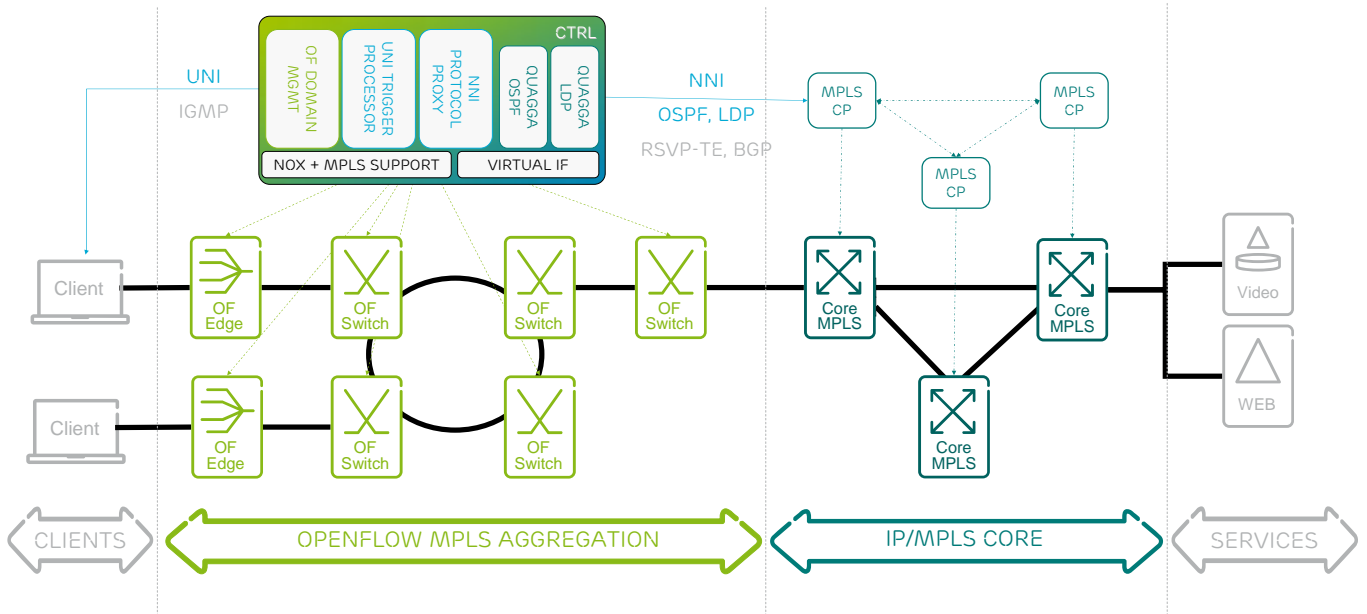# MPLS-OPENFLOW BASED ACCESS/AGGREGATION NETWORK

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## SPARC: SPLIT ARCHITECTURE CARRIER CLASS NETWORKS

- ENHANCE CONTROL FLEXIBILITY BY BREAKING OUT INTELLIGENCE TO CENTRALIZED CONTROLLER

- INTERACT WITH DISTRIBUTED MPLS CONTROL PLANE VIA LEGACY PROTOCOLS

- OAM & PROTECTION FUNCTIONS IMPLEMENTED IN DATA PLANE TO OFF-LOAD CENTRALIZED CONTROLLER

## MONITORING AND PROTECTION RUN IN DATA PLANE
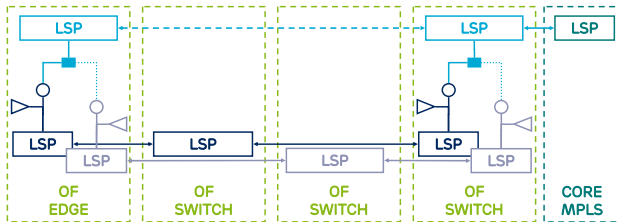


- WORKING & PROTECTION LABEL SWITCHED PATHS (LSP) MONITORED WITH PERIODIC PROBE PACKETS (BFD)

- CLIENT LSP MAPPED TO WORKING LSP VIA VIRTUAL PORTS

- WHEN WORKING LSP GOES DOWN CLIENT LSP IS AUTOMATICALLY RE-MAPPED TO THE PROTECTION LSP

## INTERACT WITH MPLS CONTROL USING QUAGGA STACK
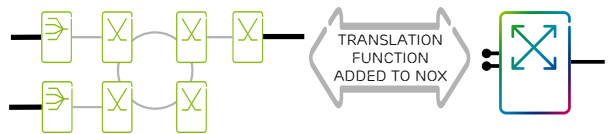


- OPENFLOW DOMAIN ABSTRACTED AS A SINGLE VIRTUAL ROUTER

- DOMAIN EXTERNAL INTERFACES REPRESENTED BY PORTS, POSSIBLE ENDPOINTS ARE LOOPBACKS

- ONLY REACHABILITY INFORMATION IS ADVERTISED FOR SCALING

## DEMO INCLUDES

- MPLS OPENFLOW CONTROLLER FOR BEST EFFORT POINT-TO-POINT AND MULTICAST TRAFFIC

- SEAMLESS INTERWORKING WITH MPLS CONTROL PLANE

- ESTABLISHMENT OF BFD MONITORING IN OPENFLOW DOMAIN

- OPENFLOW CONTROLLER DRIVEN RESTORATION AND DATA PLANE TRIGGERED PROTECTION