

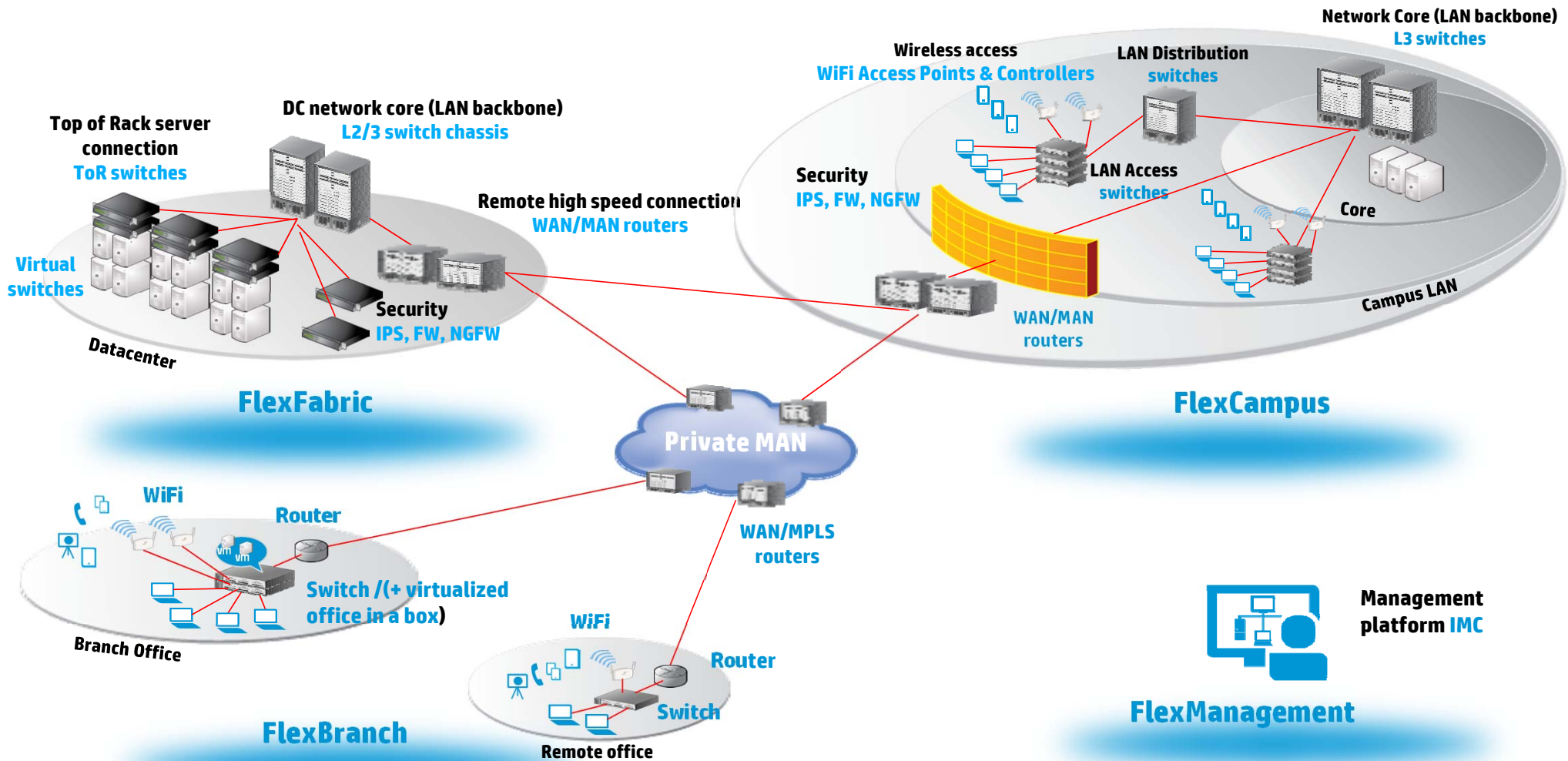
“HP Networking and Aruba Networks” – a new market leader in wired and wireless infrastructure



Igor Grcic - HP Networking Sales and Partner manager for the Adriatic Region

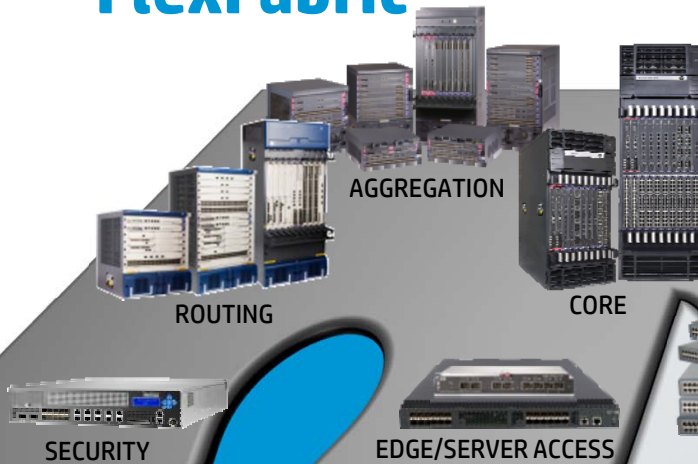
S&T Knowledge Transfer Event- 27.10. Vatra

What do we offer?

