5G Backhaul Use Case
What You Need to Know About 5G Backhaul
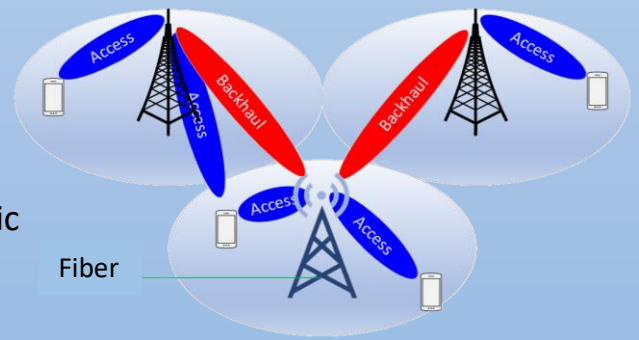

ACiiST

Overview

5G wireless technology is meant to deliver higher multi-Gbps peak data speeds, ultra low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users. 5G can operate in both lower bands (e.g., sub-6 GHz) as well as mm Wave (e.g., 24 GHz and up), which will bring extreme capacity, multi-Gbps throughput, and low latency. 5G is designed to not only deliver faster, better mobile broadband services compared to 4G LTE, but can also expand into new service areas such as mission-critical communications and connecting the massive IoT. Move from statistical high-performance users to 24/7 high bit rate users

5G Backhaul Challenges

- **Higher capacity density,** x1000 more capacity compared to current 4G/4.5G networks
- **Smaller Coverage Areas Per Cell Site,** the mobile grid will become far denser than it is today
- **Higher capacity wireless backhaul links per cell site**: While current wireless backhaul, links serve requirements of hundreds of Mbps, future links will be required to support tens of Gbps.
- **Denser wireless backhaul links**, due to denser cell site grid, will require better utilization of wireless backhaul spectrum, since frequency reuse will be highly limited as links get closer to each other.
- **Mass deployment of street level sites** will require high-capacity non-line-of-sight wireless backhaul links, as well as quickly installed, low footprint, low-power consumption equipment.
- **Mission Critical Services,** New service types, such as autonomous driving, tactile Internet, and many M2M applications must be served by mission-critical networks – the risks of failure are too great. This will also require wireless backhaul infrastructure to serve as true mission-critical wireless backhaul, and include low latency, have high availability, and be tightly secured.

ACiiST's Approach

- Multiple Services and Advance QoS
- Support Synchronous Ethernet (SyncE)
- Support Mission Critical Services
- Automatic Load-Balancing and automatic redundancy with Zero Packet Loss
- High-Bandwidth to support symmetric high data bitrate
- Using a Small Form Factor Switch
- Installation inside the Lamppost

Fiber

ACiiST

Results

$
Overall Cost
Major cost reduction compares to the budget

<20
Communication Cabinet
The solution requires communication cabinet every 2Km instead of every 100m

√
Zero Permits
No permits needed for field deflowerment

DALI
Smart Lighting System
Controlling the Light enable multiple security features like color changing or blinking

Full Redundant
Fully automated architecture supporting complex topology providing full redundancy

<Time
Installation Time
Plug and Play Installation much faster than any alternative solution

<100
Better Latency
The solution latency is 100 times better compare to routing-based solution

<10
Less Cabling
The implementation requires about 10 times less cabling

Aciist Solution Benefits for 5G Backhaul

- Satisfy 5G bandwidth explosion backhaul links between 5G towers
- Decoupling of cellular provider from infrastructure provider
- Support scalability and new time critical and high bitrate application demands.
- Support network resiliency provides fast reroutes and protection
- Improved network utilization with effectively distribute load while guaranteeing bandwidth to mission-critical applications.
- Automatic network topology with low latency and zero packet loss.