Dynamic Path Sélection Based on Application
draft-aumuganainar-rtgwg-dps-00

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Outline

- Problem statement
- Solution overview
- DPS Architectural frame work
- Current implementation
- Future work

Problem Statement

"The network is up but are applications working?"

WAN availability

- **IP Routing addresses reachability comprehensively, but few issues remain**
  - **Brownouts or packet loss**
  - **Congestion, resulting in queuing delay and jitter**

WAN performance

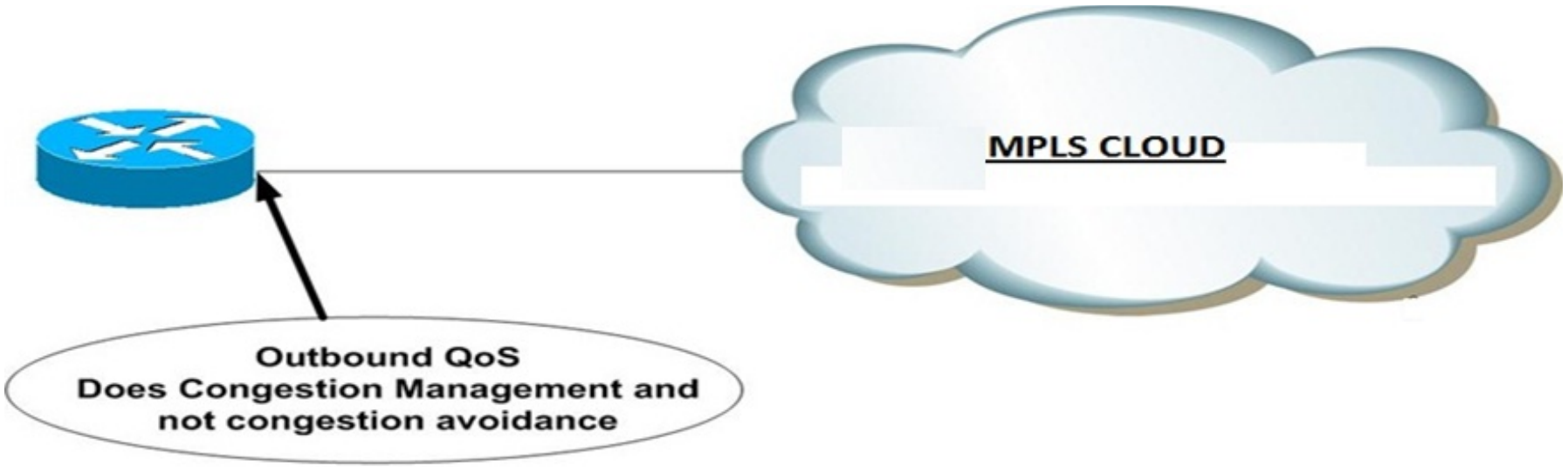
- **Generic IP Routing is best path (not performance) based**
- **This results in over/under utilized links**

$ Cost management

- **WAN circuits cost are very high and recurring.**
- **Half of the network resources that customer pays for, always remains unused .**

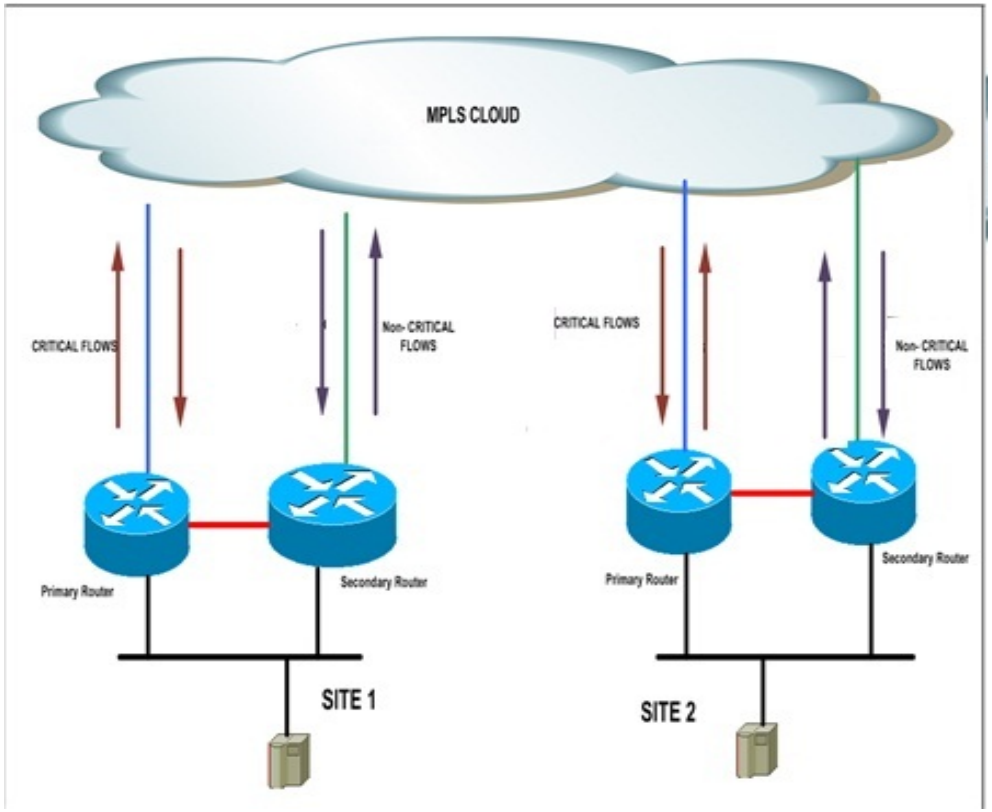
What is the problem with QOS?