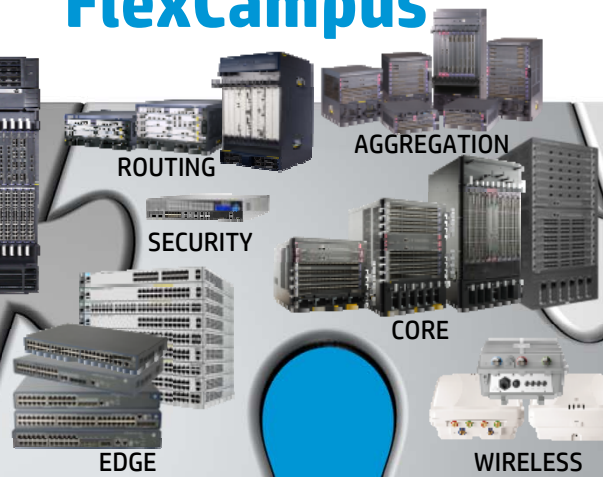


HP Networking offers products and solutions from edge to the core

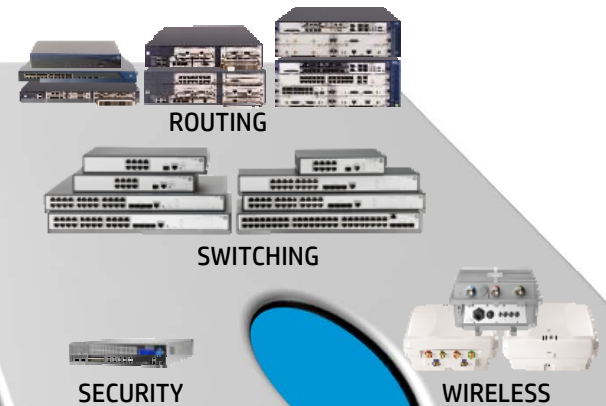
FlexFabric



FlexCampus



FlexBranch



FlexManagement

INTELLIGENT MANAGEMENT CENTER

Fault

- Alarms
- Syslog & Trap Manager

Configuration

- Intelligent Configuration Center
- QoS/SLA Manager
- VLAN & ACL Manager
- IPsec VPN Manger
- MPLS VPN Manager
- Wireless Services Manager
- QoS
- BIMS
- Virtual App Network Manager
- Remote Site Manager

Accounting

- Network Assets
- User Behavior Analysis
- Desktop Asset Management
- Intelligent Analysis Reporter
- Service Operation Management

Performance

- Virtual Network Management
- Performance Management
- Network Traffic Analyzer
- Service Health Manager
- App Performance Manager

Security

- Security Control Center
- User Access Manager
- Endpoint Admission Defense
- TACACS Authent Manager

FlexFabric 12900 switch series – First with TRILL/SPB

Industry's first OpenFlow 1.3-enabled data center core switch



FlexFabric 12910

- **36 Tbps non-blocking fabric¹**
- **Up to 768 10 GbE ports¹**
- **Up to 256 40 GbE ports¹**
- **Supports FCoE & DCB**
- **Supports in-service software upgrades**

networktest



Up to **2X**
switching capacity²

Up to **3X**
40 GbE density³

¹Based on FlexFabric 12916 ²FlexFabric 12916 compared with Nexus 7018 with F2 modules

³FlexFabric 12910 compared with Nexus 7010 with M2 modules

HP Highspeed Ethernet (10/40/100Gbe) solutions



HP FlexFabric access switches at-a-glance



	Top-of Rack, Access			Virtual, Blade Switch	
Product	FlexFabric 5900AF	FlexFabric 5930	FlexFabric 5900CP	FlexFabric 5900v	FlexFabric 6125XLG
Use Case	1/10GbE ToR Server Access	10/40GbE ToR Server Access – VXLAN/NVGRE	Converged ToR Access - FCoE/FC	Replacement for VMware vSwitch VEPA-based	HP BladeSystem Interconnect
Performance	<ul style="list-style-type: none"> • 48*10GbE SFP+ • 4*40GbE QSFP+ • 1.28 Tbps switch • 952.32 Mpps 	<ul style="list-style-type: none"> • 32 Ports of 40 GbE QSFP+ • Up to 104 Ports of 10GbE via breakout cables 	<ul style="list-style-type: none"> • 48*1/10GbE • 4/8G FC • FCoE/FC, NPV • Ultra low latency • 4*40 GbE uplinks 	<ul style="list-style-type: none"> • 802.Q • 802.1p • 802.3ad • PVLAN • 802.1Qbg (VEPA) 	<ul style="list-style-type: none"> • 16 *1/10GbE • 4 x 40GbE QSFP+ • 8 x 10GbE SFP+ • 4 x 10Gb cross-connect ports
Features	<ul style="list-style-type: none"> • Comware • IRF/TRILL, FCoE • F/B & B/F airflow 	<ul style="list-style-type: none"> • Support for VXLAN, NVGRE • F/B & B/F airflow • Full Comware v7 feature set 	<ul style="list-style-type: none"> • Converged ports for storage and FC convergence • FC, Native FCoE, or NPIV support 	<ul style="list-style-type: none"> • Open vSwitch, VEPA based • Extends 5900 features/visibility to hypervisor 	<ul style="list-style-type: none"> • High-performing feature-rich (IRF) 10/40GbE switch • Extends Fabric to HP BladeSystem

