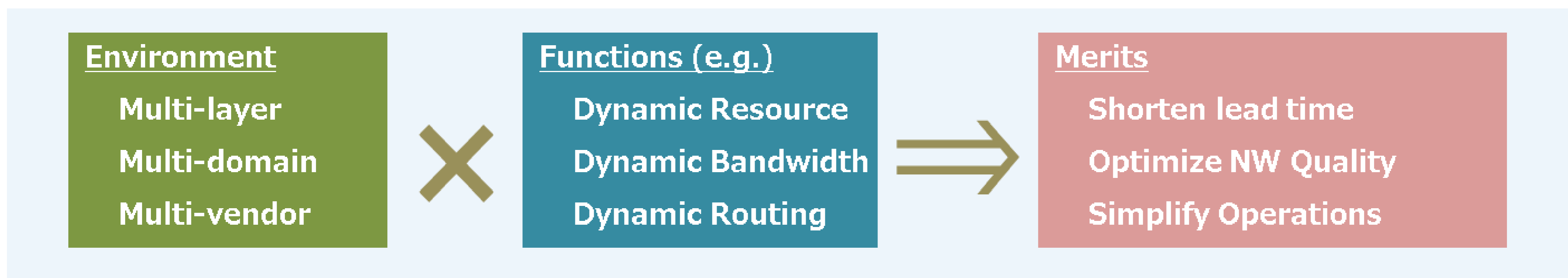
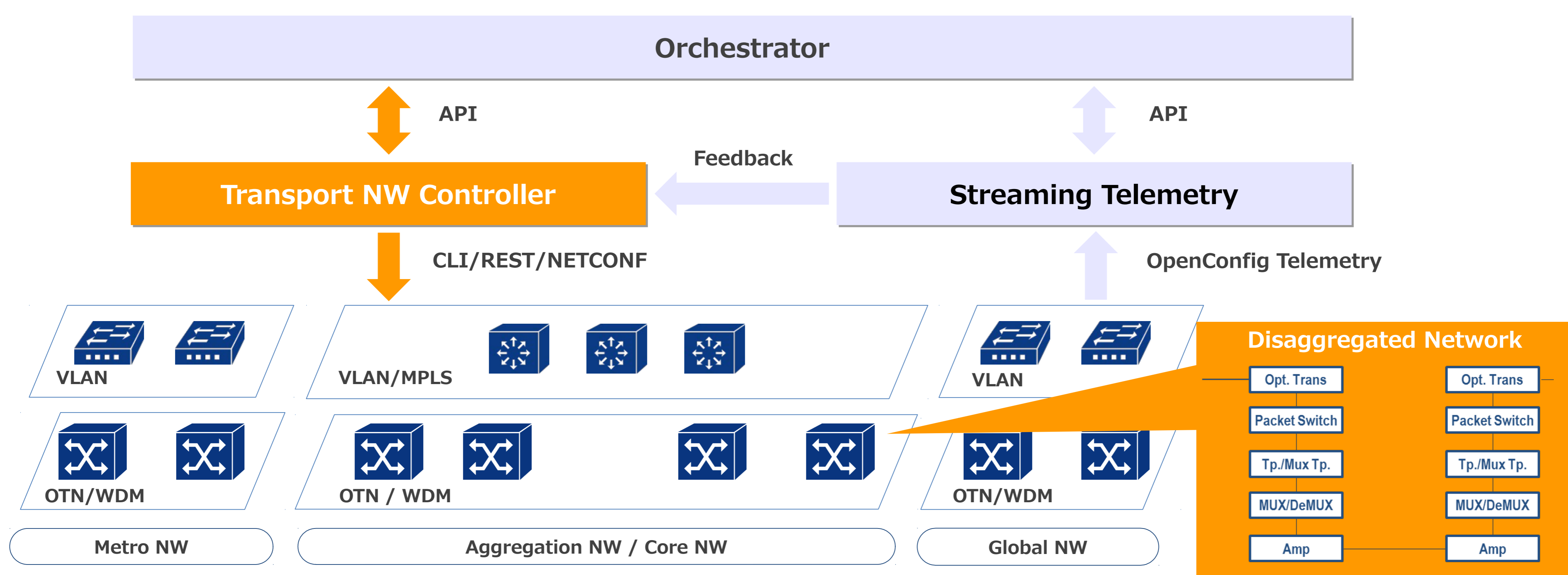


