

Use Cases for SF Aware Topology Models

[draft-ietf-teas-use-cases-sf-aware-topo-model-02](#)

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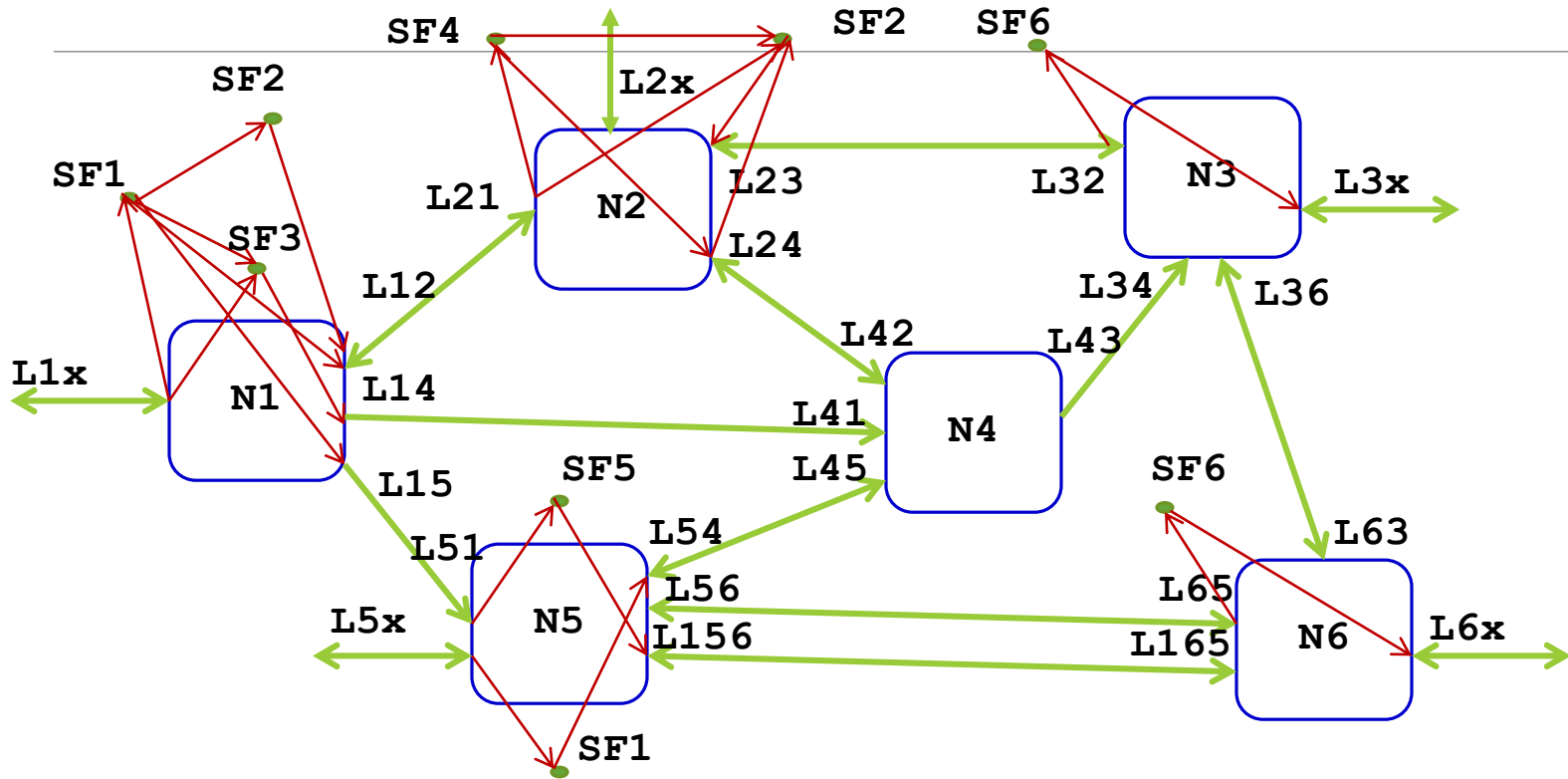
Changes since IETF101

- Working Group Adoption.
- No changes in content.

