Fabric-based management for Data center network

draft-zhuang-i2rs-yang-dc-fabric-network-topology-02
draft-zhuang-i2rs-fabric-service-model-00

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Thoughts of Fabric-based management

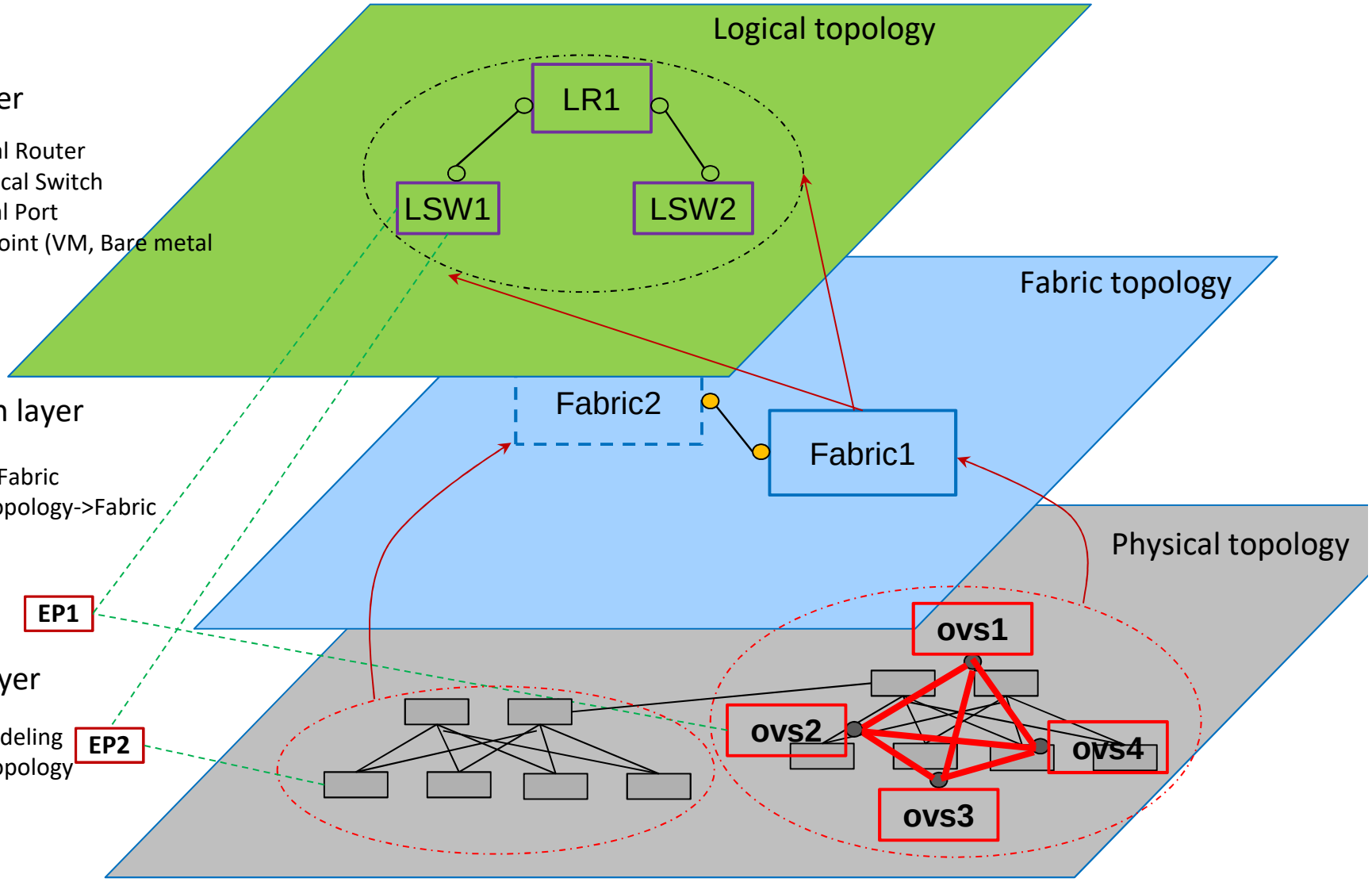
- **What are we facing in management of Data Center networks? (Use Case)**
  - **Fast User service deployment** - new applications are developed and asked for on-demand deployment, which requires more dynamically service installation
  - **Network Infrastructure Management** - with the scale of Data center networks, more and more devices are involved which increases the complex of management and service deployment by administrators.
  - **New technologies** - new technologies be imported.