# Disaggregated transport network development in NTT Communications

## Goal of Transport SDN in NTT Com

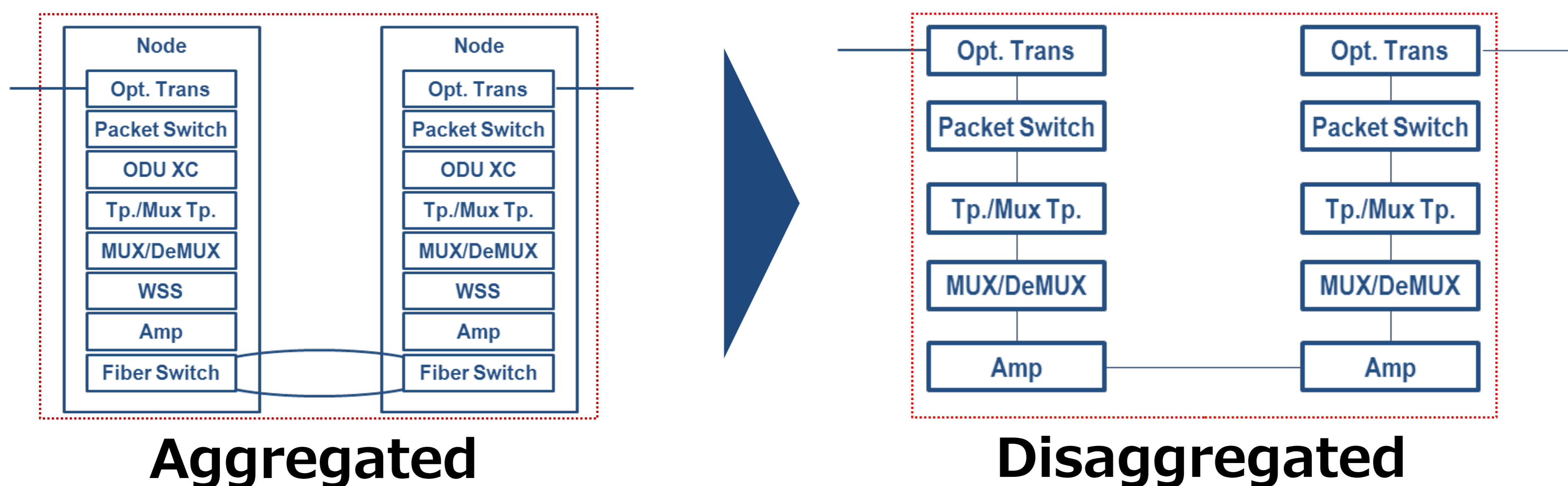


## Architecture



## Disaggregated Transport Network

	Why Disaggregated	Aggregated	Disaggregated
<b>Cost</b>	Device Selection	Vendor lock-in	Multi vendor
	Scaling	One size fits all	Rightsize
<b>Delivery</b>	Integration	Hardware-driven integration	Software-driven integration
	Upgrade	Forklift upgrade	Piece-wise upgrade



