OmniSwitch 6900 Overview

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OmniSwitch 6900
Hardware Overview

OmniSwitch OS6900-X40 (front / back views)

Ethernet management port, Serial and USB ports

Optional Module #1

Optional Module #2

Hot swappable fan tray 3+1 fan redundancy, Front to Back cooling

Redundant slide-in power supplies (AC or DC)

1U

OmniSwitch OS6900-X20 (front)

Raw Performance and Flexibility

- up to 1.28Tbps of capacity, 960Mpps, sub-microsecond latency, 128K MAC addresses
- 20 and 40 port models for different types of rack configuration
- Optional modules for utmost flexibility and future proofing
- Power Efficient: 3.5W per 10GbE port

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Models Overview

- OS6900-X20
  - 20 10G SFP+ fixed ports
  - Wire-rate switching and routing
  - 1 expansion slot: up to 32 10G SFP+
  - 640 Gbps switching

OmniSwitch OS6900-X20 (front)

- OS6900-X40
  - 40 10G SFP+ fixed ports
  - Wire-rate switching and routing
  - 2 expansion slot: up to 64 10G SFP+
  - 1.28 Tbps switching

OS-XNI-U12

OS-QNI-U3

- Expansion Modules
  - Hot Swappable
  - OS-XNI-U2: 2 SFP+
  - OS-XNI-U12: 12 SFP+
  - OS-HNI-U6: 4 SFP+ & 2 QSFP+ (AOS 7.3 roadmap)
  - OS-QNI-U3: 3 QSFP+ (AOS 7.3 roadmap)

OmniSwitch OS6900-X40 (front / back views)

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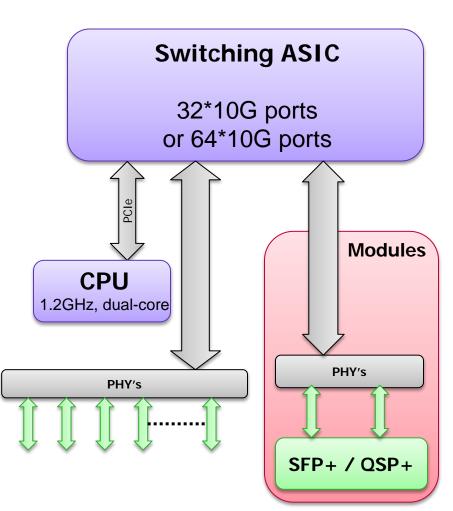
Architecture

- The OS-6900 is a Single ASIC solution

- ASIC supports
  - DCB including QCN (Lossless), EVB, SPB
  - IPv4/IPv6 unicast/multicast wire-rate
  - RED/WRED, SPQ and WFQ

- 120 Gbps are reserved for each module

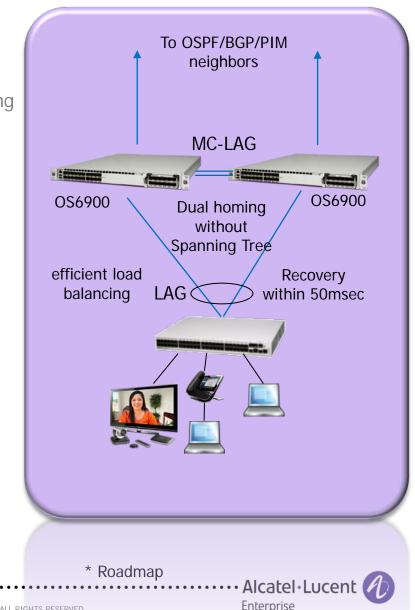- The PHY's can operate at 1G, 10G or 40G speeds

- 1.2GHz Dual-Core CPU
  - Processes control traffic (STP, DCB, LACP, Mgmt, etc)
  - 2GB DRAM

Switching ASIC

32*10G ports
or 64*10G ports

PCIe

CPU
1.2GHz, dual-core

Modules

PHY's

PHY's

SFP+ / QSP+

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OmniSwitch 6900 - AOS Release 7.2.1
In the Footsteps of the OmniSwitch 10K

- Support for Switch Virtualization with MC-LAG
  - Fast network re-convergence and optimal load balancing
  - Ease of configuration

- Optimum Application Performance with Rich QoS
  - Rich application classification capabilities (L2/L3/L4)
  - Advanced Queuing and congestion management (SPQ, WFQ, ETS*,RED, WRED, Queue profiles)
  - Head of the Line Blocking prevention
  - Congestion Notification (802.3x, PFC*, QCN*)

- Core Routing Layer 3 support
  - Wire-rate at Layer2 and Layer3 (IPv4/v6, unicast and multicast)
  - Advanced routing support with protocols such as OSPF, BGP, PIM-SM, BFD, VRF

