

The background of the slide features a large, faint watermark of the Brandeis University seal. The seal is circular with the words "BRANDEIS UNIVERSITY" around the perimeter. In the center is a shield with three flames and a book.

How a Unified Wired and Wireless Architecture Addresses BYOD

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Mobility Trends – Birthplace of BYOD



- 3-4 Mobile Devices per person
– accretive to wired

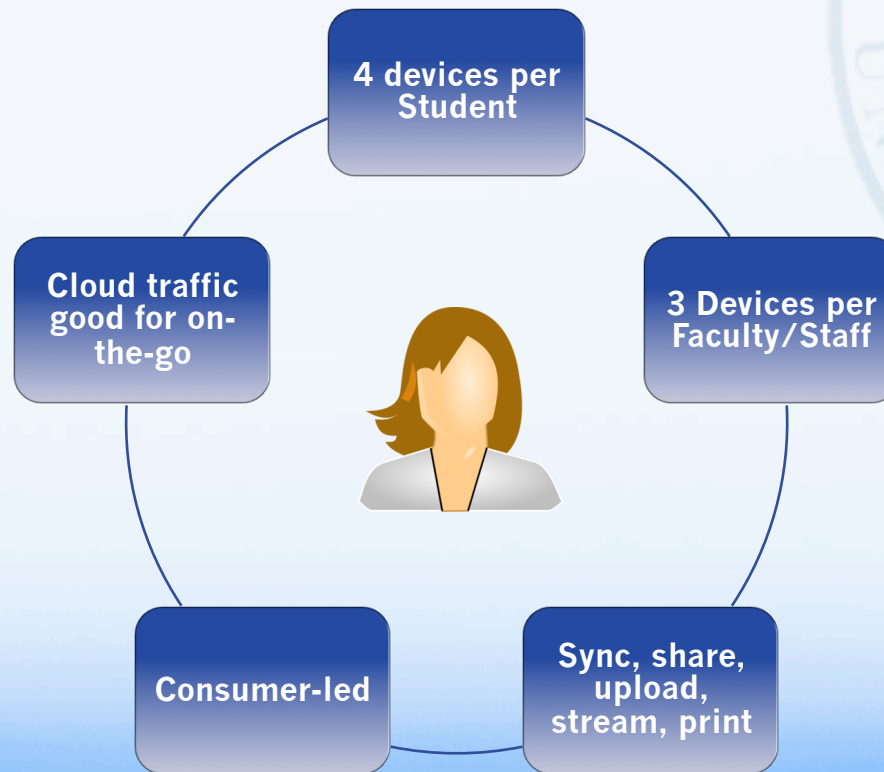


- Continued growth in video
and gaming traffic



- Wired and Wireless Provisioning

Owner-Centric Network

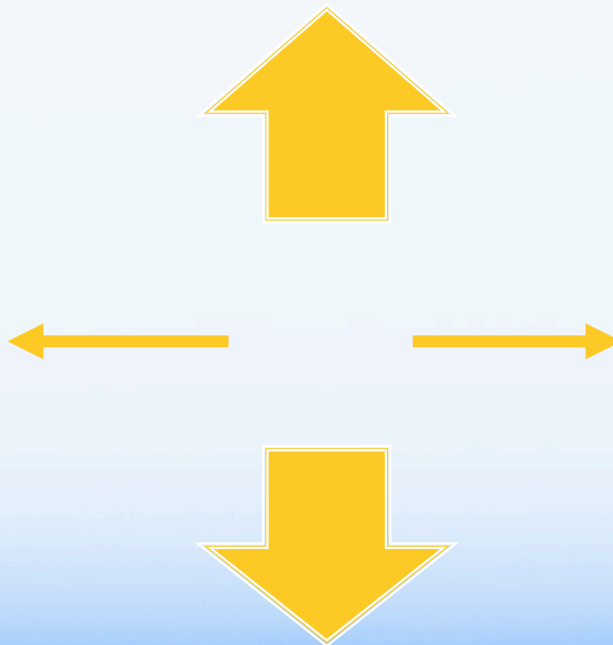


2012 – User Traffic

Internet

- VoIP
- IPTV
- Video Conf
- Apple TV
- Xbox 360
- Location content
- Sync

- Enterprise Apps
- Net Management
- Research Data
- Printing
- Tablet access
- Smartphone Access

