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## Juan Colina Q&A – FTTH MENA Magazine

# The Future of Wireless Networks

How will fixed-line and mobile convergence be crucial to the success of 5G technology and the future of wireless networks? Original article appeared in the FTTH Council MENA Annual Supplement 2017. [www.ftthcouncilmena.org](http://www.ftthcouncilmena.org)

With the first 5G networks expected to be launched by 2020, we are only a few short years away from the next chapter of mobile communications. While 5G technology has yet to be standardised, the promised ultrafast speeds will require levels of bandwidth that far exceed that of today's 4G mobile networks.

FTTH MENA spoke to Juan Colina, Regional Director, Middle East, Corning Optical Communications, to find out more about the future of wireless networks, and why fixed-line and mobile convergence will be crucial to the success of 5G.

### **There has been a lot of talk about 5G, but how will it differ from existing 4G networks?**

The most obvious difference will be the increase in network speed and capacity, which will, in turn, support new types of applications and connectivity for a more diverse range of devices. However, with this increase in speed, the demands on mobile data and bandwidth will become ever greater, which will mean more cells will be needed to meet demand.

The current generation of mobile networks relies largely on macrocells to handle all connections within a specific area. Increasingly, network operators are deploying low-powered

small cells to areas already covered by macrocells. This helps to increase capacity in locations with high user demand without the expense of procuring larger cell sites.

This combination of macrocells and small cells is known as a heterogeneous network, or HetNet for short. They are an important feature of LTE-Advanced networks and will almost certainly be standardised with 5G. They have many advantages, particularly in terms of flexibility and spectrum efficiency.

### **Why do 5G networks need fibre?**

5G networks promise to deliver fibre-like speeds over a wireless connection. But in order to achieve these speeds in the first place, networks need to be underpinned by an advanced fibre framework. From the macrocells and small cells, to the data centres that deliver apps and services, it is essential that fibre connects all non-wireless aspects of the network; otherwise, 5G will never reach its potential.

Bringing the fibre as close to the end user as possible is the best approach to building an ultrafast 5G-ready network. More fibre allows for a greater number of cells, and ultimately more bandwidth, which will be essential for forthcoming developments such as autonomous vehicles and telemedicine.

Fortunately, millions of kilometres of fibre have already been deployed globally, which presents an opportunity to

rapidly expand 5G-ready networks using HetNet technology. By taking advantage of existing fixed-line broadband infrastructure, network operators can quickly scale 5G-ready networks by deploying small cells at cabinets for FTTH connections. This approach, where both fixed line and wireless services share the same physical resources, such as fibre or a street cabinet, is known as convergence.

### What are the main benefits of converged networks?

Convergence offers many benefits to operators, not least of which is an overall reduction in costs. By sharing the same fibre for different types of connections, it can maximise use of existing assets and generate savings in terms of installation and maintenance. Converged networks also have the potential for significantly less power usage than standard networks, which will be welcome news for operators facing pressure to lower their carbon footprint.

Disruption to communities can also be minimised, as the same street won't need to be dug up multiple times for different types of connections. Convergence effectively future-readies the network architecture, and allows operators to update the technology or add new services using the existing fibre.

### How is Corning helping operators build converged networks?

Because operators are investing now to build an infrastructure for the future, flexibility is highly important. Operators need solutions that can be configured in a number of ways to allow them to adapt to the needs of their subscribers.



*Juan Colina, Regional Director, Middle East, Corning Optical Communications*

Corning recognises this, and, in June this year, we launched a multiuse platform which can allow a mix of network architectures to access the same fibre backbone. The converged architecture of this solution allows operators and municipalities to rapidly deploy fibre networks that can also support 5G wireless connectivity.

The multiuse platform takes the single and multi-fibre pre-connectorised technology which had been so successful in FTTH deployments worldwide to the next stage by adding an additional layer of flexibility to the outside plant connectivity hardware. This allows configurations to be quickly customised and adapted, giving operators the freedom to update the infrastructure as and when they require with minimal disruption.

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