

# **STATUS BoF (working title: Segment Routing)**

## **Use Cases: Converged Multi-network Operation**

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# Problem Statement

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- Multiple networks and service domains
- Multiple services on each network, services span networks
- Networks built for primary function(s) (size, redundancy, etc)
- Services require differing capabilities from the network (path, redundancy, bandwidth, QoS)
- Significant amount of traffic only requires ECMP, lowest cost path routing
- Some traffic flows require explicit path
- Current options require many protocols, significant work, states in network and complexity (operationally challenging)



## Requirements for Solution

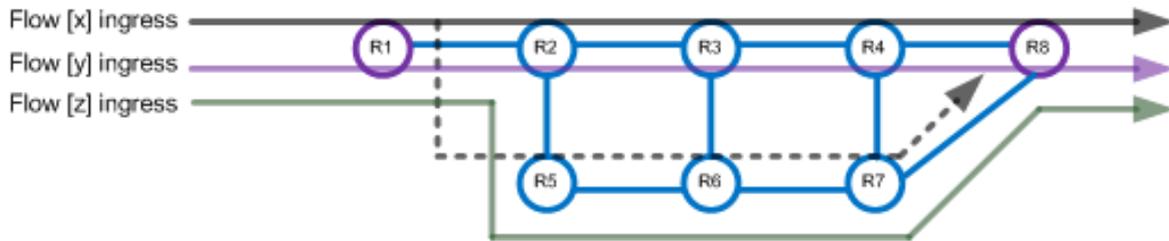
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- Single solution and protocol suite across different networks able to support different services
- Reduced/contained network state
- Simple and Programmable - SDN compliant
- Support for explicit path, dual plane, restricted path and FRR
- Controlled/Limited traffic engineering logic
- Capable to stack services, allowing them to use network differently based on service requirements

