



HP ATP - FlexNetwork Solutions V3

Official Certification Study Guide
(Exams HP0-Y52 and HP2-Z37)

HPE Partner Ready Certification and Learning

Master all HP0-Y52 and HP2-Z37 exam topics
Assess your knowledge with chapter quizzes
Describe key networking concepts and objectives



Hewlett Packard
Enterprise

**HP Accredited
Technical Professional (ATP)
FlexNetwork Fundamentals
(HP0-Y52) exam**

**to design,
implement and manage the
modern network, based on the
HP FlexNetwork Architecture**

**converged
infrastructure strategy**

HP Certification Levels

Professional
Program



Master ASE
Master Accredited Solutions Expert
HP ExpertONE

Master



ASE
Accredited Solutions Expert
HP ExpertONE

Expert



ATP
Accredited Technical Professional
HP ExpertONE

Professional



ATA
Accredited Technical Associate
HP ExpertONE

Associate

Associate
Program

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ATP. Lecture 1



Introduction to HP Networking

Objectives



Introduction to HP Networking

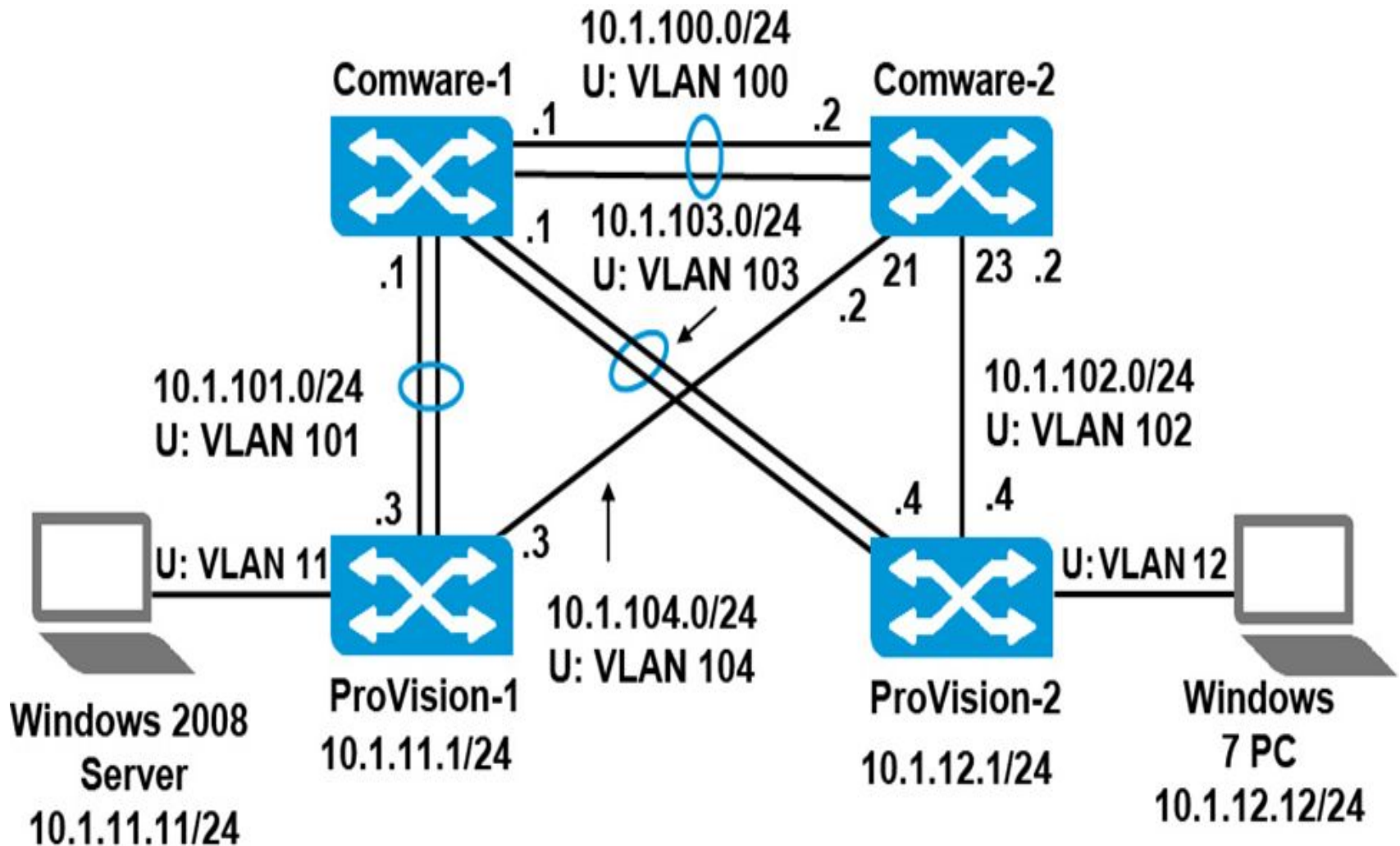
Concepts covered in this study guide



HP ProVision and Comware switches.



Example configurations



HP Comware vs ProCurve

ProCurve
Networking by HP

Through the
2000s, HP developed and
sold their own software,
hardware and custom
ASICs

