ForCES-based I2RS for E2E Control/Maintenance of MPLS

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and a few others

IETF88, 1:00 -2:30 PM, Monday 04 Nov., 2013

Hyatt Regency Vancouver, Rm. Plaza C
655 Burrard Street
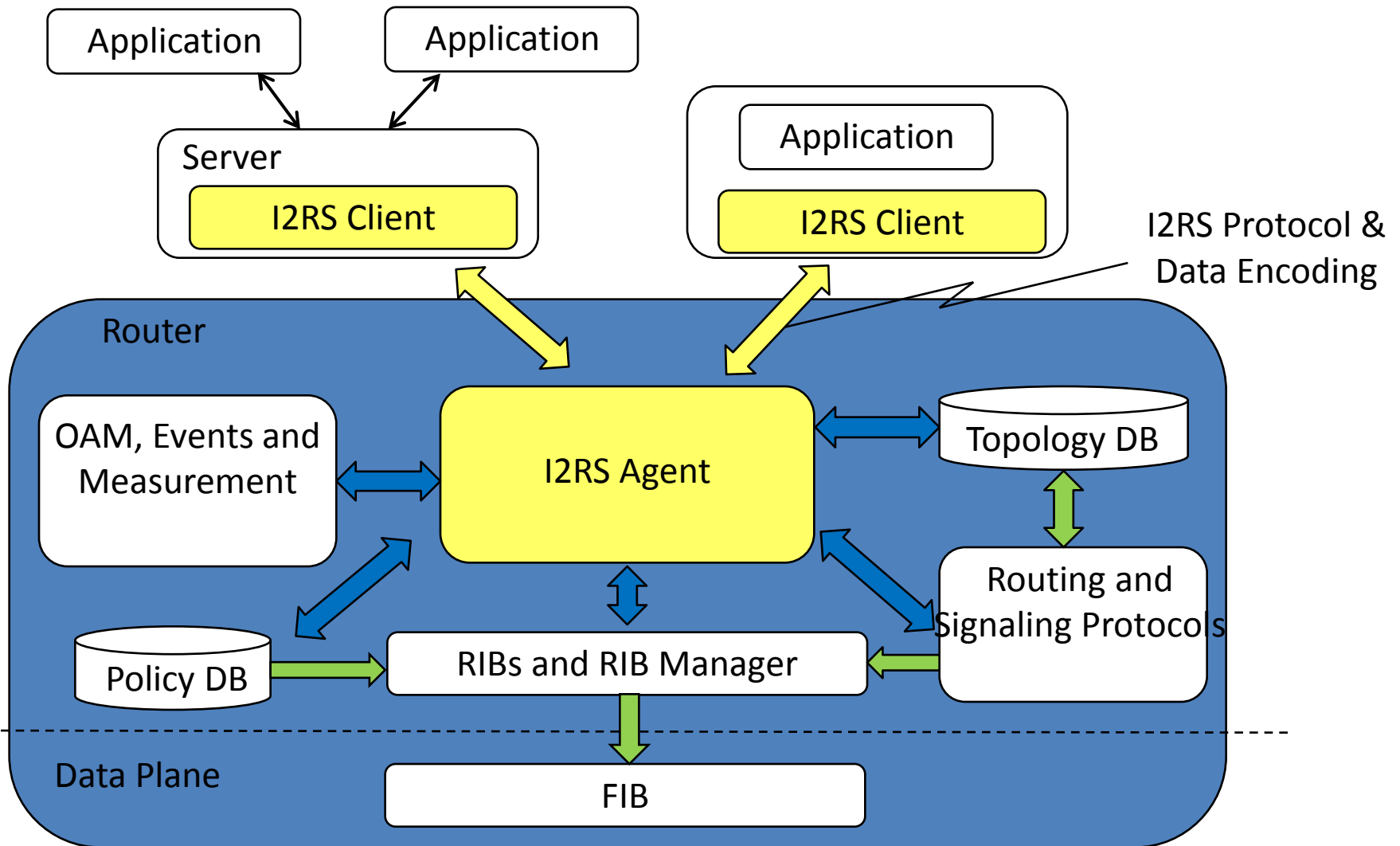**Vancouver, BC, Canada V6C 2R7**
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Outline

- Background

- I2RS Framework

- Applicability of ForCES Framework

- Using ForCES in I2RS Framework

- Next Step, Q&A, and Discussion

- THANKS!