# Disaggregated transport network development in NTT Communications

## ONOS Overview



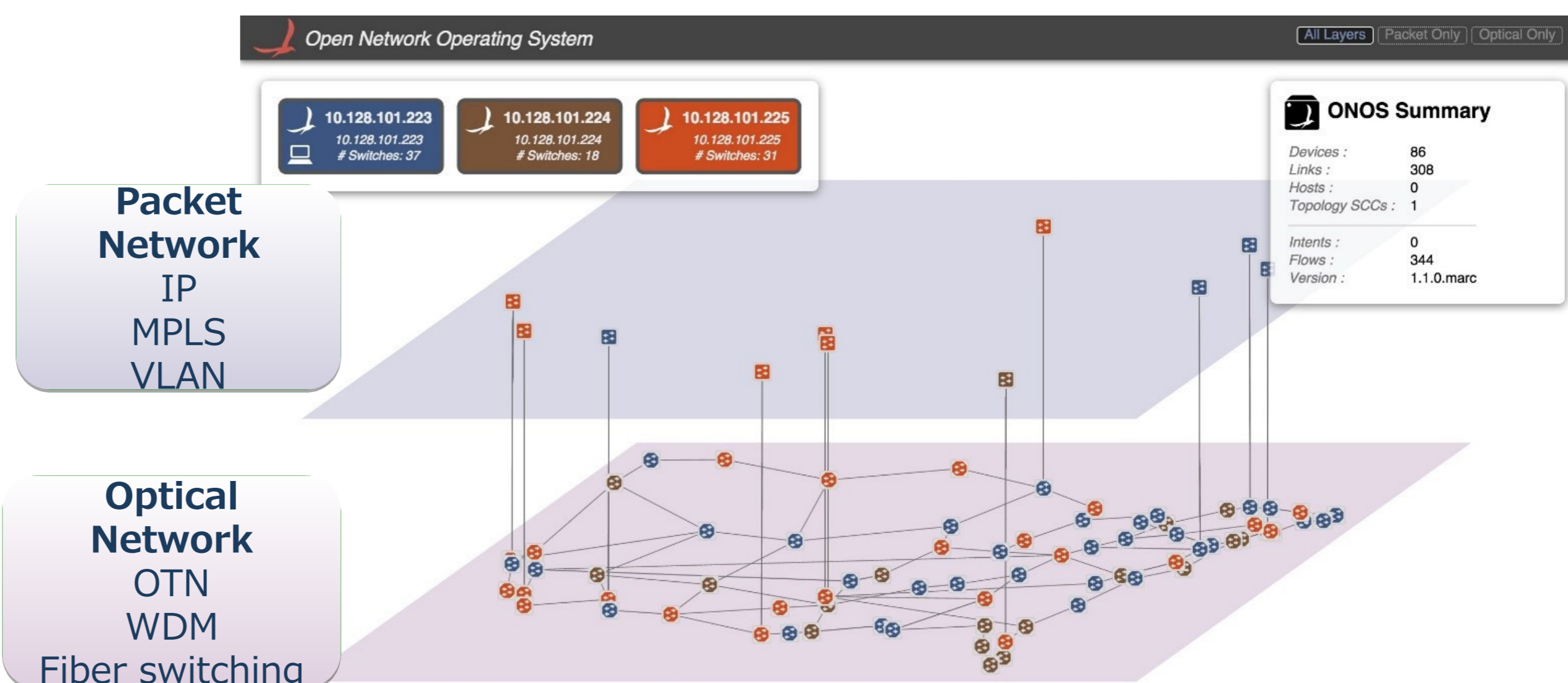
- Open source project
- Governed by ON.Lab
- NTT Communications acts as a partner

### Logically Centralized Control

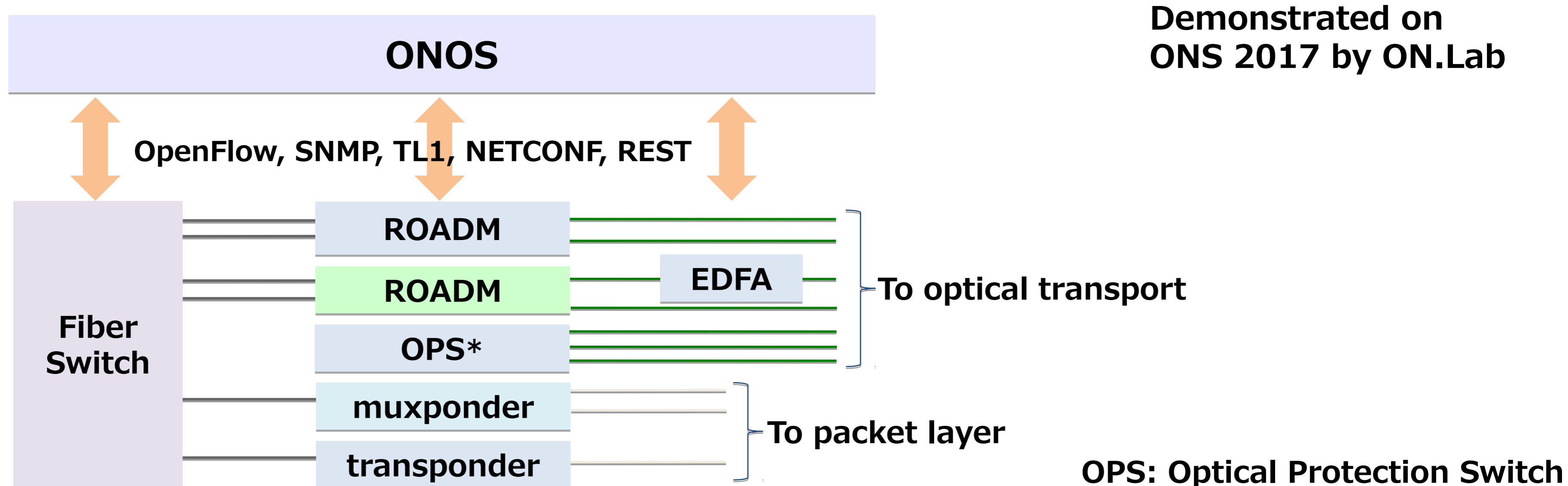
- Optimize resource usage
- Dynamic traffic provisioning
- **Multi-layer** resiliency

