Use Cases for SF Aware Topology Models

draft-bryskin-teas-use-cases-sf-aware-topo-model-00

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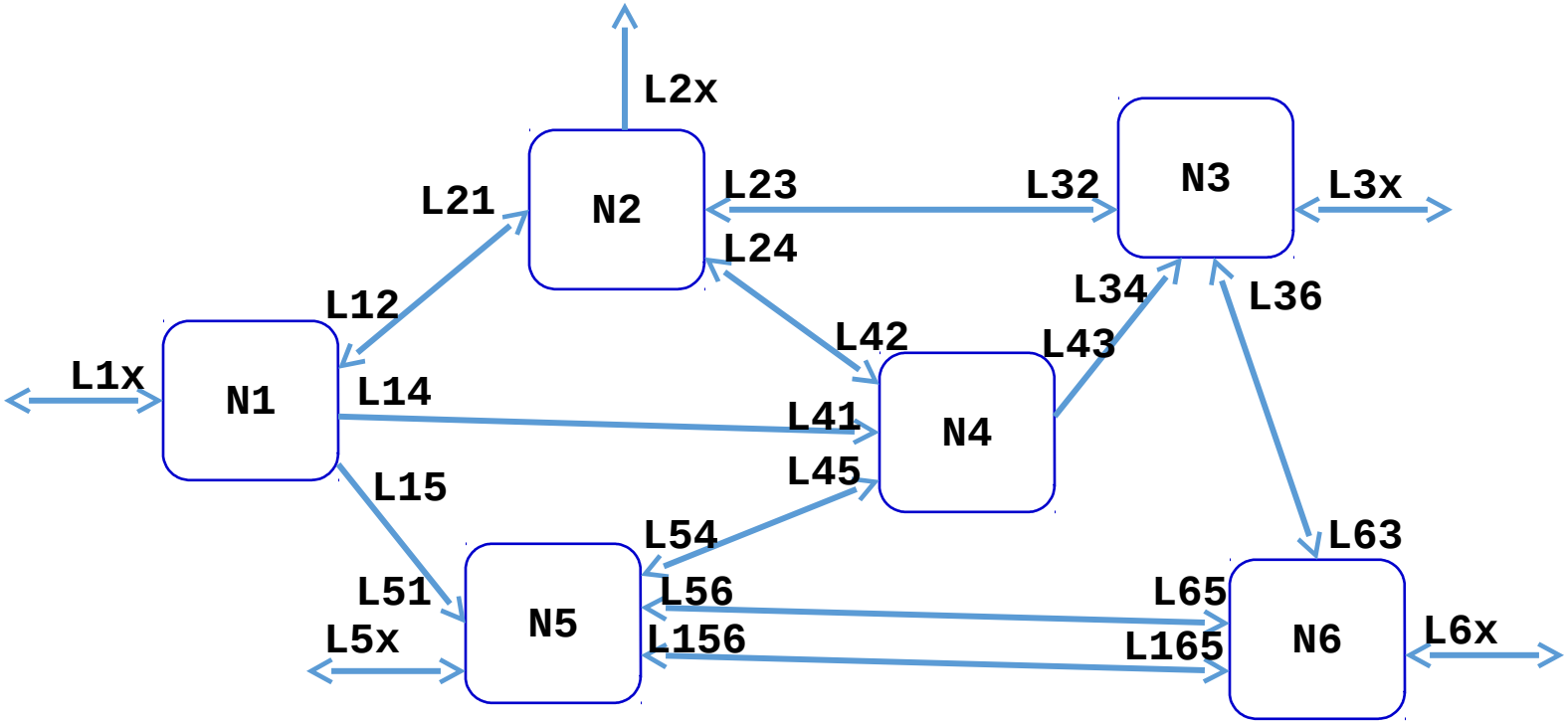
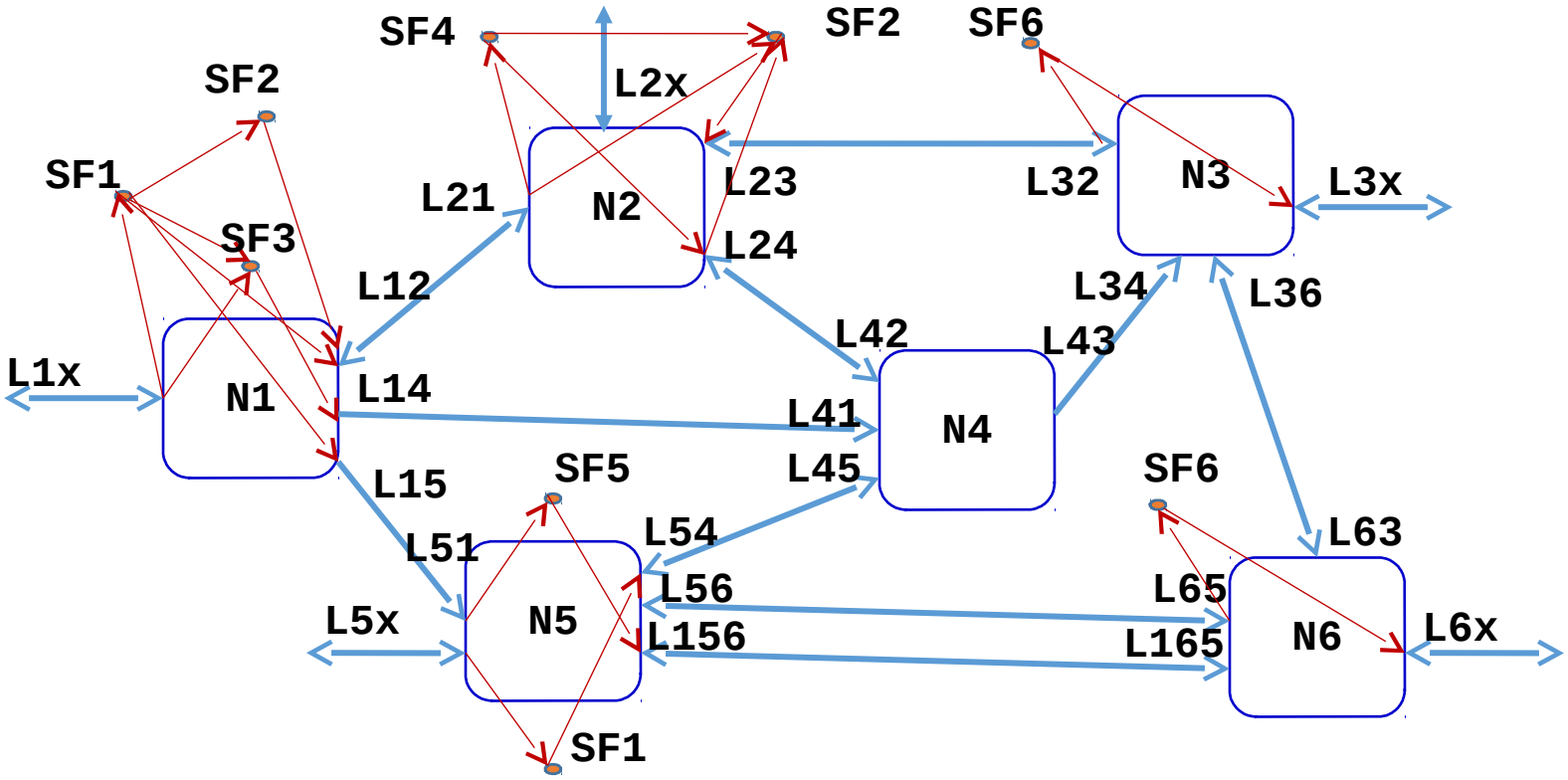
Network Topology



