CCNA 200-301, Volume 2

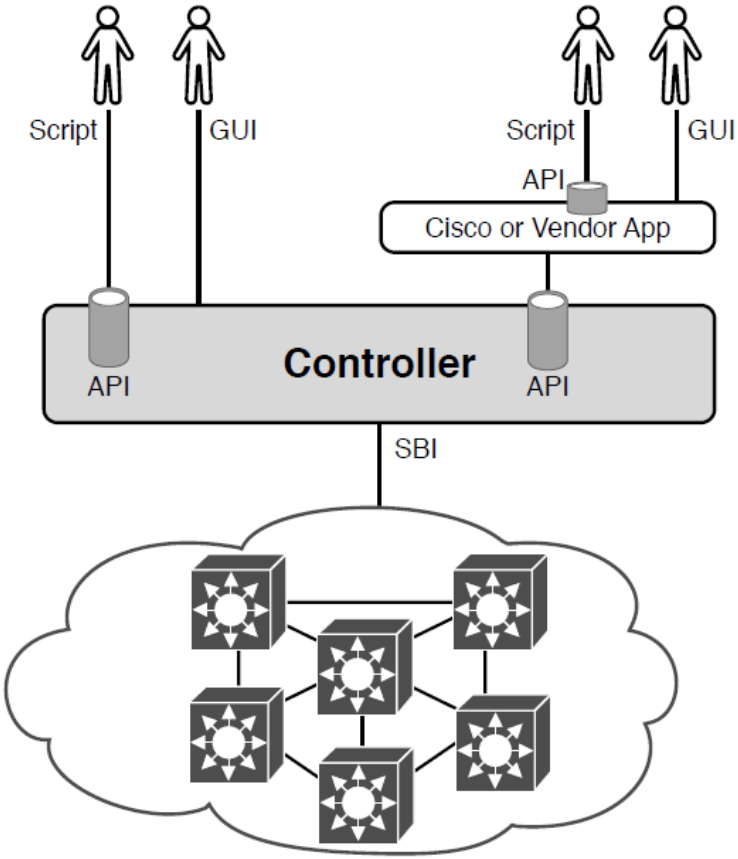
Chapter 17

Cisco Software-Defined Access (SDA)

