

Flexible Ethernet (FlexE) In IETF

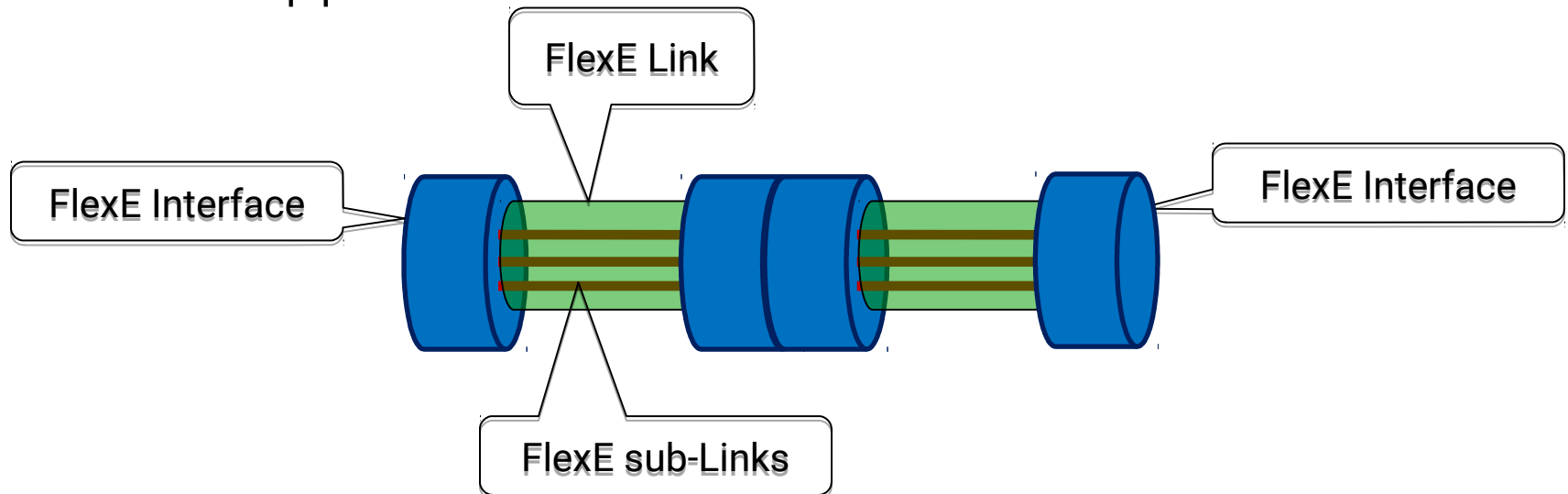
**IETF 98, Chicago, IL, USA
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FlexE Design Team

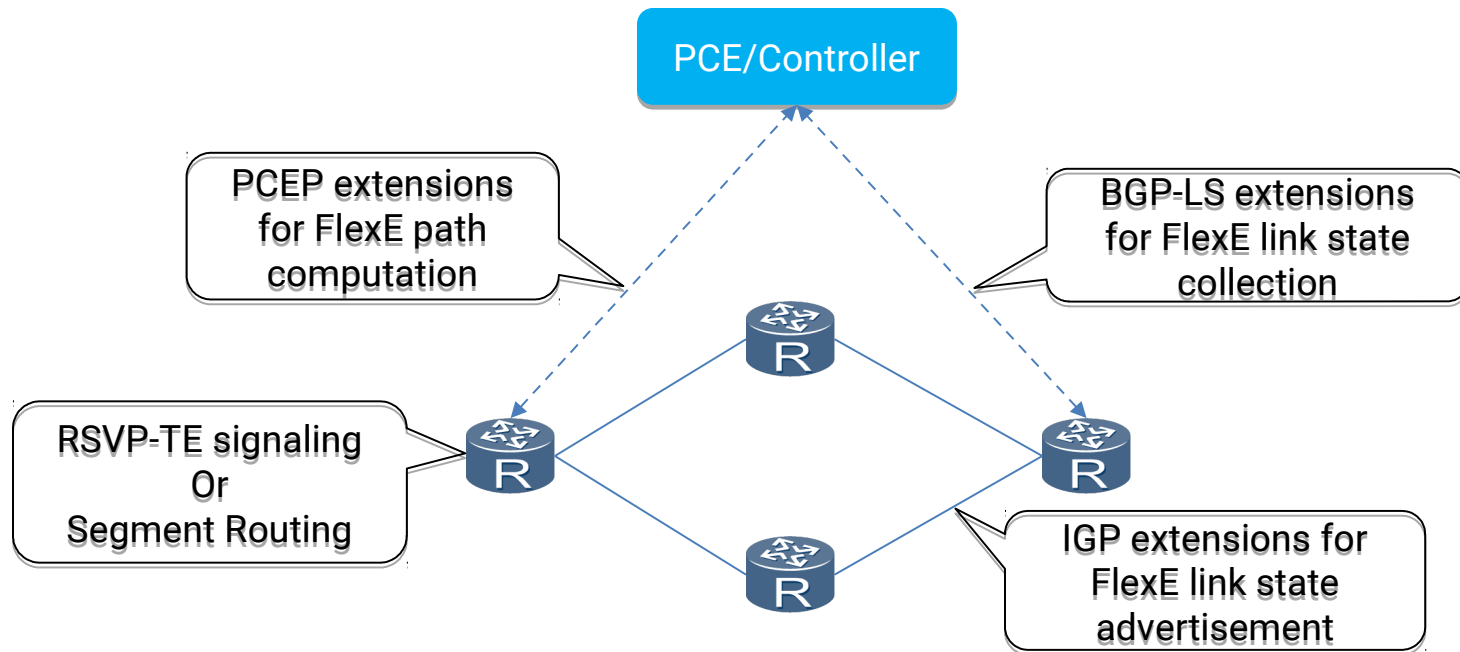
Presenter: Mach Chen/mach.chen@Huawei.com

