Dynamic Path Selection Based on Application

draft-arumuganainar-rtgwg-dps-requirements-00.txt

draft-arumuganainar-rtgwg-dps-use-cases-00.txt

Arun Arumuganainar

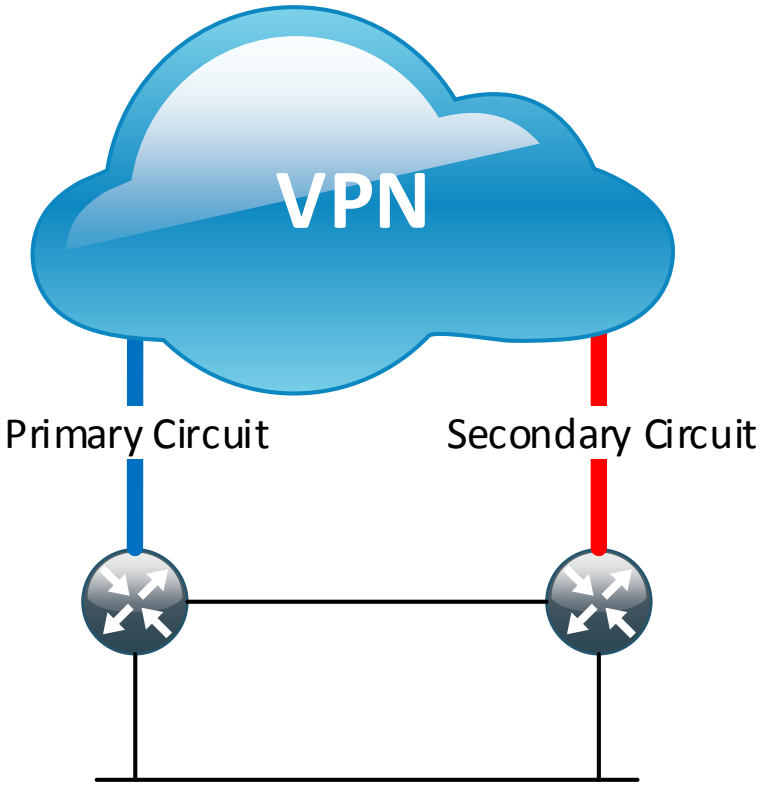
Outline

- Problem Statement
- DPS Architectural Frame work
- DPS Use Cases
- Q&A

PROBLEM STATEMENT

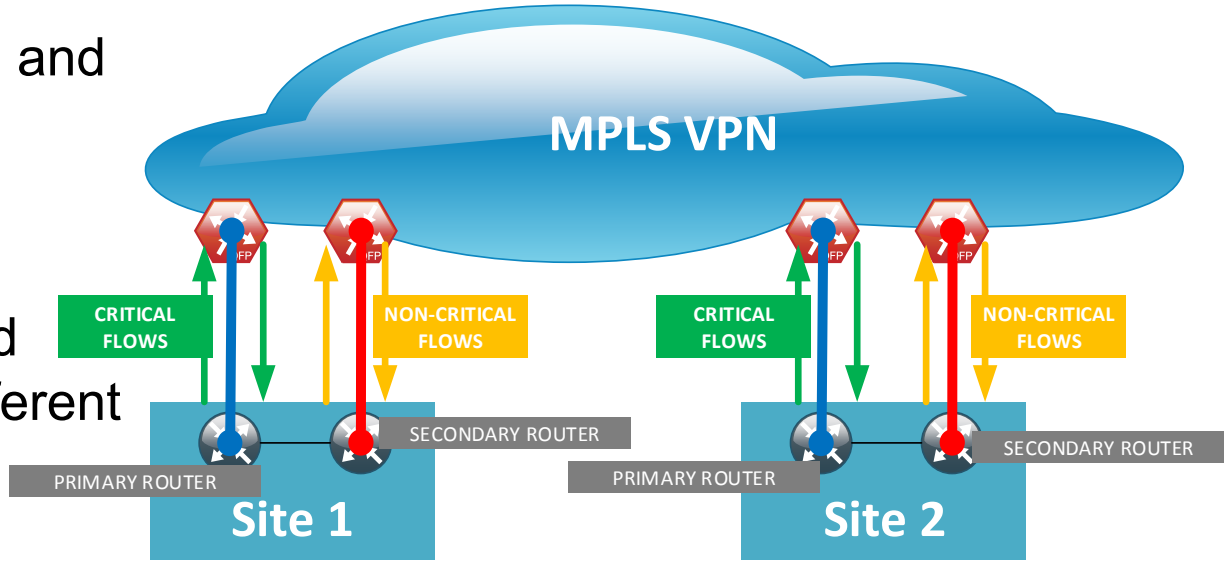
DPS Business Case

- Last mile connectivity is the biggest cost in a network
- Secondary circuit is hardly used (traffic flows through it for less than 1% of time)
- Network managers are forced to manage congestion on the primary circuit while the secondary circuit is idle