ProCurve
Networking by HP

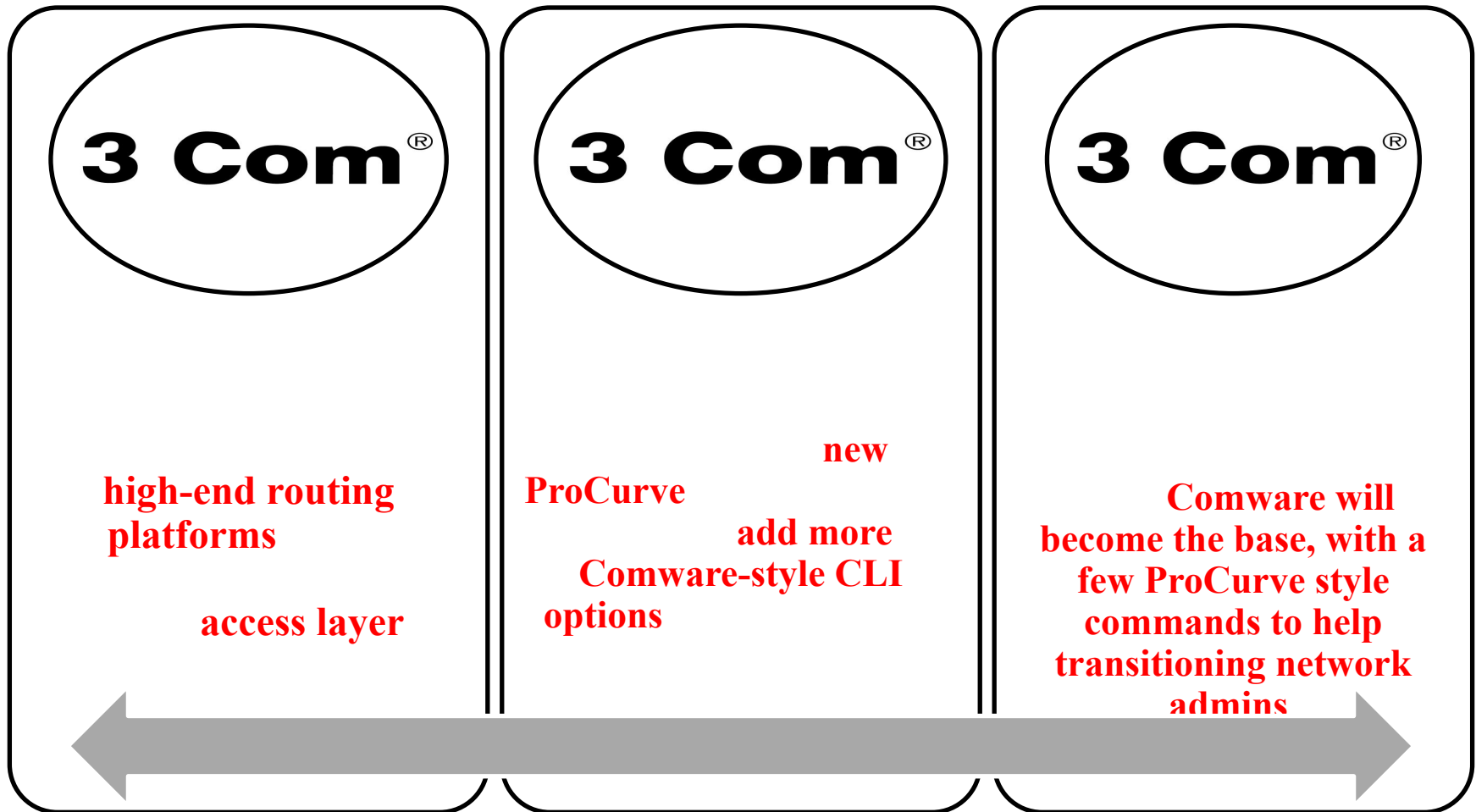
HP acquired 3Com in
2009

ProCurve
Networking by HP

One source tree,
with multiple images



HP Comware vs ProCurve



HPE strategy of developing network technology

- **Energy Efficient Ethernet;**
- **architecture CLOS;**
- **Intelligent Resilient Framework;**
- **Multitenant Device Context;**
- **Ethernet Virtual Interconnect;**
- **Software Defined Networking;**
- **network Function Virtualization;**
- **Smart Rate, 802.11ac, etc.**

It can be used to create network infrastructure of any level

HP FlexNetwork architecture overview

The HP FlexNetwork Architecture

**FlexFabric, FlexCampus, FlexBranch, and
FlexManagement.**

HP FlexNetwork architecture overview

FlexFabric

Converges and secures data center network, compute, and storage in the physical and virtual worlds

FlexCampus

Converges wired and wireless networks to deliver secure identity-based access

FlexBranch

Converges network functionality, security and services for simplicity

FlexFabric

FlexCampus

FlexBranch

FlexManagement

Converges Network Management and Orchestration

HP FlexNetwork architecture benefits

HP FlexFabric

HP FlexFabric architecture overview

HP FlexFabric

data center

**connect servers to a virtualized,
high-performance, low-latency network**

HP Data Center Access Switches

Core



12500E Switch Series
Clos architecture



12900 Switch Series
Clos architecture



DCN/VCN/NSX

Aggregation



11900 Switch Series



7900 Switch Series



5900CP Switch Series
top-of-rack (ToR)

WAN



HSR6800 Router Series



VSR
Router Series

HP BladeSystems Blade Switches



6125
Blade Switch Series



Virtual Connect

Access



5930 Switch Series



5920 Switch Series



5830 Switch Series



5700 Switch Series



5900v Virtual
Switch Series

Security



TP Core Controller, vController - 55100N IPS, Security Subscription Services

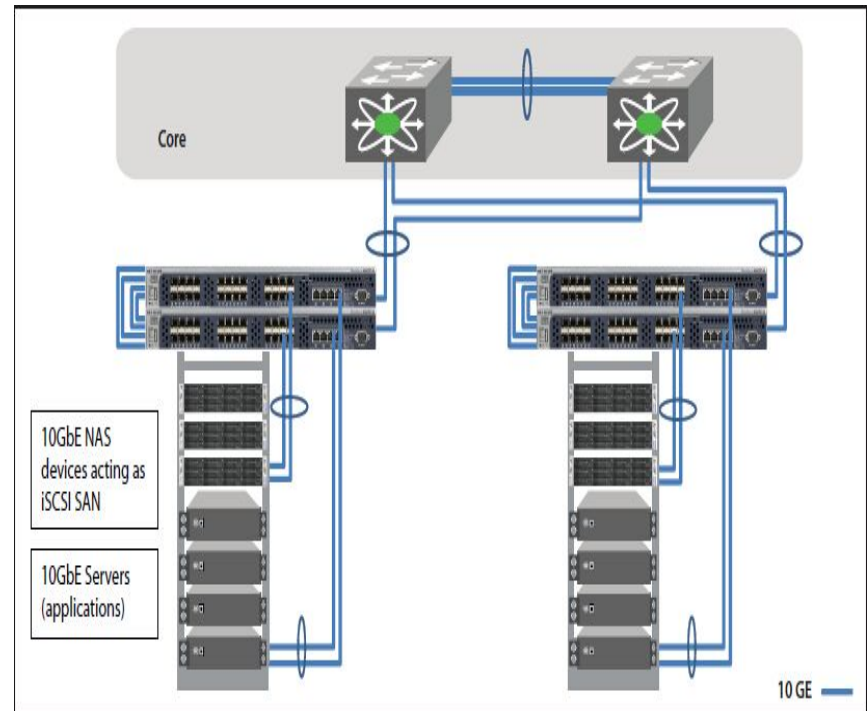
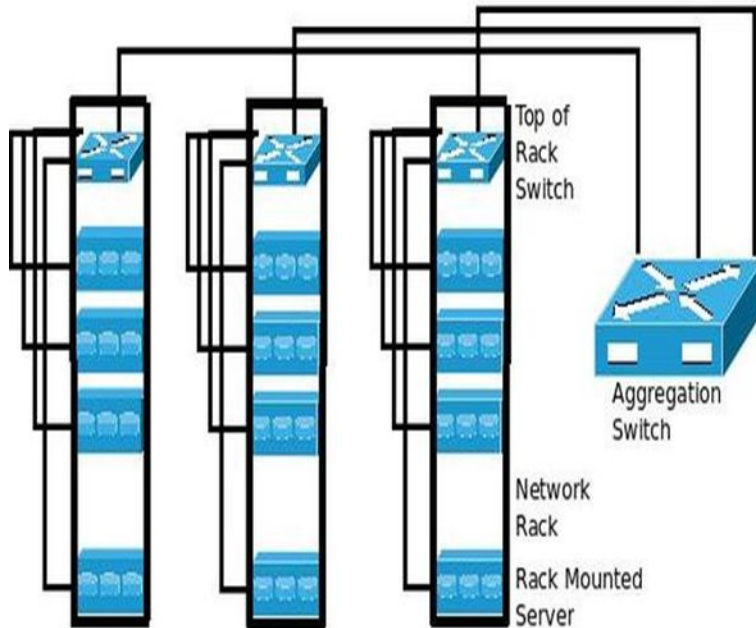
Management



