

# The intelligent answer to the agile business

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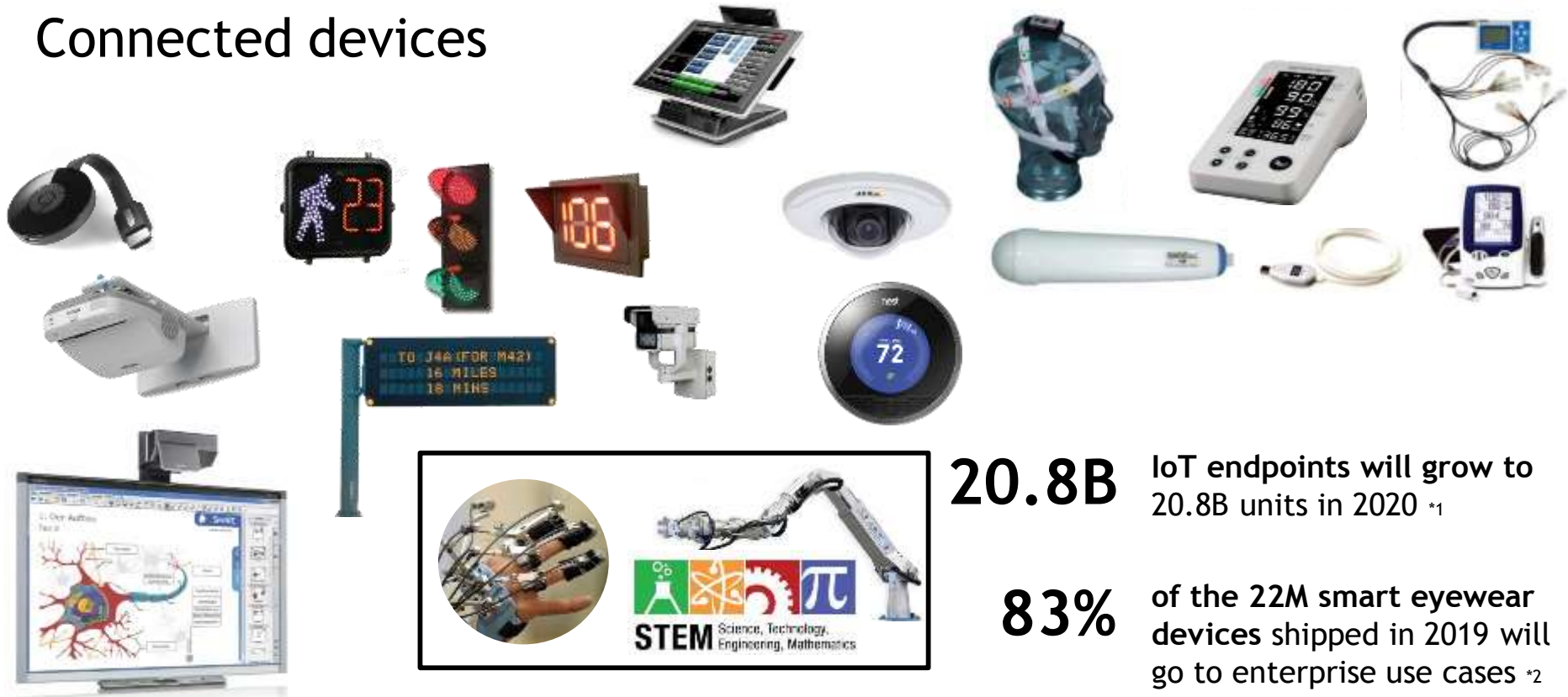
Mauro Rizzi

Business programs Director

ALE

Where  
Everything  
Connects

# Connected devices



**20.8B** IoT endpoints will grow to 20.8B units in 2020 \*1

**83%** of the 22M smart eyewear devices shipped in 2019 will go to enterprise use cases \*2

IoT is becoming a common element in every industry sector

\*Pictures from: <https://store.august.com/>; <http://www.a1securitycameras.com/axis/>; [http://www.greensahc.com/goodman\\_hvac\\_iowa.php](http://www.greensahc.com/goodman_hvac_iowa.php); <http://www.mitasprinklers.com/impact-sprinklers.html>; <http://www.salford.ac.uk/computing-science-engineering/subjects/robotics-and-systems-engineering/>; <http://www.pcmag.com/article2/0,2817,2498223,00.asp>; <http://sparc-robotics.eu/fusion-energy/>; <http://www.hancockcollege.edu/stem/>; <http://www.securityinfowatch.com/product/12065885/axis-communications-axis-a8004-ve-network-video-door-station>; <https://www.cybertrend.com/article/23138/medical-connection-iot-in-health-care>

\*1 Gartner Report: Infrastructure and Operations Leaders: Prepare for the IoT Rush, 1 March 2016

\*2 IDC FutureScape: Worldwide Mobility 2016 Predictions - IDC web conference presentation by John Jackson - Nov 2015

# Mobility is improving our world

## High-bandwidth enables more applications



An excellent quality of experience

# Tomorrow's Digital Business question

Mobility



## NETWORK INFRASTRUCTURE

- Higher resilience
- Tighter security
- More wireless coverage
- Higher performance
- Low latency
- IoT traffic containment
- New services

IoT



Higher dependency on the Data Center

# ALE Network portfolio

## Management



Network Infrastructure  
(OmniVista®)



Virtual Machine Manager  
(OmniVista®)

## Routers

Branch Router  
and Server



Transportation  
(Smart Grid)



SAE J1455  
(Heavy Duty Vehicles)



\*Teldat  
H2 Automotive+

EN-50155  
(Rolling Stock and Railway)