HP FlexFabric 5900CP Switch Positioning

- **Product overview:**

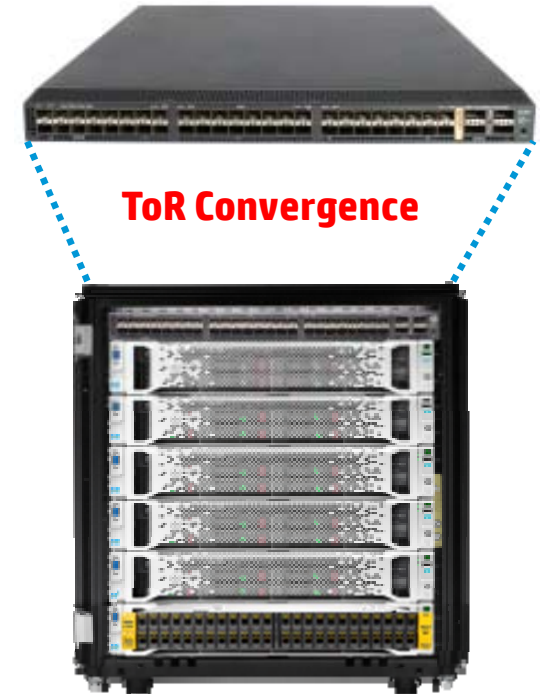
- Simplifies storage connectivity of converged network data flows (10GbE, FCoE, 8Gb FC, iSCSI) for top-of-rack ToR server edge deployments
- High density, high bandwidth and affordable with 48 converged ports, **expandable to 64 10GbE ports** and (4) high bandwidth 40GbE QSFP uplinks

- **Ideal for**

- Enterprise to medium size data centers with **top-of-rack (ToR)** high density, ultra-low latency converged switching of LAN/SAN traffic Great for FCoE, greenfield, infrastructure upgrades, future proofing, investment protection and iSCSI storage traffic

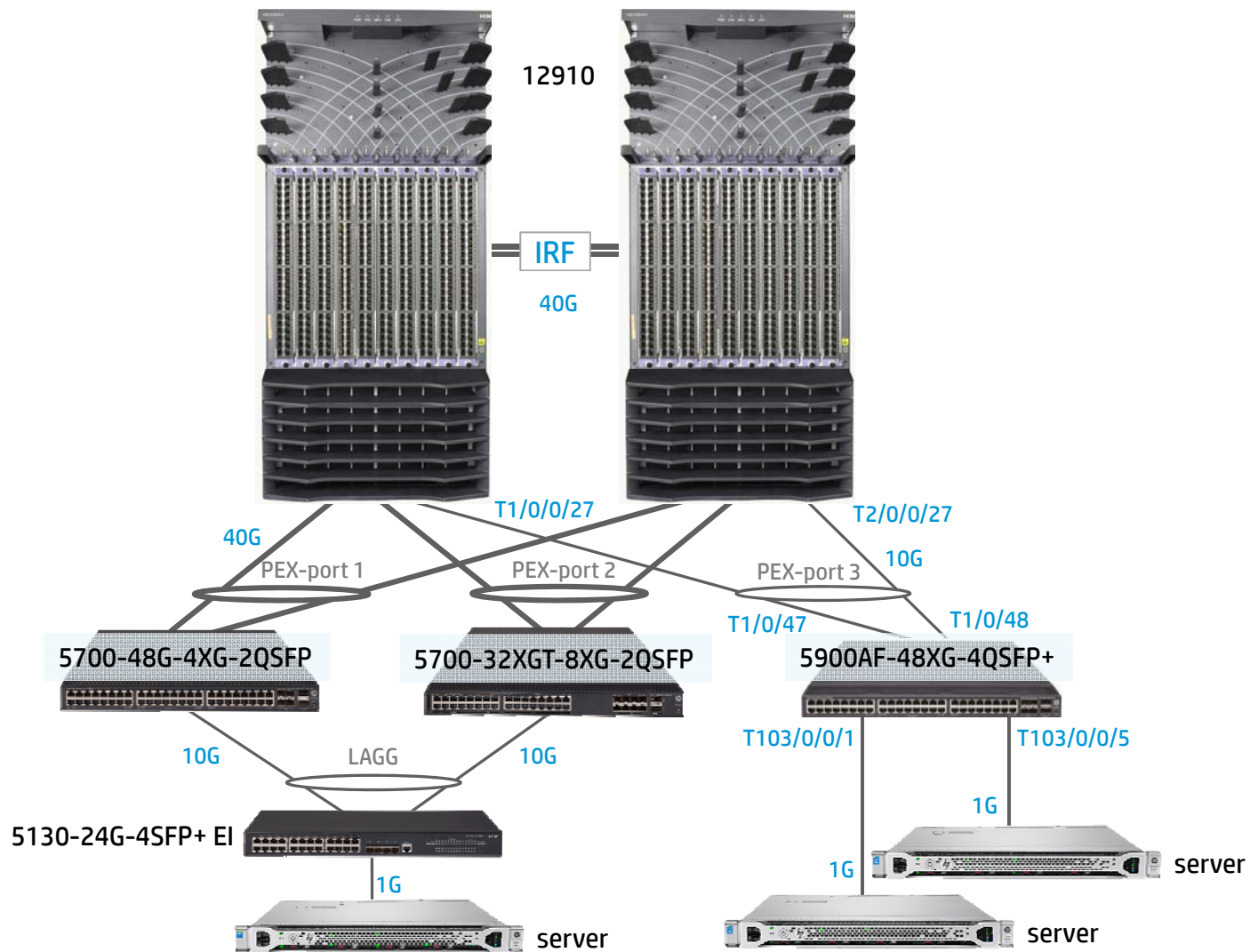
- **Established HP Networking product legacy**

- Built on the HP FlexFabric 5900 Switch Series of high-density, ultra-low-latency, top-of-rack switches that are part of the HP FlexFabric solution for HP FlexNetwork architecture