To OSPF/BGP/PIM neighbors

MC-LAG

OS6900   Dual homing without Spanning Tree   OS6900

efficient load balancing   LAG   Recovery within 50msec

* Roadmap

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OmniSwitch 6900 – AOS Release 7.2.1
Innovation for the Top of Rack switch

Switches Automatically Adapt
with VM Movement

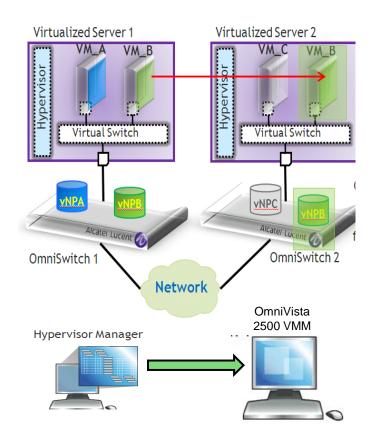## Virtual Network Profile (vNP)
- Policy defined at the edge switches to bind VM or Group of VM to a profile (VLAN, QoS, ACL)

Solves the VM mobility challenge
- Switches dynamically identify VMs as they move
- Policies are applied automatically and consistently across the Data Center edge

Integration
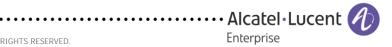- vCenter, Hyper-V, XENServer and KVM

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OmniSwitch 6900 Use Cases

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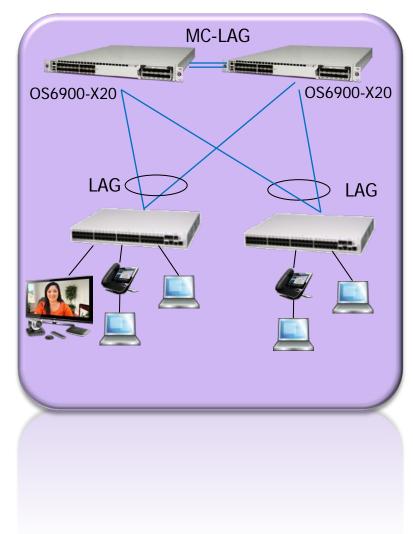
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OmniSwitch 6900

Core in a Small Converged Campus

Customer Challenges:

- Cost Reduction:
  - Cost effective yet powerful platform
- Robust Infrastructure:
  - Simplify operations and high availability
- Quality of User Experience:
  - Maximize end user experience with convergence grade QoS

The OmniSwitch 6900 delivers

- Resilient Architecture:
  - STP less network with MC-LAG, high availability
  - Layer2 and Layer3 protocol support
  - GigE (SFP) and 10GigE (SFP+)
  - Modularity with up to 64 10GbE per switch
  - 10GBASE-LRM (200m over FDDI-grade MMF fiber)
- Streamlined Operations:
  - Extremely low power consumption
  - Common management support
- Automated Controls:
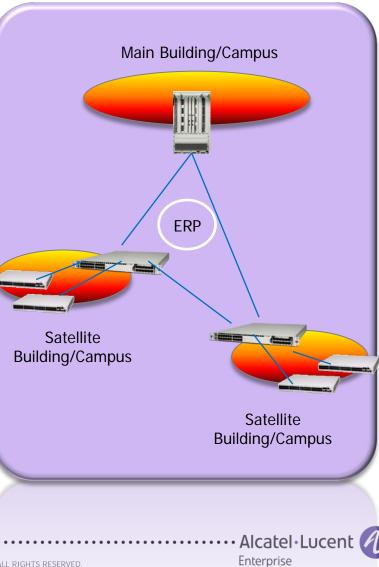 - Rich QoS (L2/3/4) and Output Queuing

MC-LAG
OS6900-X20   OS6900-X20
LAG   LAG

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OmniSwitch 6900

Aggregation in Distributed Campus

Customer Challenges:

- Cost Reduction:
  - Reduce costs at satellite sites with no compromise on performance
- Robust Infrastructure:
  - Simplify operations and high availability
- Carrier Grade Quality of Service:
  - Offer VPN services over the MAN

The OmniSwitch 6900 delivers

- Resilient Architecture:
  - L2 control Protocols for high availability: MC-LAG, ERP
  - VRF support for layer 3
  - Q-in-Q VPN services at layer 2
  - Layer2 and Layer3 protocol support
  - GigE (SFP) and 10GigE (SFP+)
  - Modularity with up to 64 10GbE per switch
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- Streamlined Operations:
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  - Common management support
- Automated Controls:
  - Rich QoS (L2/3/4) and Output Queuing