### Disaggregated Transport Network

- Reduces **CAPEX & OPEX**
- Eliminates **vendor lock-in**
- Allows **rightsizing** and **piece-wise upgrades**

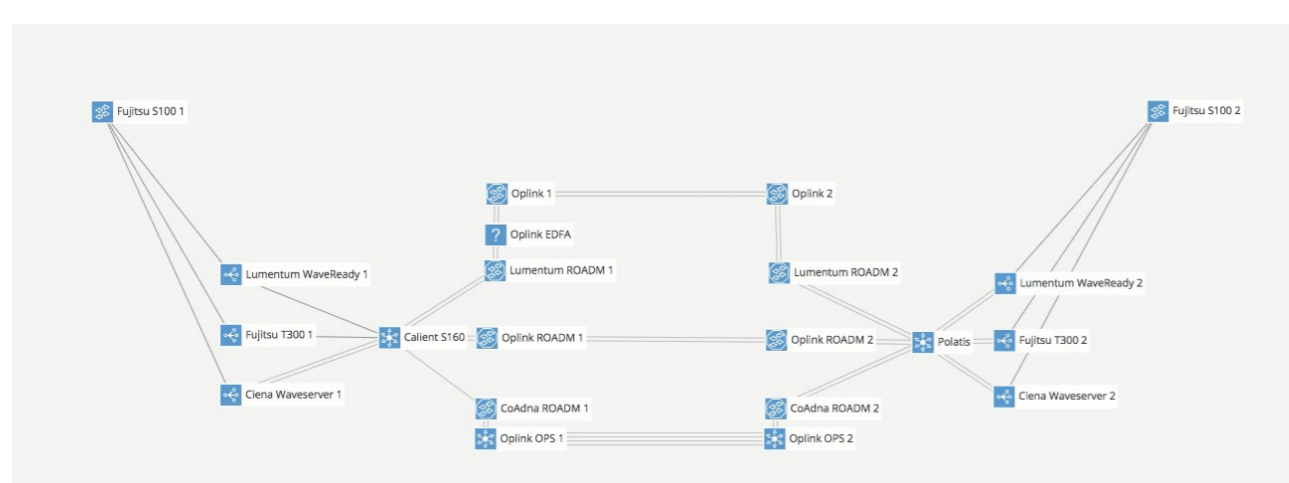