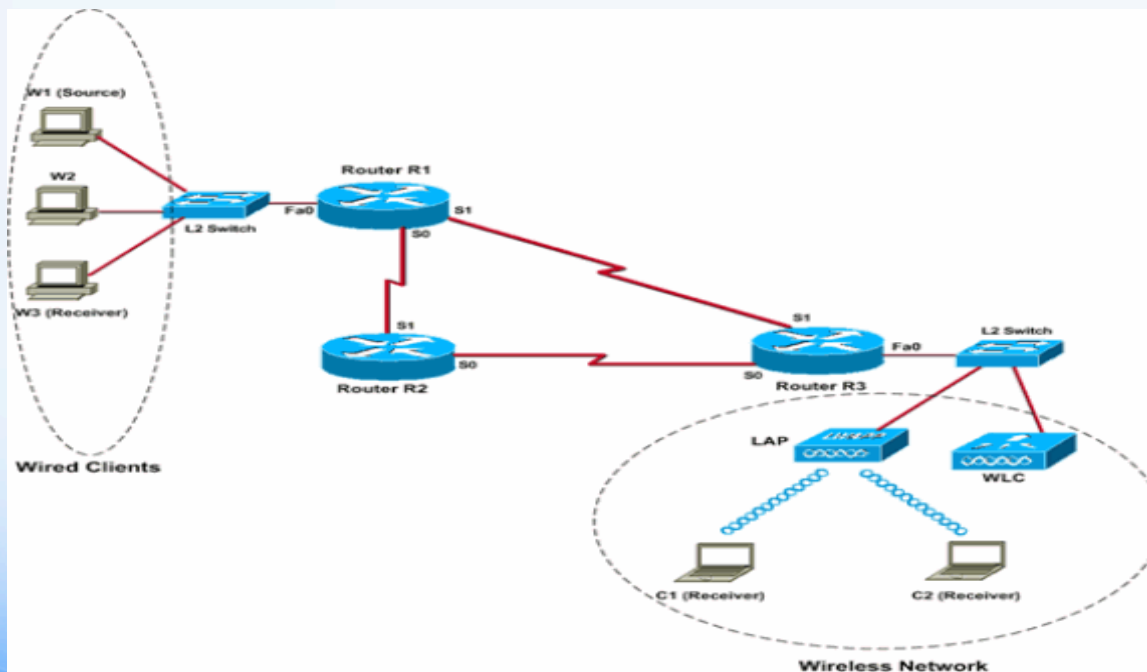


Strategy: Identity Based Networking



- Build a dynamic policy driven network
- Authenticate at the edge
- Trust in the core
- Access based roles
- Follow the user

Rethinking the Edge



- Separate wired and wireless networks
- Separate Policies
- Separate Management

Our Solution

Aruba AP-135 for a very high density 802.11n network



Our Solution

Aruba S3500/S2500 to unify edge access



- Uniform access policies for wired and wireless
- Wired security beyond ports/VLANs

Edge Switch Requirements

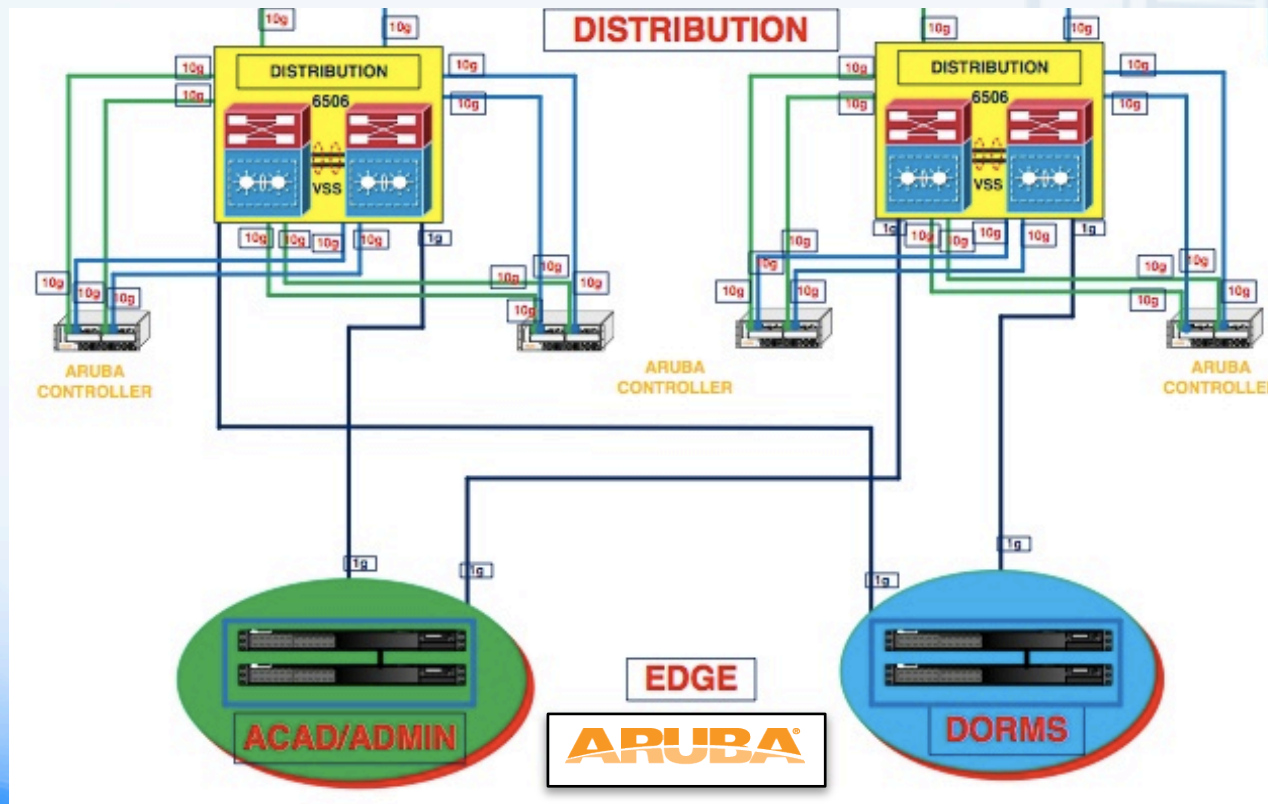
- Route, switch, stack across closets (OSPF, PoE, QoS)
- Support our legacy Cisco VoIP phones (CDP)
- Redundancy / Resiliency – rock solid
- Had to fit into our identity-based networking strategy
- Innovative direction and roadmap

