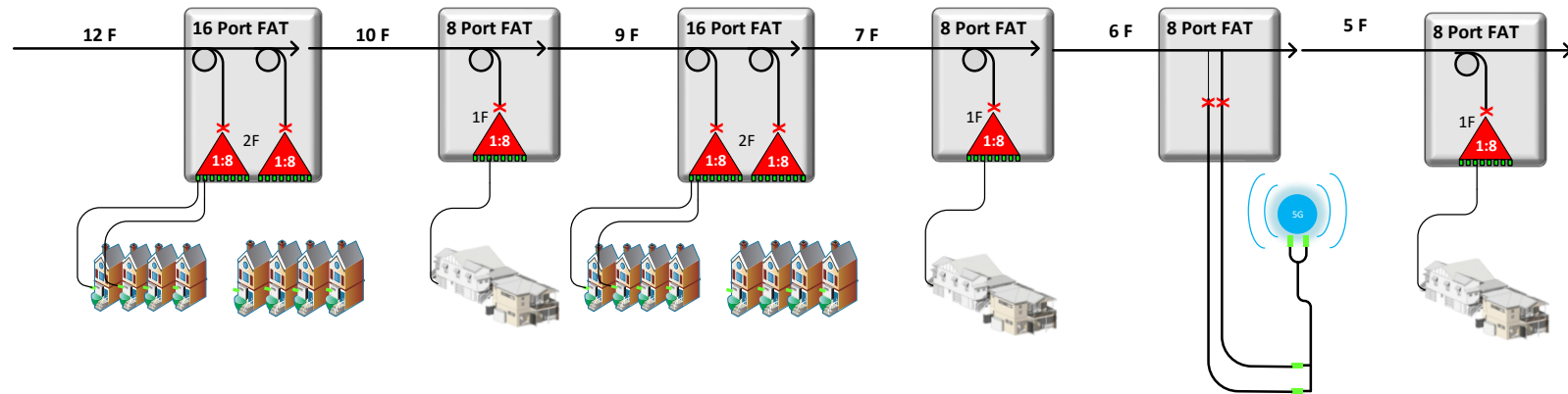
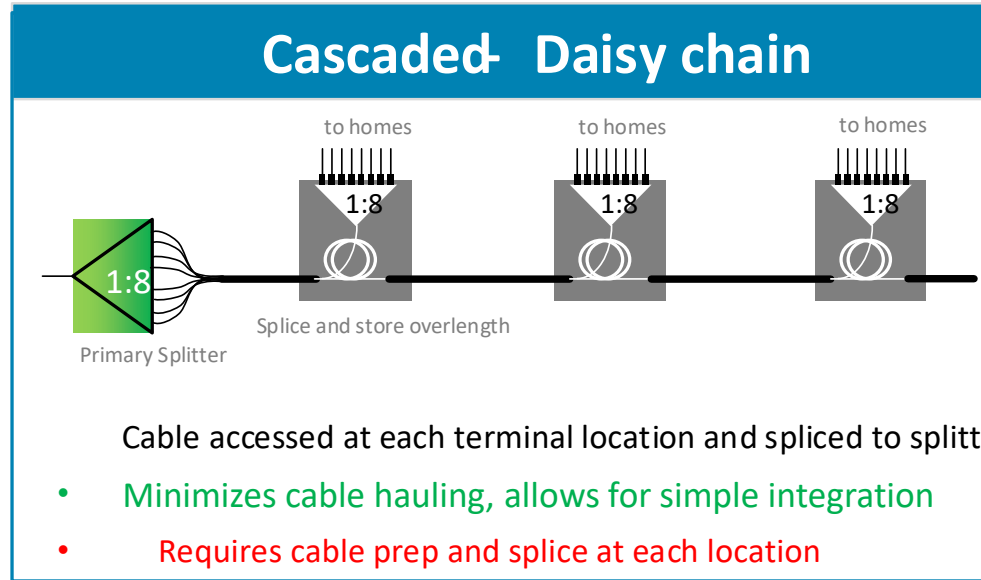
Each terminal location requires splicing

Skilled labour and specialised equipment

Increased labour cost and time

Competition for skilled splicing resources

Integrity of field splicing



Convergence— Plug & Play FTTx with converged network capability

Growing trend towards Connectorised Networks

APAC starting to adopt plug and play connectorised FTTx solutions

Key advantages to plug and play FTTx deployments

- Speed of Deployment
- Faster time to Market
- Faster ROI
- Factory terminated integrity
- Lower Cost of Labour
- Lower Construction Costs

Splicing

Single splice location only
(Input side of S1)
No splicing at terminal
locations for home pass

Reduction in Skilled Installer Requirements

Reduction of Splicing Resources
and Construction Resources.