\*Teldat H2-Rail

## Switches

### Core



OS6900/6920



OS9900



OS10K



OS6865



OS6465



### Access



OS6880



OS6560



OS6450



OS6350



OmniAccess® Stellar  
and OmniAccess® APs



On The Road



Home Office



SMB/Branch Office



Corporate Office



Data Center

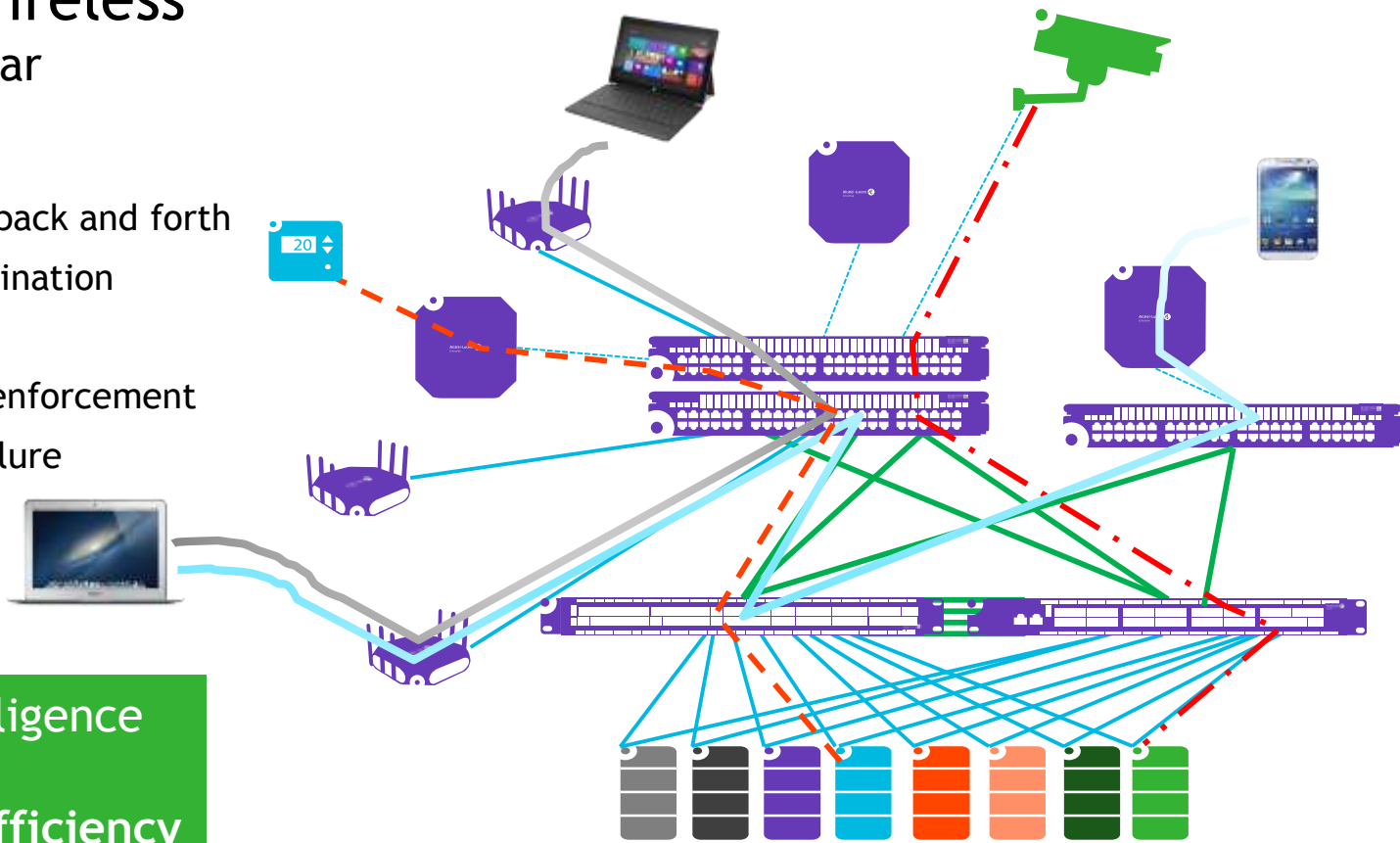
# Alcatel-Lucent Enterprise portfolio

1 - Operating System: AOS

1 - Network Management System

# Intelligent Wireless OmniAccess Stellar

- Controller-less
- No traffic trombone back and forth
- Shortest path to destination
- Lower latency
- Quicker QoS, policy enforcement
- No single point of failure



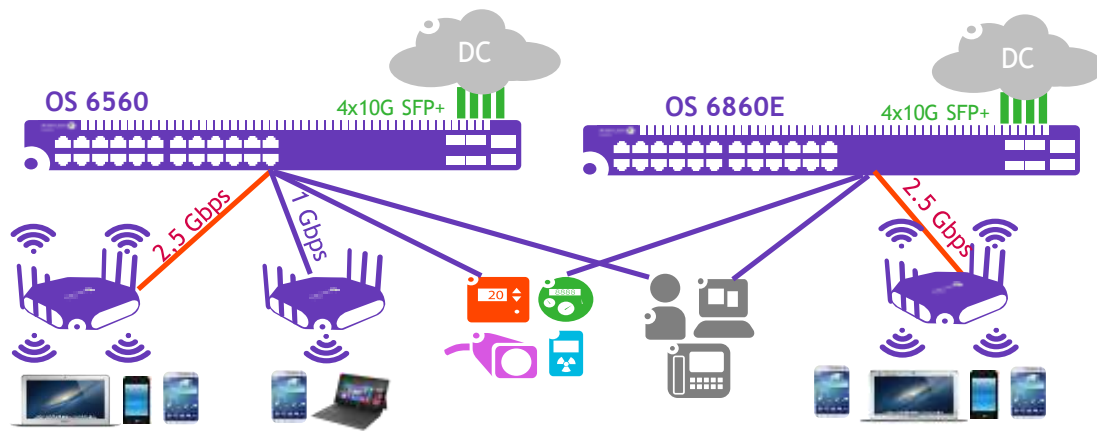
Distributed intelligence

=

Higher network efficiency

# Intelligent Access

## OmniSwitch 6560, 6860E



- Multigig ports to enable high speed WiFi
- Supports current cabling - Cat 5E/6
- 4x10G uplink
- 20G stacking options
- High PoE ports (up to 95W)

OS6860E advanced capabilities:

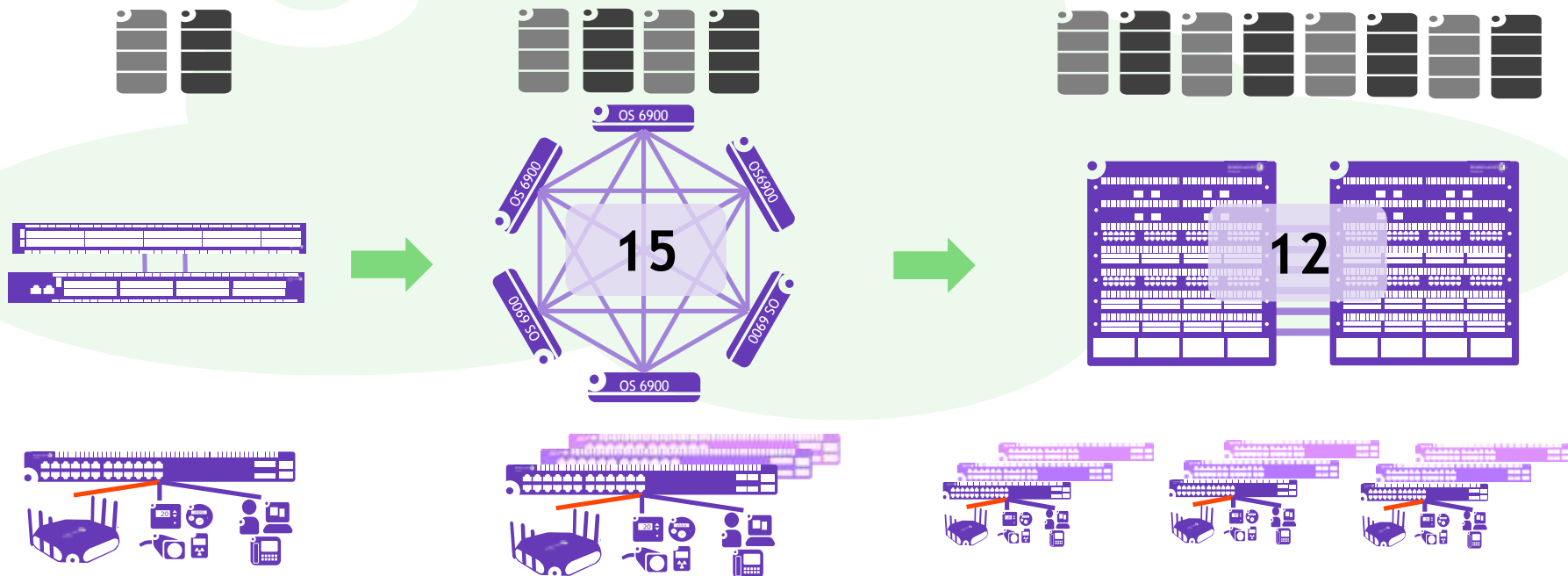
- DPI (Deep Packet Inspection)
- Shortest Path Bridging for **extended fabric**

The right access switch for your WLAN 802.11ac wave 2 and extended fabric



# Intelligent Data Center

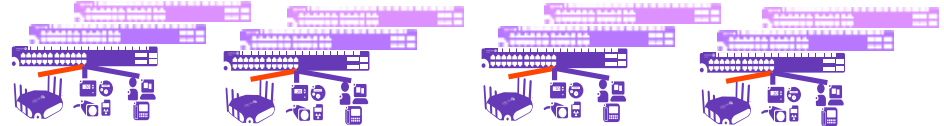
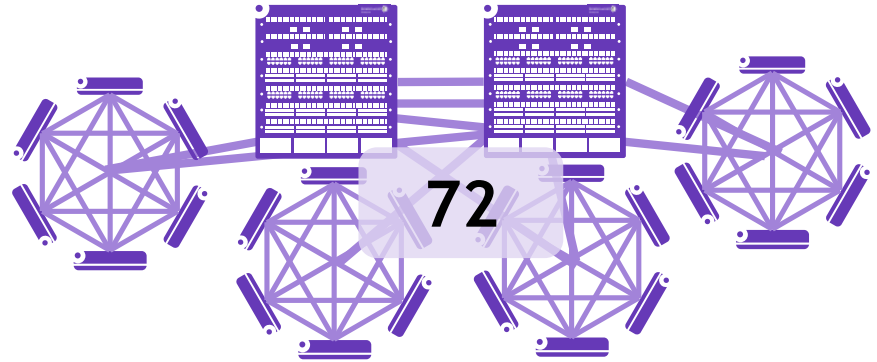
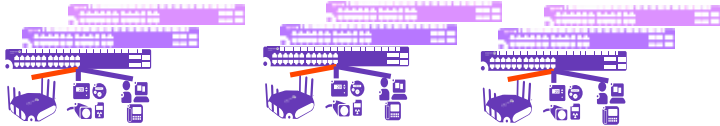
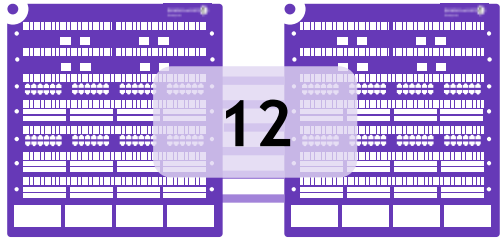
## OmniSwitch 6900 9900