FlexE Data Plane at a Glance

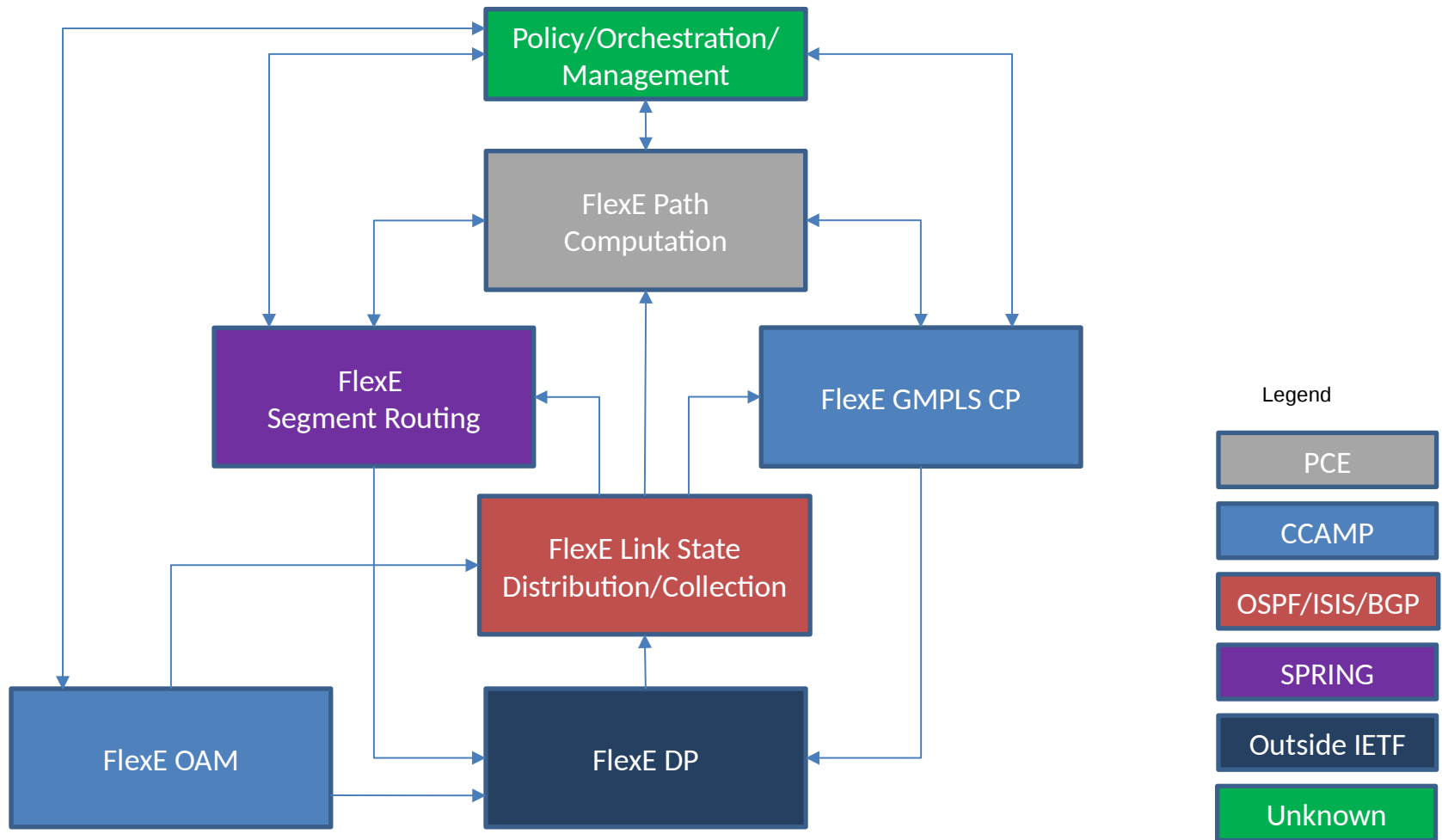
- A FlexE interface
 - Is a logical interface and consists of 1 to 254 100GBASE-R Ethernet interfaces
 - Can be channelized into multiple sub-interfaces
- A FlexE link connects two FlexE interfaces
 - The big pipe
- A FlexE sub-link connects two FlexE sub-interfaces
 - The small pipes