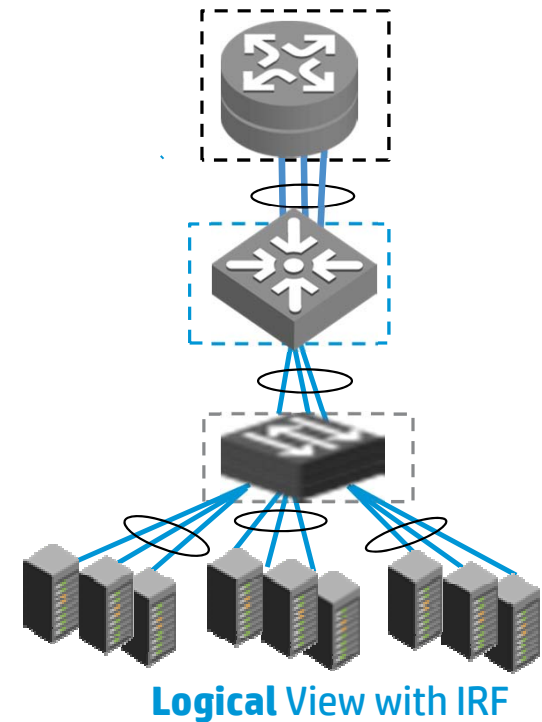
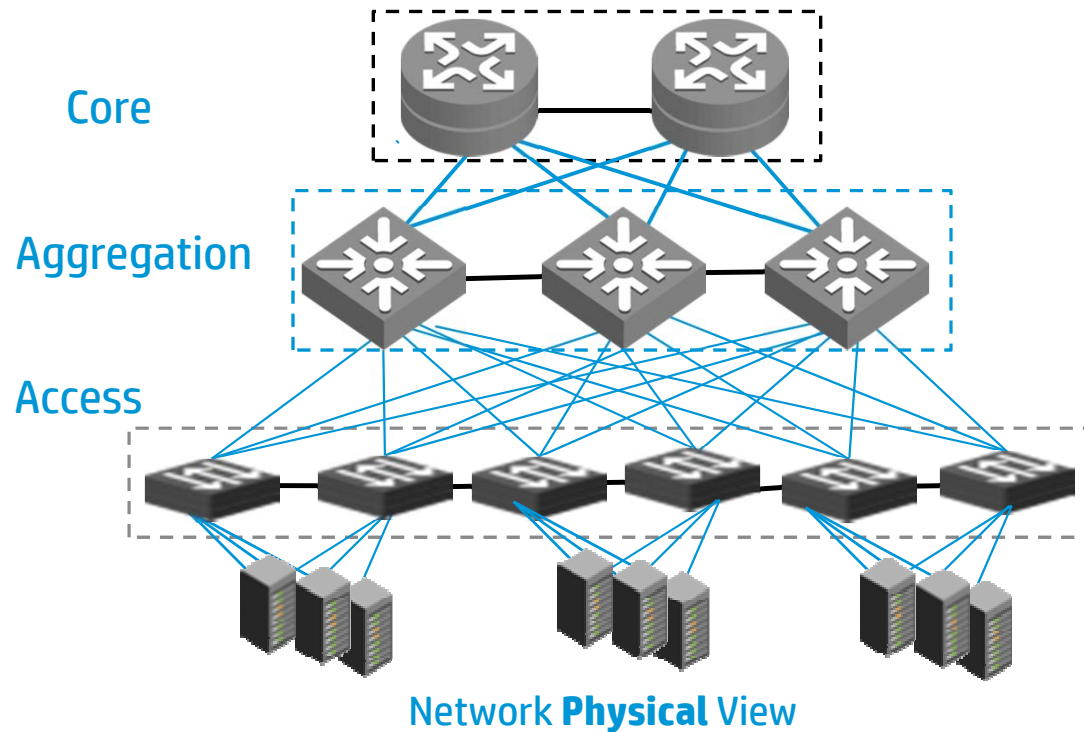


Three-tier design (Alternate view)