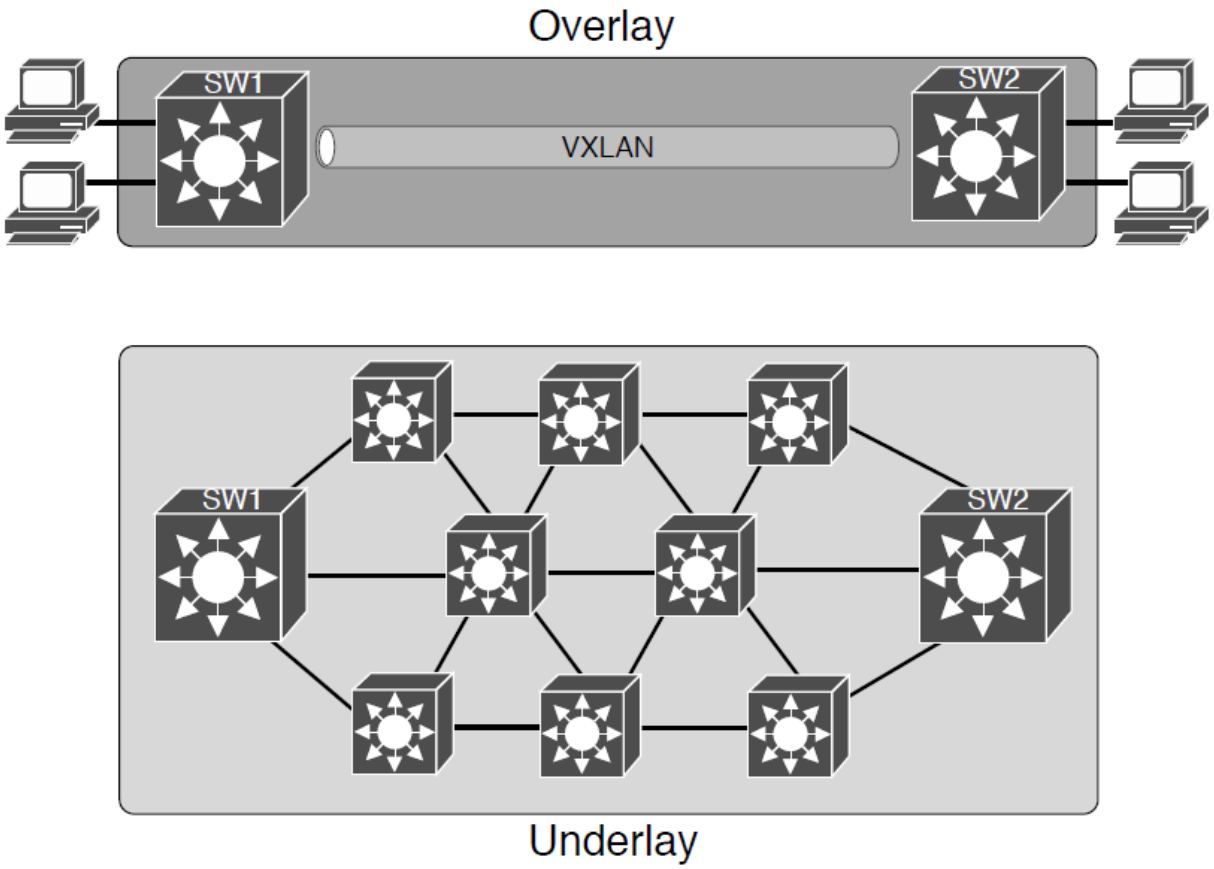
Objectives

- Explain the role and function of network components
  - Controllers (Cisco DNA Center and WLC)
- Explain how automation impacts network management
- Compare traditional networks with controller-based networking
- Describe controller-based and software defined architectures (overlay, underlay, and fabric)
  - Separation of control plane and data plane
  - Northbound and southbound APIs
- Compare traditional campus device management with Cisco DNA Center enabled device management