IMC Service Orchestration

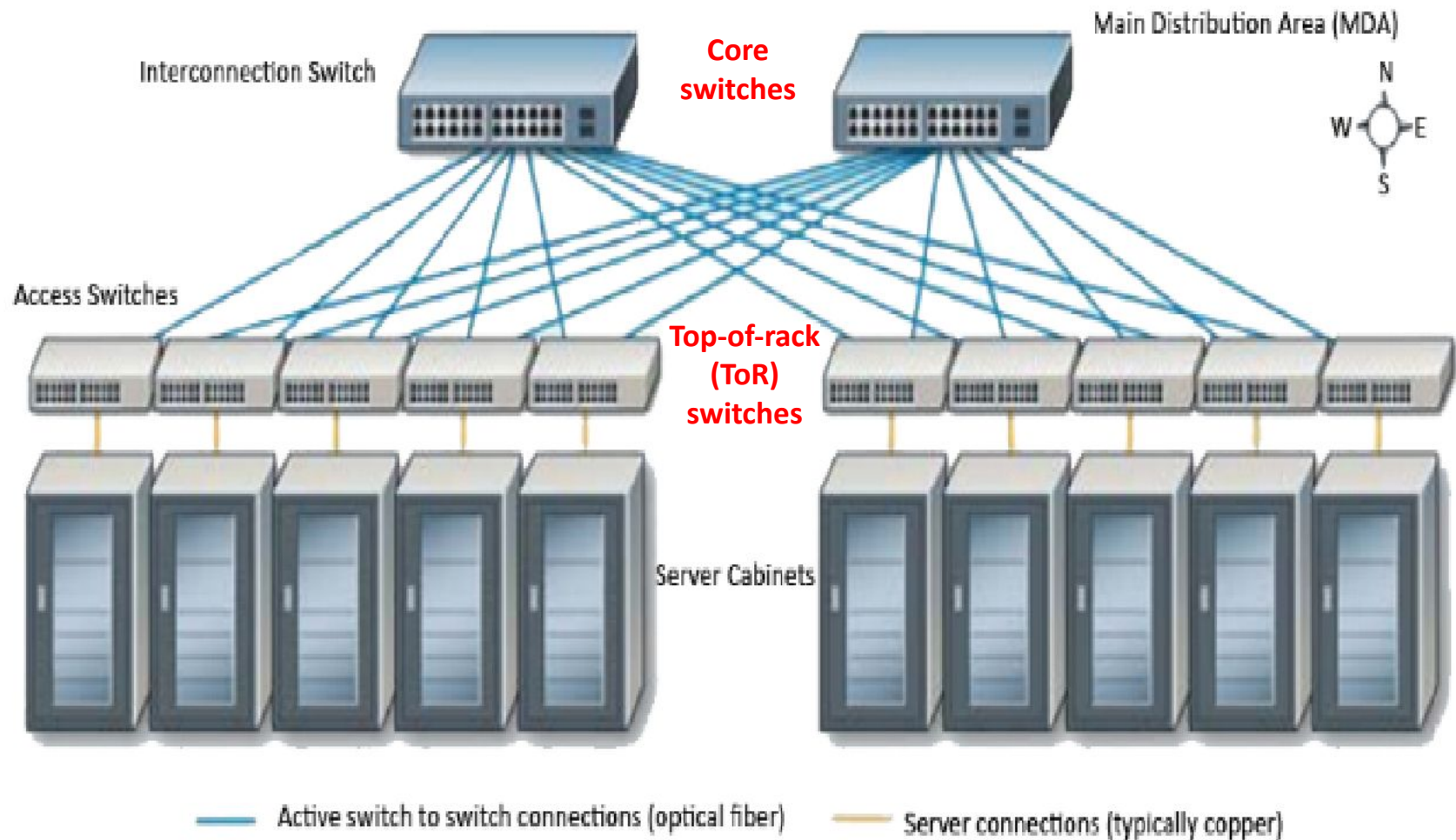
Top-of-rack (ToR) switches

Top-Of-Rack (TOR) - Network Connectivity Architecture

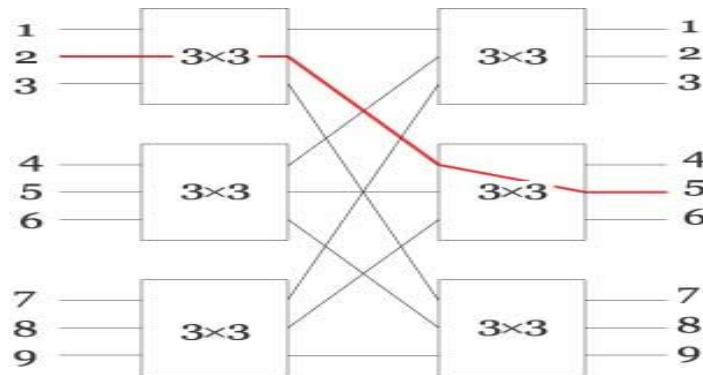


In a Data Center, there are several racks of servers/storage equipment. Each rack contains multiple computing devices. **The TOR – Top of Rack approach recommends Network Switches to be placed on every rack and all the computing devices present in the rack to be connected to them.** In turn, these Network Switches can be connected to Aggregation Switches using one/few cables.

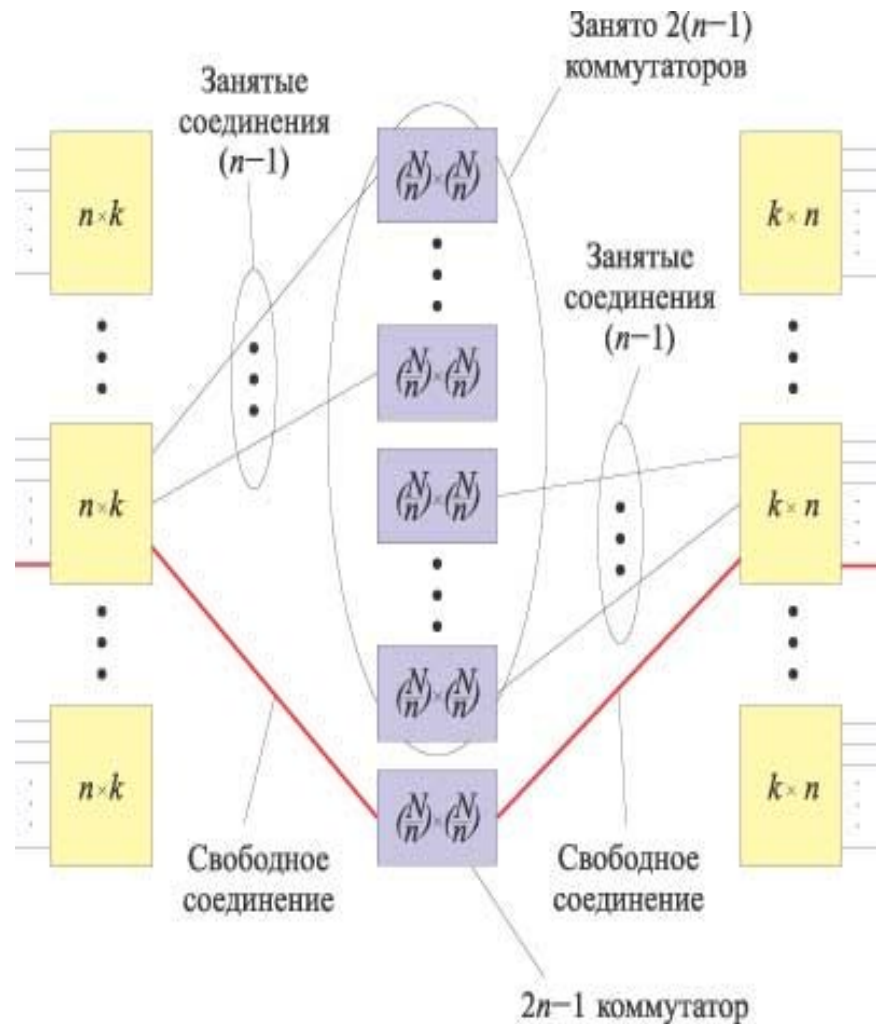
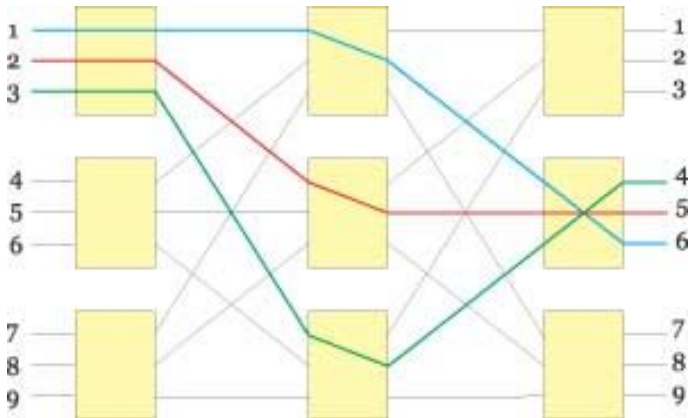
Top-of-rack (ToR) switches