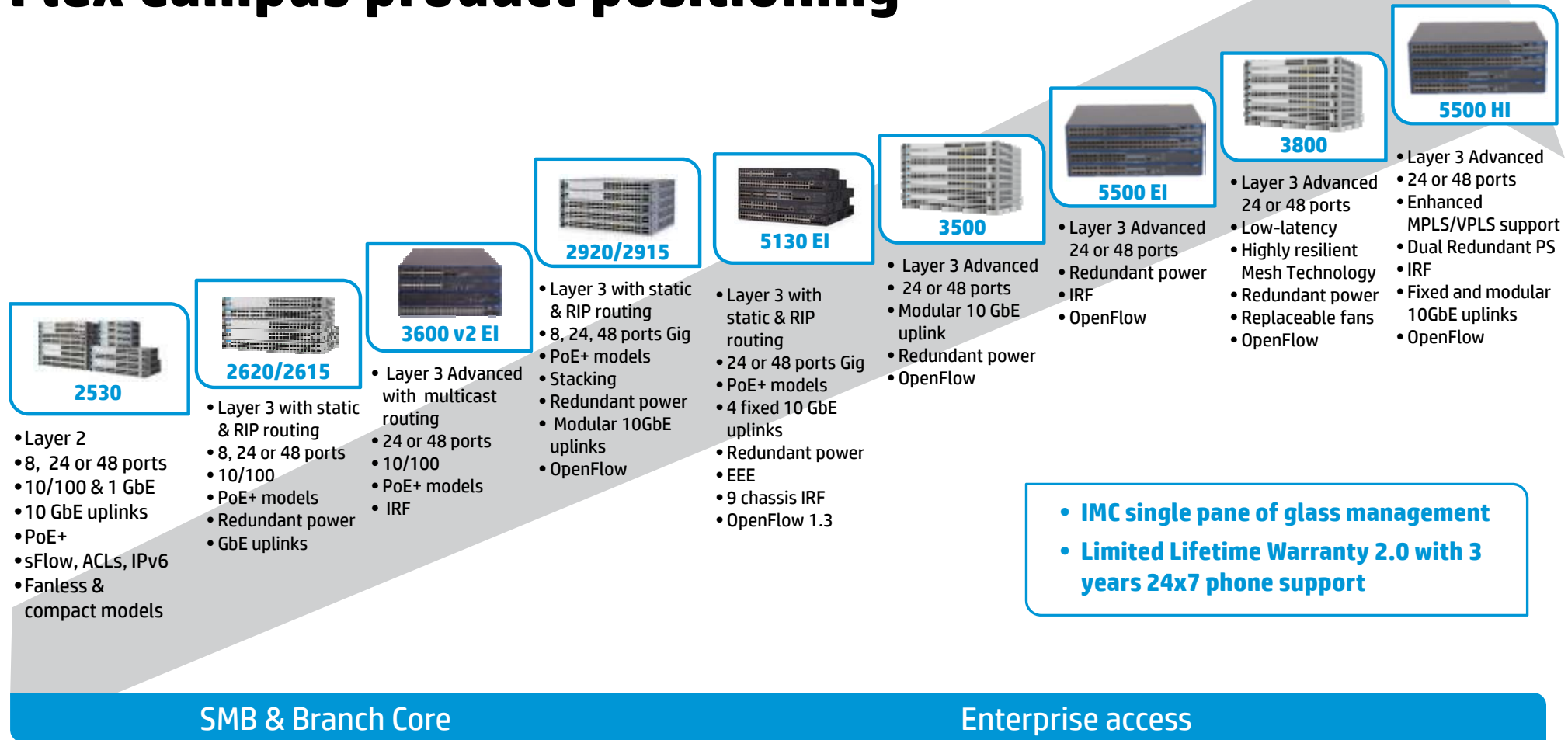


HP IRF physical and logical views



- Simple: multiple switches appear as one logical switch
- Higher Performance: all links are active and redundant providing full network bandwidth
- Resilient: ultra rapid failure recovery measured in uSec versus seconds for STP based solutions

Flex Campus product positioning





On the Average Day



330 Destinations



On the Average Day



530,794 Passengers

On the Average Day



6,700 Flights

HP FlexNetwork router portfolio updates – 9/30/13

FlexFabric

HSR6800 router series

8800 router series

FlexCampus

HSR6600 router series

6600 router series

FlexBranch

MSR2000/3000/4000 router series

MSR93X router series

NEW

FlexManagement

FlexNetwork Architecture

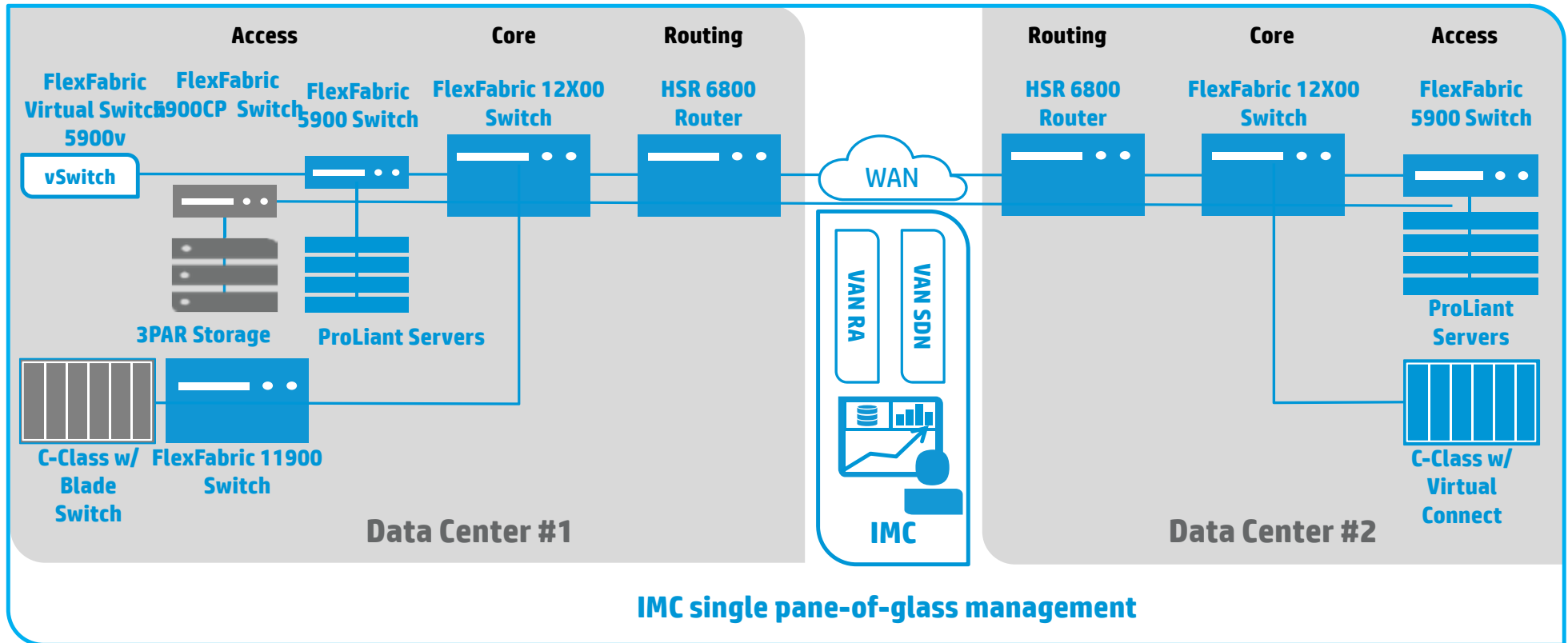
HP - Cisco Race

Products	
Cisco	HP
Nexus 7700 , 7000	12500, 11900, 12900
Nexus 6000	5900
Nexus 5500	5900 bundles
Nexus 2000	5900 bundles
Nexus 1000v	5900v
Nexus 4000	6125XLG
Catalyst 3750X	5800
ASR1000	HSR6800, SR6600
CISCO Prime DNCM, Prime Infrastructure, Network Services manager, Network services controller....	IMC