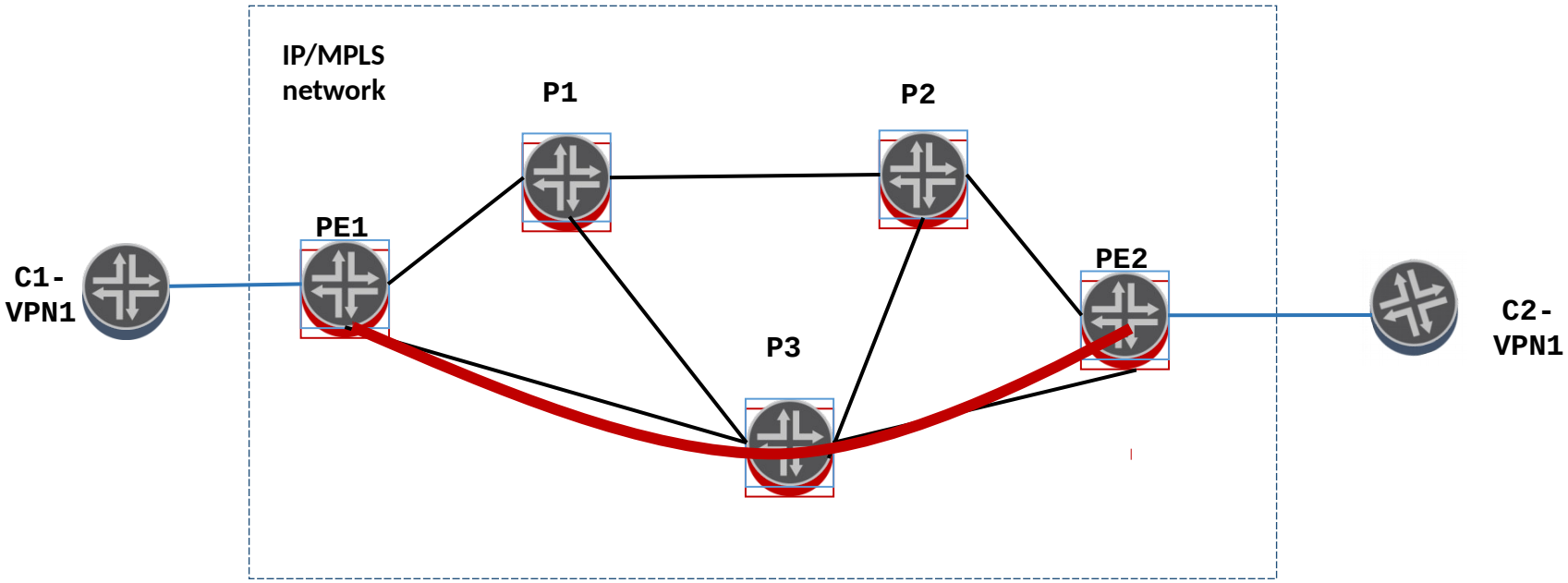
Example: TE topology – traffic engineering representation of a network domain resources

