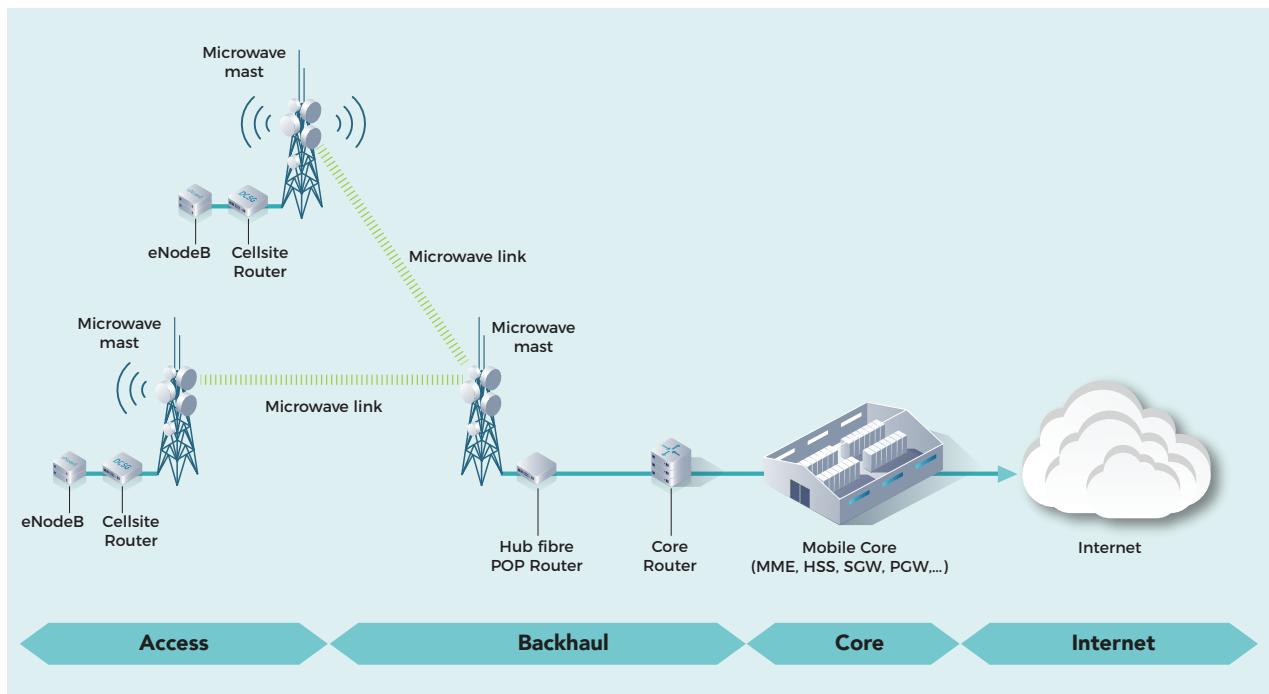# Open Box Microwave

The Open Box Microwave 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 Open Box Microwave

- 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
- Microwave 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 microwave and router functionality to meet seamless transmission based on wireless conditions and traffic requirements.
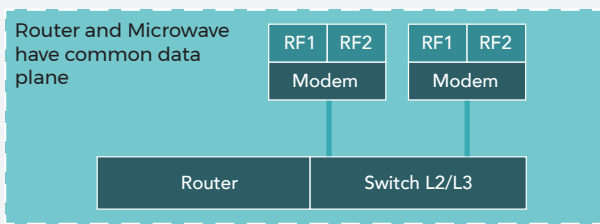
Solution

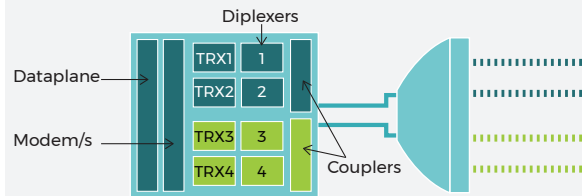Software and hardware can
be from different sources

Software

Hardware
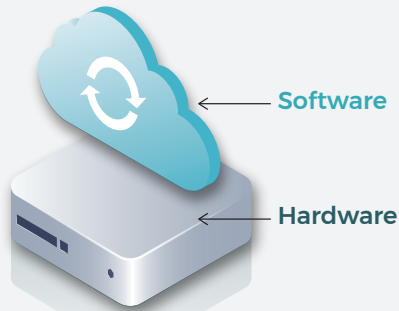
Choice to use concept of White Box Microwave with the
objective to deploy software driven network

Unified Transport

Router and Microwave
have common data
plane

| RF1 | RF2 | | RF1 | RF2 |
| Modem | | | Modem | |

| Router | Switch L2/L3 |

Four channel system with mm and Microwave frequency bands

Diplexers

Dataplane

TRX1	1
TRX2	2
TRX3	3
TRX4	4

Modem/s

Couplers

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 Microwave system**

- **Unified Transport Solution**

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 Open Box Microwave** Project Group:
  openboxmicrowave.telecominfraproject.com
  to learn and contribute

- **Contact us** with questions or comments:
  OBM-Info@telecominfraproject.com

Partners