Technologies	
Cisco	HP
Fabric Path	TRILL, SPB
OTV	EVI
VDC	MDC
FEX	Vertical IRF
vPc ???	IRF
FCoE	FCoE
LISP	F5 partnership
???	Openflow 1.3
???	VAN/SDN



FlexFabric delivers simplicity, scale & automation



Lifetime Warranty 2.0 – simple & cost effective

Always-on networks require round-the-clock support

24x7 Phone Support **Up to 3 years**



Hardware Warranty	Lifetime
Replacements	Next-Business Day
Software Updates	As long as owned
Phone Support	As long as owned



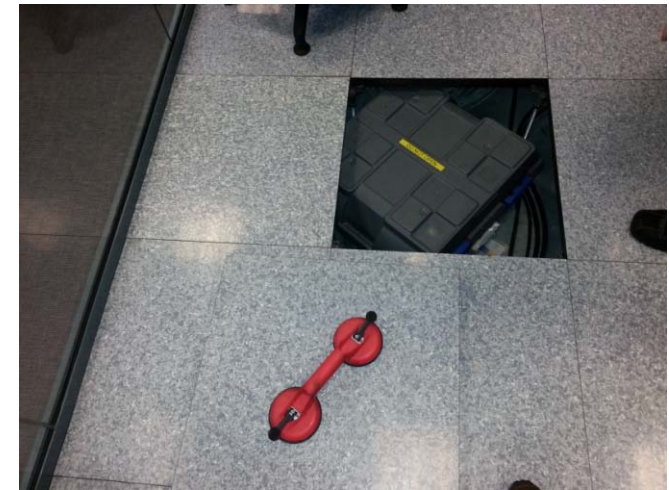
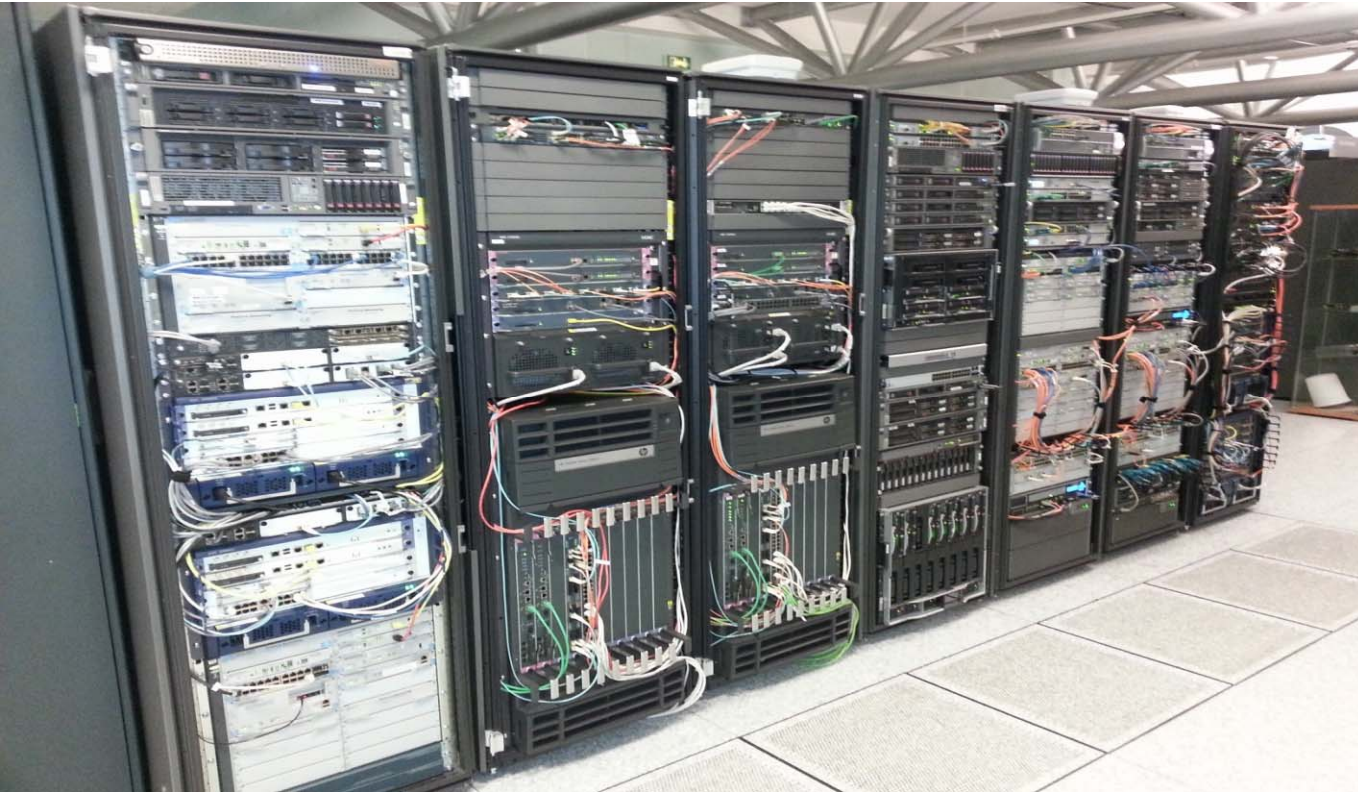
FlexCampus