Nonblocking, lossless Clos architecture



При установленном соединении 2-5
невозможно установить связи
1-2, 1-6, 3-4, 3-6



HP FlexCampus

HP FlexCampus architecture overview

HP FlexCampus

**unifies wired and wireless access and supports
multimedia applications**

advanced

**two-tier
architectures**

HP Converged Campus solutions

Wired/Wireless Access Layer



2920 Switches



5400R z12 Switches



**850 Unified
Wired-WLAN
Appliance**



560 AP



3800 Switches

Core Layer



**10508
Switches**



**10504
Switches**



**5400R z12
Switches**



**10508V
Switches**

Management



**Intelligent Management
Center**

HP Converged Campus solutions

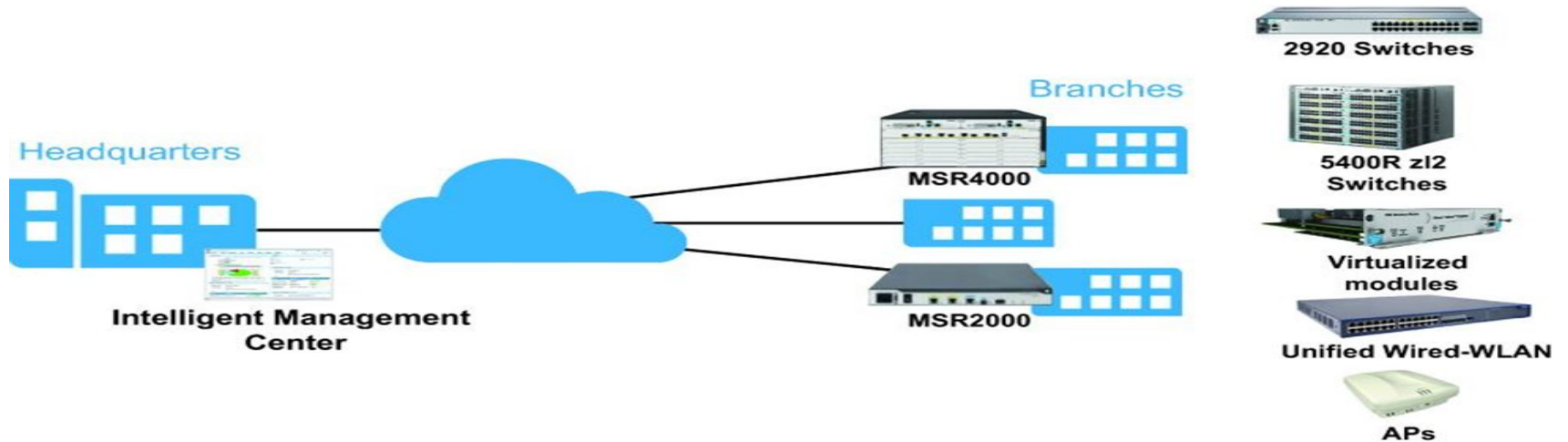
- **Technologies and features that are useful in campus networking include many of the technologies covered in this study guide:**
 - **VLANs**
 - **STP**
 - **Link aggregation**
 - **Wireless technologies**
 - **Dynamic IP routing protocols such as Open Shortest Path First (OSPF)**
 - **Management technologies such as SNMP**
 - **Switch virtualization technologies such as HP IRF**
- **You might also have thought of technologies that are covered in other HP training such as:**
 - **Port-based authentication and access control**
 - **Voice VLANs and LLDP-MED**
 - **Virtual Router Redundancy Protocol (VRRP)**
 - **WAN technologies for the WAN edge**
 - **Security technologies such as access control lists (ACLs)**

HP Flexbranch

HP FlexBranch architecture overview

**HP FlexBranch
solutions ensure that branch users receive
the same, satisfying network experience
as users at the main office**

