

# The Role of Fiber on 5G Deployments

Technology & Standards Committee

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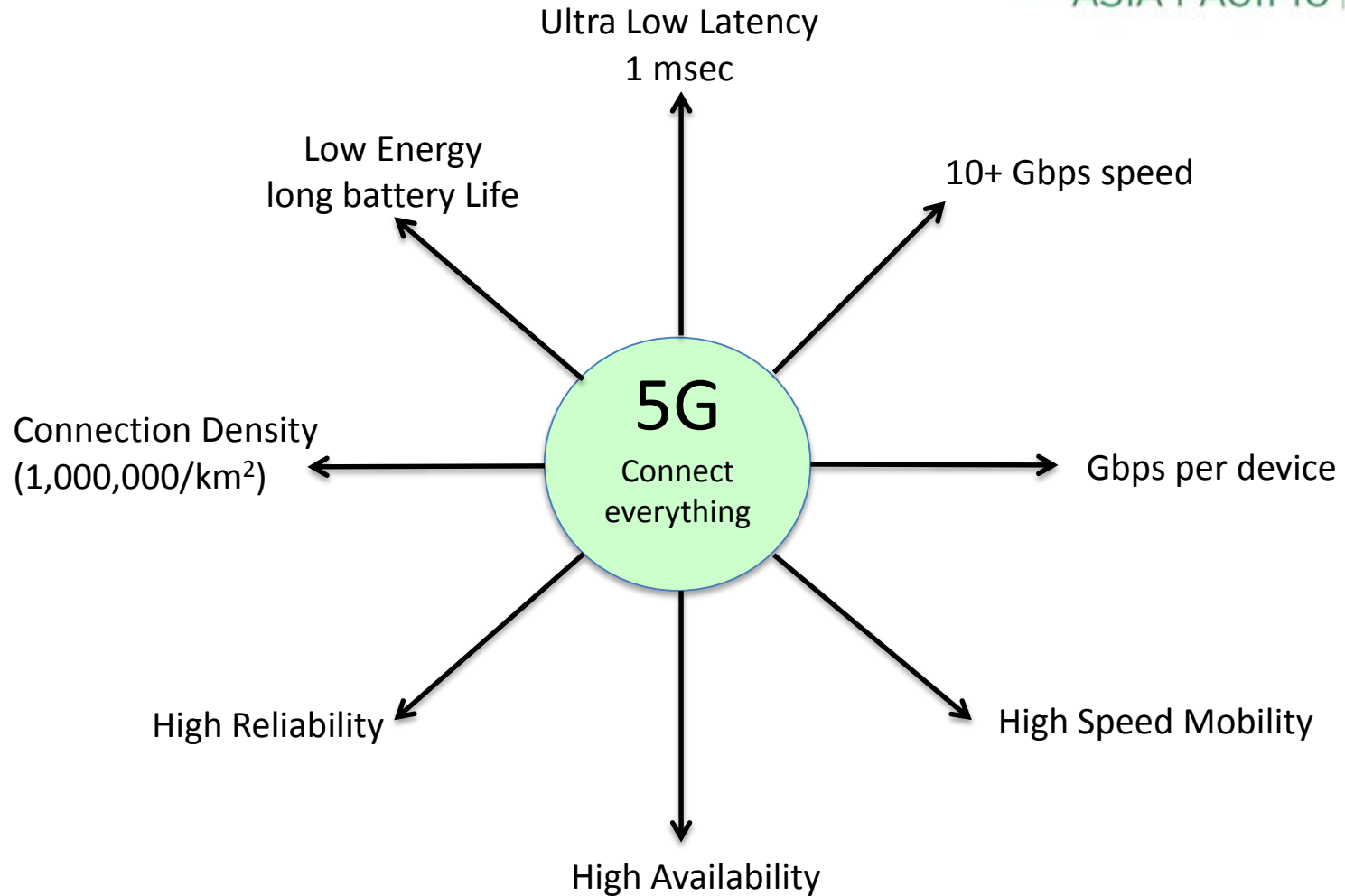
# Wire or Wireless?

- **Fiber was the only medium available to carry voice, data and video** – all in one channel – at high speed in as early as 1980s, when the first generation of mobile communications (**1G**) was popular with analog voice
- **2G**- Digital voice ....
- **3G**- Mobile broadband access ...
- **4G**- Higher capacity and coverage... (Recent Deployment) – **FTTA infrastructure provides secure, reliable and better signal integrity**

*Today, consumer wants seamless high-speed broadband connectivity at home, office and on mobile vehicle, anytime and anywhere.*

✧ **A game changing mobile technology, 5G is around the corner with initial rollout anticipated by 2020**

# Desired system parameters for 5G



# **Low-cost FTTA deployment to support high-speed 5G**

**5G will be a good opportunity for operators, however will face challenges**

- Thousands or millions of towers and cells need to be connected by fiber quickly
- High cost of fiber network deployment (materials, civil infrastructure)
- Installation time & new skill set necessity for field installer