Background

- Can we use ForCES (http://datatracker.ietf.org/wg/forces/charter/) based Interface to Routing System (I2RS) for controlling/maintaining End-to-End MPLS session
  - End-points of MPLS session
  - Mid-points of MPLS session
  - Core-points of MPLS session
- Where do we place the ForCES Agents?
- What types of ForCES Apps may be necessary?
- What other types of Interfaces may be involved?
- Can ForCES CE be an integral part of the traditional SDN controller/orchestrator for ETE MPLS-based session/circuit management
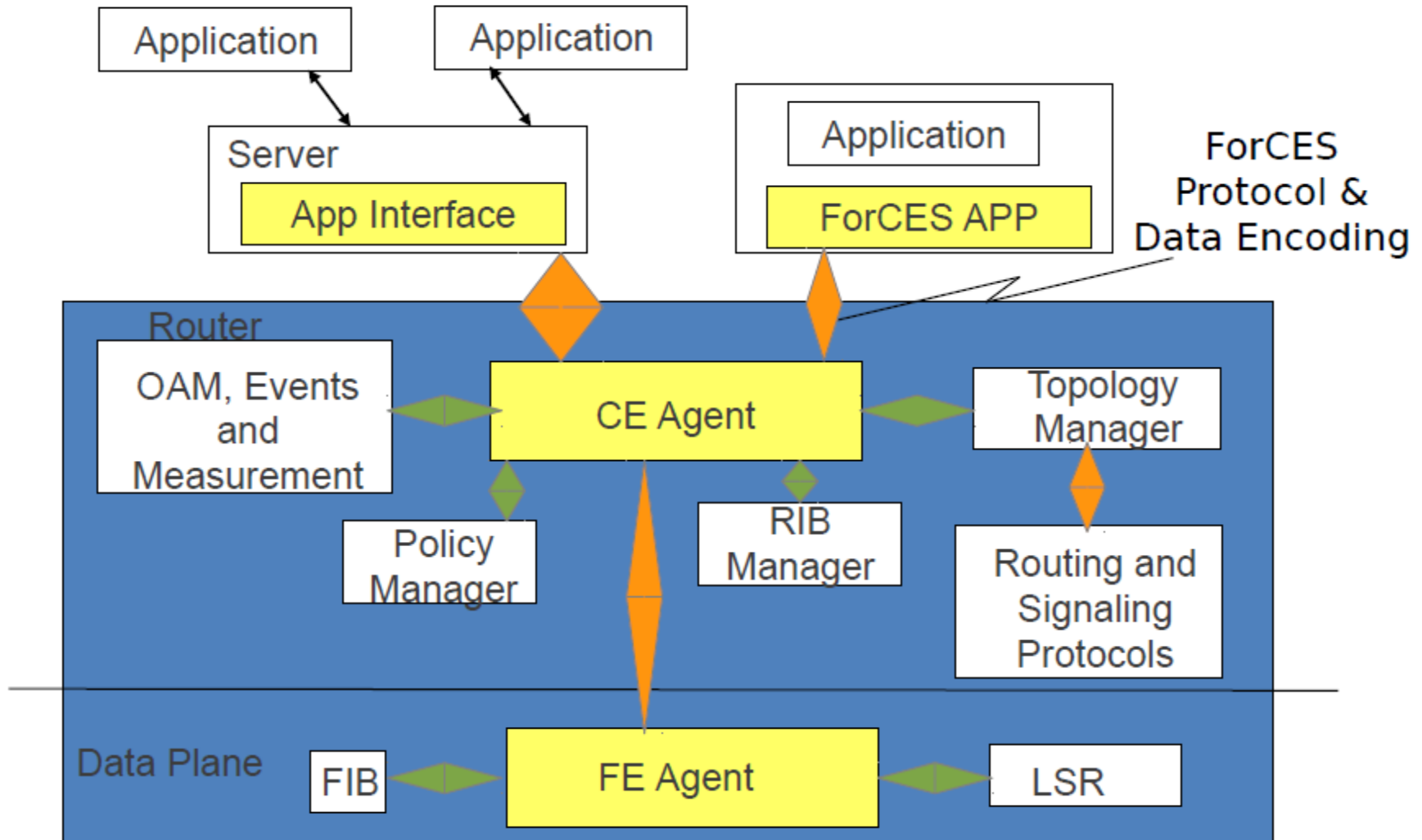
I2RS Framework