Use-cases

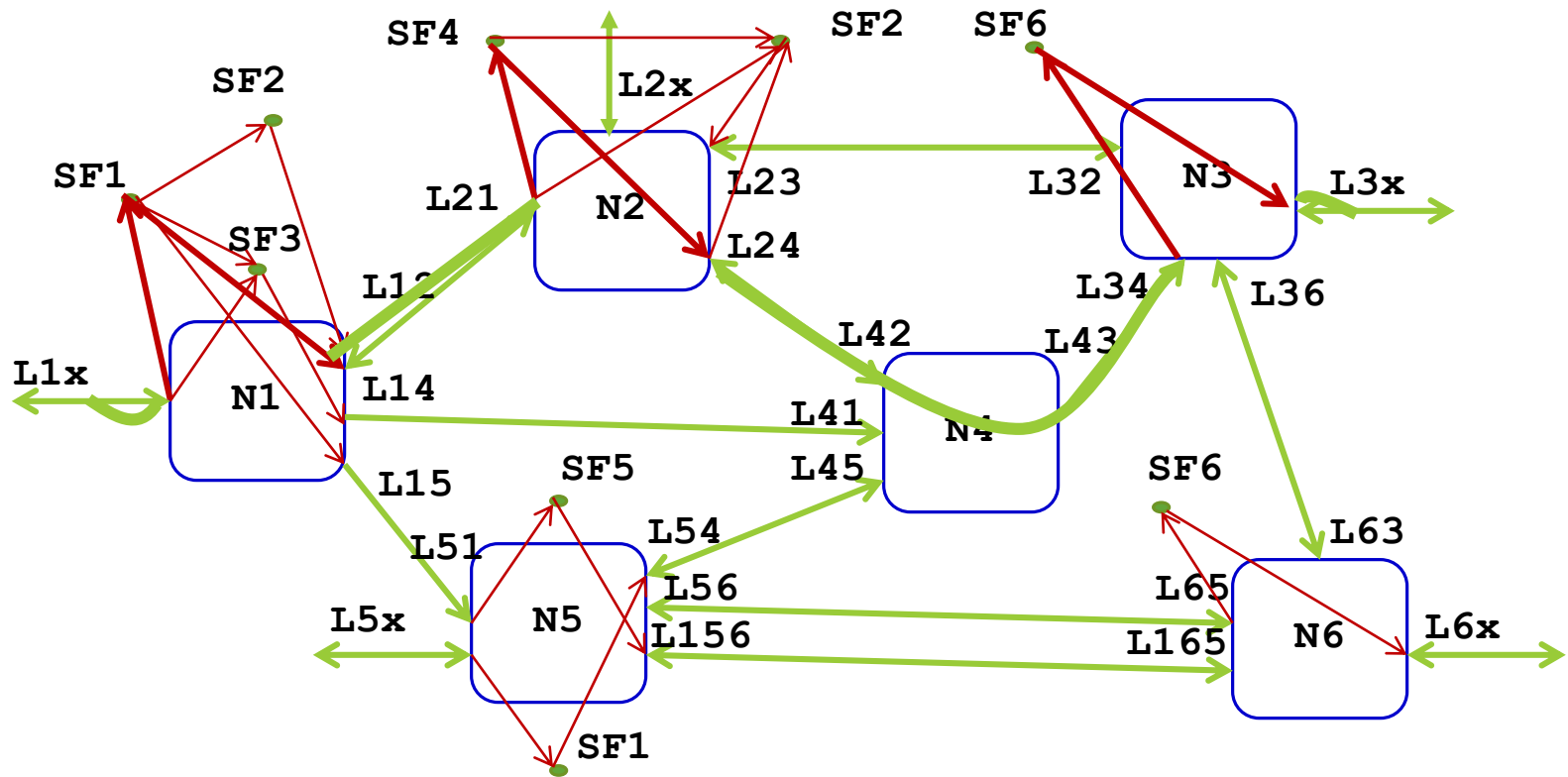
- SFC Protection and Load Balancing
- Network Clock Synchronization
- Client - Provider Network Slicing Interface
- Dynamic Assignment of Regenerators for L0 Services
- Dynamic Assignment of OAM Functions for L1 Services
- SFC Abstraction and Scaling
- Dynamic Compute/VM/Storage Resource Assignment
- Application-aware Resource Operations and Management

SF Aware Network Topology



Example: SF-aware TE topology

SFC with TE constraints



Next steps

- Solicit more use-cases
- Stabilize the draft to be ready for WG LC.

