Fabric-based management for Data center network

draft-zhuang-i2rs-yang-dc-fabric-network-topology-03
draft-zhuang-i2rs-fabric-service-model-02

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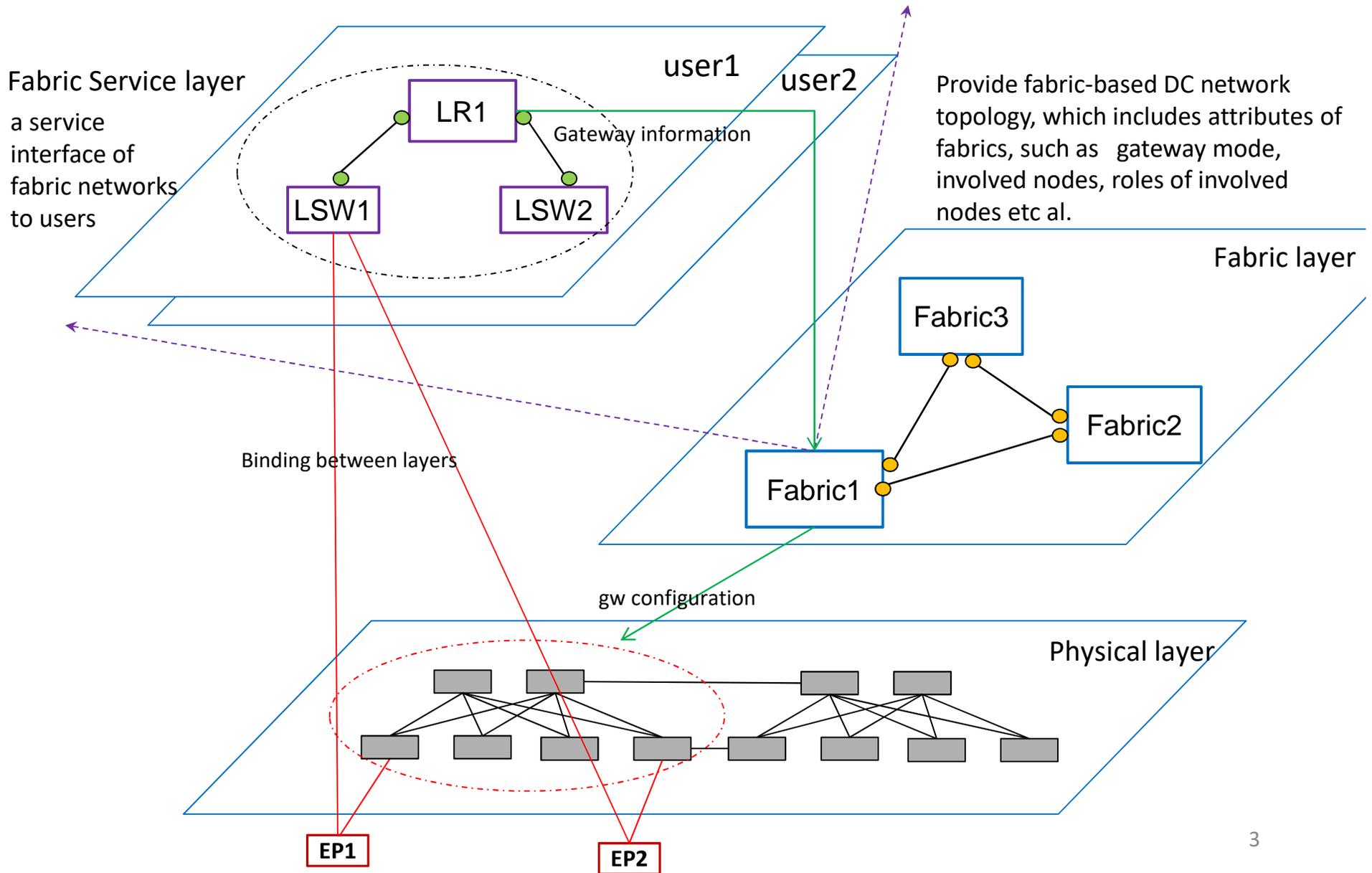IETF 98 – Chicago, US