Applicability of ForCES Framework

- Apps must support dynamic and fine-grained control/management of label and label-based paths
  - ForCES Apps can be utilized for this purpose

- Control/Orchestration must support the desired Security, Policy, QoS, Inspection/Analytics, Routing and Topology/Configuration Management
  - ForCES CE Agent with NBI to Apps and SBI to FE Agent can serve these purposes

Using ForCES in I2RS Framework

Next Steps

- **Work on Developing a draft**
  - **Welcome Contributions/Participations from others**

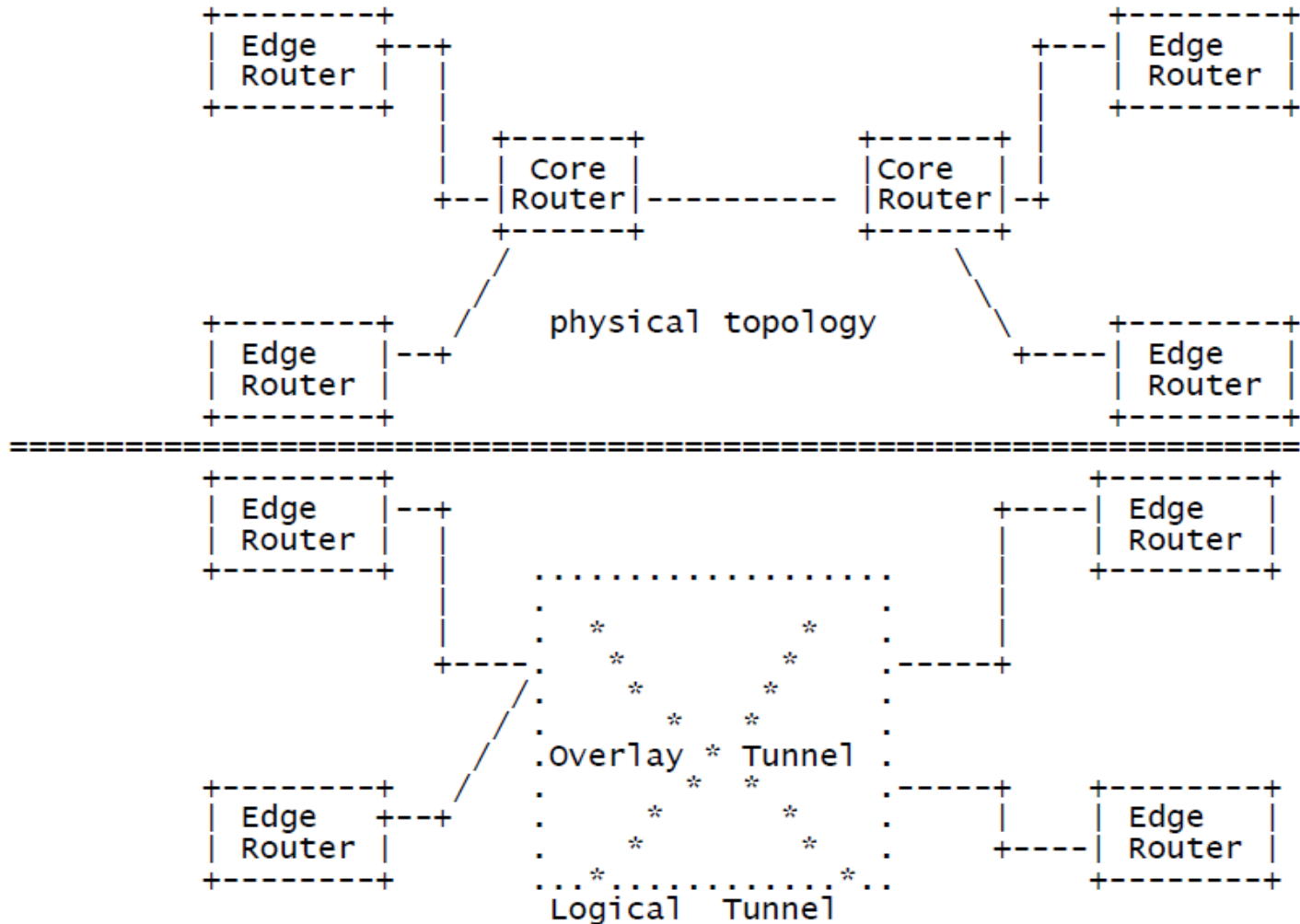- **Comments/Suggestions**

Q&A, and Discussion

THANKS!

Misc. Additional Information

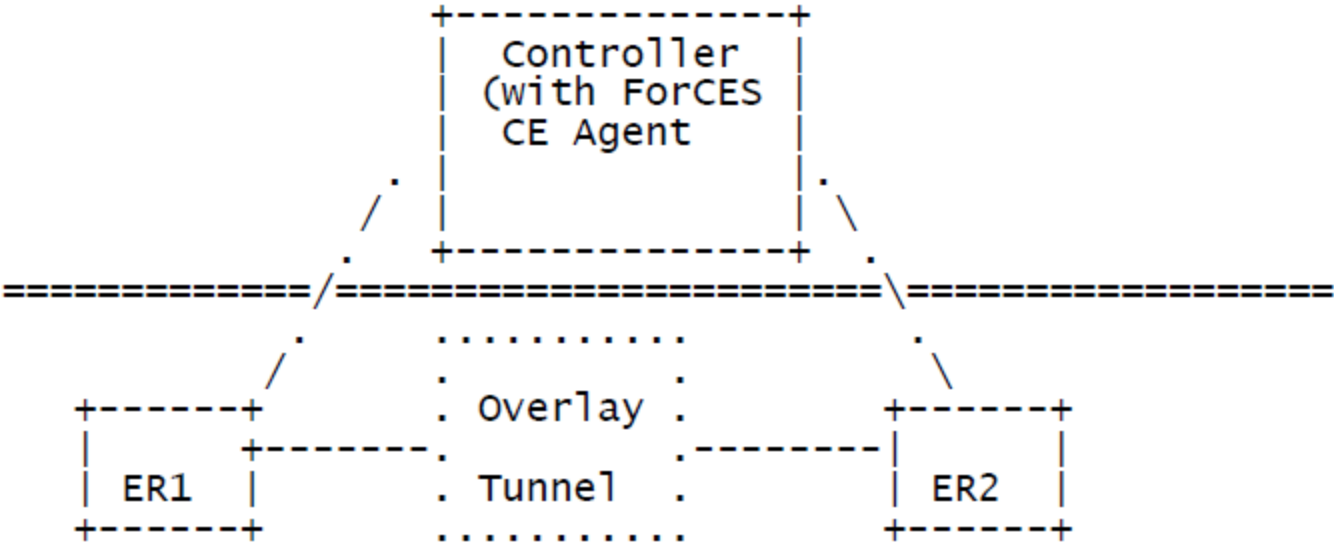based on http://www.ietf.org/id/draft-hu-i2rs-overlay-use-case-02.txt

Application and Orchestration

- Applications can adapt based on
  - Loading and Recovery status
  - Pre- and post-condition(s)
  - Any other Requirements ?!