We Tested the Hell out of the Solution



- **Routing (OSPF)**
- Layer 2
- QoS
- **Stacking**
- PoE
- Security
- Multicast
- SNMP
- **Fingerprint Cisco Phones**
- **Role based access**
- **Centralized configuration**
- **802.1x**
- Power efficiency
- Ease of configuration

Network Diagram



Putting it all Together

- Unified access roles for users
 - Easier to grant voice access on both wired and wireless
 - User roles based on MAC, UDR, or 802.1x
- Assign VLAN automatically on wired devices
 - APs plugged into any port come up in appropriate VLAN
 - Less operational overhead as devices configure themselves
- Automated ACL assignment
 - Devices like printers protected and locked down without user intervention
- Single management application – AirWave
 - Visibility at the Edge – wired and wireless



WHY CAN'T I PRINT
FROM MY iPad?

Enabling AirPlay and AirPrint Across a Unified Wired and Wireless Network

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ARUBA
networks

Plug-n-Play with Apple Bonjour / mDNS



OS Support

iOS, Windows,
MacOS, Linux

App Support

AirPlay, AirPrint,
AirParrot, iChat,
iTunes, Safari, iPhoto,
Skype and more.

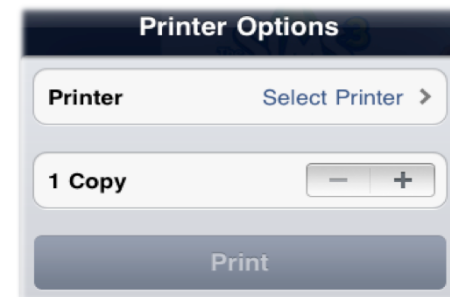
Most
Popular
Apps



Screen mirror from an
iPhone, iPad, MacBook
to an AppleTV



Print from an iPhone or
iPad with a Bonjour
enabled printer

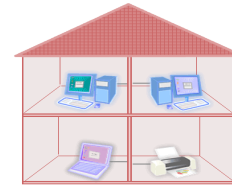


Challenges with Apple Bonjour / mDNS

1.

Designed for home

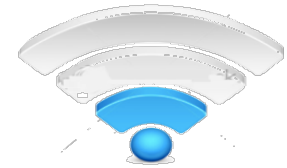
- Operates in a single broadcast domain
- Pre-Shared Key (PSK) for Wi-Fi security



2.

Limited WiFi performance

- Multicast use lowest 802.11 rates
- L3 forwarding increases Wi-Fi waste



3.

Prone to end user errors

- Services do not require authorization
- Easy to pick the wrong service



Aruba AirGroup™



AppleTV in the classroom



Printer in the auditorium



AppleTV in the dorm room



Printer in the library



ClearPass Guest



Aruba Access Network

Step 1

- Service Registration by Students & IT

Step 2

- Service Discovery over L3
- Traffic Optimization
- Access Control

Aruba AirGroup Example: Student Mary



Aruba AirGroup: Benefits

Context Based Access

Only the necessary services are made visible to mobile devices – per user, per role, per location.



Centralized Registration of Services

End users self-register their own personal service.
Simple registration of shared and local services by IT.

Zero Touch Install

No gateways or multicast VLANs. No additional SSIDs, VLANs, MAC filters. No multicast routing configuration.



THANK YOU