Main Building/Campus

ERP

Satellite Building/Campus

Satellite Building/Campus

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Small Scale Data Center

Customer Challenges

- Cost Reduction:
  - Reduce server costs and operating expensive: deploy virtualization
- Robust Infrastructure:
  - Improve Data center performance with 10GbE connectivity to some servers
- Quality of User Experience:
  - Need for small scale deployment with support of emerging DC requirements
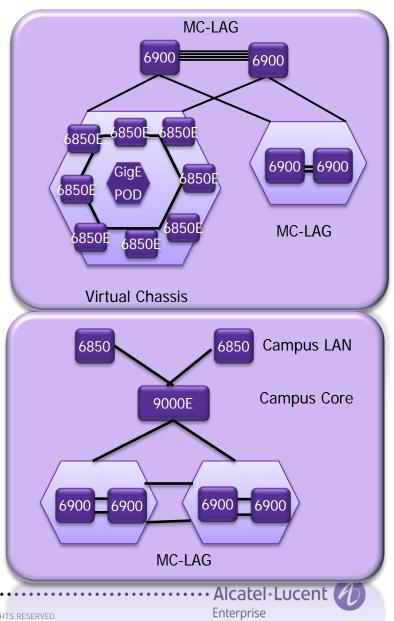
OmniSwitch 6900 delivers

- Resilient Architecture:
  - A set of OS6900 can build an entire Data Center
  - 10GbE to servers and ultra low latency lead to improved performance
  - MC-LAG is key to build a reliable, scalable Layer 2 domain
- Streamlined Operations:
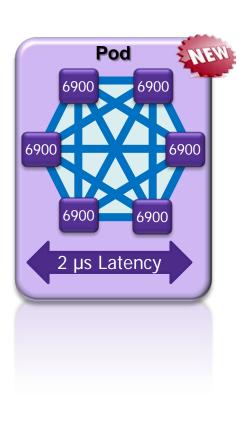 - Extremely low power consumption
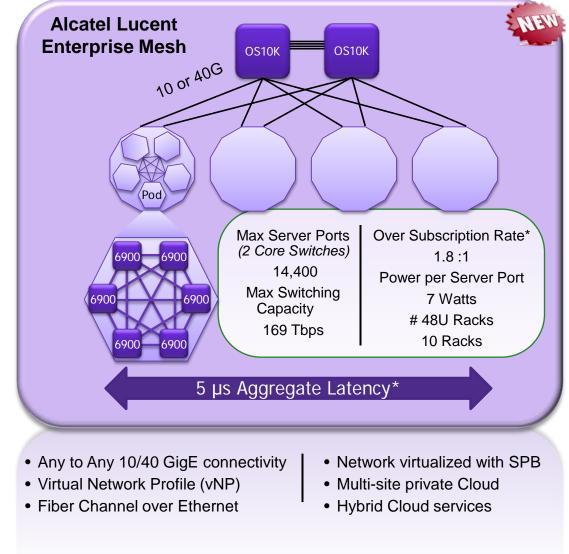 - Common management support
- Automated Controls:
  - Rich QoS (L2/3/4) and Output Queuing
  - vNP and OV2500 WMM enable efficient virtualization deployment and operation

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Large Scale Data Center – Building Block of the POD and SuperPOD

Pod

NEW

6900 6900
6900 6900
6900 6900

2 µs Latency

Alcatel Lucent Enterprise Mesh

NEW

OS10K ═══ OS10K

10 or 40G

Pod

6900 6900
6900 6900
6900 6900

Max Server Ports *(2 Core Switches)*	Over Subscription Rate*
14,400	1.8 :1
Max Switching Capacity	Power per Server Port
169 Tbps	7 Watts
	# 48U Racks
	10 Racks

5 µs Aggregate Latency*

- Any to Any 10/40 GigE connectivity
- Virtual Network Profile (vNP)
- Fiber Channel over Ethernet

- Network virtualized with SPB
- Multi-site private Cloud
- Hybrid Cloud services

*Assuming Server to Server Traffic 70% within a Pod, 20% between Pods and 10% Via Core

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Conclusion

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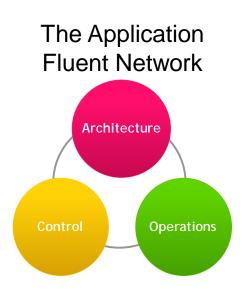# Alcatel-Lucent Enterprise Best of Breed Products

Unmatched Scalability

- Market leading low latency and high density
- Long term sustainable design ready for 40 and FCoE with modularity

Enhances Quality of Experience

- Advanced QOS features enhance experience in Campus and Data Centers
- Readiness to support evolving standards

Multi dimensional Usability

- OmniSwitch 6900 can be used in Data Centers, Campus LAN, Strategic Industries as small Core, distribution and ToR

The Application Fluent Network

Architecture

Control

Operations

Uniquely enables a high quality user experience with reduced complexity

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