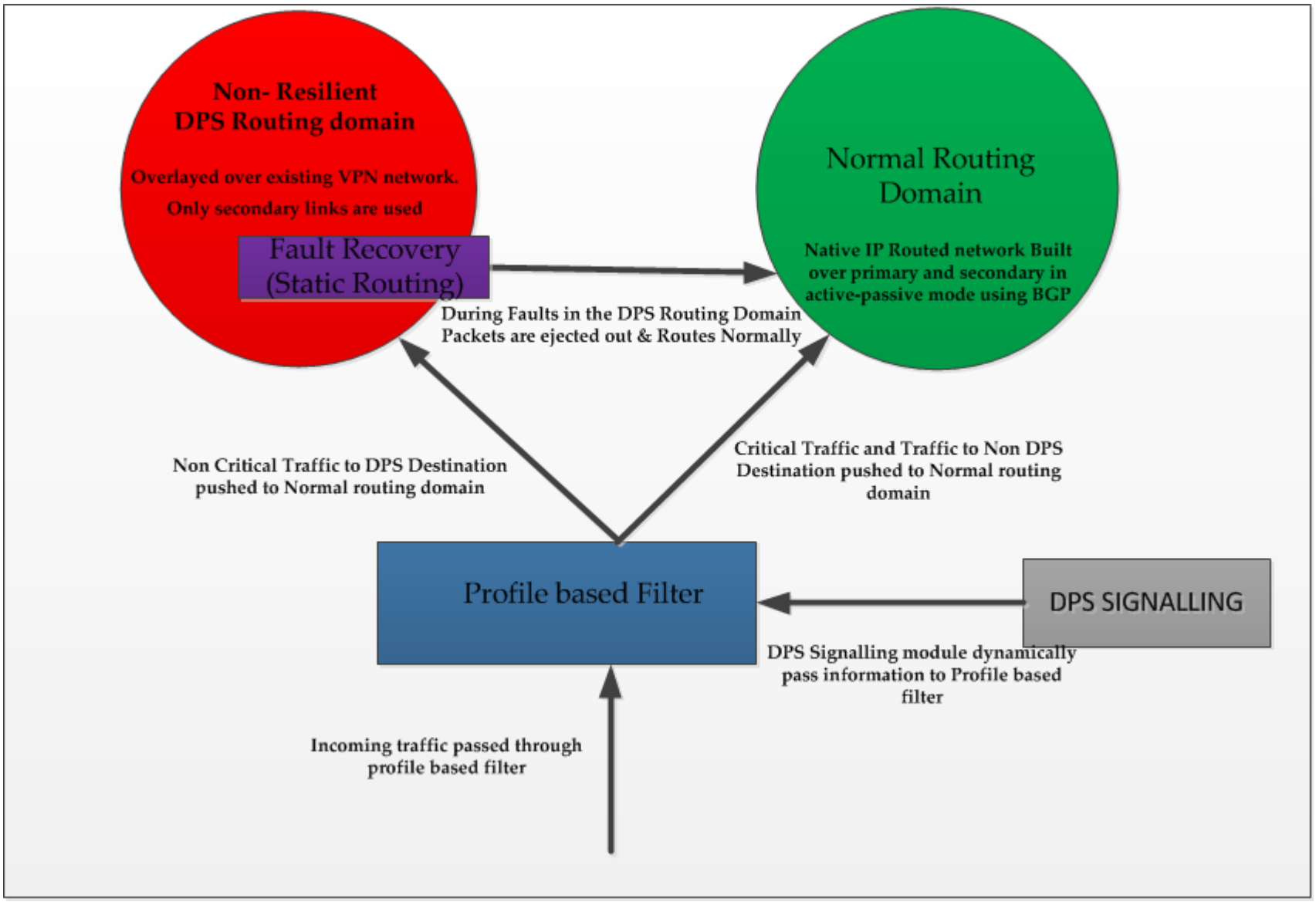
DPS Core Objectives

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



DPS Frame Work

DPS Architectural frame work



DPS USE Cases

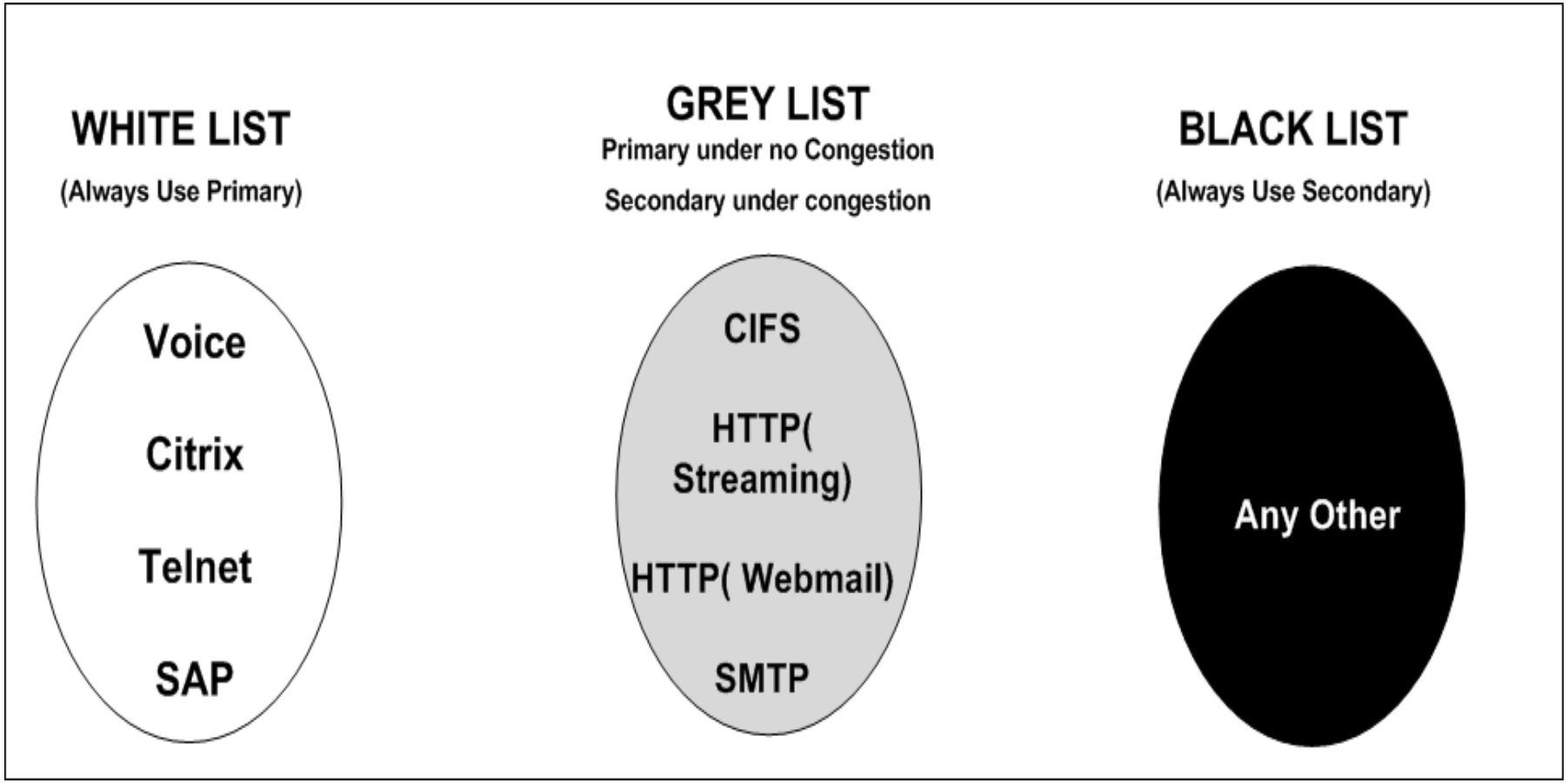
DPS Use Cases

Classical DPS:-

- **Static Definition of Critical and Offload traffic**
- **Critical traffic – Flows over primary**
- **Non-Critical Traffic – Flows over Secondary**