It provides symptomatic Treatment . Does not eradicate the root cause (congestion caused by aggressive non-critical applications)

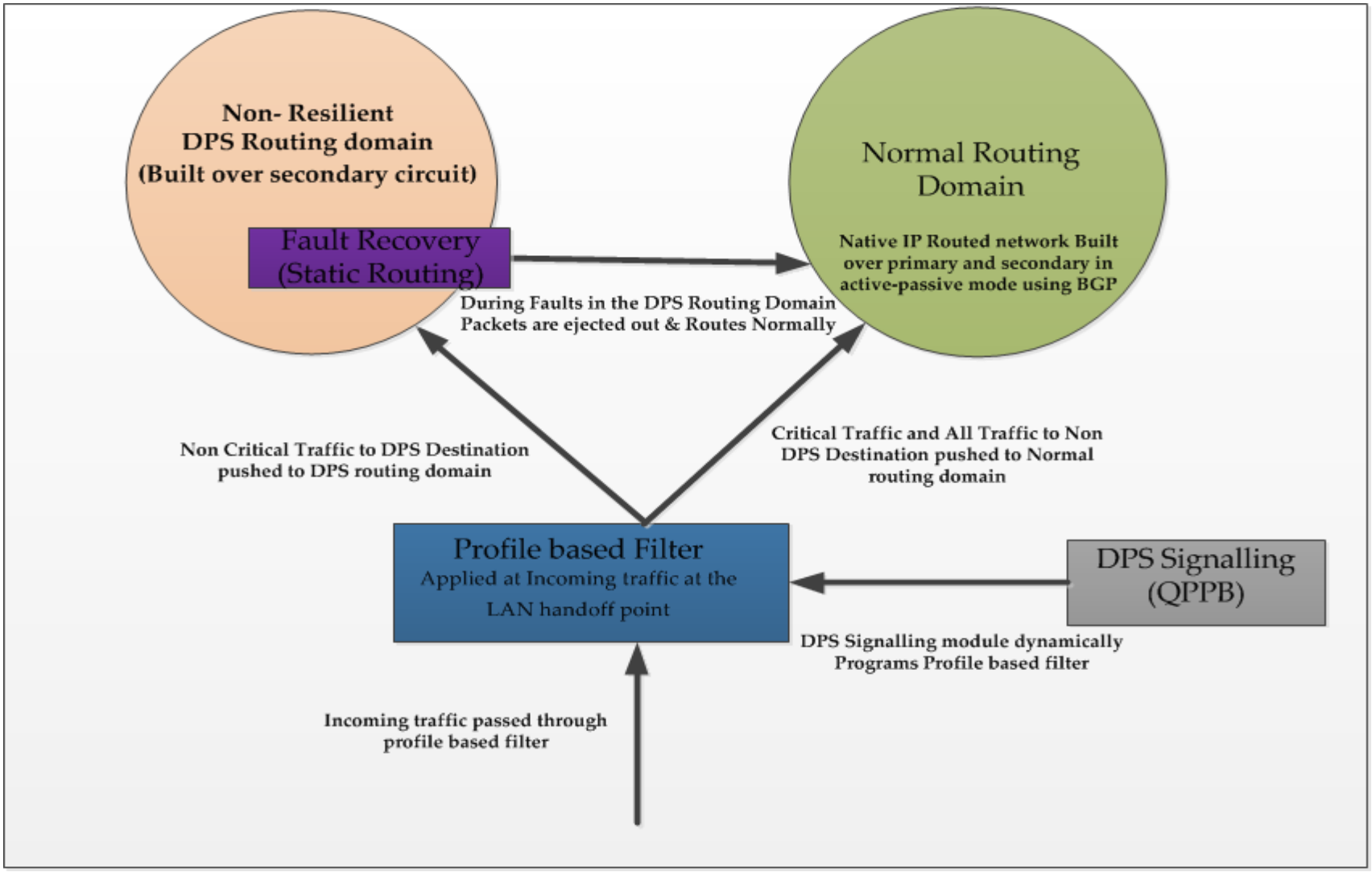


DPS Solution Overview

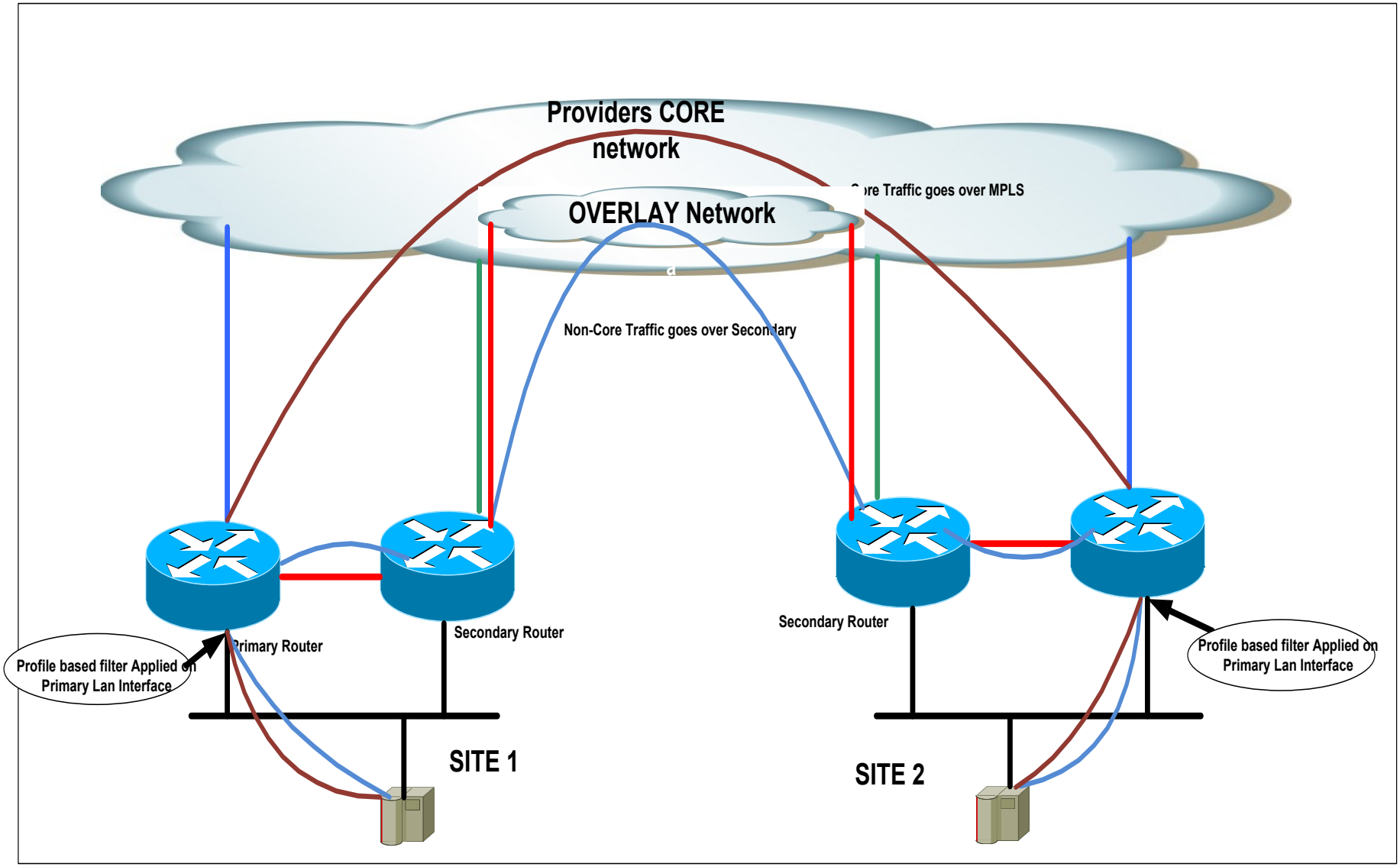
- Separate traffic as critical and non-critical based on application port numbers
- Ensure that the separated application flows over different path in the network
- Ensure that there is no asymmetric routing.



DPS Architectural frame work



End to End Packet Flow



Future Work

DPS frame work is very flexible. Individual components can be developed independently

Following areas of enhancements are currently being explored

Challenge 1:-

- **DPS** Signalling currently implemented via BGP (in the control plane)
- If signalling is done in the forwarding plane , we can forward the traffic based on Layer 3 to Layer 7 information. We can also react to dynamic network condition

Challenge 2:-

- Profile based filtering is done via PBR. Hence this comes with performance limitations
- A Light weight mechanism need to be developed to over come the performance limitation

Questions???