SF Aware Network Topology



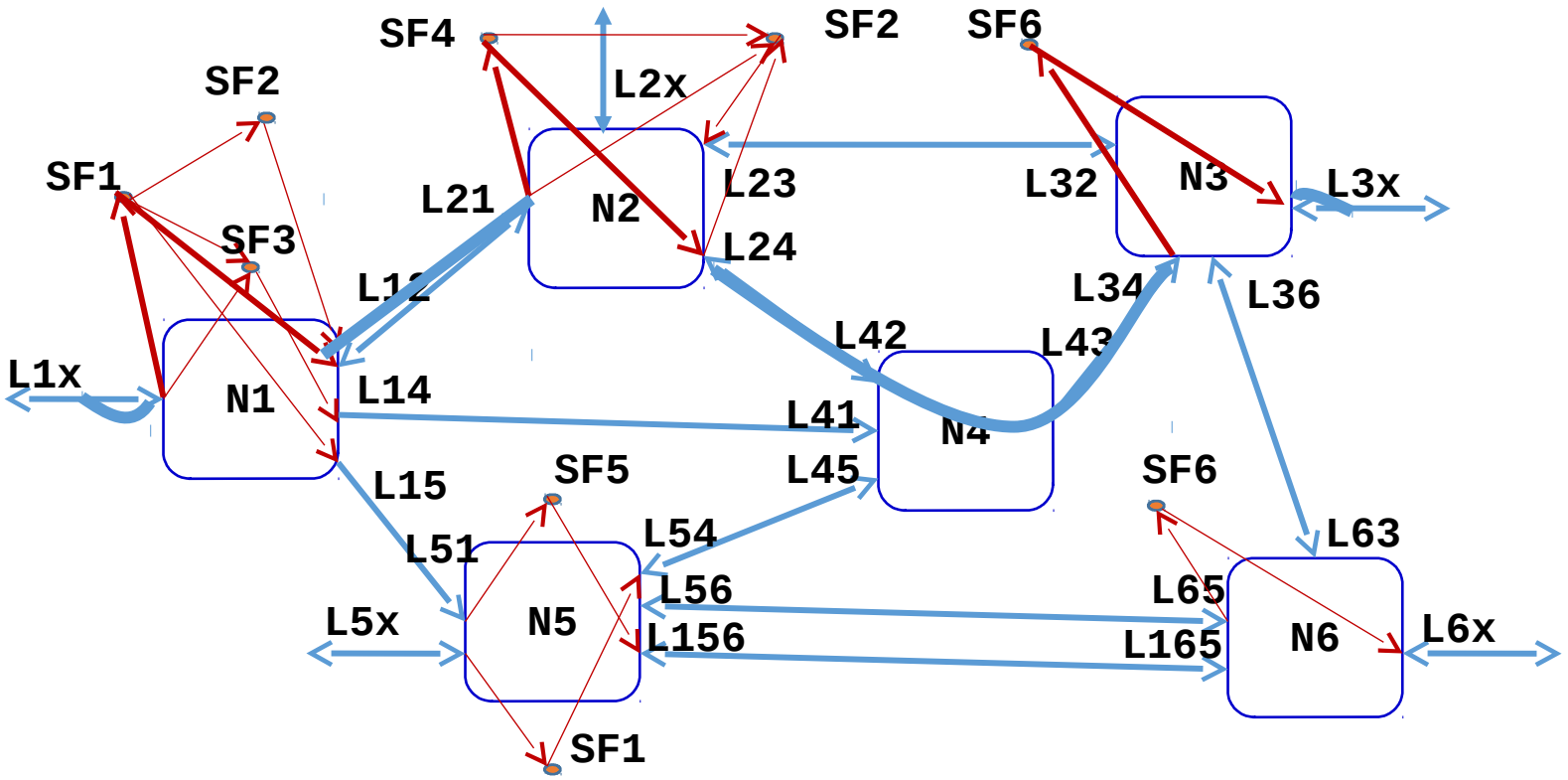
Example: SF-aware TE topology

L3 VPN with delay constraints