- Orchestration
  - Multiple CE/VCE scenarios
  - Handling of Bursts and/or Multiple Conflicting Requests from the Apps/Services
    - For example, using CLI based Apps at the Cobtroller
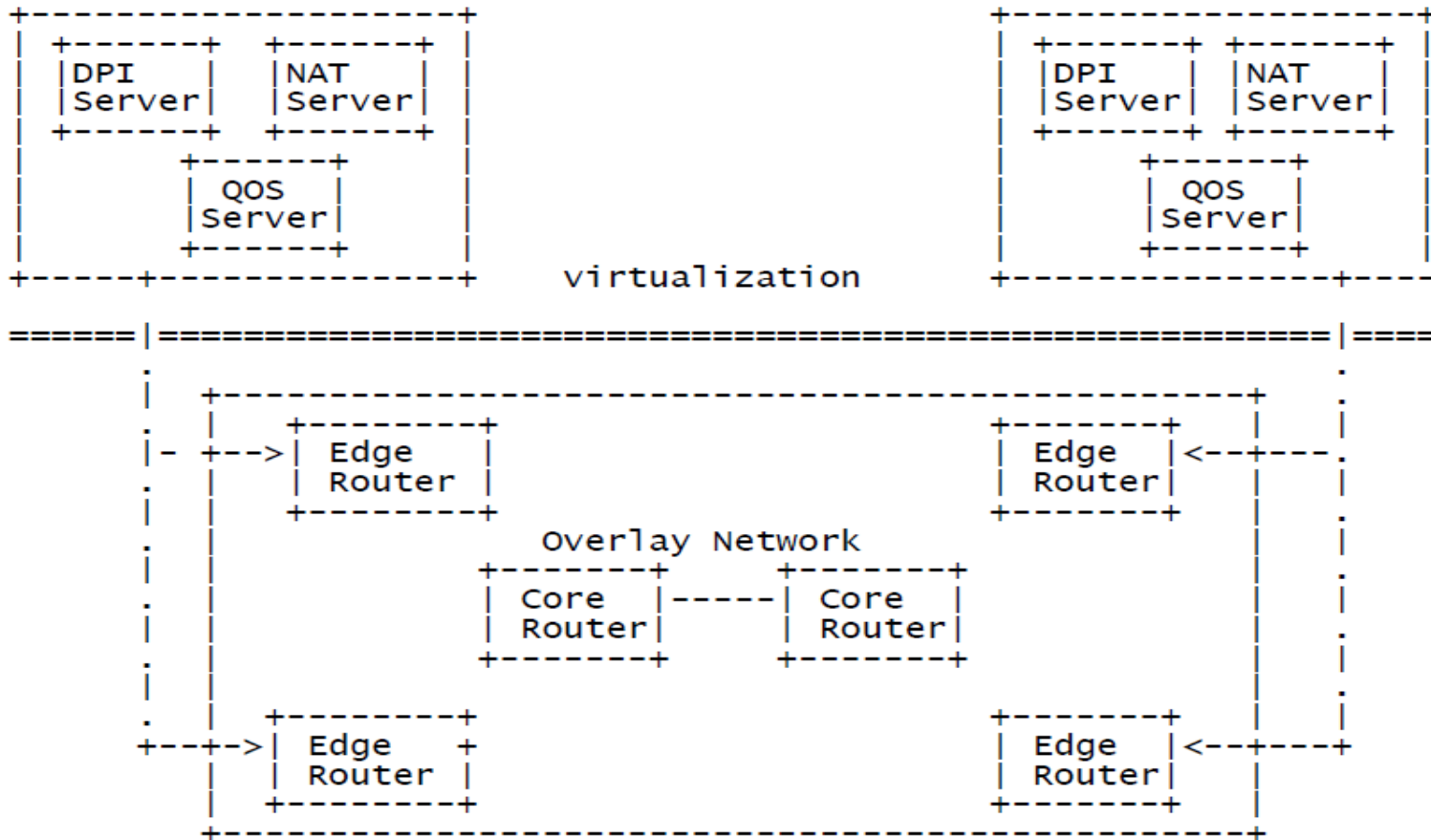
Overlay Structure

Controller-Mediated Security Association

```
                    +--------------+
                    | Controller   |
                    | (with ForCES |
                    | CE Agent     |
                  . |              |.
                 /  |              | \
                .   +--------------+   .
========/=======================\=================
      .     ..........              .
     /      .        .               \
+------+    . Overlay .          +------+
|      |    +--------   --------|      |
| ER1  |    . Tunnel  .         | ER2  |
+------+    ..........          +------+
```

ER1 and ER2 need to establish SA (security Association) with instructions from the Controller (CE Agent resides in the Controller) and adopt IPSec as the security mechanism for the transport channel

Network Virtualization

CE/FE/LFB Life Cycle Management