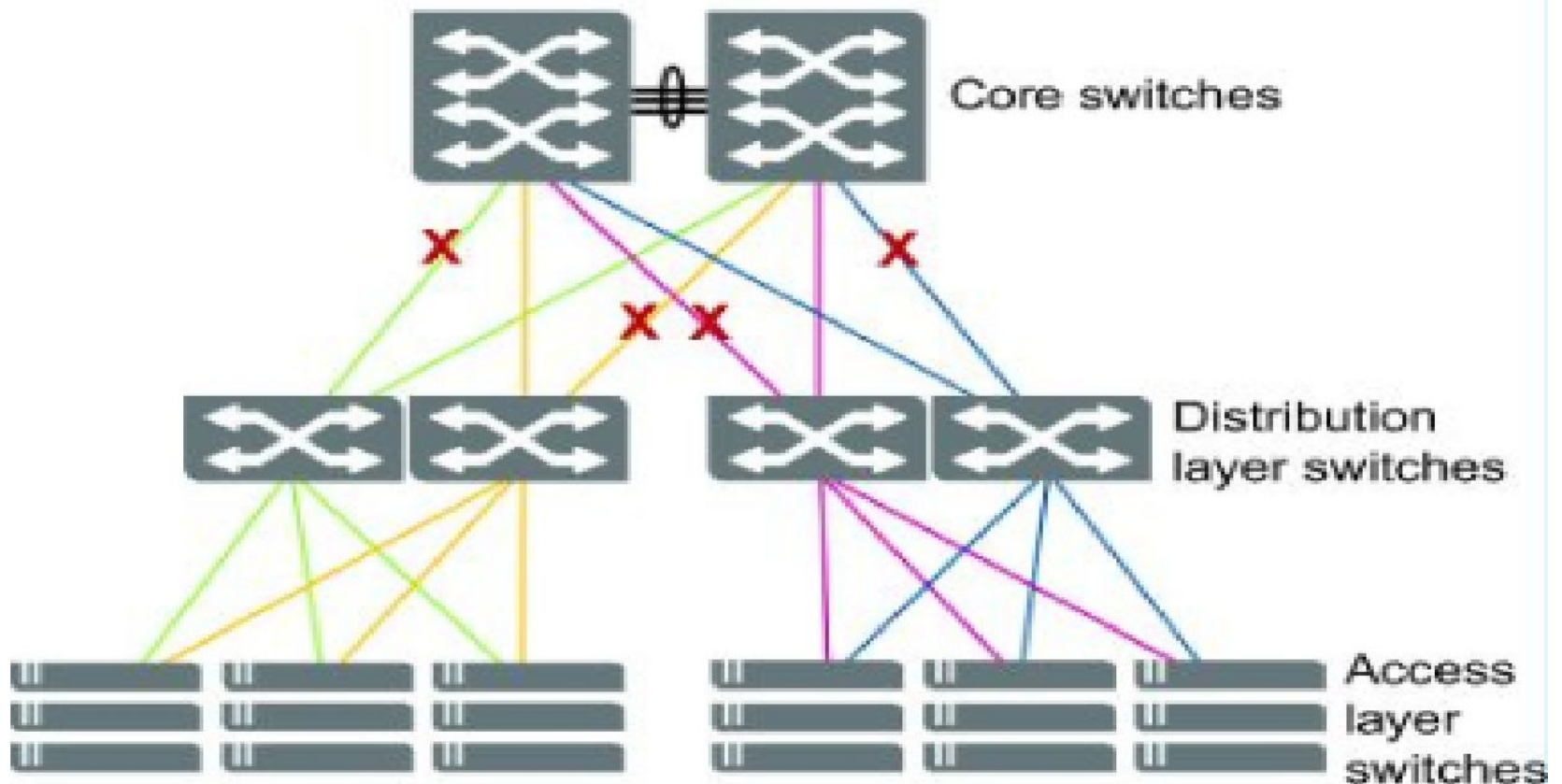
HP branch solutions



HP simplifies network designs

Traditional three-tier architecture

Traditional 3 - tier architecture



Traditional three-tier architecture

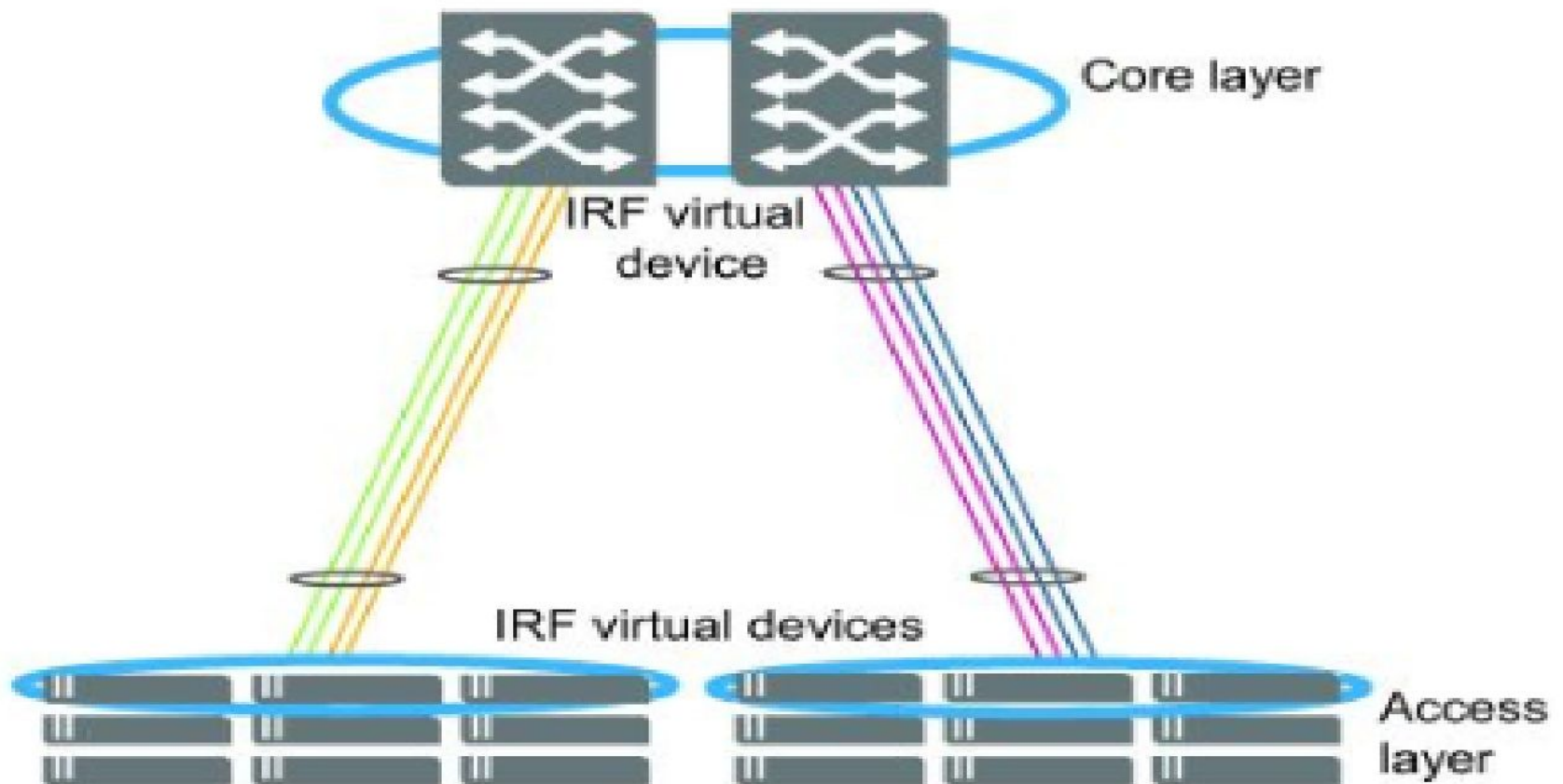
Traditional three-tier architecture, which includes the access layer, distribution layer, and core layer

between the clients and the servers—a traffic flow called north-south

data centers and campus networks—a traffic flow called east-west

Two-tier architecture

HP simplified 2 - tier network



two-tier architecture

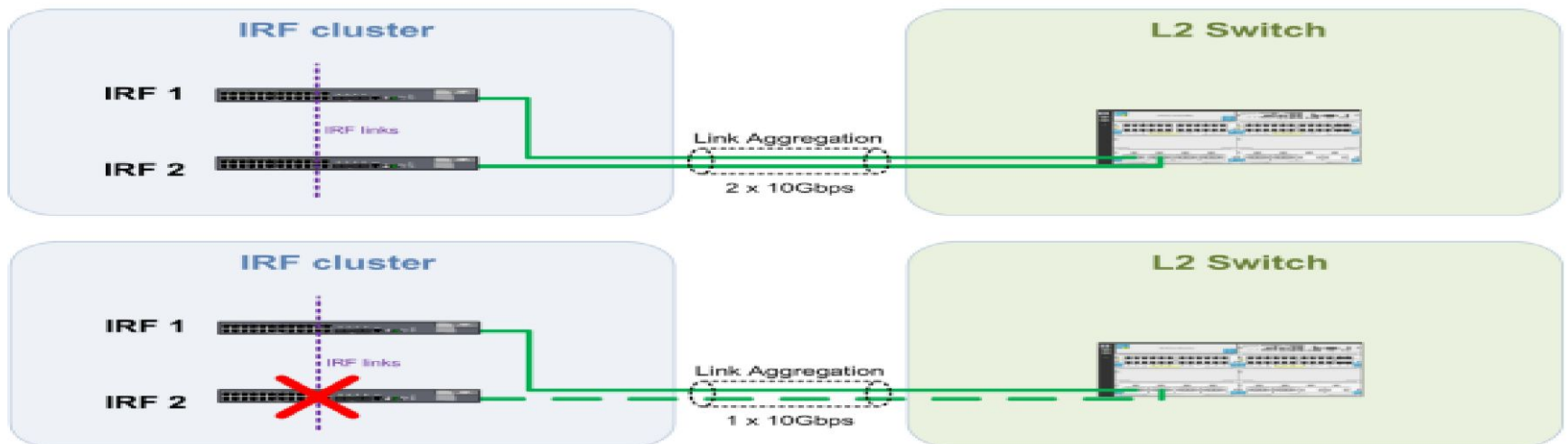
**simplify
networks by allowing you to combine multiple switches into a
single, ultra-resilient virtual device.**

**IRF virtual devices provide the high
performance and rapid failover required for today's
delay-sensitive, mission-critical applications**

**You can eliminate the
distribution layer and unnecessary network hops**

IRF (Intelligent Resilient Framework)

The basic idea of this technology is to interconnect multiple network devices through its interface ports to form a single virtual chassis with one management.