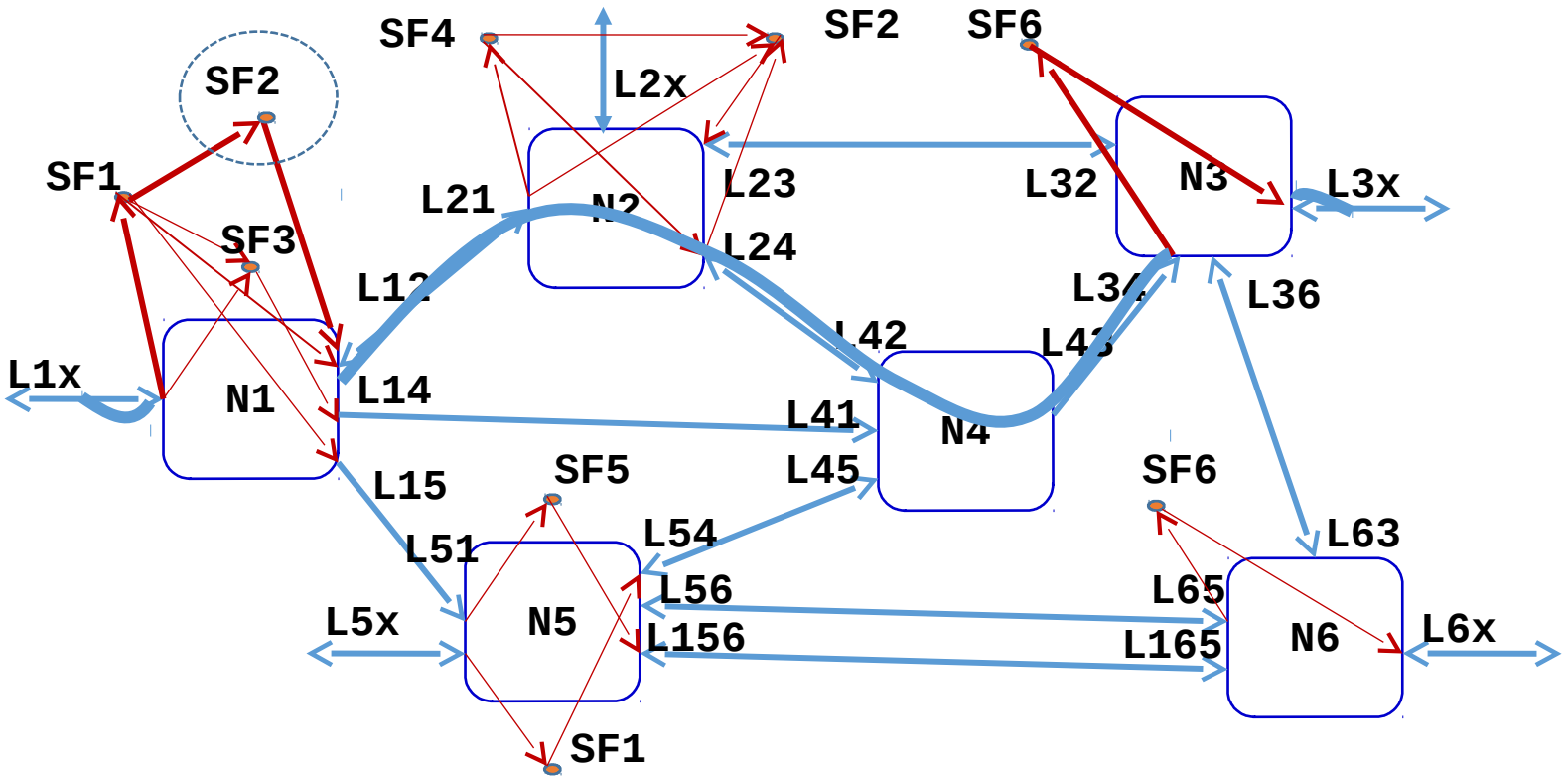


VPN1 VRFs (SFs) on PE1 and PE2 are connected via LSP carried inside delay constrained RSVP-TE tunnel