Ready-to-grow data center with flexible architectures

# Intelligent Data Center

## OmniSwitch 6900 9900

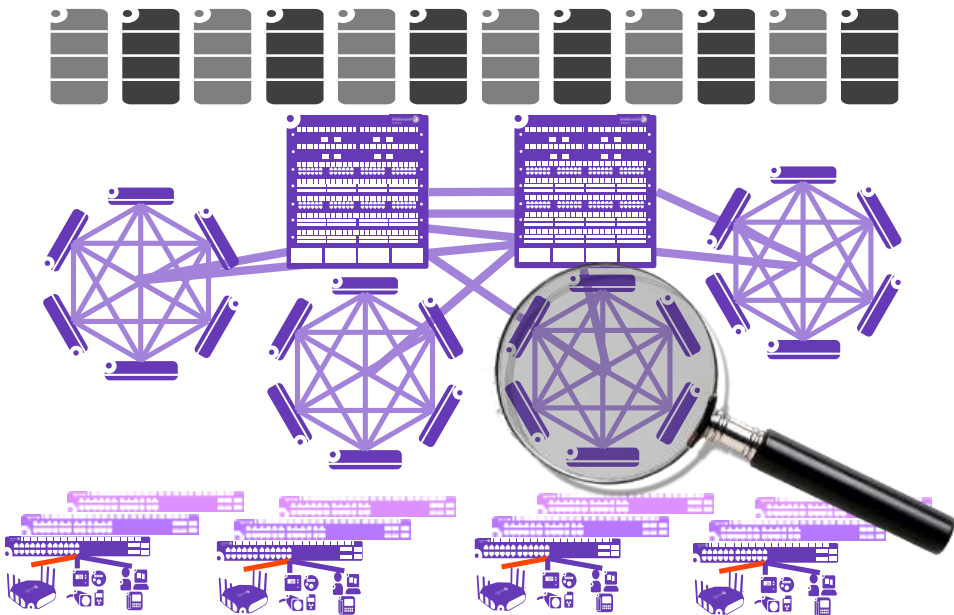


Ready-to-grow data center with no compromise on performance

# Flexible Architecture

Fully automated, orchestrated and secured

IEEE 802.1aq - aka SPB, powered by an **intelligent Fabric**



- Small form factor
- Low cost, high speed **10G/25G/40G/100G DC**
- High performance, low latency, low power consumption
- Pay as you **grow** with Virtual Chassis
- Automatic **L2/L3** configuration
- Fibre Channel interfaces
- Automatic isolation
  - Standard based: Shortest Path Bridging (SPB)
  - High scalability (**16M** services)
- Application awareness

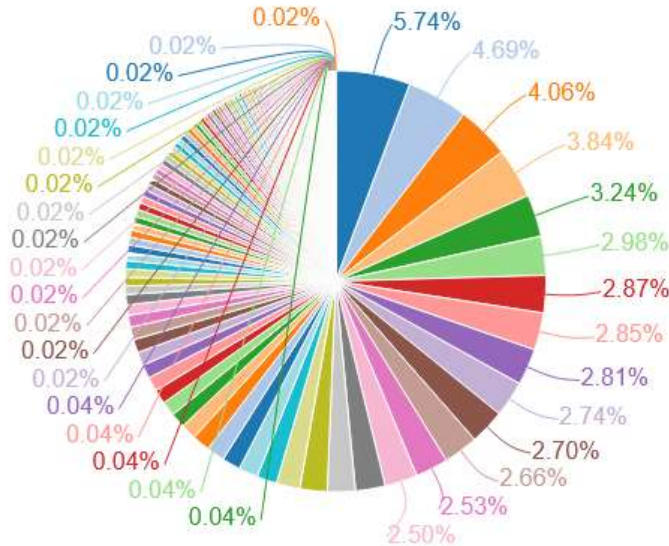
# Application Visibility

## Smarter network

Applications

⌂ ☰ ⚙️ ↺ Actions ▾

Applications statistics by flows



< Others

- ✓ gmail
- ✓ facebook
- ✓ icloud
- ✓ twitter
- ✓ apple
- ✓ facebook\_messenger
- ✓ microsoft
- ✓ amazon
- ✓ sismek
- ✓ appnexus
- ✓ scorecardresearch
- ✓ criteo

# Application Visibility

## Smart Analytics

Visibility



Rainbow™



Facebook pages



Facebook Messenger



Facebook Video



WhatsApp



Shift Planning



Opera PMS

Control



Reserve bandwidth



Lower priority



Blacklist



Limit Bandwidth



Prioritize



Optimize jitter & latency



User

Staff

+



Device

Smartphone

+



Situation

Location

+



Application

Social media

=



Policy

Block

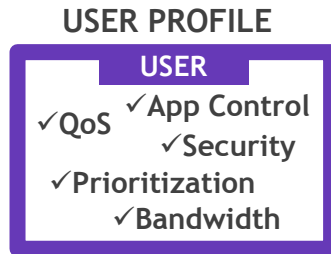
# Performance is nothing without control



- Is bandwidth enough?
- What about priority?
- What about cost?

# Unified Access Access Automation

- Secure access
- Consistent experience
- One management system
- Users / VMs mobility made easy



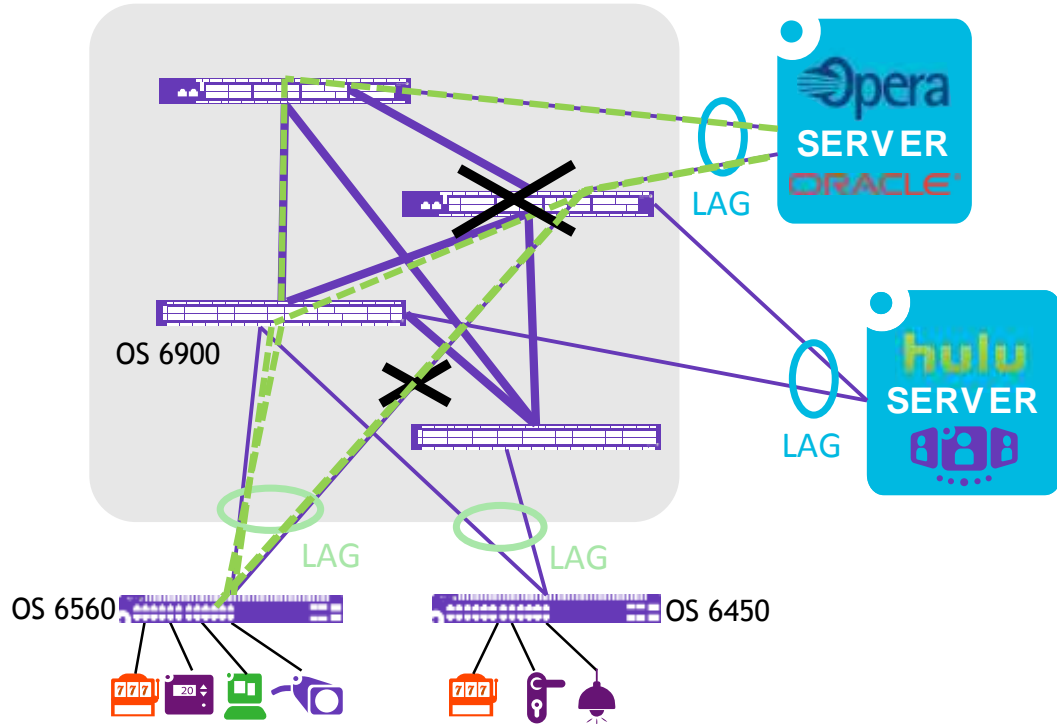
Enabling differentiated services, user mobility and seamless access security