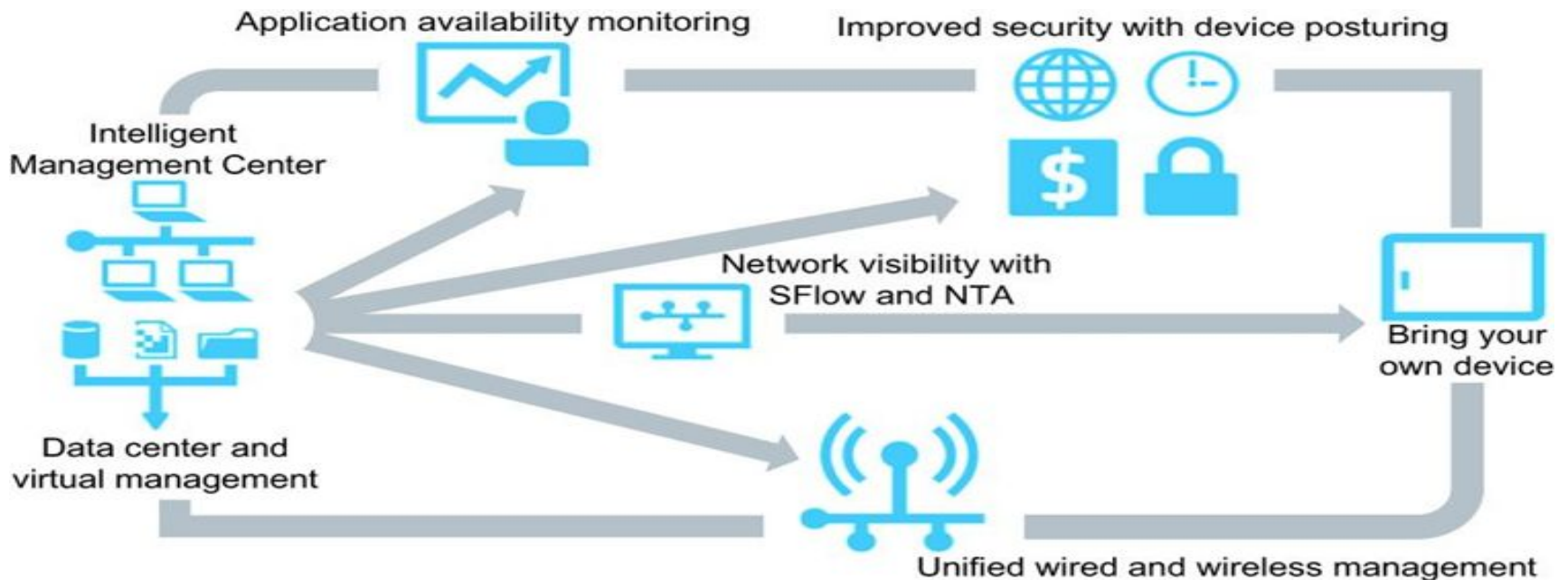
Devices which support IRF

HP HSR6800 Router Series	HP A5820 Switch Series
HP A12500 Switch Series	HP A5800 Switch Series
HP A11900 Switch Series	HP A5500HI Switch Series
HP A10500 Switch Series	HP A5500EI Switch Series
HP A9500 Switch Series	HP A5500SI Switch Series
HP A7500 Switch Series	HP A5130EI Switch Series
HP 5700 Switch Series	HP A5120EI Switch Series
HP 5920 Switch Series	HP A5120SI Switch Series
HP 5900 Switch Series	HP E4800G Switch Series
HP 5830 Switch Series	HP E4210G Switch Series
HP 3600 Switch Series	HP Moonshot-45XGc Switch



Introduction to HP Networking

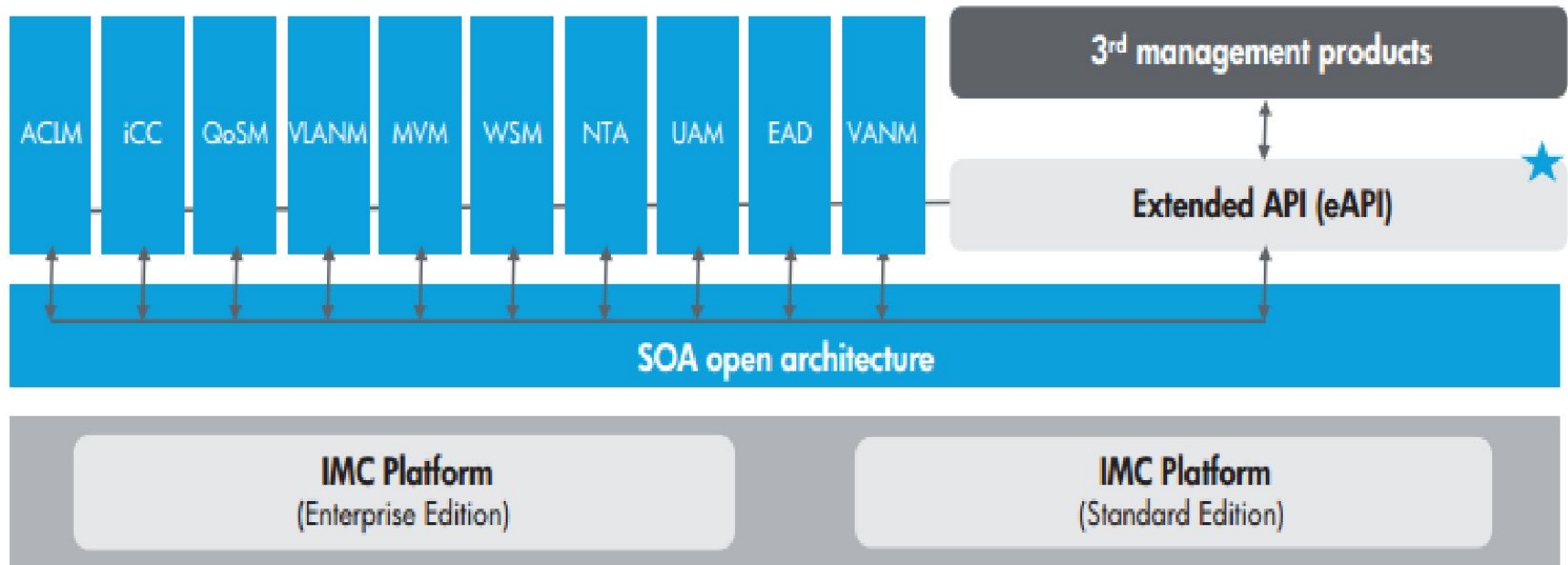
HP Intelligent Management Center (IMC)