SFC with TE constraints

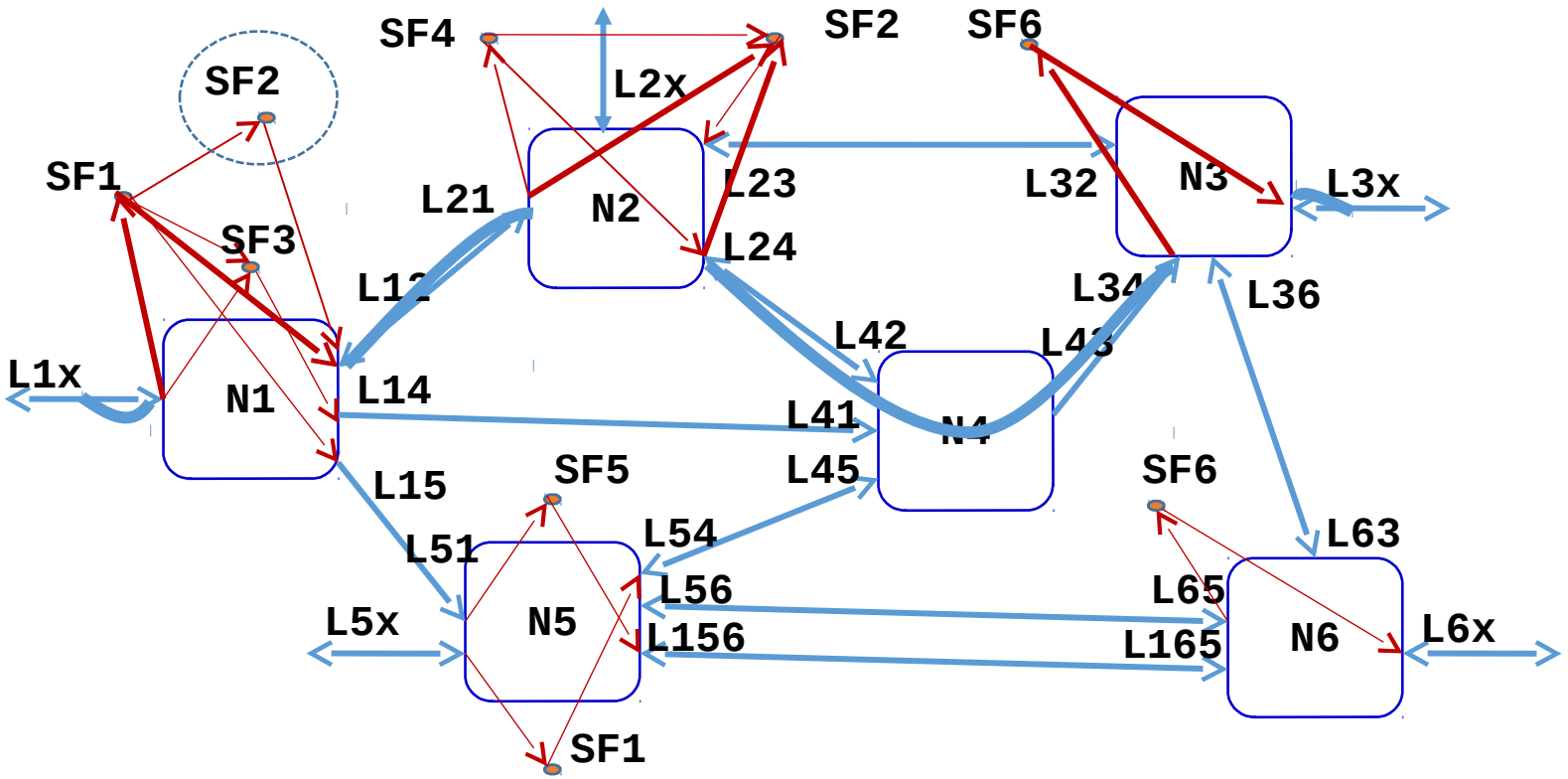


SFC Recovery (1)