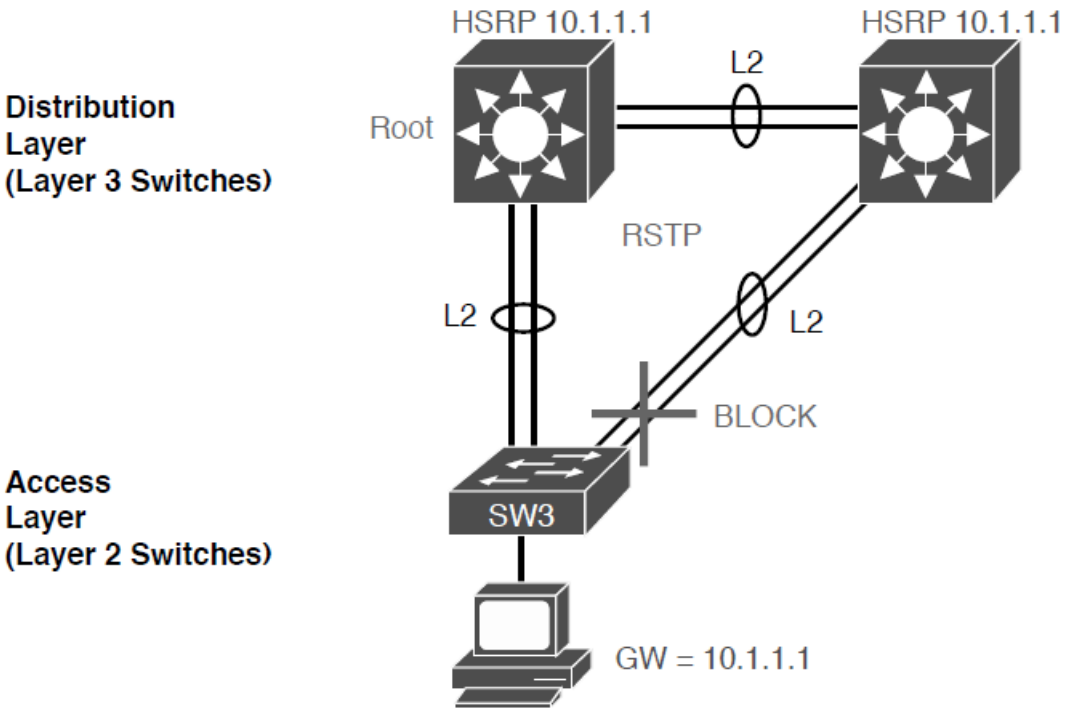
SDA Architectural Model with DNA Center



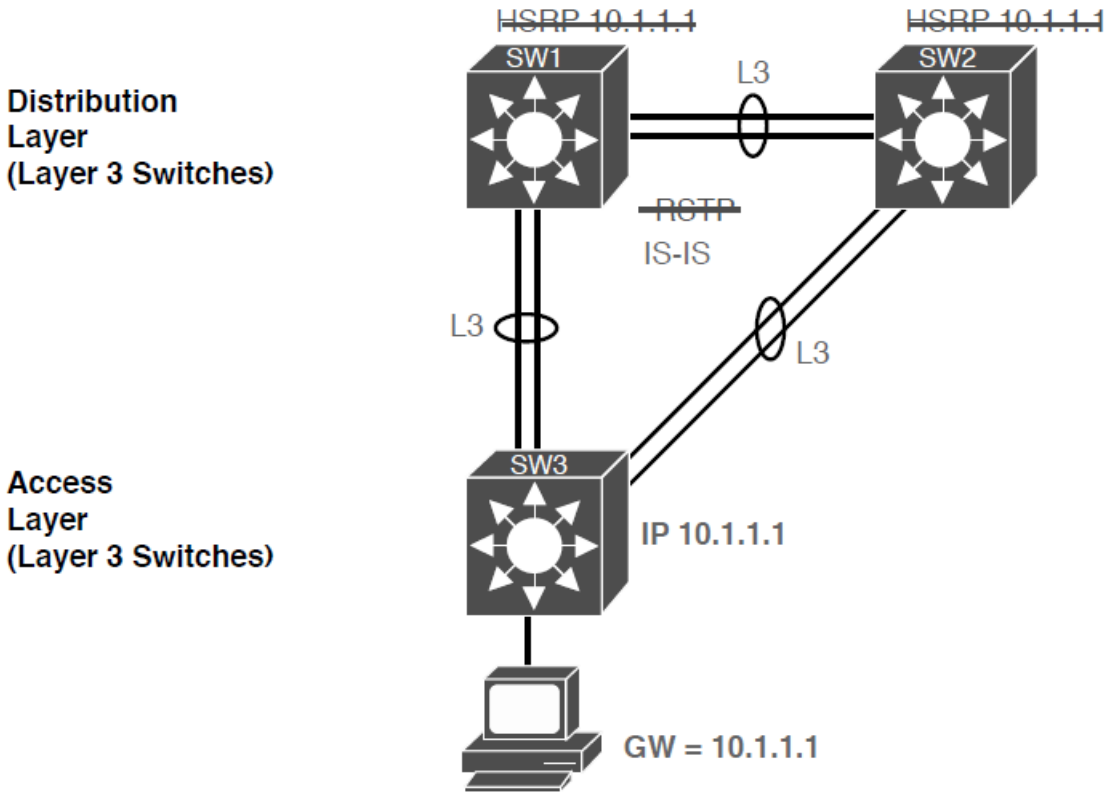
Fabric, Underlay, and Overlay Concepts



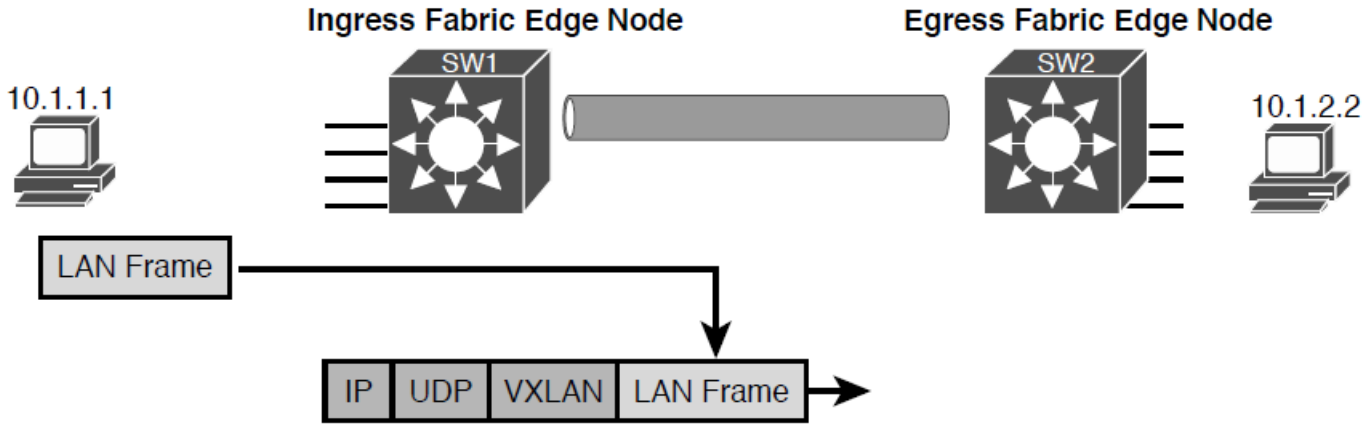
Traditional Access Layer Design: Three Switches in STP Triangle