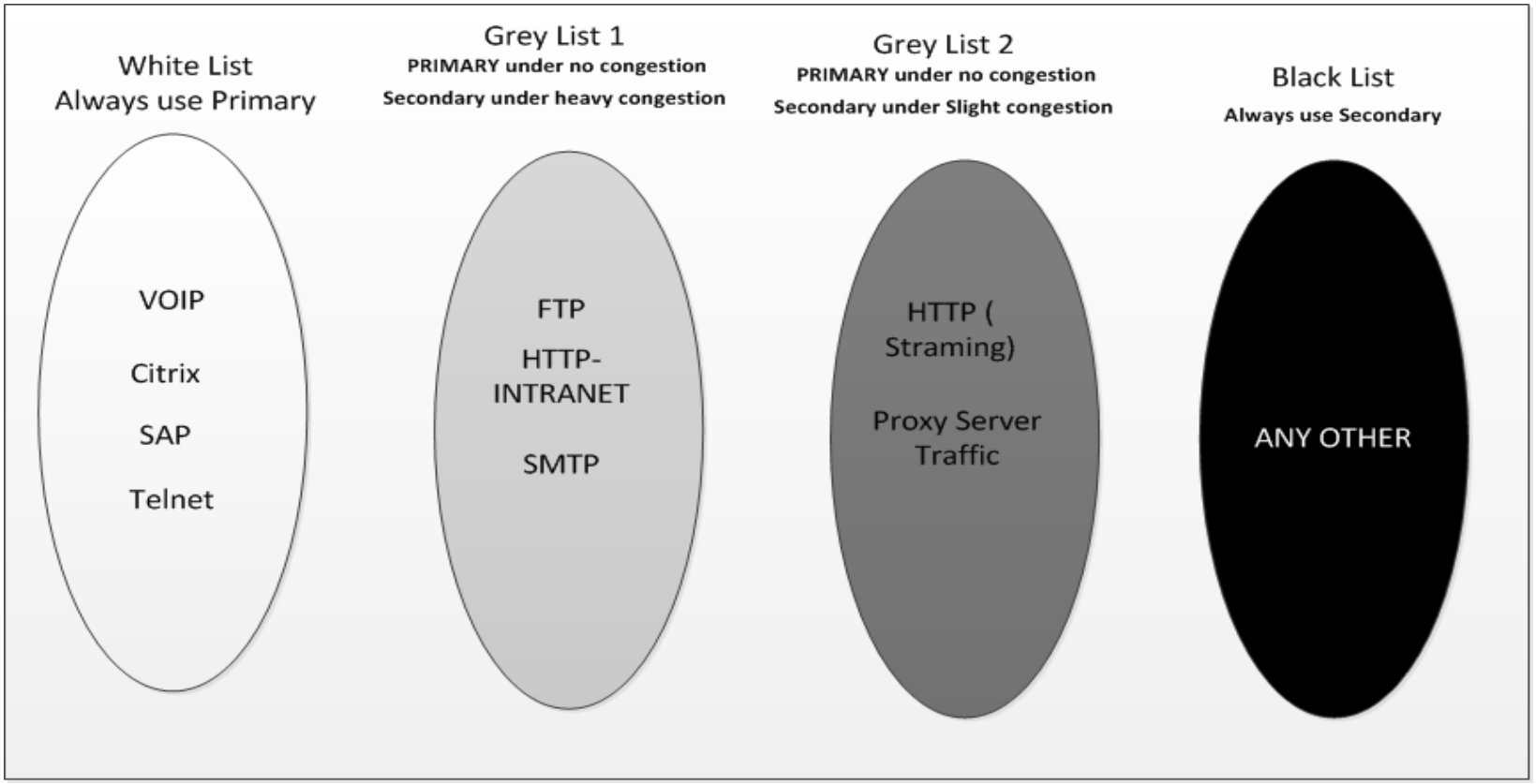
DPS Use Cases

Adaptive DPS

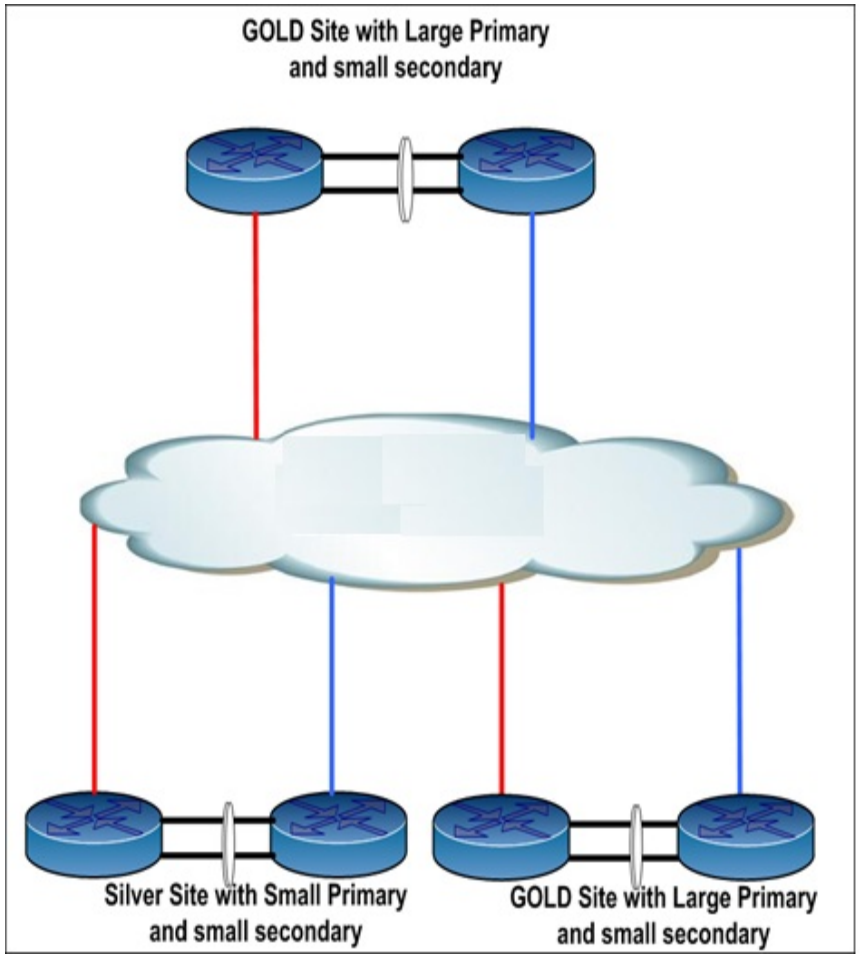


DPS Use Cases

Adaptive DPS – Advanced Scenarios



Hierarchical DPS



I have got some sites with large primary and small secondary circuits. For example 10 Mbps primary and 2 Mbps secondary. I could see that there is