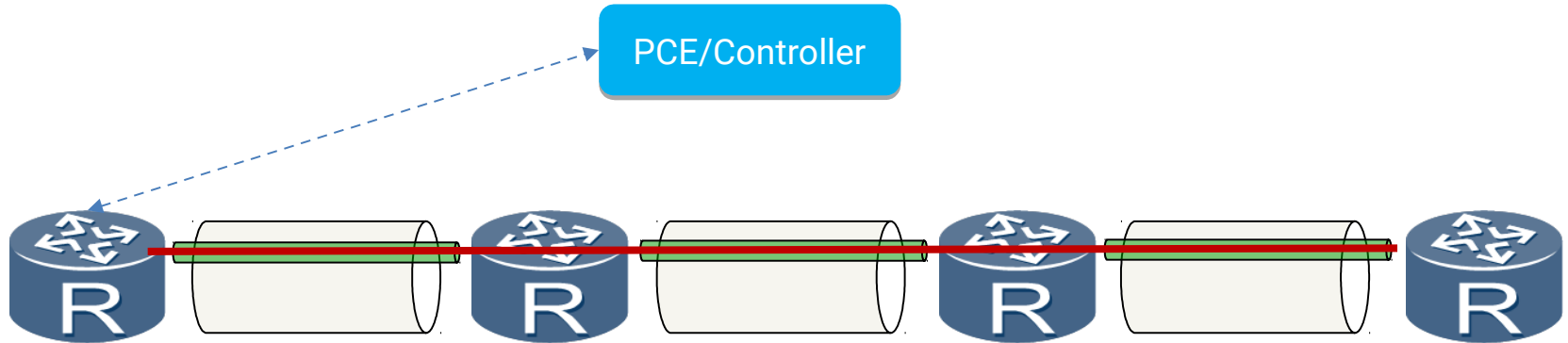
FlexE Control Plane Overview



High Level FlexE Architecture



FlexE with RSVP-TE



❑ Option 1:

- ✓ A FlexE Path/LSP is a control plane representation;
- ✓ The allocated slots to the path are concatenated through RSVP-TE signaling;
- ✓ No MPLS label on the wire;

❑ Option 2:

- ✓ An LSP is signaled as normal LSP;
- ✓ MPLS Label is used to map to the allocated slots at each hop;