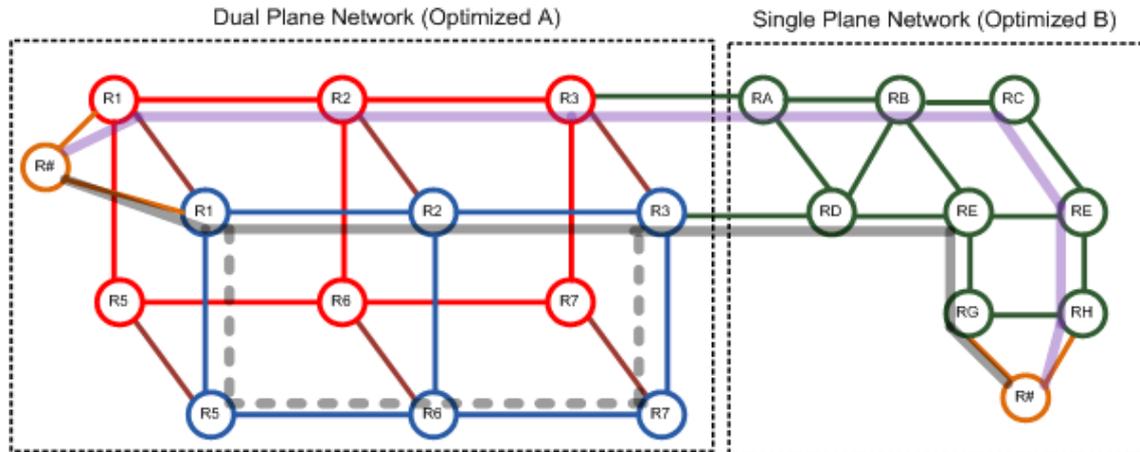


# Examples: Stack Services, Domains and Path

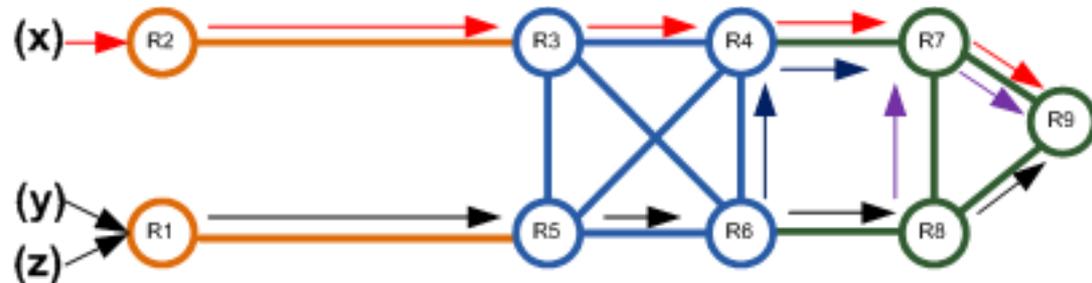
- Services stacked onto network, each requiring different forwarding behaviors



- Services across multiple domains
- Traffic engineering in dissimilar networks

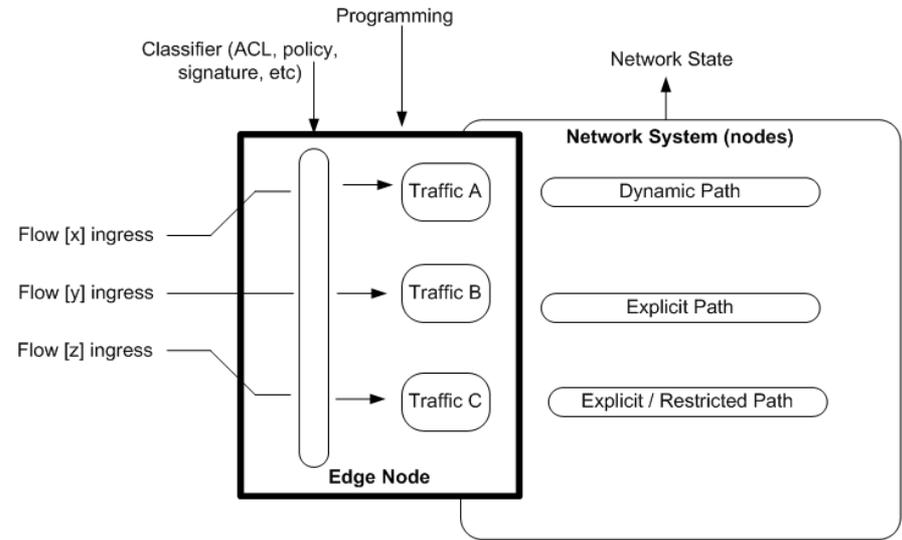


- Traffic engineering for best (lowest cost) path, explicit path, and restricted path
- Different per service

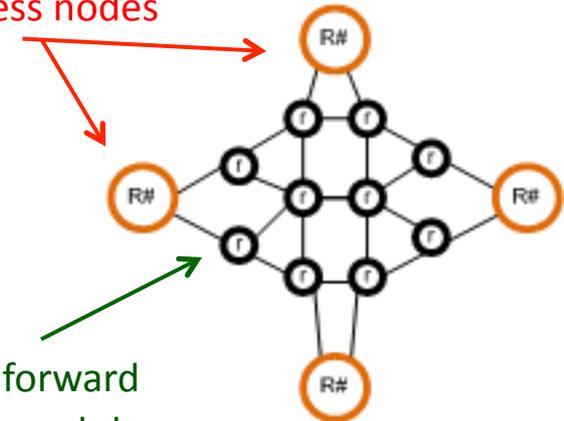


# Programming and SDN Interaction

- Automation of the network is essential for future operation
  - Current operational modes not scalable
- SDN (path programming within this document's context) is desired, with per-flow/service network treatment
- Minimize the number of elements where programming must occur, and simplify configuration required



Program on ingress nodes



Internal nodes forward and managed low state



# Questions?

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