SF Aware TE Topology YANG Model

draft-ietf-teas-sf-aware-topo-model-01

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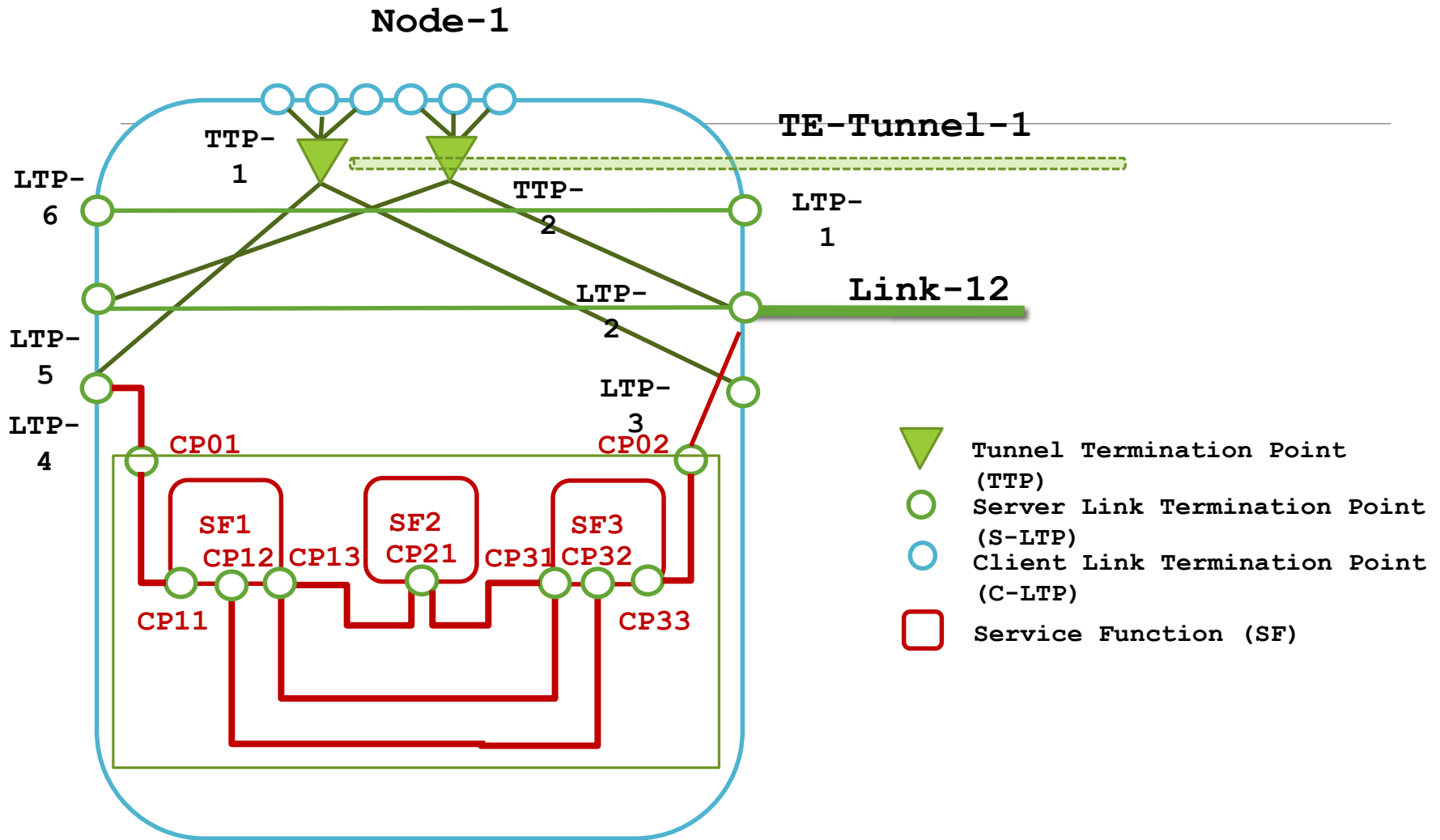
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Connectivity matrices introduced by the model