Thoughts of Fabric-based management

- **Management Motivation**
  - **Divide** Data Center network into several layers
    - service layer for user service representation
    - fabric topology layer for fabric-based topology management
    - physical topology for device management
  - **Conquer**: different administrator (human) manage through different data models per layer

- **Objectives**
  - Define a fabric topology models for fabric-based Data Center network management.
  - Define a fabric service topology models to represent services from users regardless of topology, technology and device information used.

Layering structure



Service layer

LR – Logical Router
LSW – Logical Switch
LP – Logical Port
EP – End Point (VM, Bare metal server
…

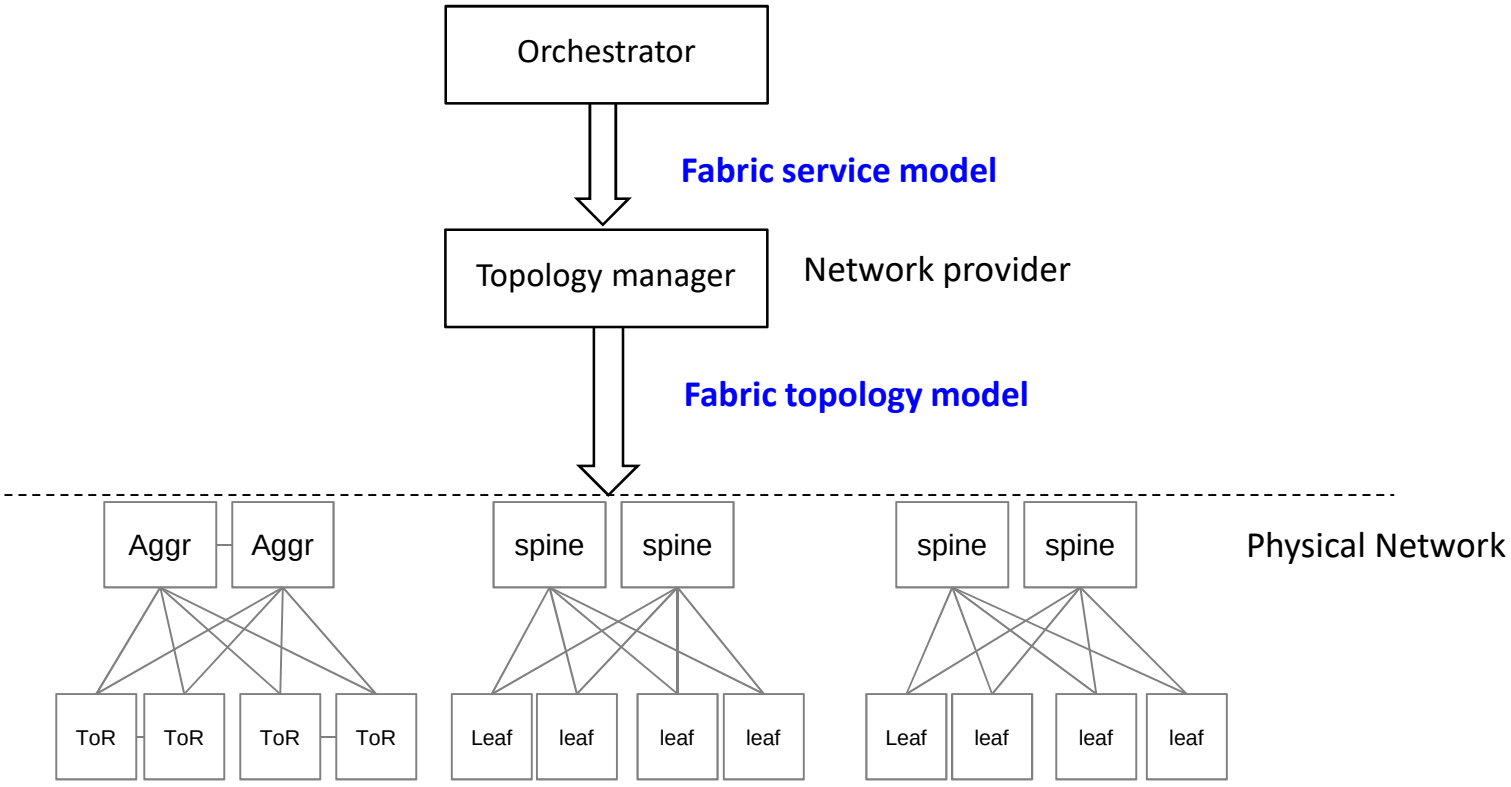
Abstraction layer

Device -> Fabric
Physical Topology->Fabric Topology

Physical Layer

Device Modeling
Physical Topology

The usage architecture



A Fabric Service Model

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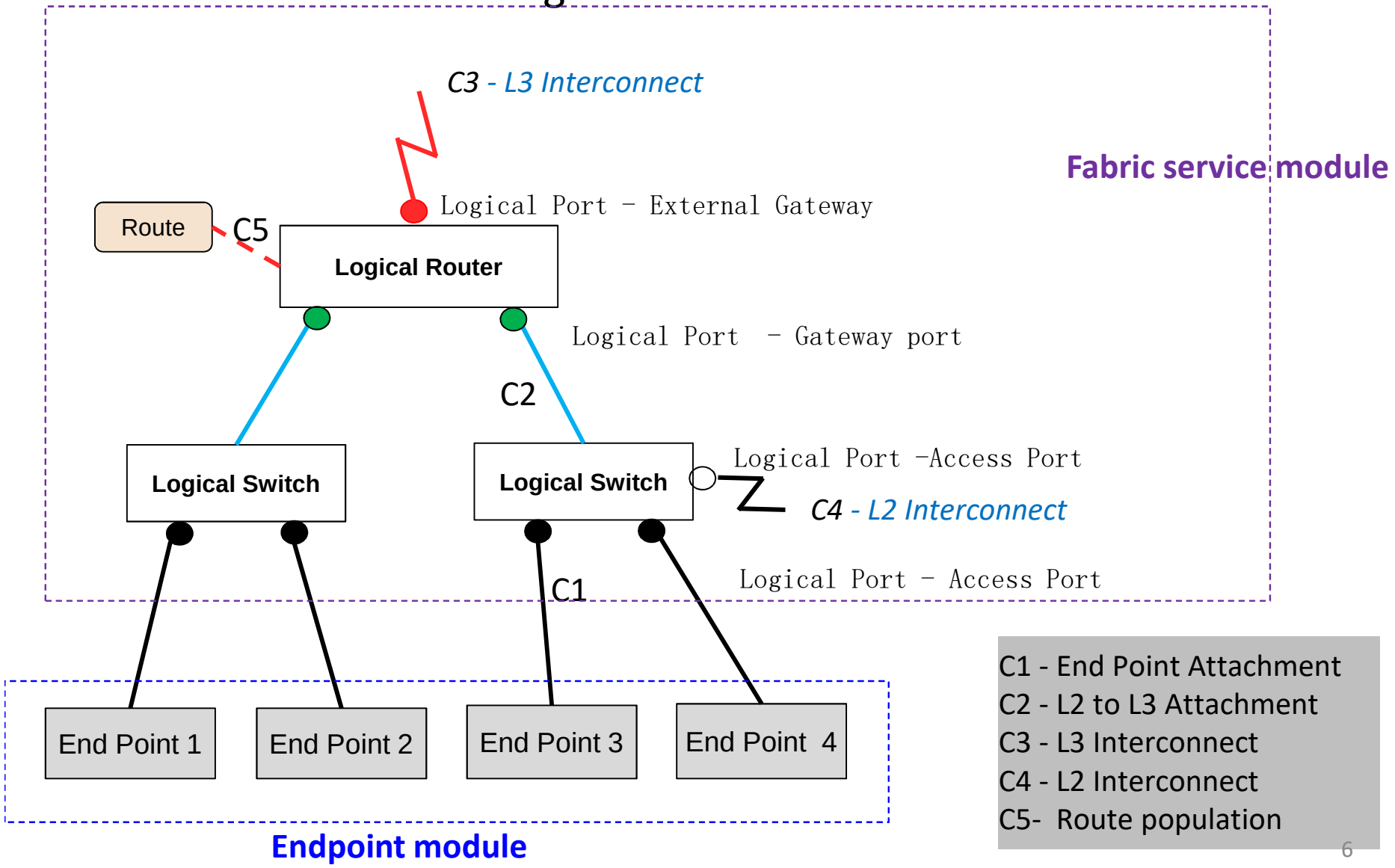

C1 - End Point Attachment
C2 - L2 to L3 Attachment
C3 - L3 Interconnect
C4 - L2 Interconnect
C5- Route population

Functions

- Adds Fabric service topology (node, link, TP)
- RPCs
  - Create (or Add) logical router, logical port, gateway, ACL
  - Bind logical port to underlay ports