FlexBranch

Small
Business



Demo centar Grenoble



We've accelerated our innovation over the least year



HP 10500/7500 Unified Module



MSM775 zl Controller



HP 850



HP 870



HP 830



HP 560



HP 425



HP 417



HP 300 Series



HP 517



- **83% faster service deployment** with simplified management and policy
- **Scales to over 220,000 wireless devices** per chassis to support the rapid growth of BYOD
- **Lowers TCO by up to 47 %** with simpler network architecture and industry leading warranties
- **Future proof SDN-ready networking** for greater agility and lower cost

... and we're just getting started

HP Networking is empowering the enterprise

American Airlines 

 Fidelity
INVESTMENTS



BMW
GROUP




PACIFIC LIFE

30,000+

Enterprise customers and growing¹

82%

of Global 100 companies have HPN¹

#2

Networking vendor globally²



#1 for
Open Source³
OpenStack⁴



#2 in
Data Center
Networking⁵



21.6%
HP + Aruba
campus share⁶



Grown active
connections in
campus **25.9%**
since **1Q13**⁶

¹ HP Internal shipment data . ² Source: Dell'Oro – E17A_Ethernet_Switch_Total_Vendor_Table_4Q14, W20A_WLAN_Enterprise_Vendor_Table_4Q14, R18A_Routers_Enterprise_Vendor_Table_4Q14

³ [OpenStack Contributions Table - Kilo.xlsx](#) | ⁴ <http://stackalytics.com/?release=kilo> |

⁵ Dell'Oro – 4Q14 L2+L3 Ethernet Switch by Vertical Basic (Deployment Report) | ⁶ Dell'Oro - EE17A_Enterprise_Edge_Vendor_Table_4Q14



LEADING BRANDS TRUST US

Technology Microsoft, SAP, hp, NCR, amazon.com, eBay	Social & New Media Google, LinkedIn, Facebook, NETFLIX, YAHOO!	Finance AMERICAN EXPRESS, Fidelity, charles SCHWAB, BARCLAYS, Goldman Sachs	Media & Ent DOW JONES, WB, TIME, BBC, NBC, Newsweek, X A R
Higher Education McGill, Yale, BROWN, OHIO STATE UNIVERSITY, UNIVERSITY OF CAMBRIDGE	Government NASA, U.S. AIR FORCE, KANSA S.gov, City of Oakland	Healthcare The Ottawa Hospital, SHARP, BOSTON MEDICAL, NAVY MEDICINE	Retail ZARA, STARBUCKS COFFEE, STAPLES, Carrefour, 7 ELEVEN, verizon wireless
Primary Education Spring Branch, NYC Department of Education, ROUND ROCK, Calgary Board of Education	Public Transit BAA, ORLANDO INTERNATIONAL AIRPORT, McCarran, BNSF, BRISTOL INTERNATIONAL, 广州地铁 Guangzhou Metro	Public Venues ROUND GARDEN, Tokyo Disneyland, UNITED CENTER, DISNEY, SUNSHINE BOULEVARD AUSSIE STADIUM	Services KPMG, THOMSON DIALOG, ca, Skadden, WILMERHALE, NORRISON FOERSTER, Ogilvy
Oil & Gas Saudi Aramco, HESS, ENEOS, VALERO, KNPC, HALLIBURTON	Manufacturing FLEXTRONICS, BOSE, SAMSUNG, CHINA STEEL, SONY, océ, BMW	Hospitality THE RITZ-CARLTON, THE VENETIAN LAS VEGAS, Jumeirah, SHANGRI-LA, Mphagan Sam	Telecom at&t, verizon business, BKT, NTT DoCoMo, LG CNS, Bell, Vonage

Mobile UC for 100,000+ employees

Aruba Mobility Controller SDN API integration with Skype for Business
Over 16,000 calls/month/building with >96% toll quality performance



Microsoft

INNOVATION LEADER IN CAMPUS NETWORKS

“Clients globally should consider HP Aruba for all wired / WLAN access layer opportunities.”

Gartner MQ for Wired and Wireless LAN Access Infrastructure, August 2015



Source: Gartner Magic Quadrant for the Wired and Wireless LAN Access Infrastructure September 2015. Tim Zimmerman, Bill Menezes, Andrew Lerner, ID Number: G00277052 This Magic Quadrant graphic was published by Gartner Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available upon request from HP. The Magic Quadrant is a graphical representation of a marketplace at and for a specific time period. It depicts Gartner's analysis of how certain vendors measure against criteria for that marketplace, as defined by Gartner. Gartner does not endorse any vendor, product or service depicted in the Magic Quadrant, and does not advise technology users to select only those vendors placed in the "Leaders" quadrant. The Magic Quadrant is intended solely as a research tool, and is not meant to be a specific guide to action. Gartner disclaims all warranties, express or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

2015 CRITICAL CAPABILITIES FOR WIRED AND WIRELESS LAN ACCESS INFRASTRUCTURE

Enterprise Unified Wired and WLAN Access	Enterprise Wireless-Only Connectivity	SMB and/or Small or Remote Branch Office	Voice Over WLAN	IaaS or Managed Service	Enterprise Wired-Only Connectivity
HPE Aruba 4.14	HPE Aruba 4.11	HPE Aruba 4.12	HPE Aruba 4.10	HPE Aruba 4.14	Cisco 4.24
Cisco 4.14	Cisco 4.06	Cisco 4.11	Cisco 4.05	Cisco 4.11	HPE Aruba 4.15
Avaya 3.64	Aerohive 3.82	Avaya 3.62	Aerohive 3.81	Aerohive 3.63	Juniper 3.91
Extreme 3.63	Avaya 3.55	Extreme 3.61	Avaya 3.53	Avaya 3.61	Brocade 3.74

Gartner.