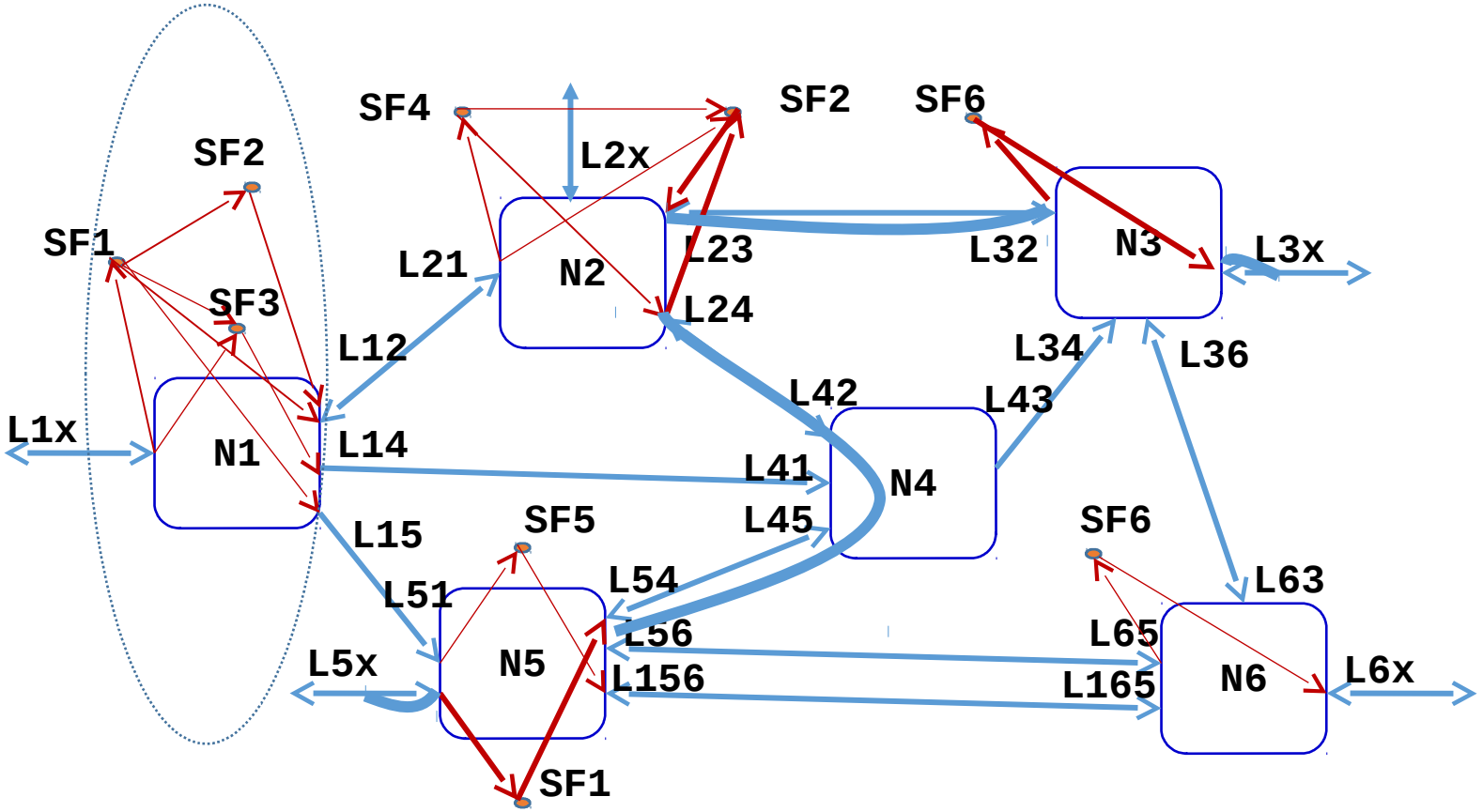
SF2 on node N1 fails

SFC Recovery (2)



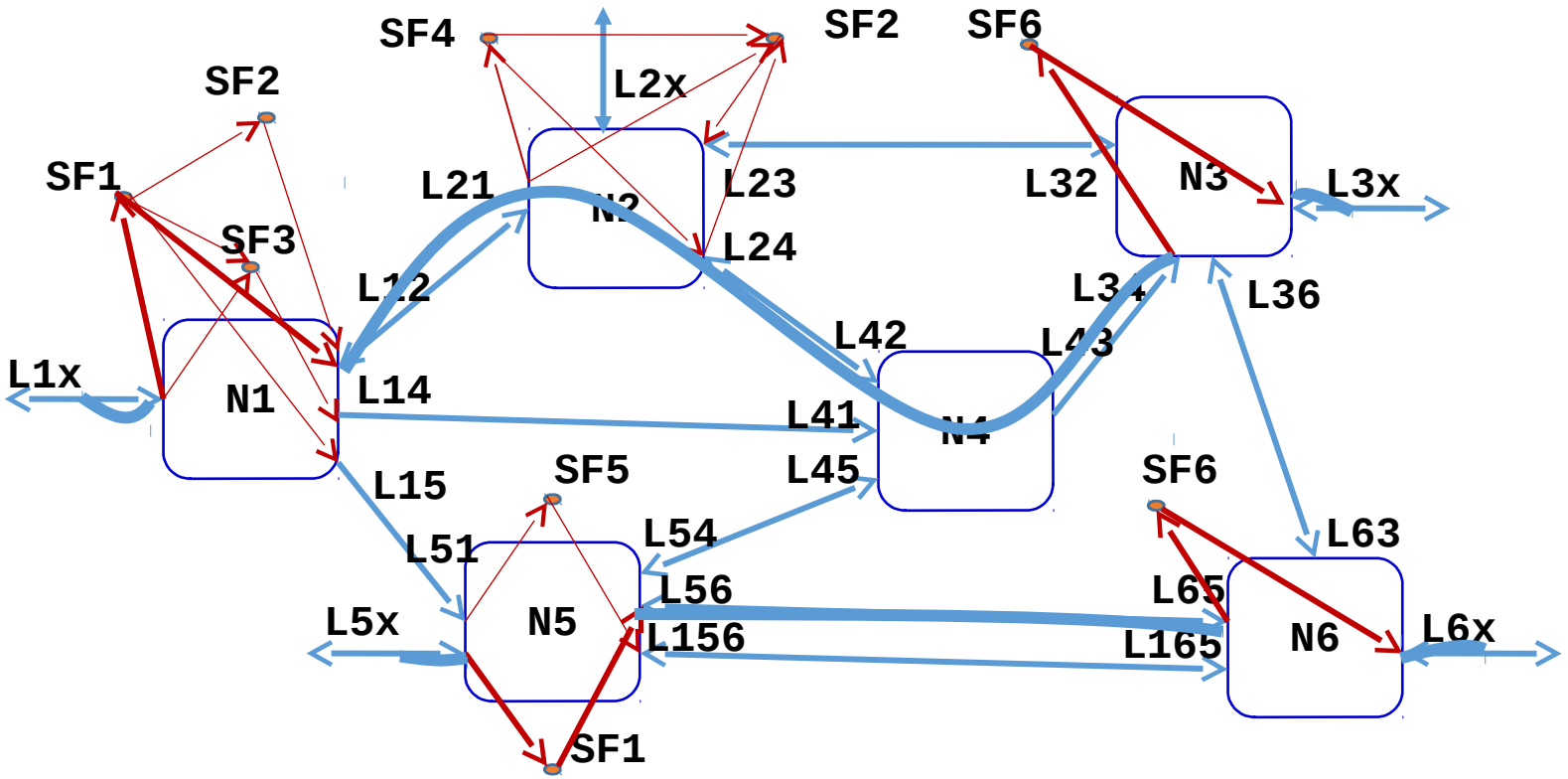
SFC SF1-SF2-SF6 is recovered after SF2 on node N1 failed

