

EVPL in Mobile Backhaul

The following explanation expands on the use case where a distinct EVPL service is implemented between each RAN BS and RAN NC with the following configurations:

- The RAN NC uses a configured CE-VLAN ID to identify a RAN BS in the mobile backhaul network. The CE-VLAN ID is mapped at the RAN NC UNI-N and at the RAN BS UNI-N to the EVC connecting the RAN BS and RAN NC. This implies that each RAN NC UNI can distinguish up to four thousand distinct RAN BSs.
- At the RAN NC side, the CE-VLAN ID assignment is performed at the UNI-C. At the RAN BS side the CE-VLAN ID assignment can be either performed at the UNI-C or at the UNI-N depending on which option (described later in this paragraph) is selected.
- Bundling is disabled, which means that all traffic types are sent on the same CE-VLAN ID.
- Multiple Classes of Service can be supported. They are differentiated through either PCP or DSCP marking. CoS ID is identified by <EVC+PCP> or <EVC+DSCP>. In this use case CoS ID preservation is enabled and 4 classes of service are supported.

Table 1 (at right) shows an example of how Carrier Ethernet services can be delivered in the mobile backhaul according to the assumptions made for the present use case.

This use case may also take into consideration additional factors that result in four possible options, each using a different service frame format at the RAN BS UNI-C:

- **Option A** : The CE-VLAN ID Preservation Attribute is enabled and the RAN BS UNI-C transmits/receives tagged service frames to/from the RAN BS UNI-N with the CE-VLAN ID preconfigured for the RAN BS itself. Either PCP or DSCP values specify different Classes of Service.
- **Option B** : The CE-VLAN ID Preservation Attribute is disabled and the RAN BS UNI-C transmits/receives untagged service frames to/from UNI-N where they are mapped to the default CE-VLAN ID. DSCP values specify different Classes of Service. A default mapping of untagged service frames is configured at each RAN BS UNI-N.
- **Option C** : The CE-VLAN ID Preservation Attribute is disabled and the RAN BS UNI-C transmits priority tagged service frames towards the UNI-N, where they are mapped to the default CE-VLAN ID, and receives untagged frames. PCP values specify different Classes of Service. A default mapping of priority tagged service frames is configured at each RAN BS UNI-N.
- **Option D** : The CE-VLAN ID Preservation Attribute is disabled and BS UNI-C transmits /receives tagged service frames to/from UNI-N with a preconfigured CE-VLAN ID, identical for each BS. Either PCP or DSCP values specify different Classes of Service.

Options B, C and D may ease the configuration of the RAN BS because they are agnostic to the CE-VLAN ID value used to identify Service Frames in the mobile backhaul.

Table 2 shows an example of the CE-VLAN ID / EVC mapping for each option and the configuration both at the RAN BS UNI-N and at the RAN NC UNI-N.

The symbol * indicates the CE-VLAN ID value used at the UNI for both untagged and priority tagged frames.

The CoS ID Preservation attribute should be enabled for each option in order to simplify configuration.

Note that the CoS ID per <EVC> model can also be supported by this use case if the assumption to use a single EVP Line per RAN BS that supports multiple services is removed. According to this new assumption each RAN BS can support multiple EVP Lines whereby mobile traffic classes may be grouped into different EVCs. Each EVP Line is mapped to a unique CE-VLAN ID and so each CE-VLAN ID identifies a specific set of services between the RAN NC and a specific RAN BS.

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Table 1 – Ethernet Service Definitions

EVC ID	EVC End Points	Ethernet Service
EVC_1	BS 1, NC	EVP-Line
EVC_2	BS 2, NC	EVP-Line
EVC_3	BS 3, NC	EVP-Line

Table 2 – CE-VLAN Mapping Options

EVC ID	CE-VLAN ID at RAN BS UNI-N				CE-VLAN ID at RAN NC UNI-N
	Option A	Option B	Option C	Option D	
EVC_1	10	*	*	25	10
EVC_2	20	*	*	25	20
EVC_3	30	*	*	25	30

Example(s)

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