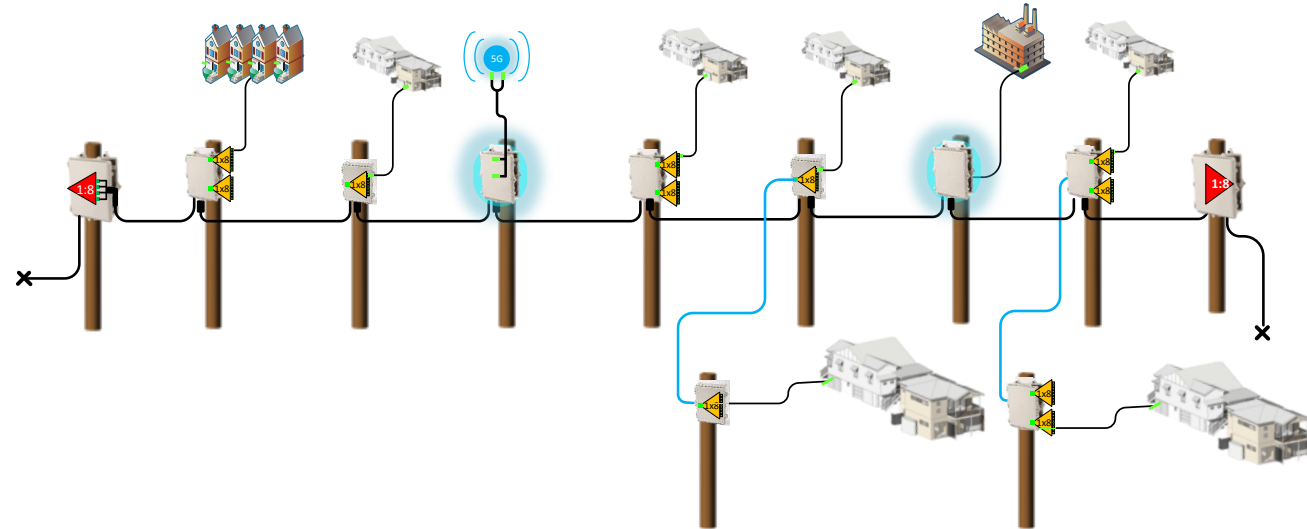
Rapid Deployment

Significant reduction time
to deploy, Faster and easy
customer connection,
reduced time to market

Optimised Fibre Deployment

Reduces quantity of fibre deployed
within the network with optimized
distribution and access fibre routing

Improves ROI and
significantly reduces
TCO



Convergence— Plug & Play FTTx with converged network capability

High network applicability

Additional flexibility to provide dedicated fibre services

Flexible service level protection e.g. FTTx vs Enterprise vs Small Cell

Augment existing distribution architectures for added value

Future proofing for NextGen PON, Passive DWDM and 5G

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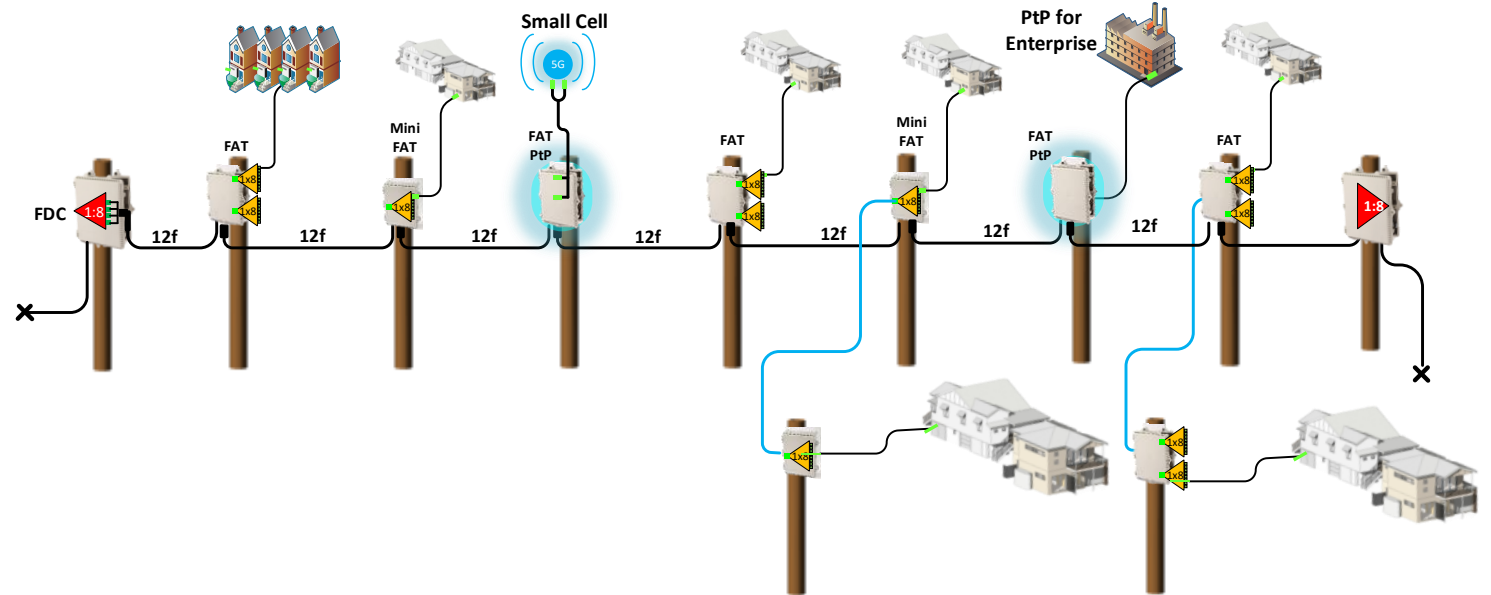
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- Converged networks are a natural response to two key business realities:
 - The ever-increasing demand for bandwidth,
 - The need to reduce CapEx and OpEx costs.
- Fibre networks offer exceptional opportunities to better manage both priorities

Convergent fibre infrastructure has the capacity to transform every level of your network

now meets next

Thank you for your time