heavy congestion on my secondary circuit while the primary is showing only 20% utilisation.

Question: How can I optimize the traffic flow?
Answer:- Hierarchical DPS should be turned on.

Gold Site to Gold site :

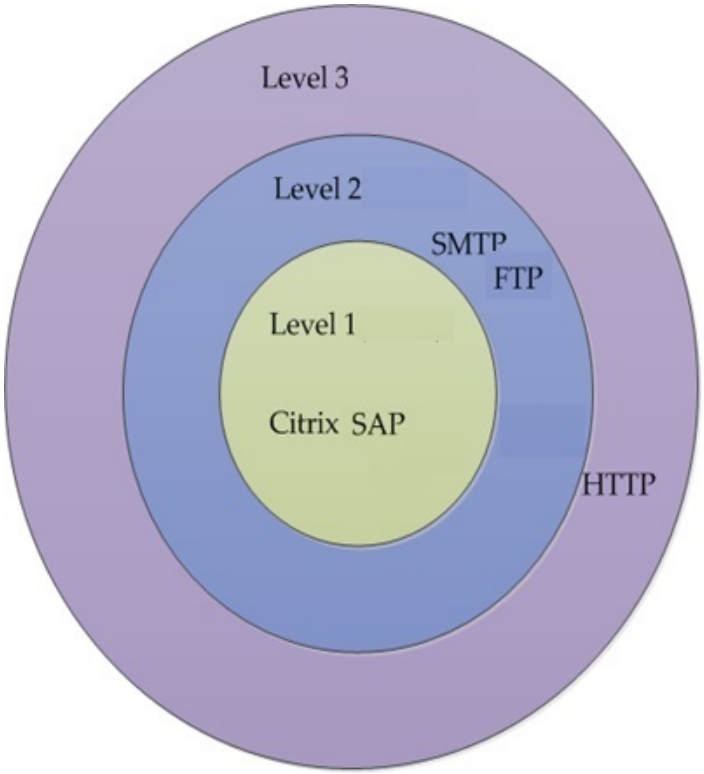
Critical Application: Citrix, SAP, SMTP
Non-Critical Application: HTTP, FTP