# Intelligent Fabric

## Data Center Automation

Best of  
**INTEROP**  
2015 Networking Winner

- Self configuring
- Self Attachment
- Move, add & change
- Self Healing

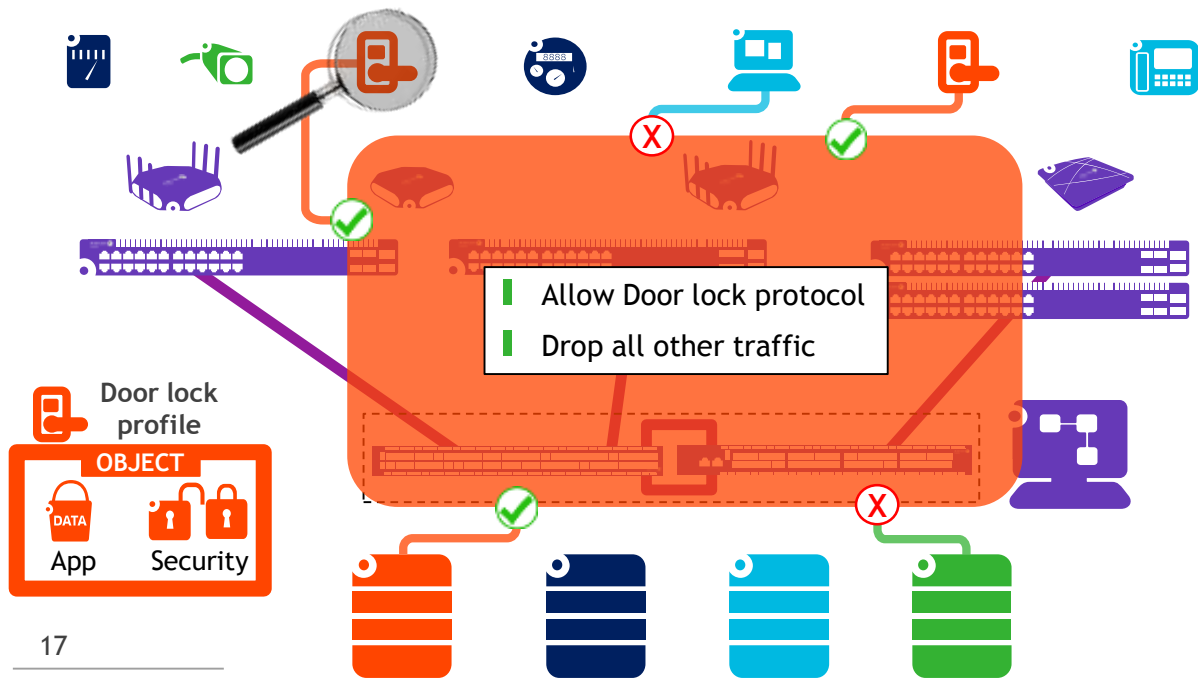


Faster deployment, easier support, higher resilience, lower down time



# IoT Containment

## Automatic Isolation & security

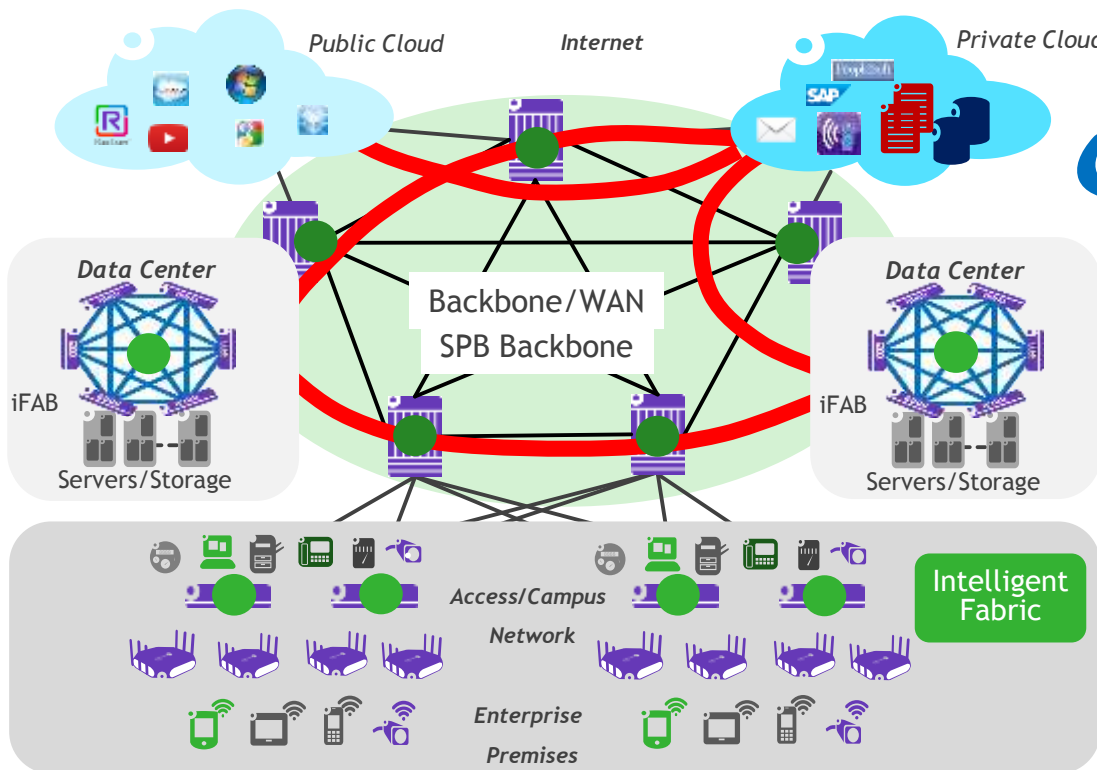


### True security via containers

- Device authenticated
- Protocol enabled
- Application authorized
- E2E campus to data center