- **SF2SF CM** - describes which SFs could be locally inter-connected, and, if yes, in which direction, via which **CPs** and at what costs
- **SF2LTP CM** - describes how, in which direction and at what costs a given TE node's SFs could be connected to the TE node's **LTPs** and hence to SFs residing on neighboring TE nodes that are connected to LTPs at the remote ends of corresponding TE links
- **SF2TTP CM** - describes how, in which direction and at what costs a given TE node's SFs could be connected to the TE node's **TTPs** and hence to SFs residing on other TE nodes on the topology that could be inter-connected with the TE node via TE tunnels terminated by the corresponding TTPs.

SFs as TE topology elements



Modeling considerations

SFs are modeled as opaque objects identified via globally unique SF_IDs

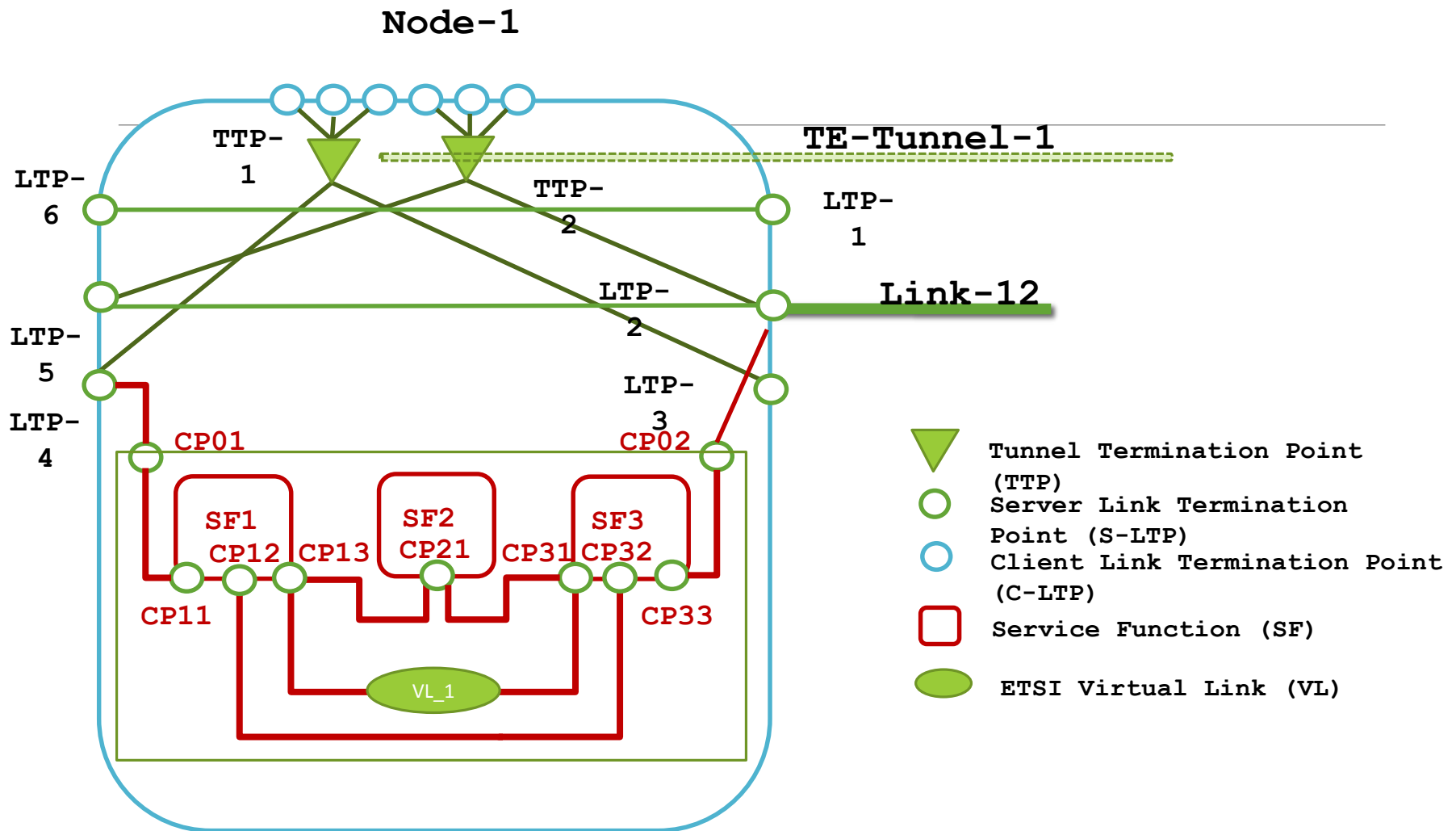
SF_IDs could be used to look up SFs in ETSI defined TOSCA/YANG data stores to understand SF details