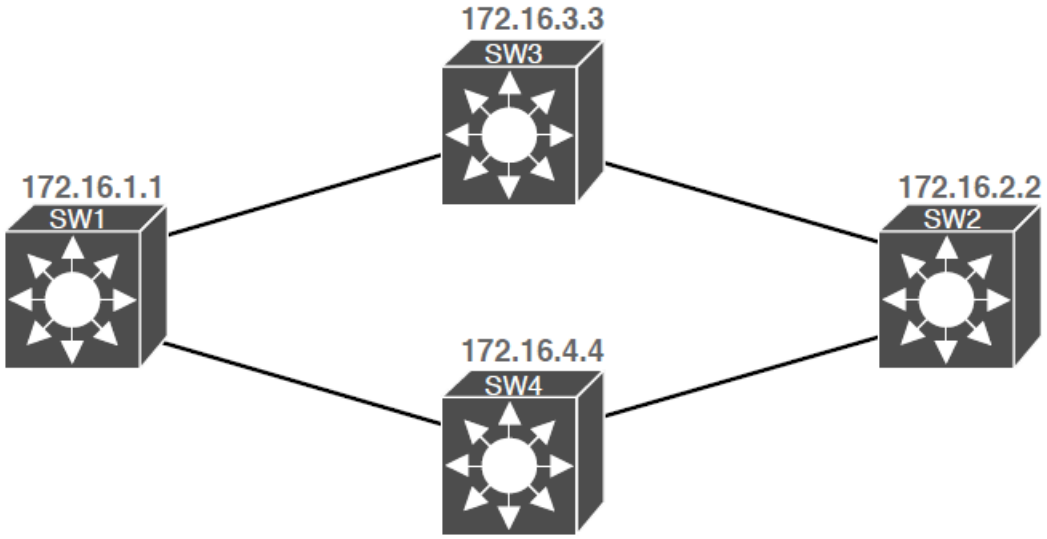
SDA Fabric Layer 3 Access Benefits



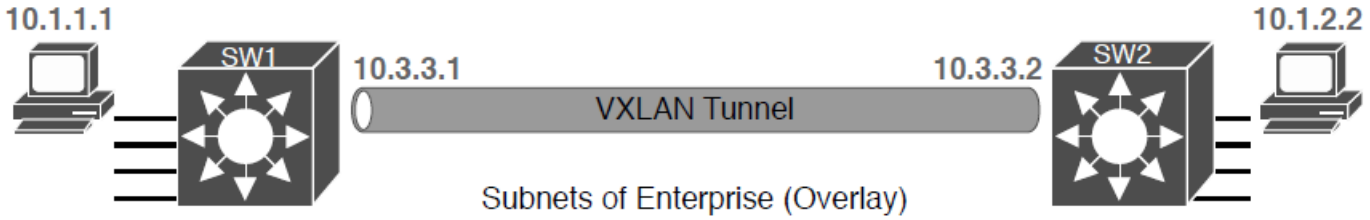
Fundamentals of VXLAN Encapsulation in SDA