# Simple Operations

End-to-end automation: secured services from Access to Cloud

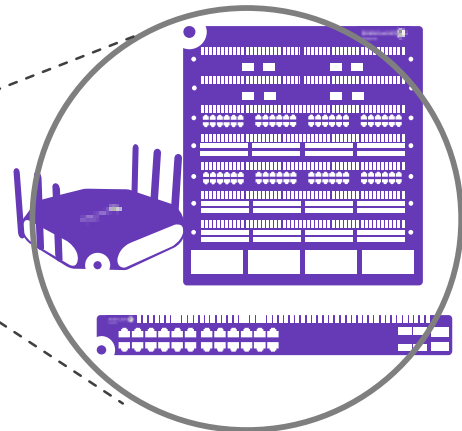
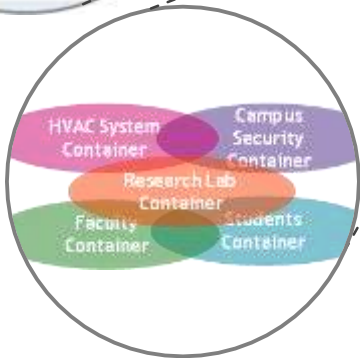
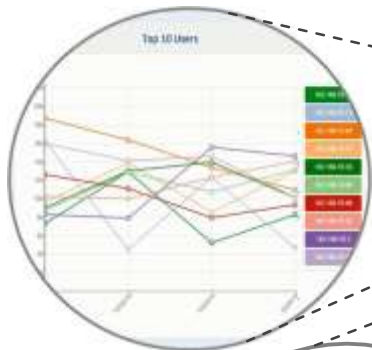


- End-to-End Automation
  - SPB in DC, Backbone and Access
  - Automatic Configuration
- Virtual Containers per IT service
  - Automatic isolation
  - High security
  - High Performance
  - Low Latency
  - High availability & redundancy

# Network Management System

## Operation Automation

OmniVista 2500



- 1 NMS for the whole infrastructure - LAN+WLAN+DC
- Unified policies, for users and VMs with security
- Seamless user experience with wired or wireless connectivity
- One place to view and manage all virtual containers
- One interface to all analytics and network services
- Single pane of glass



# Medcare hospital

A converged network to deliver optimal patient care



CASE STUDY

MARKET: HEALTHCARE

COUNTRY: UNITED ARAB EMIRATES



Medcare is the premium healthcare division of Aster DM Healthcare, a private healthcare conglomerate in the Middle East and India. Medcare operates in the UAE with a wide network of state-of-the-art facilities. Medcare delivers quality care out of 15 hospitals and clinics, including the new industry-leading Medcare Women & Children Hospital.

## CHALLENGES

- Medcare wanted to implement a converged network infrastructure in new and existing sites to give doctors and staff instant access to knowledge, improve collaboration and increase staff efficiency

## SOLUTION

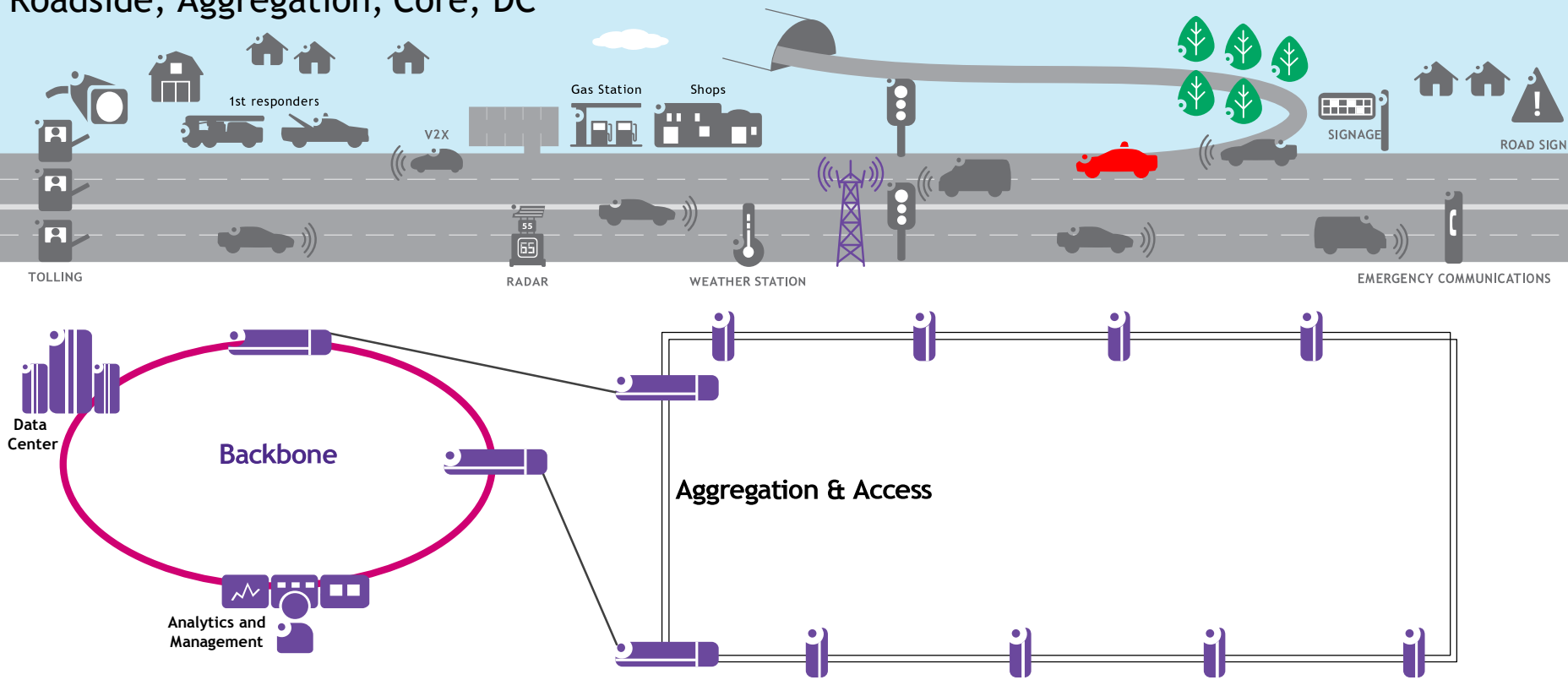
- A mix of networking and unified communications products
- OmniSwitch Data Center and Campus Access Switches
- OmniAccess Wireless LAN Controllers & Access Points
- OmniPCX Enterprise Communication Server
- Premium Desk Phones

