

Dell / BigSwitch Spine and Leaf Network Deployment Document

Design Goals | Physical Layer 1 | Logical Layer 2 and 3

Design Goals

Spine and Leaf Switch Fabric (BigSwitch)

- Dedicated VPC/tenant for production with traditional web, application and database segmentation
- Enable a equal cost multipath horizontally scalable switch fabric (3 x spine, 8 leafs, 4 leaf groups)
- 10Gbps edge ports in 20Gbps LACP bundle
- BigSwitch distributed layer 3
- BigSwitch hitless/in-service network services upgrades
- BigSwitch hitless redundancy for network services and edge ports via multi chassis link aggregation
- Northbound API to the fabric for configuration and monitoring
- Visibility via telemetry from the fabric (e.g., flow data, packet capture)
- Stateful filtering between web and application segments
- Stateless filtering between application and database segments

Next Generation Firewall (Palo Alto)

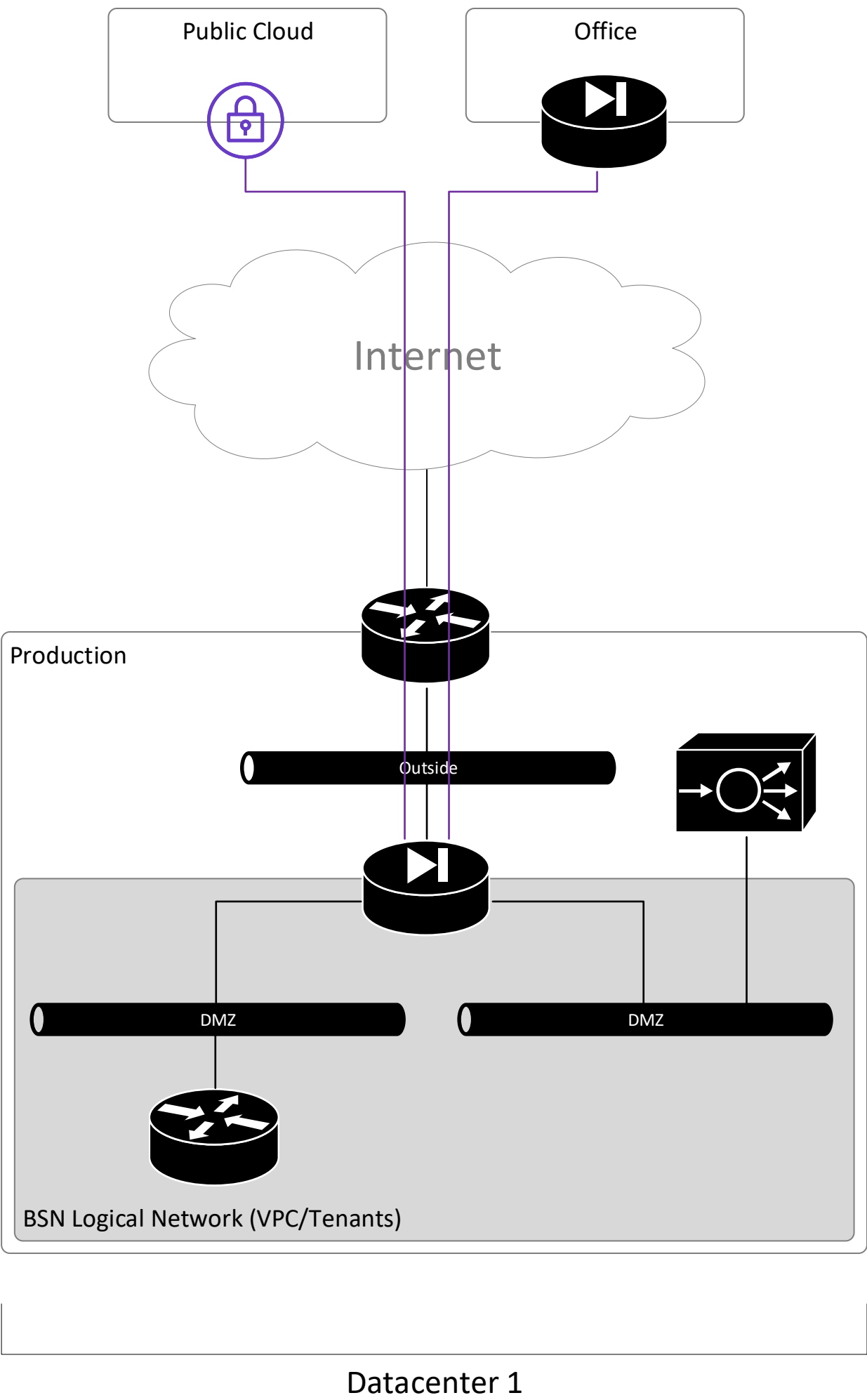
- Palo Alto Networks firewall for edge security
- 1Gbps throughput