FlexE Link

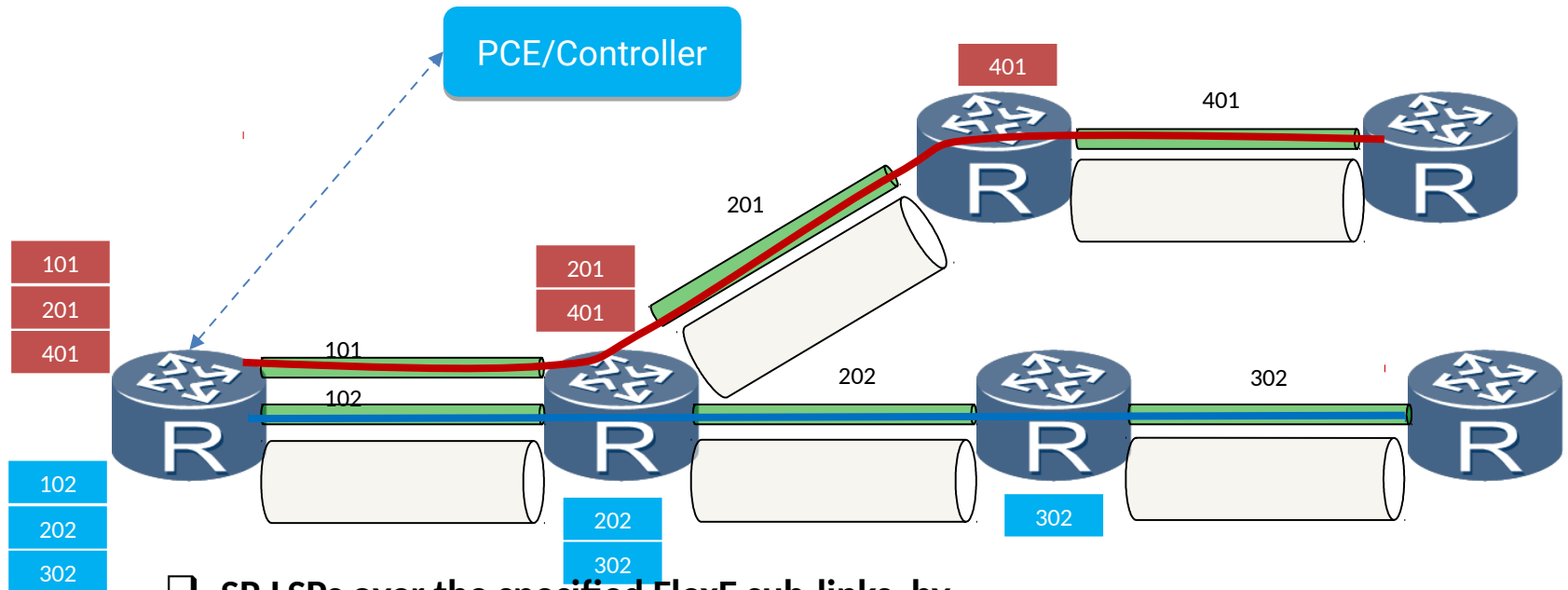


Slots allocated to the FlexE Path/LSP

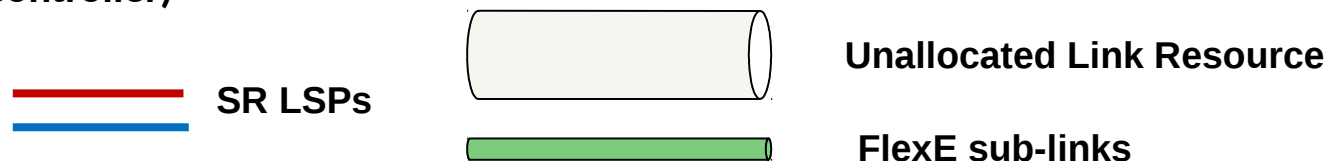


FlexE Path/LSP

FlexE with Segment Routing



- ❑ **SR LSPs over the specified FlexE sub-links, by**
 - ✓ constructing the MPLS Label stack with the specified Adj-SIDs
- ❑ **No per-flow state at intermediate nodes (merit of SR)**
- ❑ **Bandwidth is reserved and guaranteed without RSVP-TE (Reservation is done in PCE/Controller)**



Next Steps

- Under Discussion
 - Framework document (CCAMP)
 - Use cases
 - Requirements
 - Architecture
 - Solutions
- Next Steps
 - RSVP-TE extension (CCAMP or/and TEAS?)
 - Routing extensions for FlexE
 - OSPF extension (OSPF WG or CCAMP WG ?)
 - ISIS extension (ISIS WG or CCAMP WG ?)
 - BGP-LS extension (IDR)
 - PCEP extensions for FlexE (PCE WG)
 - SR with FlexE (SPRING)
 - FlexE OAM (CCAMP)
 - YANG model (CCAMP)