## BENEFITS

- Simplified maintenance, better control over network status and operations, reduced operating costs
- Instant and always-on access to patient medical information enabling mobility across the sites
- Improved image and reputation thanks to the improved infrastructure that reinforces the attractiveness of Medcare facilities

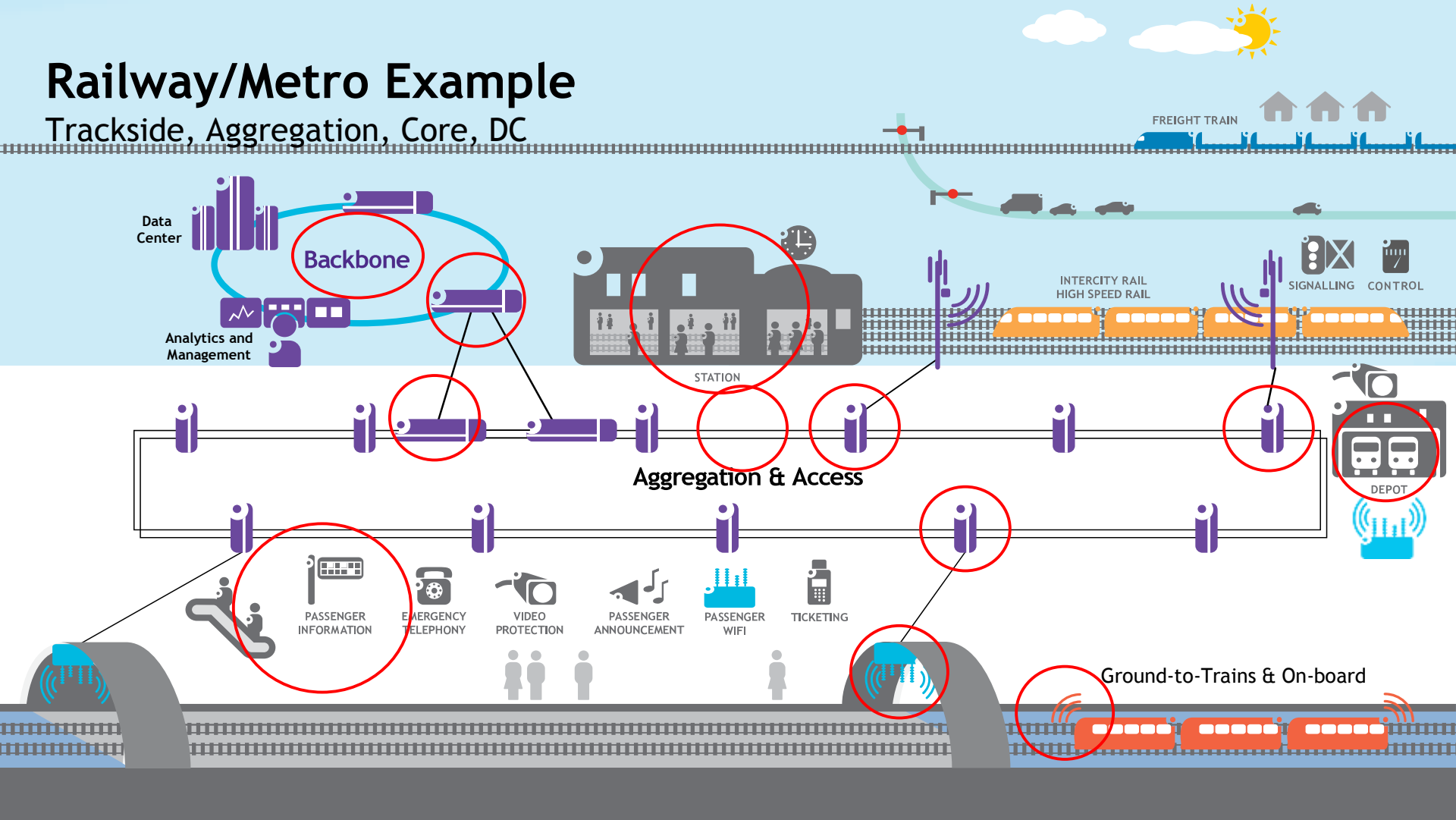
# Intelligent Transportation System Example

Roadside, Aggregation, Core, DC



# Railway/Metro Example

Trackside, Aggregation, Core, DC



# Use cases



IT infrastructure savings  
-75% on CAPEX  
-92.6% on OPEX

<http://www.networkworld.com/news/2012/102512-cisco-csu-263711.html>



Just a couple of clicks  
to provision  
a \$40M cloud  
with OmniVista 2500 VMM



IT infrastructure savings  
-50% on CAPEX  
-44% on OPEX

+500% bandwidth  
-66% DC power  
-43% maintenance cost



Now, a uniform connectivity,  
a uniform infrastructure  
to every single switch,  
to every single fabric piece

<https://youtu.be/gn9MgXfIF2s?list=PL-mHF9yP7tLA6vmjTrrPOBIIInzp2aOVyy>

# Key takeaways



Advanced  
End to End  
Automation



End to End  
Security



IoT  
Containment





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[youtube.com/user/enterpriseALU](https://youtube.com/user/enterpriseALU)

# The L2+ OmniSwitch

## OmniSwitch 6350 SMB Switch



- 10, 24 and 48 port models
- GigE access and up to 4 GigE SFP uplinks
- PoE/PoE+ support
- Zero-touch configuration