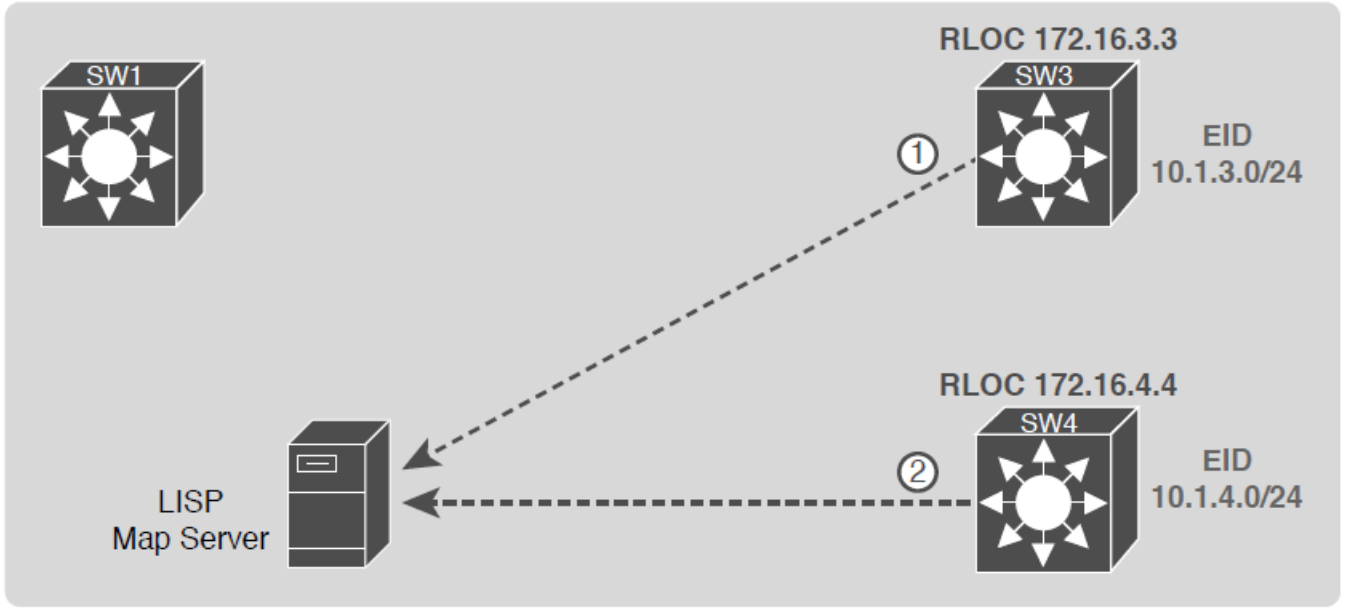
SDA Underlay Using 172.16.0.0



VXLAN Tunnel and Endpoints with IPv4 Addresses in the Same IPv4 Space

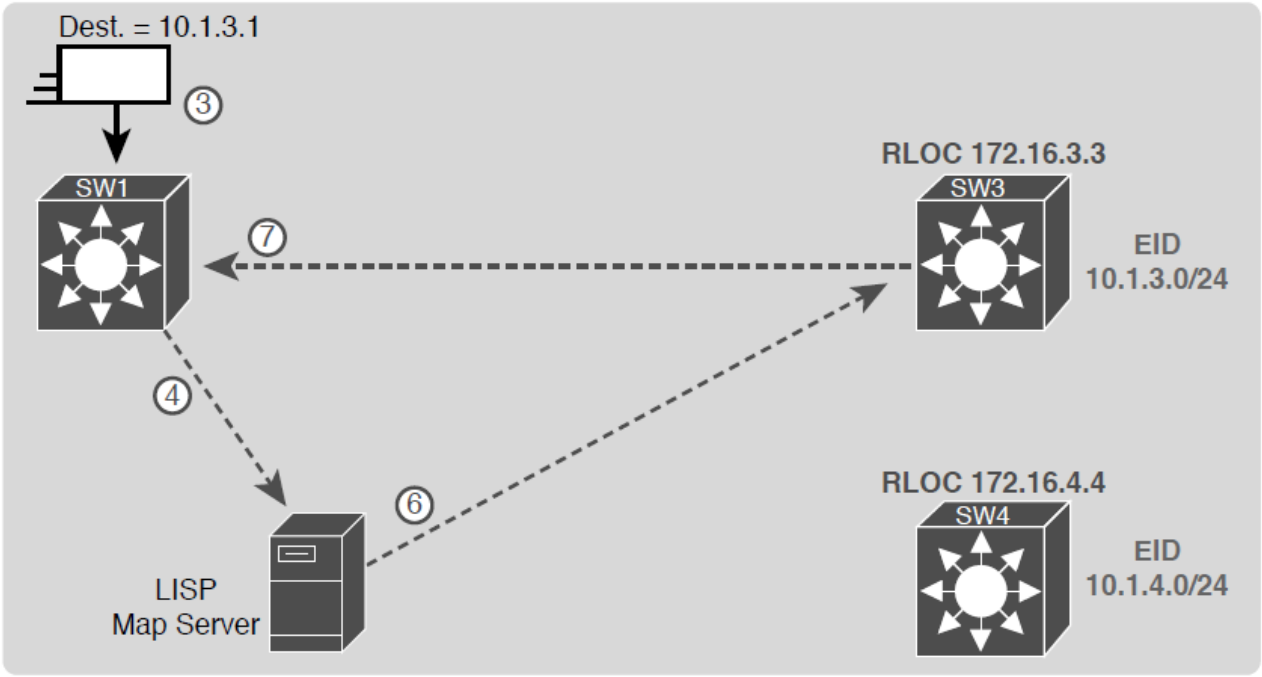


Edge Nodes Register IPv4 Prefixes (Endpoint IDs) with LISP Map Server



	EID	RLOC
1	10.1.3.0/24	172.16.3.3
2	10.1.4.0/24	172.16.4.4

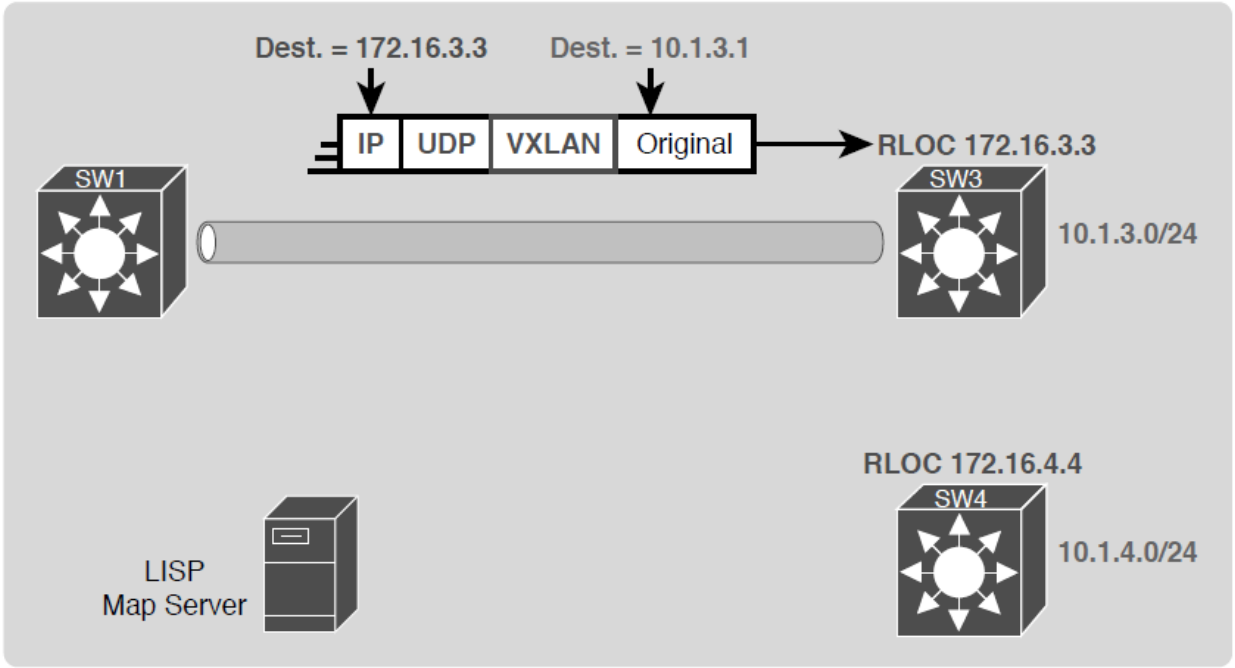
Ingress Tunnel Router SW1 Discovers Egress Tunnel Router SW3 Using LISP