A Fabric Topology Model

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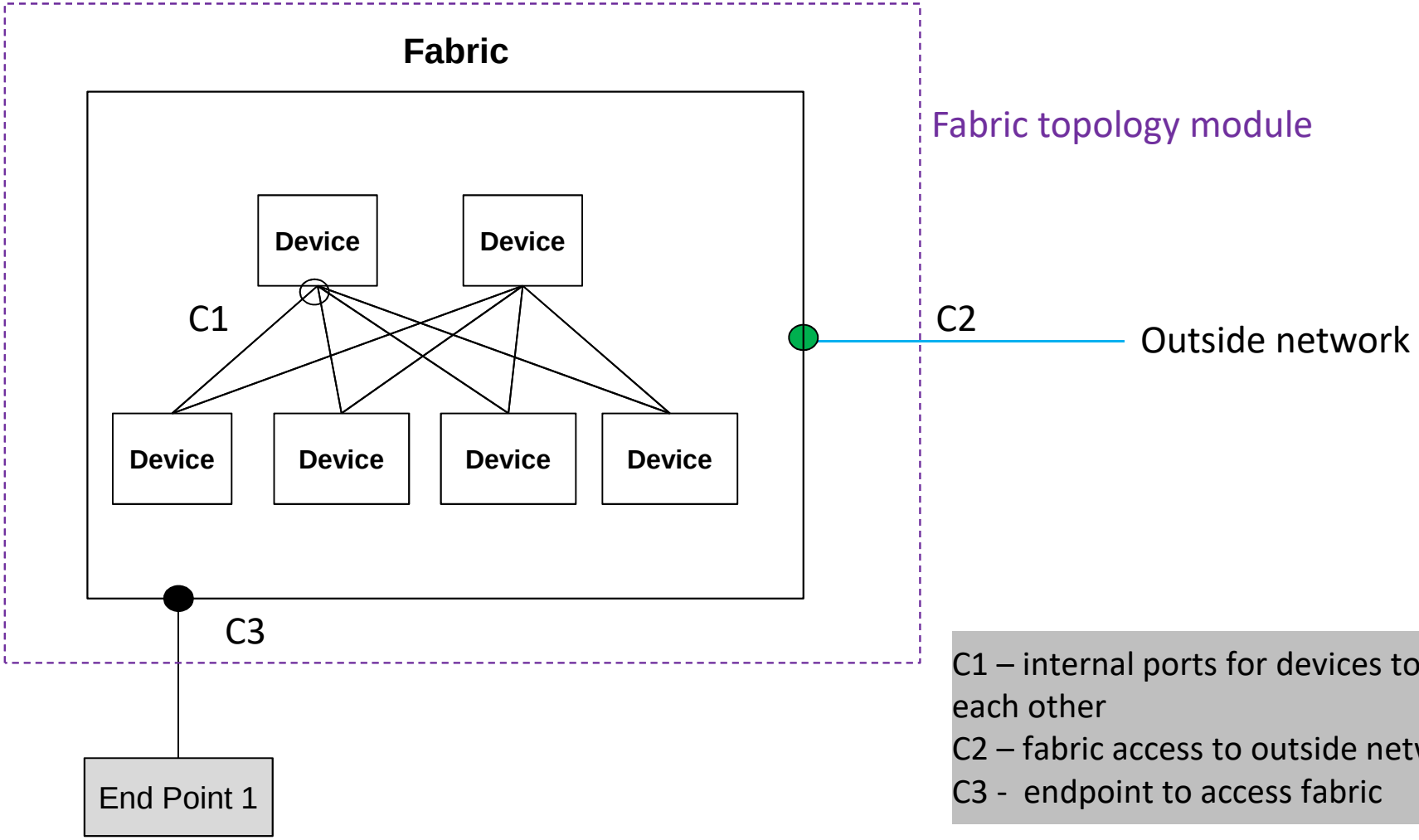

C1 – internal ports for devices to access each other
C2 – fabric access to outside network
C3 - endpoint to access fabric

Implementation

- It is implemented in an open source project and published in previous releases: https://wiki.opendaylight.org/view/FaaS:Main
- The code is also available at github:

  https://github.com/opendaylight/faas

Comment resolutions and updates since IETF 96

- **Technical changes**
  - **How to provide fabric interconnection?**
    - Add a fabric port type for external network connection which can be used for inter-fabric link configuration.
  - **How to use fabric model to deploy the network**

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  - The extensibility of the fabric topology model
- **New authors**
  - Rong Gu, Hariharan Ananthakrishnan to join our fabric topology work.

Next Step

- Welcome further feedbacks/comments/ interests on this fabric work.

Question?