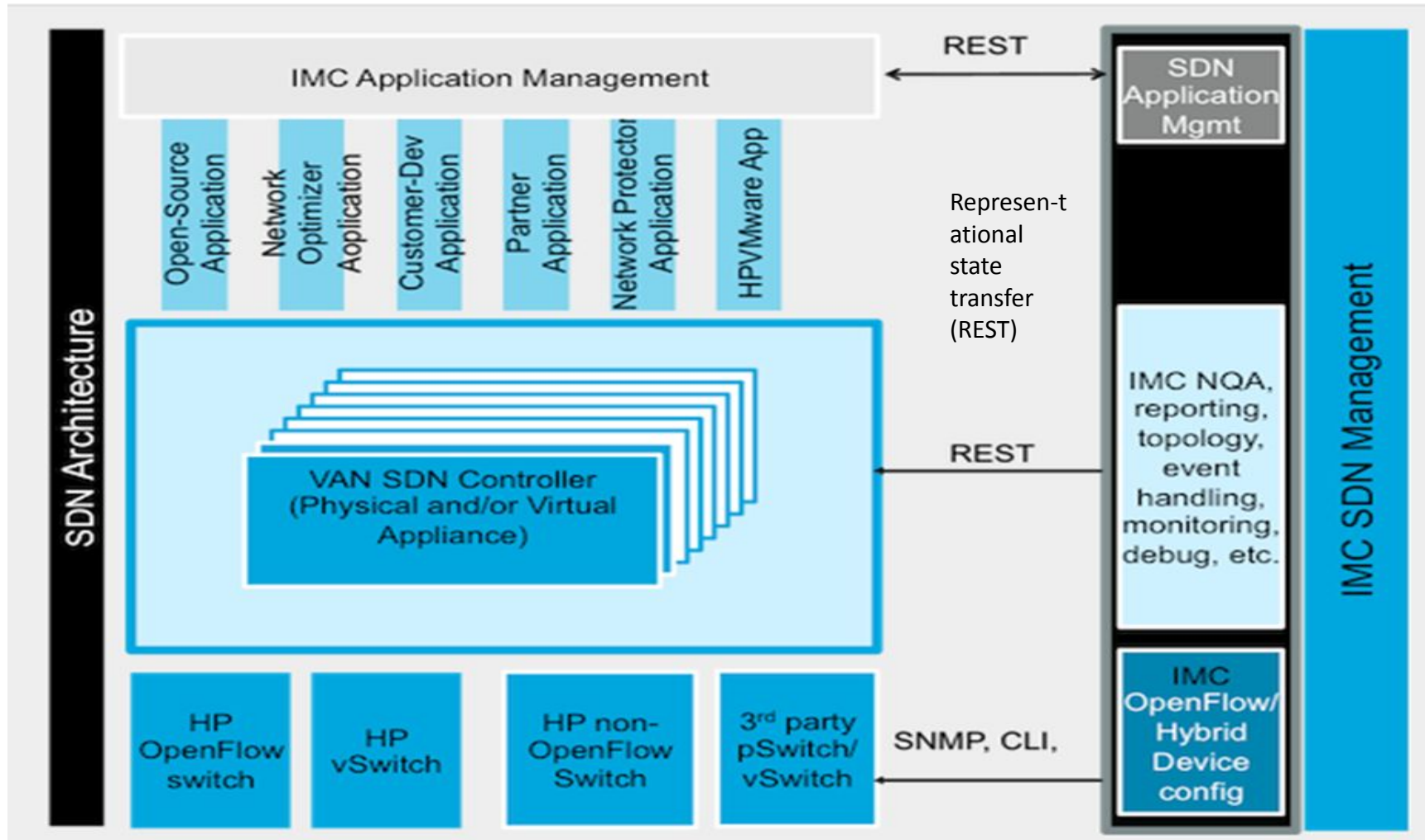
FCAPS model

FCAPS Model	Fault		Configuration			Accounting	Performance		Security				
IMC Platform Features	Alarms	Syslog & Trap Mgr	Intelligent Configuration Center	Compliance Center	VLAN & ACL Manager	Network Assets	Performance Mgmt	Virtual Network Mgmt	Security Control Center				
Add-On Modules			IPSec VPN Mgr	MPLS VPN Mgr	Wireless Services Mgr	QoS Mgr	BIMS	User Behavior Analyzer	Service Oper Mgmt	Network Traffic Analyzer	App Perform. Manager	User Access Manager	Endpoint Admission Defense
			Voice Services Manager	Virtual App Ntwks Manager	Remote Site Manager		Intelligent Analysis Reporter		vMon	Service Health Manager		TACACS+ Authent Manager	

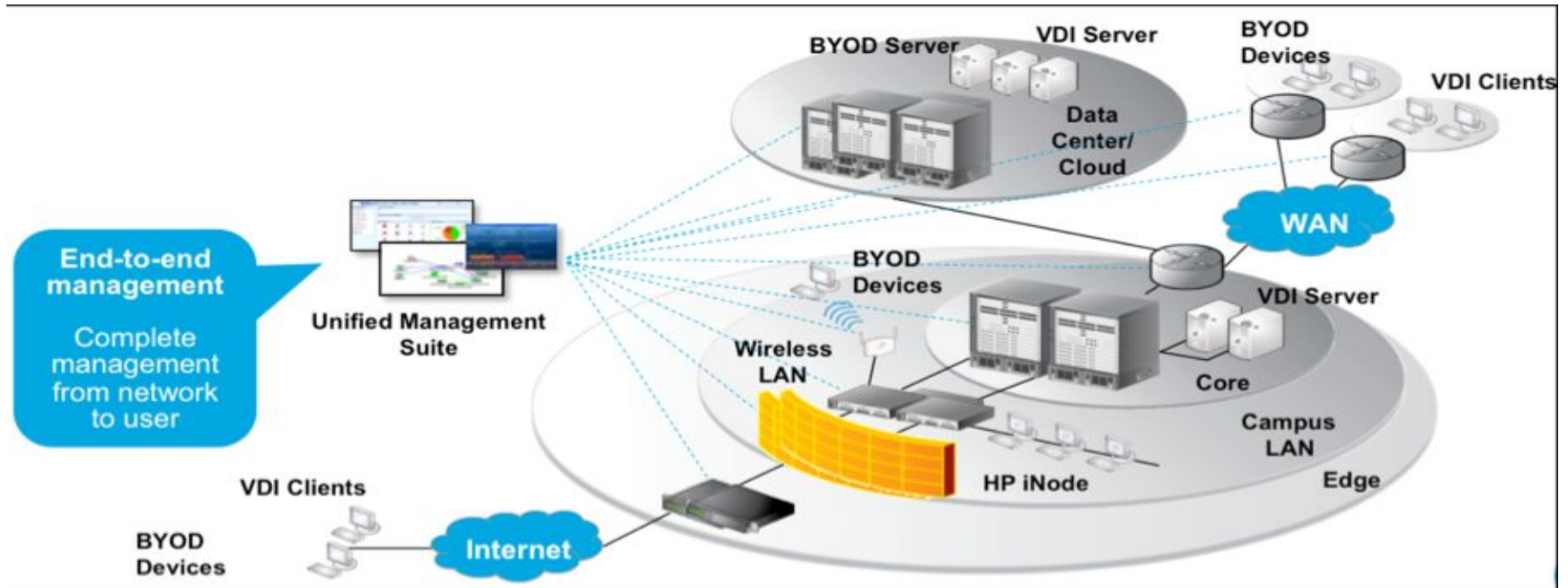
Supports both HP and third-party network devices