⑤

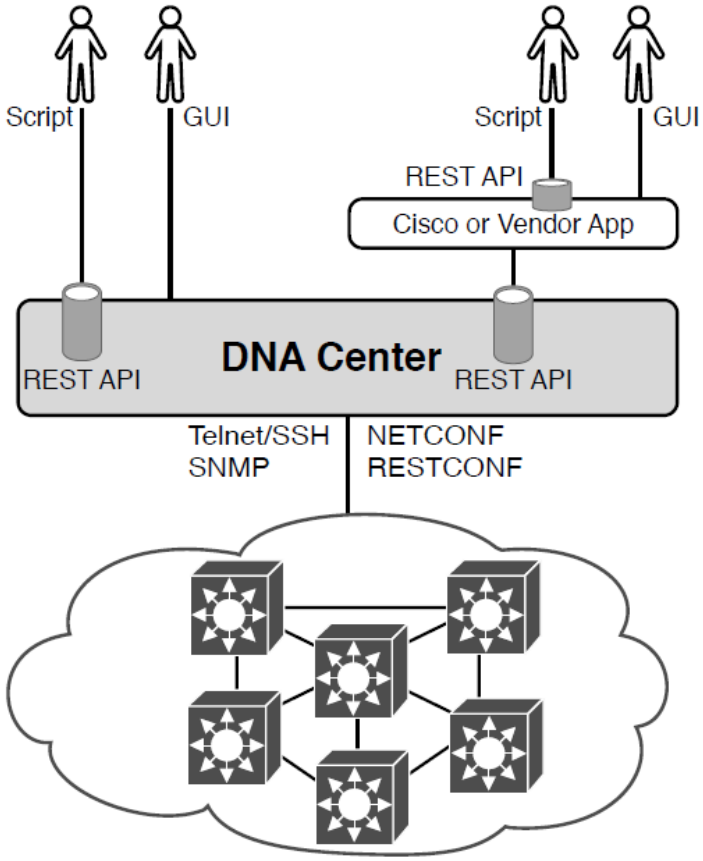
EID	RLOC
10.1.3.0/24	172.16.3.3
10.1.4.0/24	172.16.4.4

Ingress Tunnel Router (ITR) SW1 Forwards Based on LISP Mapping to SW3

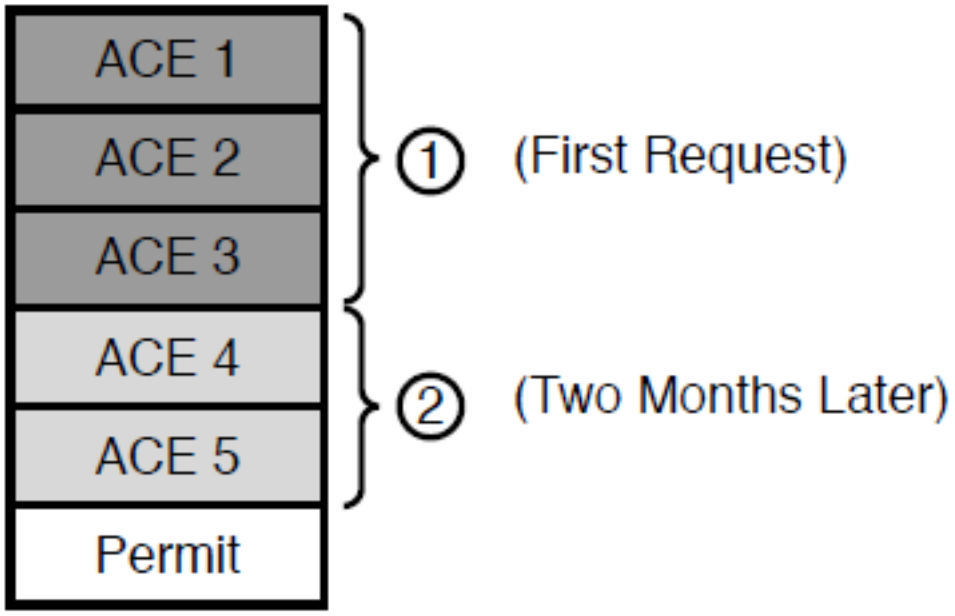


	EID	RLOC
①	10.1.3.0/24	172.16.3.3
②	10.1.4.0/24	172.16.4.4

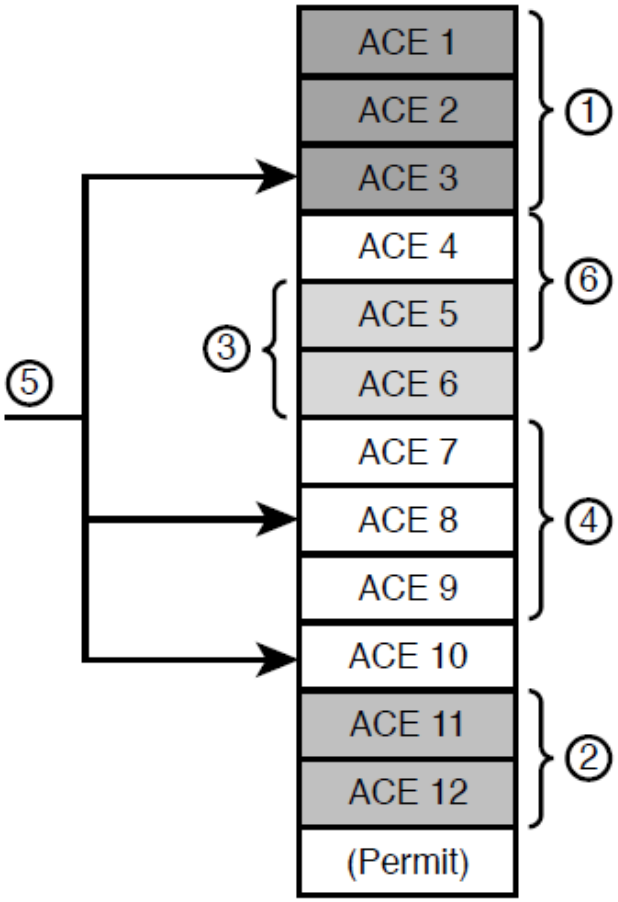
Cisco DNA Center with Northbound and Southbound Interfaces