## OmniSwitch 6450 Edge Switch



- 10, 24 and 48 port models
- GigE access, 10G uplinks
- PoE/PoE+
- Low-cost variants (L versions) restricting speeds; s/w upgradeable
- IEEE 1588/HPOE variant (S models)
- CodeGuardian

## OmniSwitch 6560 MultiGig Edge Switch



- 24 and 48 port models
- 16 or 24 2.5G (802.3bz) ports
- PoE/PoE+/HPOE
- CodeGuardian

# The L3 OmniSwitch

## OmniSwitch 9900 SPB Chassis Core/Edge



- 11RU: 2 CMM slots, 5 NI slots
- 2.56Tbps full duplex fabric
- NIs: 48x10G, 48x1G, 8x100G, 16x 2.5G/5G/10G
- PoE/PoE+/HPoE, 10.8kW budget
- Redundant CMM, power, fabric
- SPB, Python, CodeGuardian

## OmniSwitch 6900 SPB Core/ToR Switch



- Multiple variants, all stackable (VC)
- 20/40/72 port 10G
- 32 port 40G
- Sub-microsecond port/port latency
- Lossless Ethernet, FCoE, VXLAN
- SPB, Python, CodeGuardian

## OmniSwitch 6860/E SPB Edge Switch



- Multiple variants, all stackable (VC)
- 24 and 48 port models
- GigE access, 10G uplinks
- PoE/PoE+
- HPoE and DPI (OS6860e)
- MultiGig variant (OS6860-P24Z8)
- SPB, Python, CodeGuardian

## OmniSwitch 6865 SPB Hardened Switch



- 16 port copper, 12 port optical, 24 port optical variants, all inter-stackable
- -40C to 74C
- GigE user/10G uplink
- PoE/PoE+/HPoE
- IEEE 1588
- SPB, Python, CodeGuardian

# OmniAccess® Stellar WLAN



## AP1101

### 802.11ac Wave 1

2 radios  
2x2:2SS  
1.2 Gbps throughput  
No BLE  
1 GE port  
256/32 : max/suggested clients  
10 W (802.3af PoE or DC)  
Operating Temp: 0°C to 45°C



## AP1221/AP1222

### 802.11ac Wave 2

2 radios  
2x2:2 @ 2.4GHz, 4x4:4 @ 5GHz  
2.2+ Gbps throughput  
Optional BLE radio through USB port  
1 GE Port  
512/75 : max/suggested clients  
18,5W (802.3at 2pair PoE or DC)  
Operating Temp: 0°C to 45°C  
App monitoring & control / DPI



## AP1231/AP1232

### 802.11ac Wave 2

3 radios  
4x4:4 @ 2.4GHz, dual 4x4:4 @ 5GHz  
4.2+ Gbps throughput  
Integrated BLE radio  
1xGbE + 1x2.5GbE network interfaces  
768/125 : max/suggested clients  
<31W (802.3at 4pair or DC)  
Operating Temp: 0°C to 45°C  
App monitoring & control / DPI



## AP1251

### 802.11ac Wave 2

2 radios  
2x2:2 @ 2.4GHz, 2x2:2 @ 5GHz  
1.2 Gbps throughput  
No BLE  
2xGbE network interfaces  
512/75 : max/suggested clients  
<12W (802.3af PoE)  
Operating temperature : -40 to 65°C  
App monitoring & control / DPI



[www.al-enterprise.com](http://www.al-enterprise.com)



[facebook.com/ALUEnterprise](https://facebook.com/ALUEnterprise)



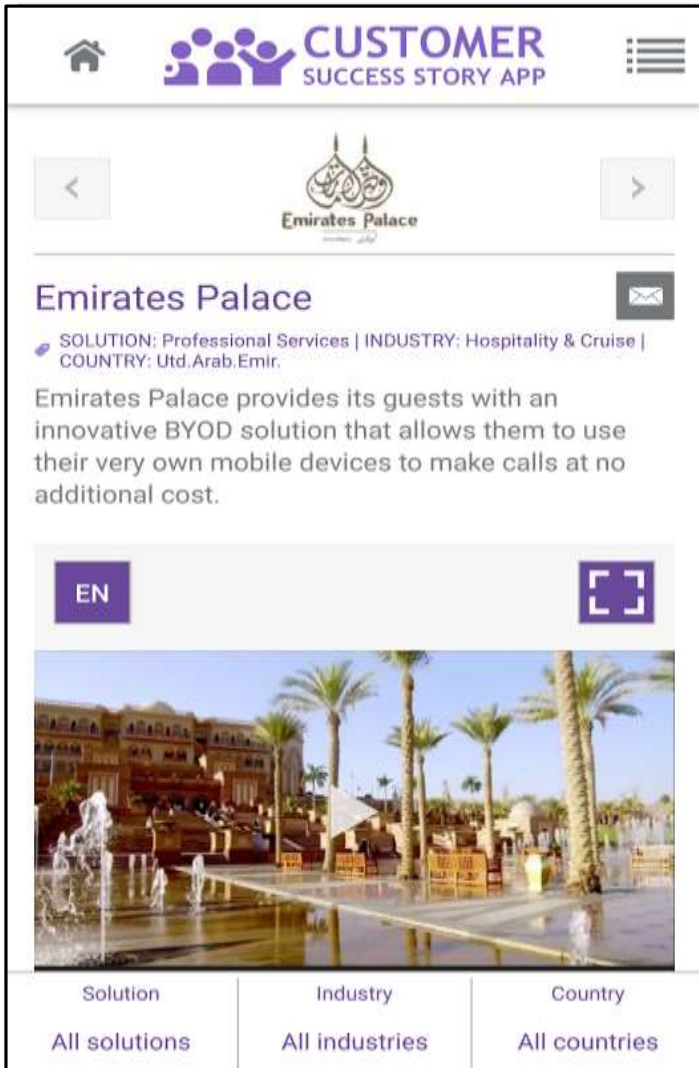
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[youtube.com/user/enterpriseALU](https://youtube.com/user/enterpriseALU)



# Customer Reference

## Description

The application enables any user to access ALE International customer reference list, related case studies and videos, sort the assets by country, industry, solution, and publication date