The Perfect Match

Global service
delivery for
customers
and partners

Leadership in
enterprise networking
at ALL scales

Customer first,
customer last
culture



aruba®
NETWORKS
an HP company



It Takes More Than Ports & Wi-Fi



Unified Management



Unified Policy



Analytics Engine



Instant & Remote Access Points



Cloud Services Controllers





STABLE AIR

Wi-Fi that doesn't slow down as many people connect

SECURE AIR

Secure personal devices and guests without involving IT

SIMPLE AIR

App login and sharing without manual entry

SMART AIR

Allocate bandwidth for new collaboration apps at work

AIRHEADS COMMUNITY

LARGEST COMMUNITY OF CAMPUS MOBILITY ENGINEERS

Customer
Technical
Advocates

R&D

SEs / Technical
Community

Channel
Partner SEs

36K+
Airheads

5.5K+
Knowledge
Base Articles

355K+
Support Case
Deflections

6,000
Certified

Are you ready for

#GenMobile?



#GenMobile: The lines are blurred...



OFFICE



THIRD PLACE...



HOME

Time to change how we think about networking



Port defined
VLAN/IP aware
Static
Proprietary



Software defined
User/device aware
Programmable per app
Open, on-demand

Reading the Waves – 802.11ac

Wave 2
5GHz

1.7
Gbps

Wave 1
5GHz

1.3
Gbps

802.11n
5GHz

0.45
Gbps

Access point portfolio for mobile-first

Indoor Access Points



320 Series
Highest Density
Dual GbE, 2.5 Gbps



220 Series
High Density/Perf.
Dual GbE, 1.7 Gbps



210 Series
Carpeted space
1.7 Gbps



200 Series
Lower density
1 Gbps

Outdoor Access Points



270 Series
First & only
enterprise-
grade 11ac

Hospitality Access Points



205H
3 ports
802.11ac



AP-103H
2 ports
802.11n

Remote APs



RAP-3
Single radio 11n
3 ports



RAP-109
802.11n
4 ports



RAP-155
802.11n
4 ports



205H
802.11ac
3 ports

Portfolio from access to data center

Software

Management, policy & location-based services



Mobility infrastructure



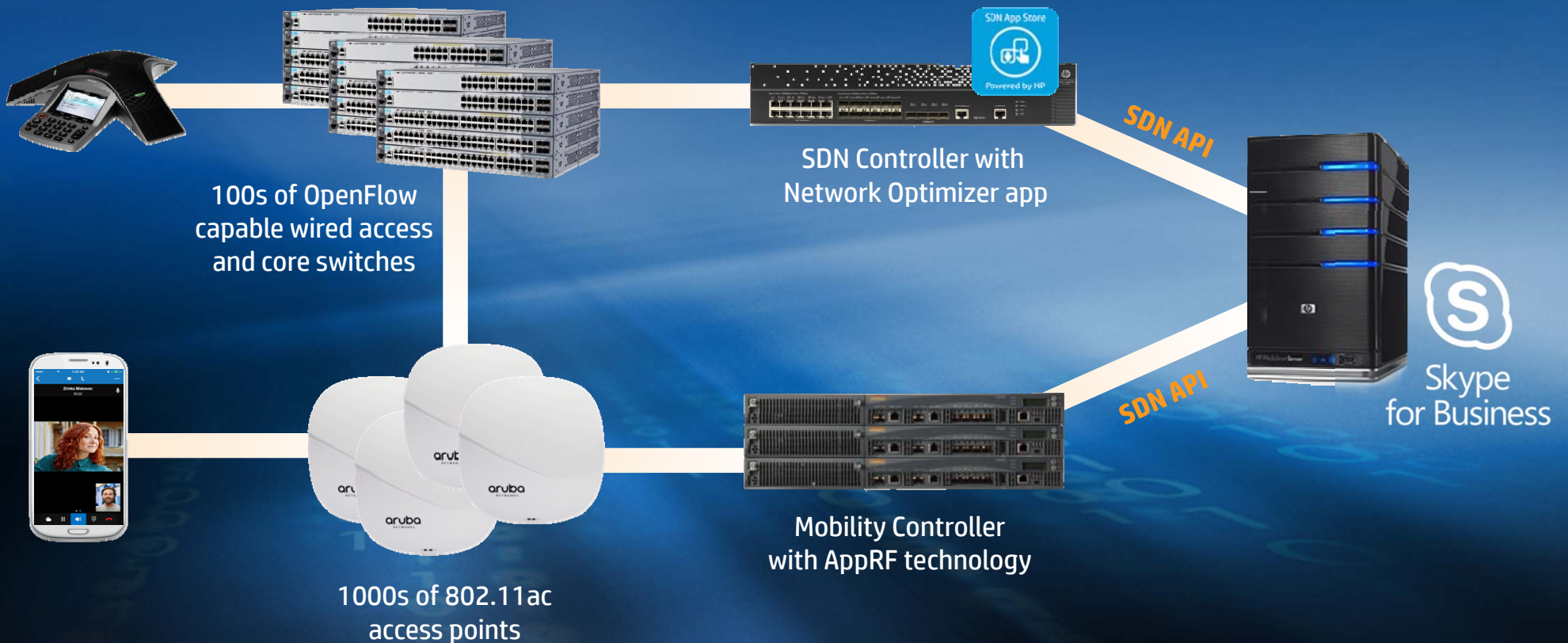
Campus switching



Data center switching



Software controls for Unified Communications



How Aruba Instant works



First Access Point configured

Ready ...

It becomes the “master” & performs firewall and controller functions

Set ...

New APs automatically connect to the “master” & download configuration

Go!!

- ✓ **NO ONSITE IT NEEDED**
- ✓ **NETWORK SURVIVABILITY**