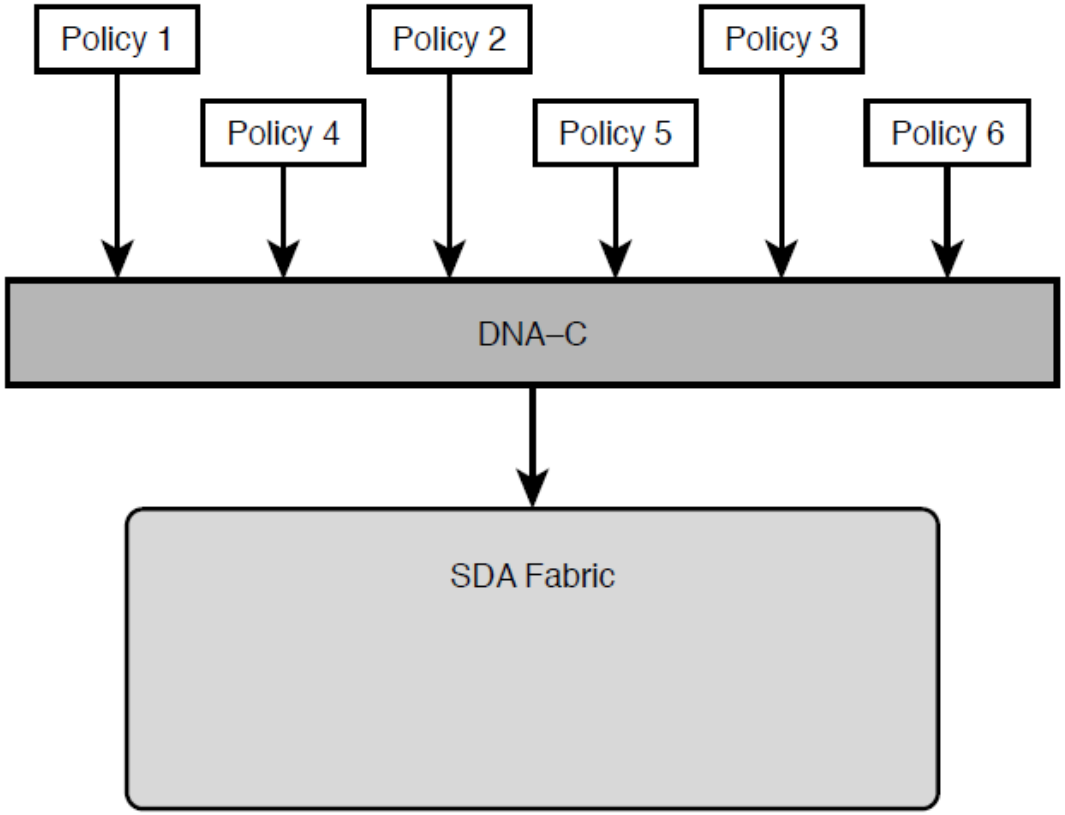
Lines (ACEs) in an ACL after Two Changes



Lines (ACEs) in an ACL after Six Changes



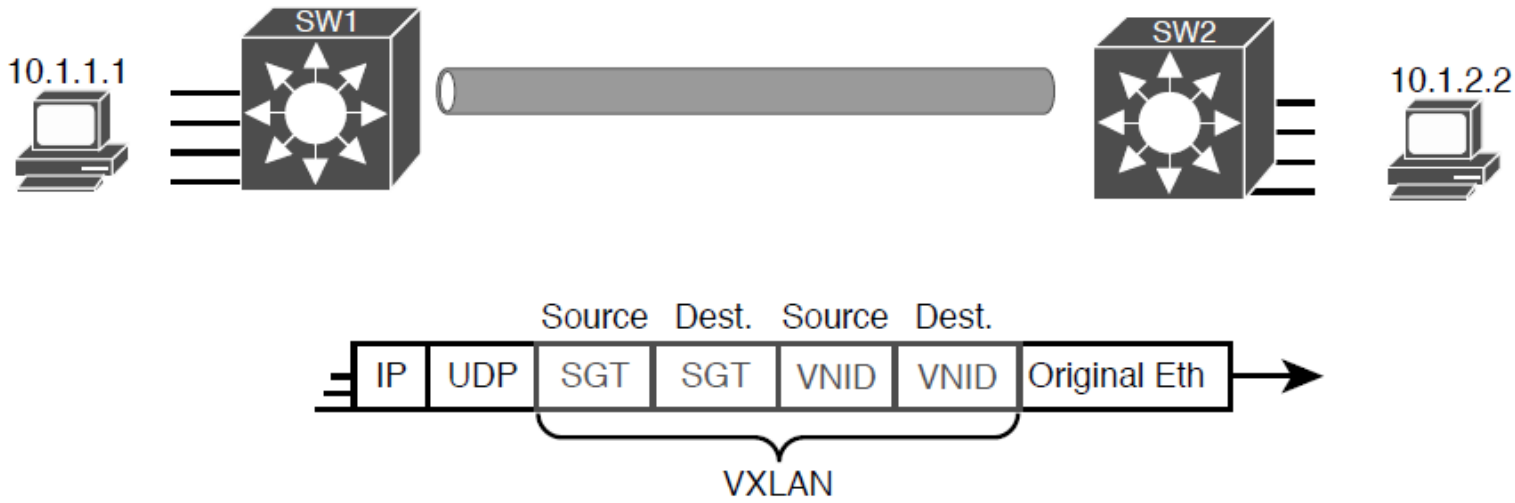
DNA-C IP Security Policies (Northbound) to Simplify Operations