Gold site to Silver Site :

Critical Application: Citrix, SAP
Non Critical Application: HTTP, SMTP, FTP

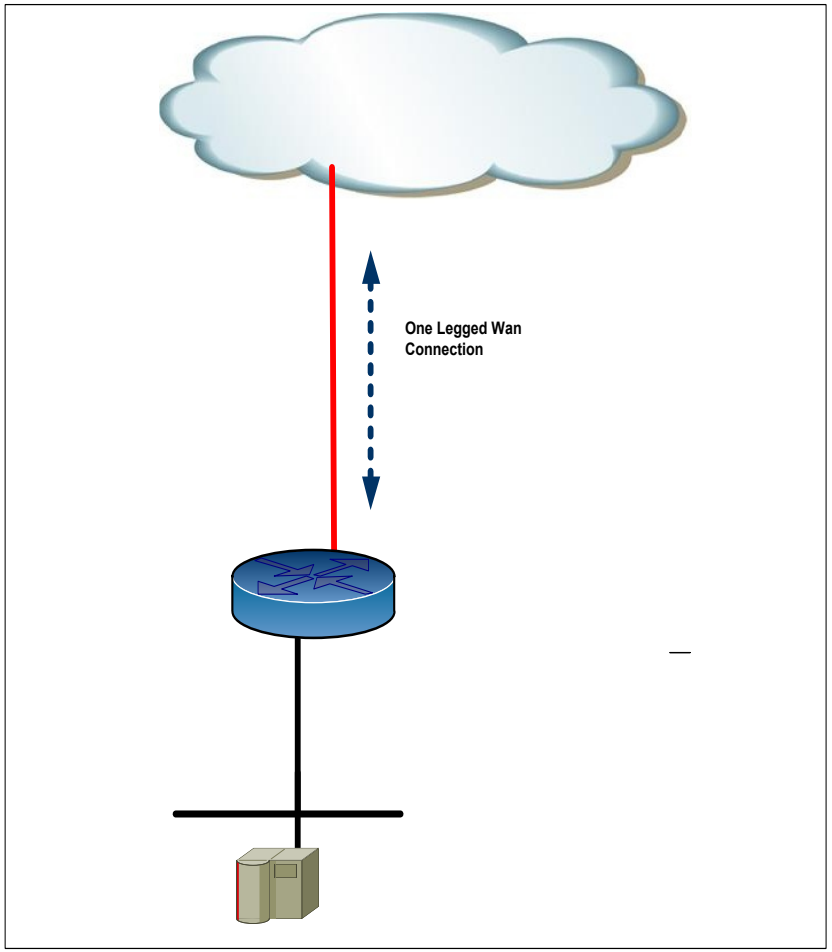
DPS Use Cases

- Hierarchical DPS



- **Level1 site to Level1 site → Citrix , SAP**
- **Level1 site to Level2 site → Citrix , SAP**
- **Level2 site to Level2 site → Citrix , SAP, SMTP, FTP**
- **Level2 site to Level3 site → Citrix , SAP, SMTP, FTP**
- **Level3 site to Level1 site → Citrix , SAP**
- **Level3 site to Level3 site → Citrix , SAP, SMTP, FTP, HTTP**

One Way DPS



Critical Design Choice

DC site has got 1 large bandwidth pipe terminated on to a single router. There are large volumes of offload applications so there is no scope to turn on DPS as there is only single circuit. However there are significant volumes of off-loaded applications arriving from remote site. How should I configure the DPS???

DPS should be turned on for DC site. Single router DPS Model will be enabled for this site.

PACKET FLOW Summary for Offload Application

DC to DC Site ➔ Normal Path- Via Primary Link
DC to Remote Site ➔ DPS Path - Via Primary (over the DPS Overlay network)

Questions???