SFC Recovery (3)



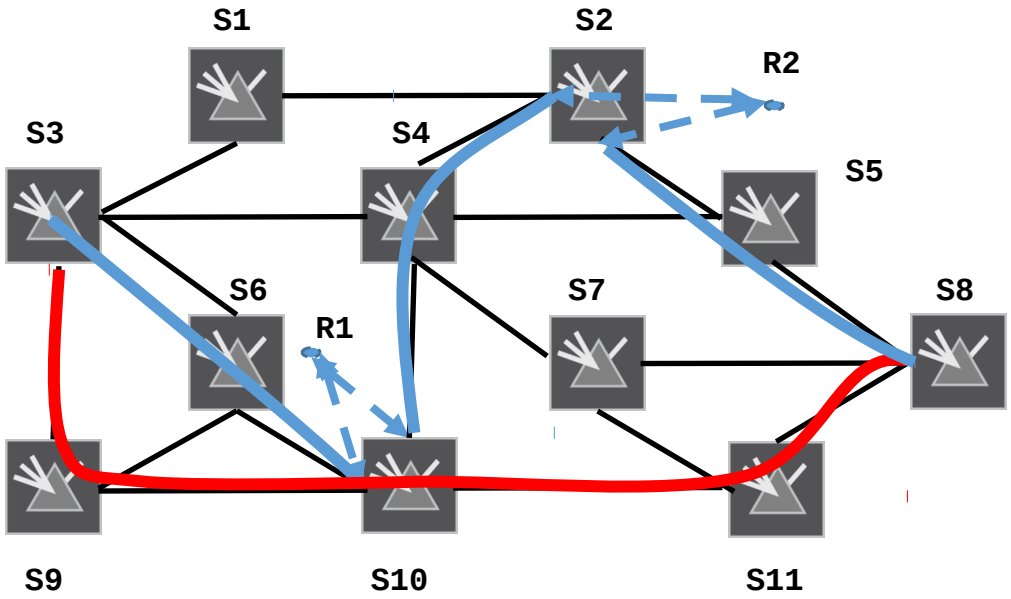
SFC SF1-SF2-SF6 is recovered after node N1 failed

