U.S. Front/Backhaul Forecast, 2016 – 2021: *Fiber in a 5G Diet*

Market Study
First Quarter 2017

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Abstract

LTE is giving way to LTE-Advanced and LTE-Advanced Pro. 5G looms over the network strategies of mobile operators, as does the ongoing move toward CRAN, SDN and NFV. All of this – along with many other factors – drives the need for reliable, scalable and cost effective fronthaul and backhaul.

While most macrocells have been upgraded to fiber, getting fiber to small cell sites can be expensive and difficult. Because small cell deployments can and will vary so greatly in type and location, no single backhaul solution is best for them. Although fiber has been the preferred solution for small cells to date, wireless backhaul solutions offer many advantages.

The main advantages for wired backhaul, fiber in particular, are: high throughput, low latency and substantial throughput scaling over time. But there are two significant challenges with fiber: it is not always where it is needed and it is relatively expensive to deploy. However, once fiber is in place, the incremental cost of adding new capacity is relatively low. On the other hand, the main advantages for wireless backhaul, as compared to fiber, are: lower cost, faster (and easier) deployment and sufficiently scalable throughput (depending on the use case and technology chosen).

This market study discusses the wireless and wired front/backhaul technologies available and the main market drivers for each type of backhaul to support macrocells and small cells. It also presents *iG*R's U.S. forecast for wired and wireless front/backhaul to support the radio access network (RAN) over the next five years.

Key questions addressed in this study:

- What is the anticipated growth of front/backhaul in the U.S. through 2021?
- What is the difference between fronthaul and backhaul?
- How is the type of front/backhaul split between fiber, wireless and copper?
- What is the forecast for front/backhaul to support outdoor small cell deployments?
- What are the major concerns of the mobile operators with regard to each type of backhaul and how can these concerns be addressed?
- What is the role for wired and wireless front/backhaul in small cell architectures?
- How is wired and wireless front/backhaul deployed?

- How do PTP, PMP, NLOS, millimeter wave and traditional microwave solutions differ?
- How do fiber (point to point and passive), VDSL2 and coaxial (hybrid fiber coax) differ?
- How does wireless backhaul compare to fiber backhaul?
- How does wireless fronthaul compare to fiber fronthaul?
- What is CPRI and how may it change?

This report is recommended for:

- Mobile operators, particularly those servicing the U.S. market
- Mobile backhaul providers, including telcos and cable MSOs
- Wired and wireless backhaul vendors and solution providers
- Mobile OEMs, particularly those servicing the U.S. market
- Wired and wireless infrastructure vendors, particularly those servicing the U.S. market
- Financial and investment analysts.