Bundling and Service Multiplexing

There are three attributes of a UNI that affect the type of Carrier Ethernet service(s) that can be defined at the UNI:

Service Multiplexing

A UNI can be defined to terminate exactly one service or multiple Ethernet Services. If the **Service Multiplexing** attribute has the value YES (enabled) then multiple Ethernet Services can terminate at the UNI. If **Service Multiplexing** has the value NO (disabled), then only one Ethernet Service can terminate at the UNI.

If Service Multiplexing is allowed at the UNI, there needs to be a way to associate incoming frames with specific services. The MEF services use the Customer Edge VLAN ID (CE-VLAN ID) as the way to do this. The next two parameters define attributes of how the CE-VLAN IDs can be mapped to services.

Bundling

If the **Bundling** attribute has the value YES (enabled) then multiple CE-VLAN IDs can be associated with an Ethernet Service at the UNI. If the **Bundling** attribute has the value No (disabled) then each Ethernet Service at the UNI can be associated with only one CE-VLAN ID.

All-to-One Bundling

This is a special case of bundling in which, when enabled, all CE-VLAN IDs are mapped to one Ethernet Service. If **All-to-One Bundling** is YES (enabled) there there can (by definition) be only one service on the UNI and it must be a *Private* Service. If **All-to-One Bundling** is NO (disabled) then there can be one or more *Virtual Private* Services on the UNI.

These three attributes are inter-related and the table at right explains the valid combinations:

(Service Multiplexing = YES) (All-To-One Bundling = NO)

> If multiple services can terminate at the UNI then you can't have all CE-VLAN IDs mapped to a single Ethernet Service and vice versa.

(Bundling = YES) (All-to-One Bundling = NO)

> Being able to map multiple individual CE-VLAN IDs to a single service is different than mapping all CE-VLAN IDs to a single service. So these two parameters cannot both be enabled. Note that the other direction is not a requirement, i.e. if All-To-One Bundling is NO, Bundling can be YES or NO. But,

(All-to-One Bundling = YES) (Bundling = NO)

> Mapping all CE-VLAN IDs to a single service is different from being able to map multiple individual CE-VLAN IDs to a single service.

Bundling and **All-to-One Bundling** cannot both be YES at a UNI, but they can both be NO.

Status

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Based on the definitions and rules in the left column, here are the combinations of the three attributes.

Service Multiplexing	Bundling	All to One Bundling	Description
Yes	No	No	✅ Multiple virtual private services allowed at the UNI with only one CE-VLAN ID mapped to each service.
Yes	Yes	No	✅ Multiple virtual private services allowed at the UNI and multiple CE-VLAN IDs can be mapped to each service.
Yes	Yes	Yes	❌ Illegal configuration
Yes	No	Yes	❌ Illegal configuration
No	No	Yes	✅ Single "private" service at the UNI.
No	Yes	No	✅ Single virtual private service allowed at the UNI with multiple CE-VLAN IDs mapped to it.
No	Yes	Yes	❌ Illegal configuration
No	No	No	✅ Single virtual private service allowed at the UNI with only a single CE-VLAN ID mapped to it.