## Disaggregated Architecture of Demonstration

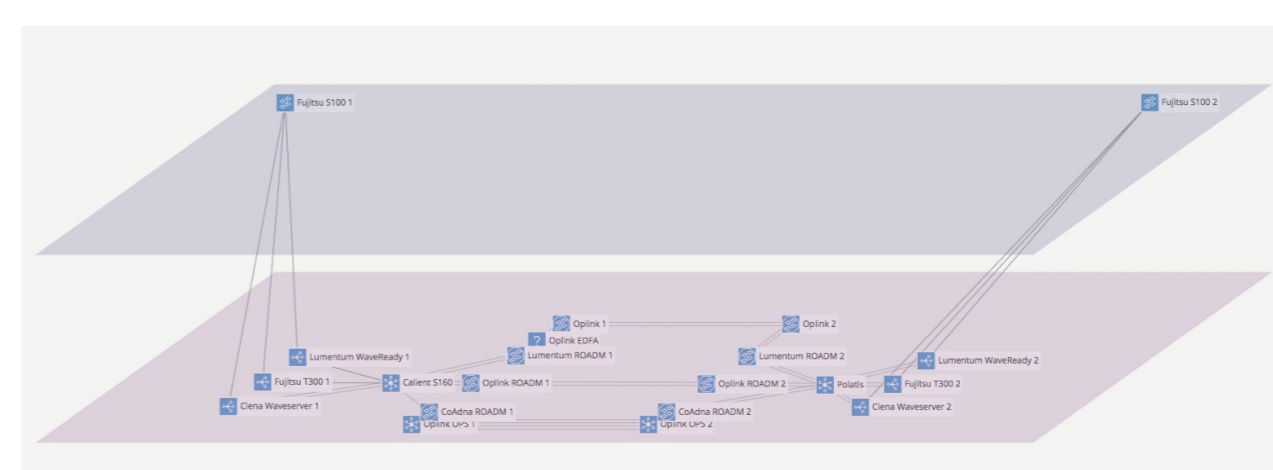


## Features in Demonstration

- Multi-layer topology in one view

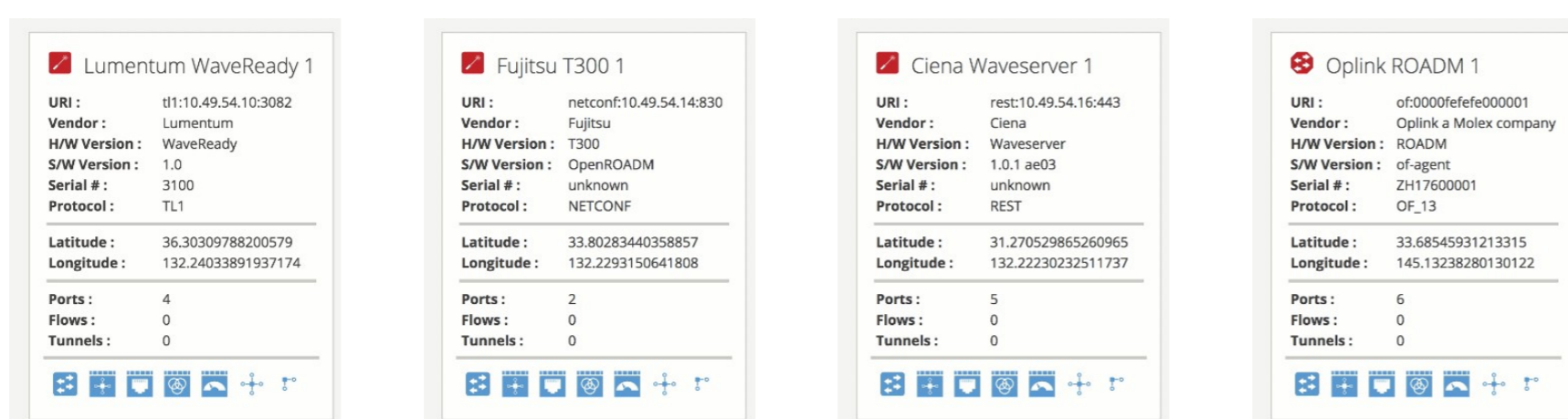


Normal View

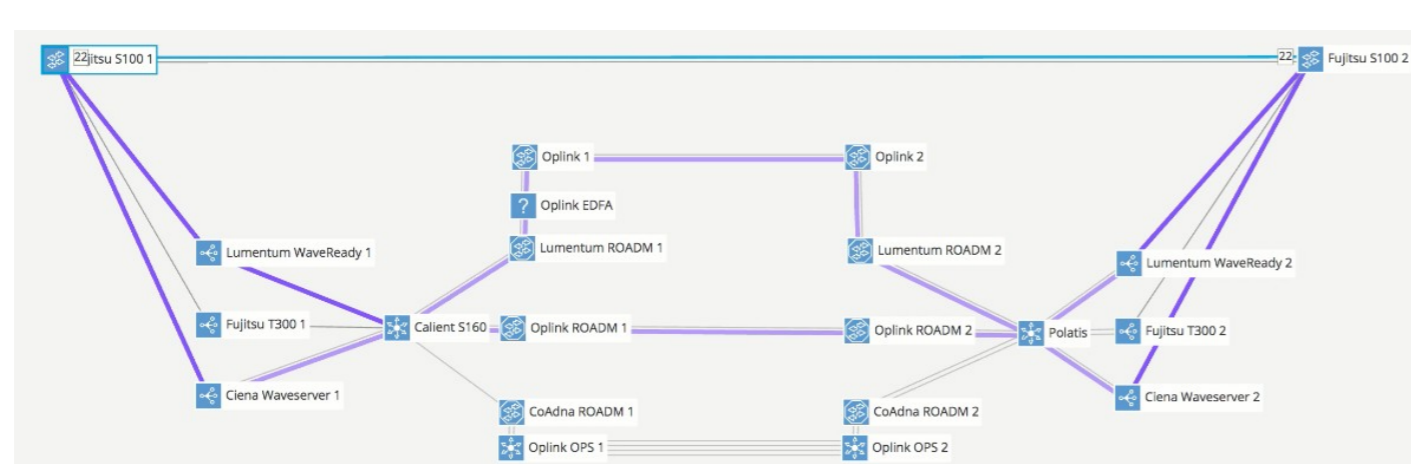