Design Concept

- **Motivation**
  - **Divide** Data Center network into several layers
    - service layer as a user network interface
    - fabric topology layer for fabric-based DC topology
    - physical topology for device management
  - **Conquer**: different administrator (human) manage through different data models per layer
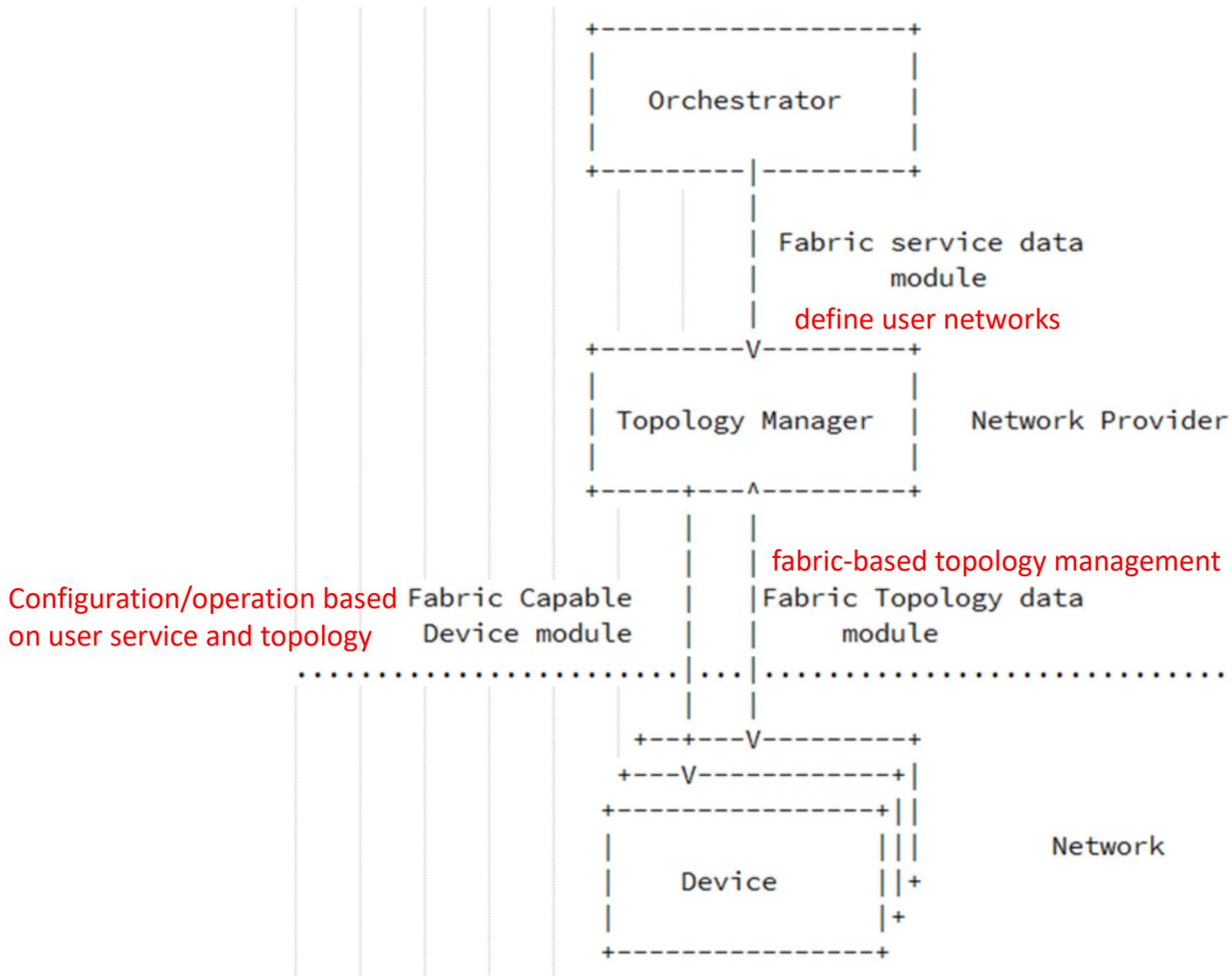
- **Objectives**
  - Define a fabric service module to represent services for users regardless of topology, technology and device information used. ➔ a user interface
  - Define a fabric topology module to manage fabric-based Data Center network topology. ➔ a fabric-based topology interface

Multi-layer Interconnection

Fabric Service layer

a service
interface of
fabric networks
to users

user1

user2

LR1

Gateway information

LSW1

LSW2

Provide fabric-based DC network
topology, which includes attributes of
fabrics, such as   gateway mode,
involved nodes, roles of involved
nodes etc al.

Fabric layer

Fabric3

Fabric2

Binding between layers

Fabric1

gw configuration

Physical layer

EP1

EP2

3

The usage architecture

```
              +--------------------+
              |                    |
              |    Orchestrator    |
              |                    |
              +---------|----------+
                        |
                        |  Fabric service data
                        |        module
                        |
              +---------V----------+
              |                    |
              | Topology Manager   |   Network Provider
              |                    |
              +-----+---^----------+
                    |   |
                    |   |  fabric-based topology management
Configuration/operation based  Fabric Capable  |   |Fabric Topology data
on user service and topology   Device module   |   |      module
              ..................................|...|................................
                    |   |
              +--+---V----------+
          +---V-----------+|
          +----------------+||
          |                |||           Network
          |     Device     ||+
          |                |+
          +----------------+
```

define user networks

fabric-based topology management

Comments resolution

- Fabric topology vs. TE topology
  - Thanks for the good comment
  - Confirmed with authors of TE-topology :
    - The two models are for different applications and topologies, and they should work independently.
    - A fabric topology focuses on characteristics of a data center network such as roles of spine and leaf, while a TE topology focuses on TE nodes and links, and provides characteristics for traffic engineering.
    - For TE topology, a TE node of an overlay topology represents a underlay topology; while a fabric (pod) in a fabric topology consists of a set of spine and leaf nodes within an underlay network.

Updates since IETF 97

- draft-zhuang-i2rs-fabric-service-model-02
  - Add terminology section
  - Add a section to explain multi-Layer interconnection
  - Update usage architecture with fabric-capable-device module
  - The fabric-capable-device module is used to configure devices according to fabric-service module and fabric topology module.
- draft-zhuang-i2rs-yang-dc-fabric-network-topology-03
  - Remove rpc command for topology management

Next Step

- Ask the group whether this direction is good to move on.
- Collect feedbacks.

Question?