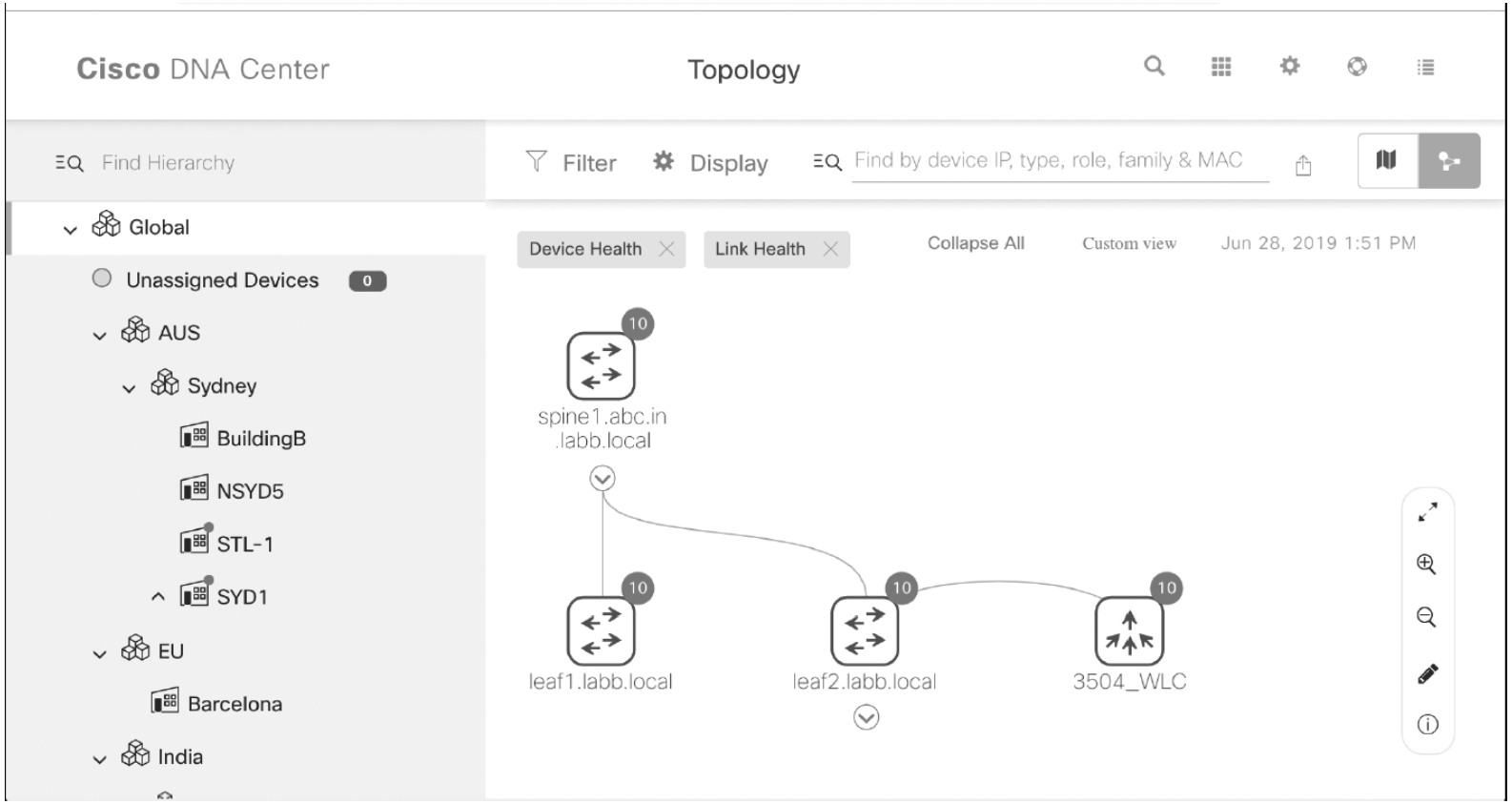
Access Table for SDA Scalable Group Access

Source \ Dest.	Employee	Internet	Partner	Guest
Employee	N/A	Permit	Permit	Deny
Internet	Permit	N/A	Permit	Permit
Partner	Permit	Permit	N/A	Deny
Guest	Deny	Permit	Deny	N/A

VXLAN Header with Source and Destination SGTs and VNIDs Revealed



DNA Center Topology Map



Hover and Click Details About One Cisco 9300 Switch from DNA Center