Oblique View

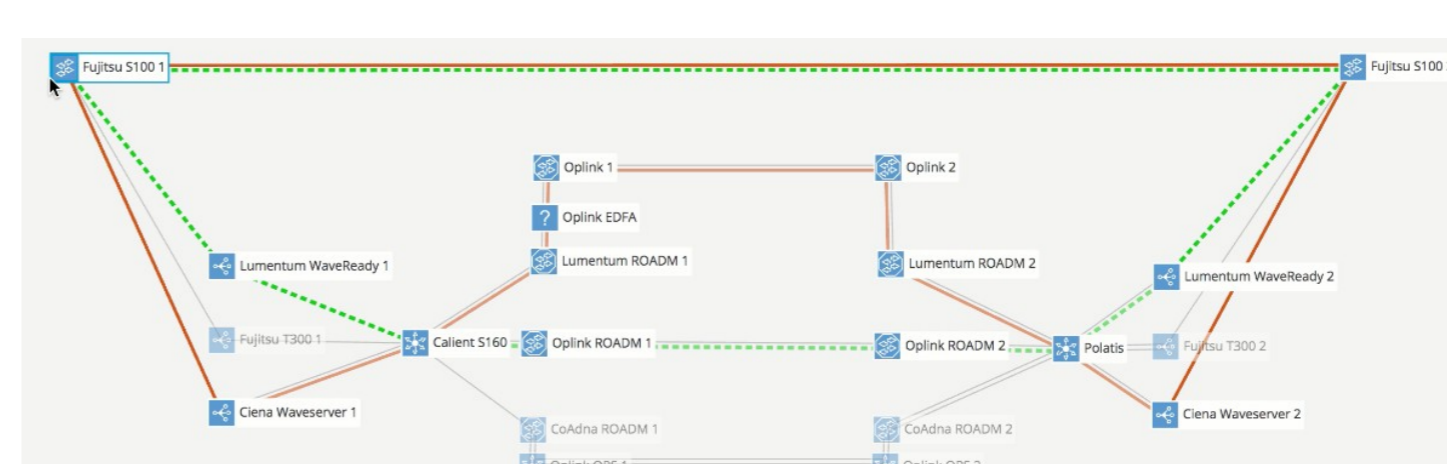
- Support multiple protocols (NETCONF, TL1, REST, OpenFlow...)



- Hierarchical path management and protection switching



Available paths



Primary path and Backup path