Multiple SFs with the same SF_ID could reside on different TE nodes

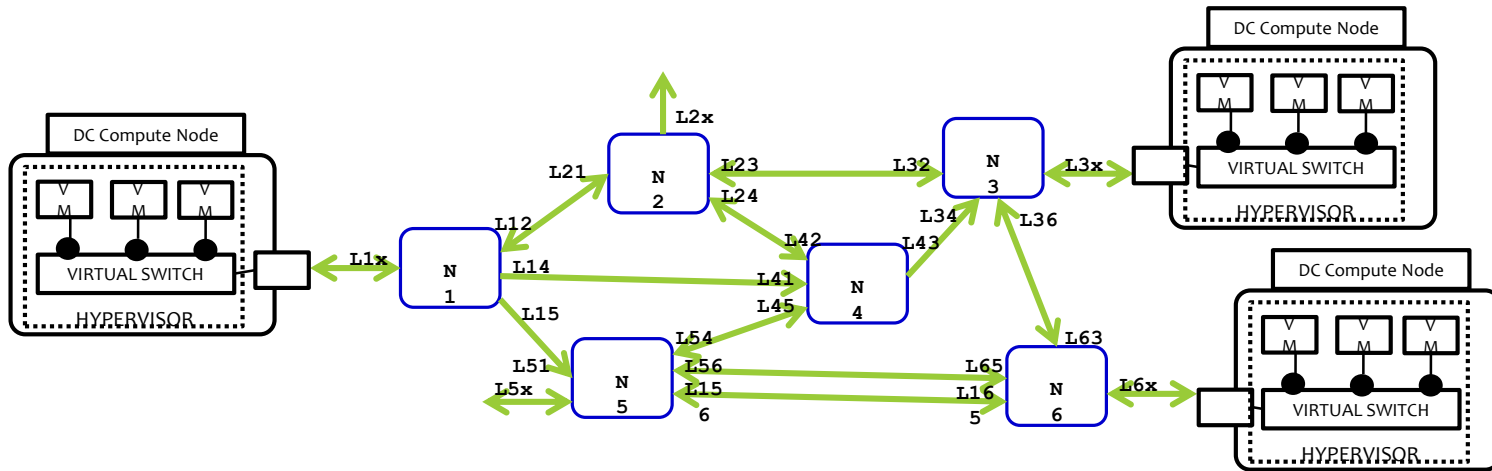
Each SF has one or more Connection Points (CPs) identified by SF-unique CP_IDs

SFs use CPs to inter-connect with each other, as well as with the hosting TE node's LTPs and TTPs

Interconnecting SFs via ETSI VLs



Example of SF2LTP CM: Compute Resource aware Topology



- Integrated Cross-Stratum resource model: network + DC compute/storage
- Compute Node is attached to network TE node. It contains VMs which can be modeled as a Service Function (SF). VM resources (instances, usage, CPU/Memory) can be modeled and integrated with network topology model to facilitate VM migration, dynamic load balancing, etc.
- Added is DC Compute model as an example in this version.

Next steps

- Continue to refine the draft.
- Solicit feedback from WG