The Wireless Backhaul Project Group is working to provide a white box wireless backhaul system that is dual frequency band, multi core, field upgradable, and modular, with SDN capabilities achieved by combining optical and wireless functionalities.

### Why Wireless Backhaul

- **Capacity increase**, change of frequency band and turn up of new services require **hardware change/add**
- **Lack of network automation** limits performance and resources management optimization
- Wireless and router are two separate entities with a lot of **overlapping functions**
- **No open hardware** is available to allow different software functionalities and speed up innovation

### At a glance

This group will create an architecture and design requirements for multi-core, dual band, one box radio hardware with the recommendations of supported software specifications.

The group will:

- validate the two to four channel requirements using two different frequency bands from TCO and business perspective.
- Explore the inter-operability between hardware and software coming from different sources.
- Focus on a Unified Transport box to combine wireless and router functionality to meet seamless transmission based on wireless conditions and traffic requirements.
Solution

Software and hardware can be from different sources

Choice to use concept of White Box Wireless Backhaul with the objective to deploy software driven network

Use cases

1. 4G sites will be hub sites or anchor sites for nearby 5G nodes. 4G will handle signaling and 5G will provide capacity. All existing 4G sites with microwave backhaul can be candidates for 5G Co-location with this solution without waiting for fiber, or new/additional mmWave link to provide Gbps throughput.

2. Extreme Frequency congested areas where multiple channels from same band not available, one dual band radio with one dual band antenna can be solution for more capacity. L1 or L2 multi band LAG will also serve as reliability booster.

Benefits

- Frequency agile, modular, field upgradable hardware (i.e. two- and four-channel systems)
- Interoperable software and hardware from different sources
- Centralized processing of Wireless system
- Unified Transport Solution

Unified transport

Router and Wireless backhaul have common data plane

Four channel system with mm and Microwave frequency bands

Technical specification

1. Split-Mount architecture and/or all outdoor solution.
2. Combinations of Microwave and mmWave frequency bands.
3. Data plane requirements
4. Synchronization plane requirements.
5. Control plane requirements.
6. Management plane requirements.
7. Software/license management.
8. SDN capabilities
9. Combination of frequency bands supported by Antenna vendors.

What next

- Learn more at telecominfraproject.com
- Join the Wireless Backhaul Project Group: telecominfraproject.com/wirelessbackhaul/ to learn and contribute
- Contact us with questions or comments: WBH-info@telecominfraproject.com

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