SFC load balancing



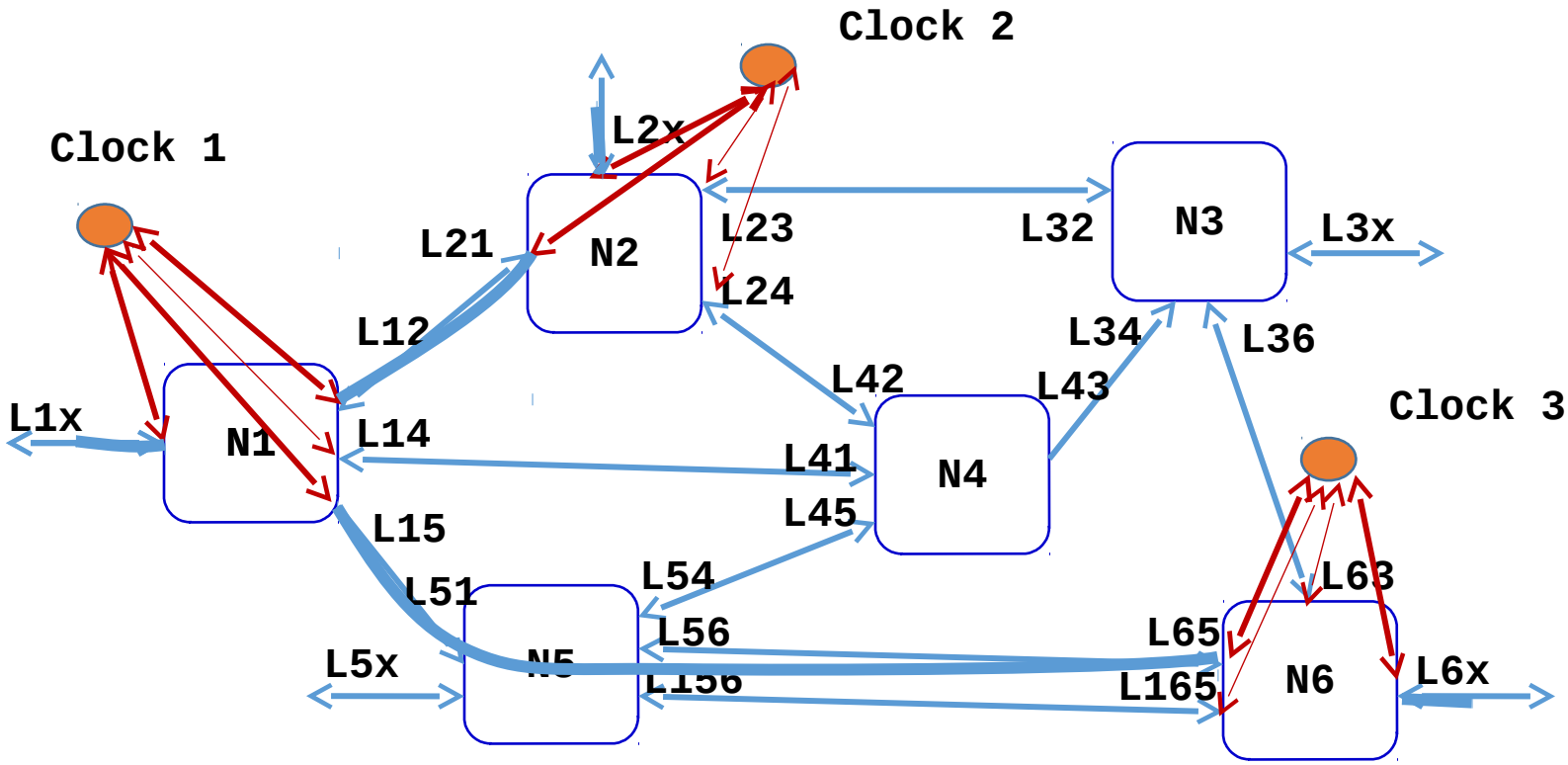
Two parallel SF1-SF6 SFCs with TE constraints

Optical tunnel as TE-constrained SFC of 3R regenerators



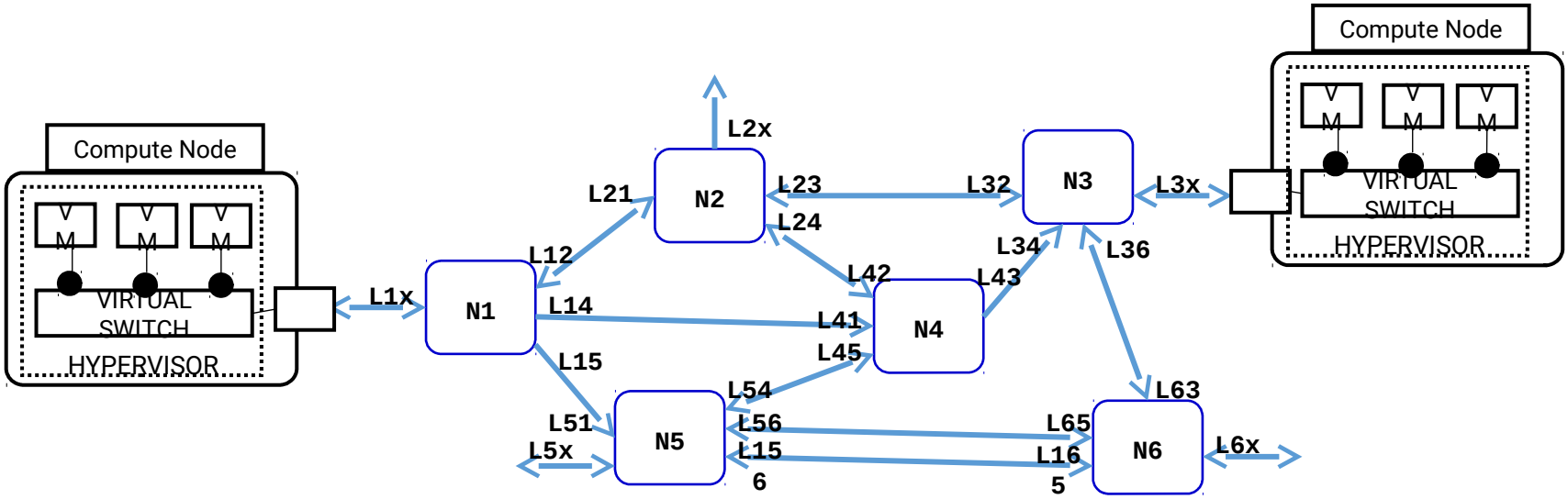
Red trail (not regenerated) is not optically reachable,
but blue trail (twice regenerated) is

Clock Aware TE Topology



High resolution clock synchronization channels set over TE topology optimized by smallest delay variation criterion

Compute Resource aware Topology



Compute Node is attached to network WAN 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.

Next steps

- Solicit feedback from WG
- Design SF-aware YANG models