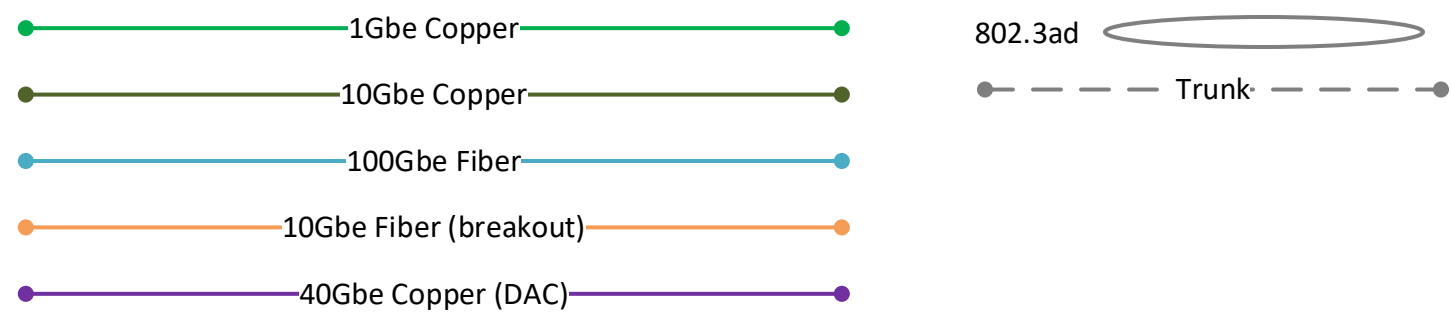
Hardware Refresh of Load Balancers (F5)

- F5 ADCs in one-arm topology
- 1Gbps throughput

Compute Capacity

- 3 spines and 16 x leaf groups with 768 20Gbps LAG host ports (server density) approximately 15,360 virtual machines capacity





Edge Routing and Switching

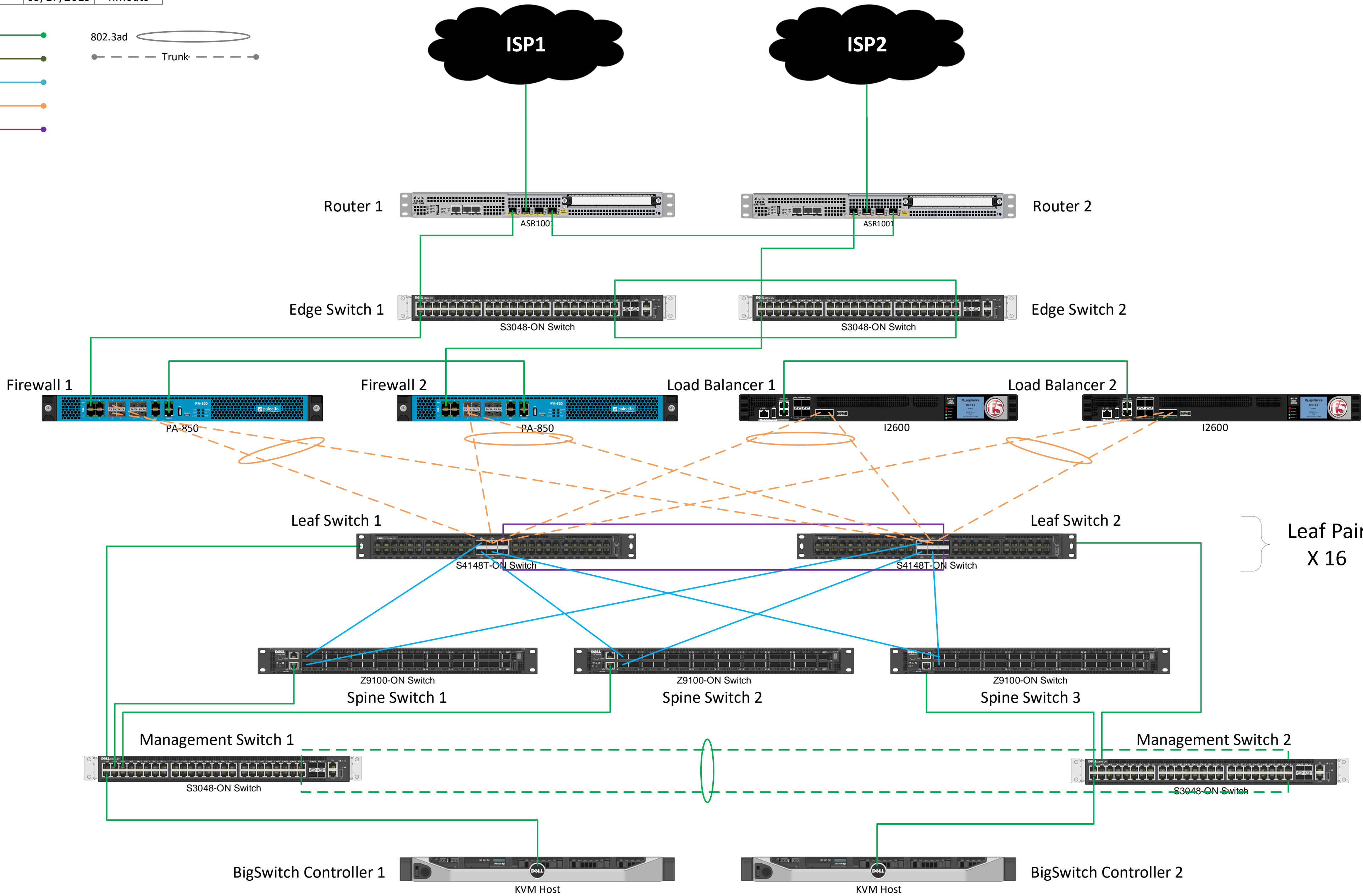
Network Services

Leaf Switches

Spine Switches

Management Switches

Controllers



Network Parameters

VPC/Tenants

- Core
- DMZ
- Production
- System

Networks

- A.B.C.0/X (public network)
- 10.0.0.0/16 (private network)