# Low-cost FTTA deployment to support high-speed 5G



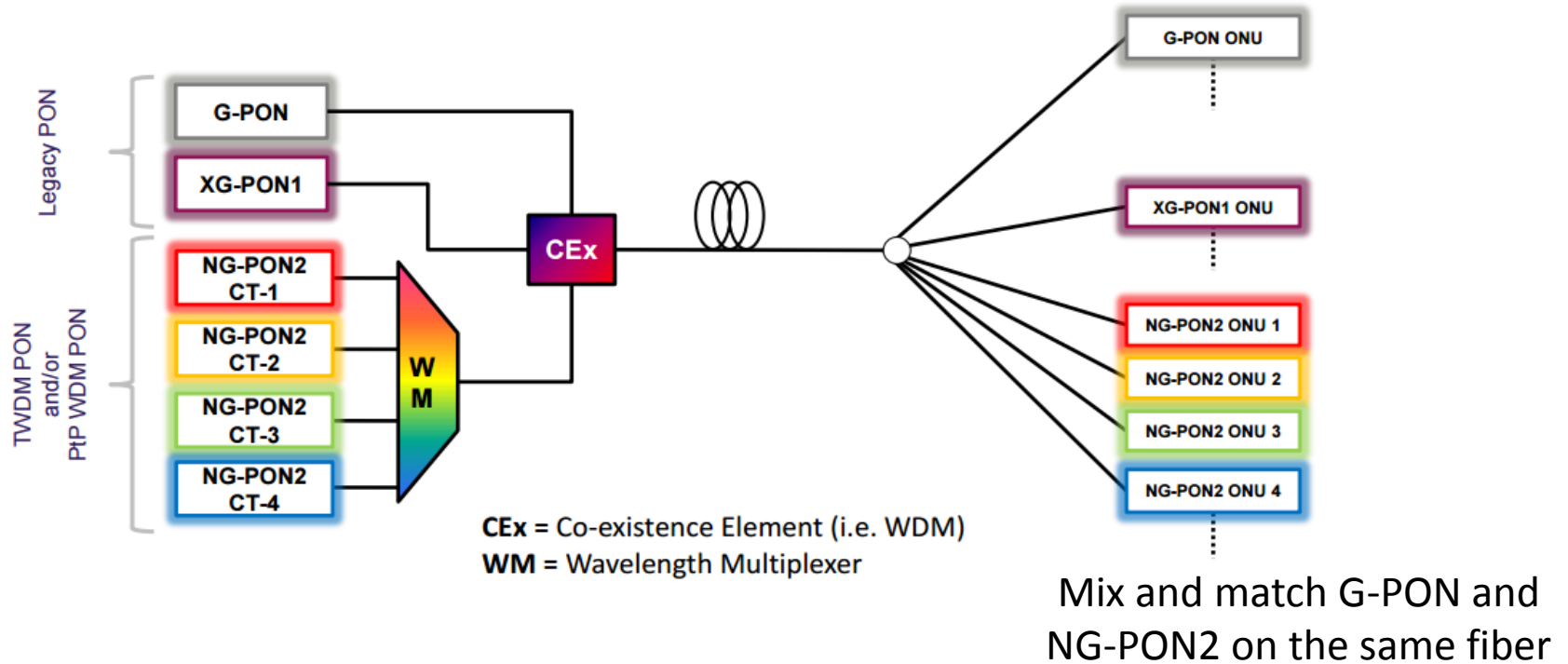
What we need to provide low cost FTTA deployment?

- New shared access model
- New cable design for high fiber count in small diameter (essential for lower deployment cost)
- Optimized network planning and design tools
- Dark fiber to mobile service provider

SEE THE LIGHT

# Solutions

## SHARED ACCESS MODEL



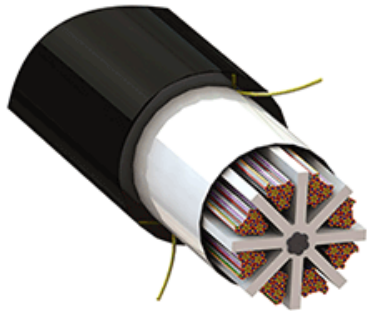
**NG-PON2 technology provides one option of combined FTTH & FTTA and combining FTTH + FTTA will reduce the deployment cost significantly.**









# Solutions

## Fiber infrastructure



Cable Density Comparison

| Duct/Sub-duct Size       | Conventional Cable  | Ultra High Density Cable  |
|--------------------------|---|---|
| Duct/Sub-duct : 1.5 inch | 864-Fiber Cable<br><br>Inner Diameter : 38mm | 1728-Fiber Cable<br><br>26mm |
| Duct/Sub-duct : 2.0 inch | 1728-Fiber Cable<br><br>34mm                 | 3456-Fiber Cable<br><br>34mm |

## Ultra High Fiber Count Ribbon Cable

- Cable diameter is reduced by 40% & cable weight is reduced by 50%
- Reuse of existing ducts without additional material to reduce civil infrastructure work & installation time
- “Open Shared Access Fiber Infrastructure” enable faster deployment of high-speed access infrastructure & supports new applications

**THE ROLE OF FIBER IN 5G DEPLOYMENTS**

By Technology & Standards Committee

White paper

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White Paper  
by  
Technology & Standards Committee

**The next generation optical fiber access technologies could support effective and efficient delivery of 5G services and also provide future-proof infrastructure for any speed, any number of applications to any number users and devices.**

***thanks all contributors for their great and valuable support in the making of this white paper.***