Software-Defined Networking (SDN) Support



BYOD Support





Introduction to HP Networking

HP leads in SDN

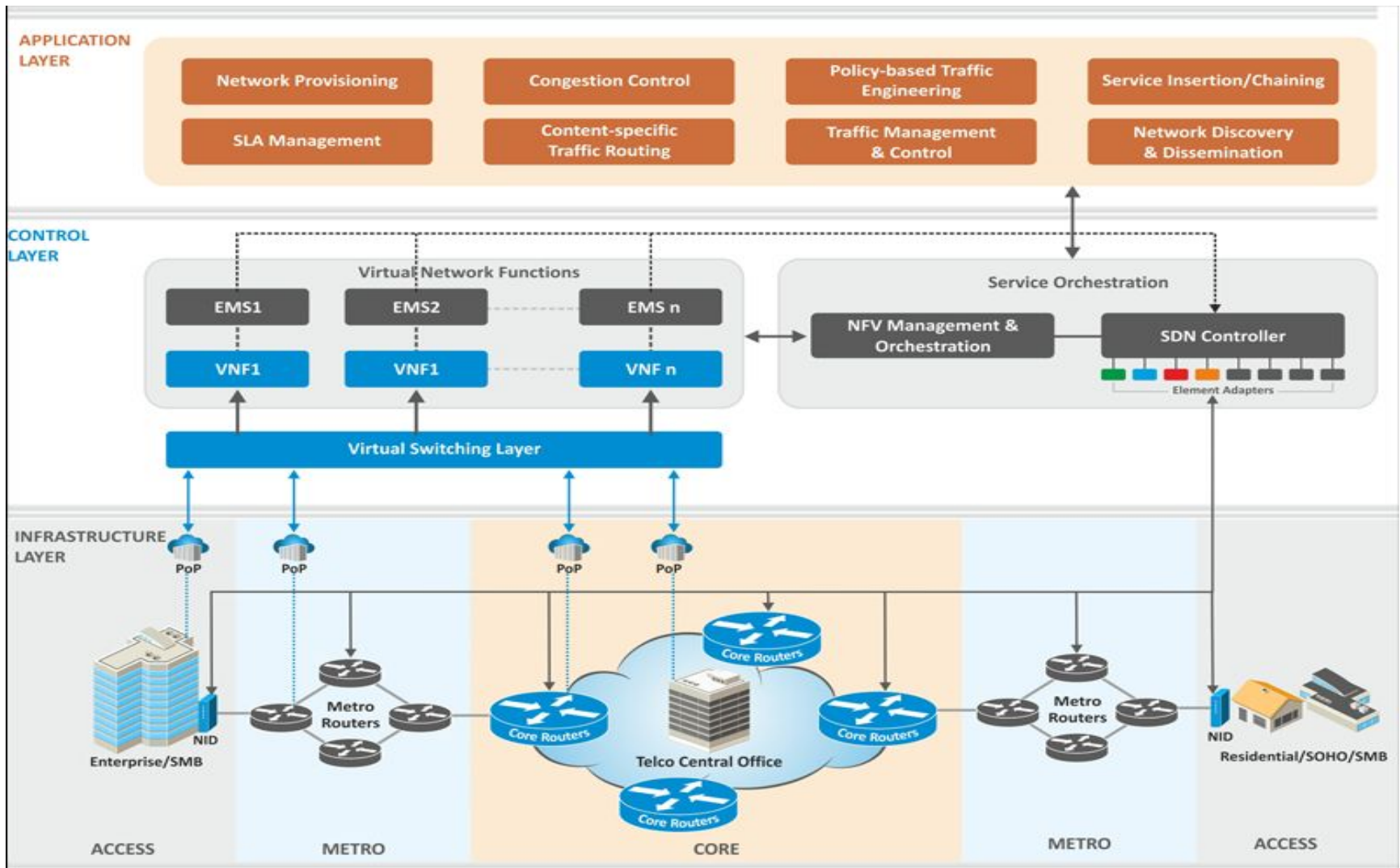
HP leads networking vendors

such as

SDN

has its own control plane and data plane

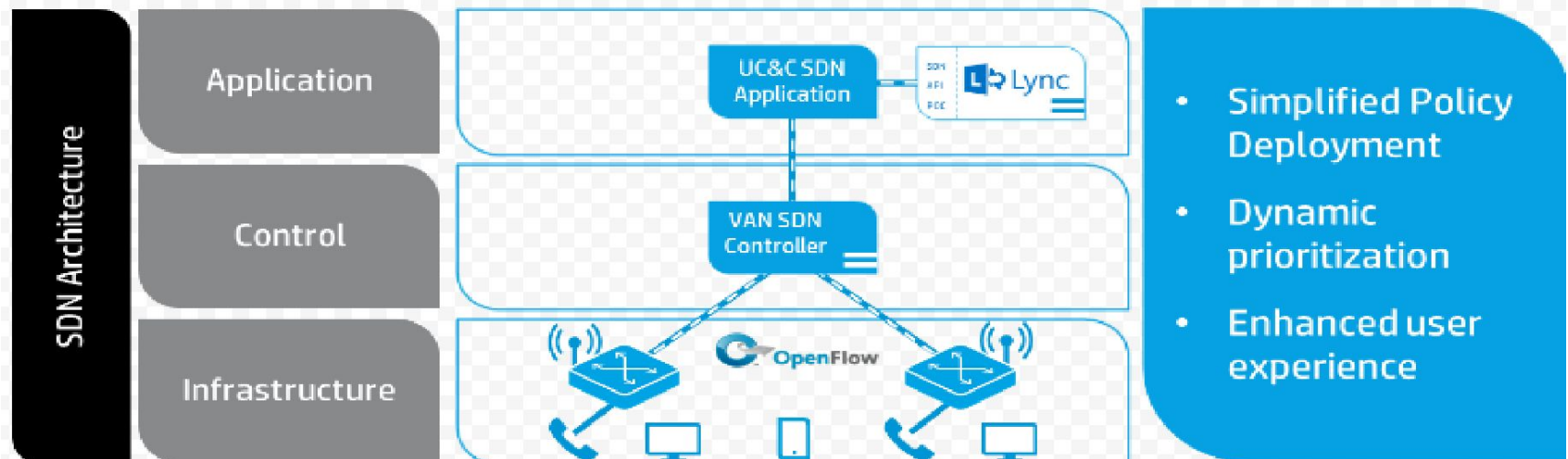
HP leads in SDN



HP leads in SDN

under the direction of an SDN controller

It submits information about the network to these applications and receives information from the applications that helps it to make forwarding decisions



SDN applications

**the network infrastructure
becomes programmable on the fly**

**rather than forcing network
administrators to anticipate the needs
and provision in advance**

SDN applications

can help to optimize the network for particular applications, such as voice, video, and collaboration applications

making SDN a key enabler for cloud solutions

OpenFlow Networking Switches



HPE FlexFabric 12900 Switch Series



HPE FlexFabric 12500 Switch Series



HP 8200 zL Switch Series



HPE FlexNetwork 7500 Switch Series



HPE FlexFabric 7900 Switch Series



HPE FlexNetwork 10500 Switch Series



HPE FlexFabric 5950 Switch Series



HPE FlexFabric 5930 Switch Series



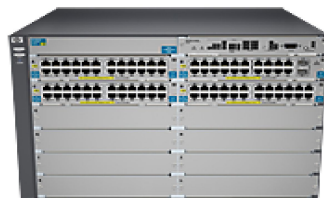
HPE FlexFabric 5900CP Switch Series



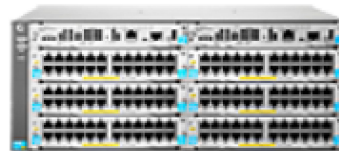
HPE FlexFabric 5700 Switch Series



HPE 5510 HI Switch Series



Aruba 5400 zL Switch Series



Aruba 5400R zL2 Switch Series



HPE FlexNetwork 5130 EI Switch Series



HPE 5130 HI Switch Series



Aruba 3810 Switch Series



Aruba 3800 Switch Series



HP 3500 and 3500 yL Switch Series



Aruba 2930F Switch Series



Aruba 2920 Switch Series

**Спасибо
за внимание!**