



# Mobility Portfolio Overview



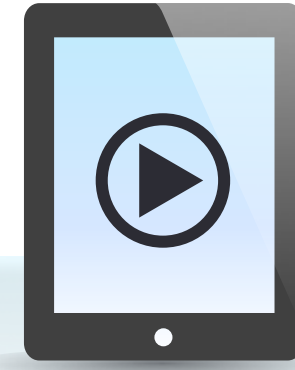
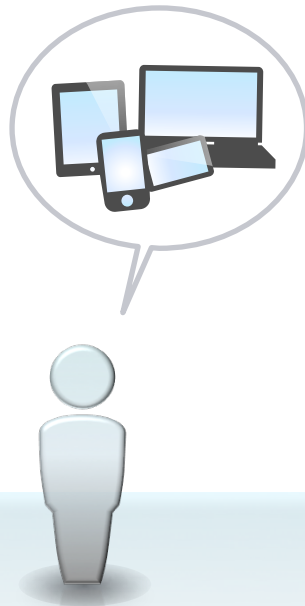
15

**BILLION**

mobile devices

**FOUR YEARS**

# IT Challenges to Mobile Freedom



**Securing  
Any  
Access**

**Managing  
Complexity  
And Scale**

**Delivering  
High-Quality  
Experience**

# Beyond BYOD

The Optimal Experience for Every Workspace



One Experience

Device Onboarding  
and Guest Access

One  
Management

One  
Policy

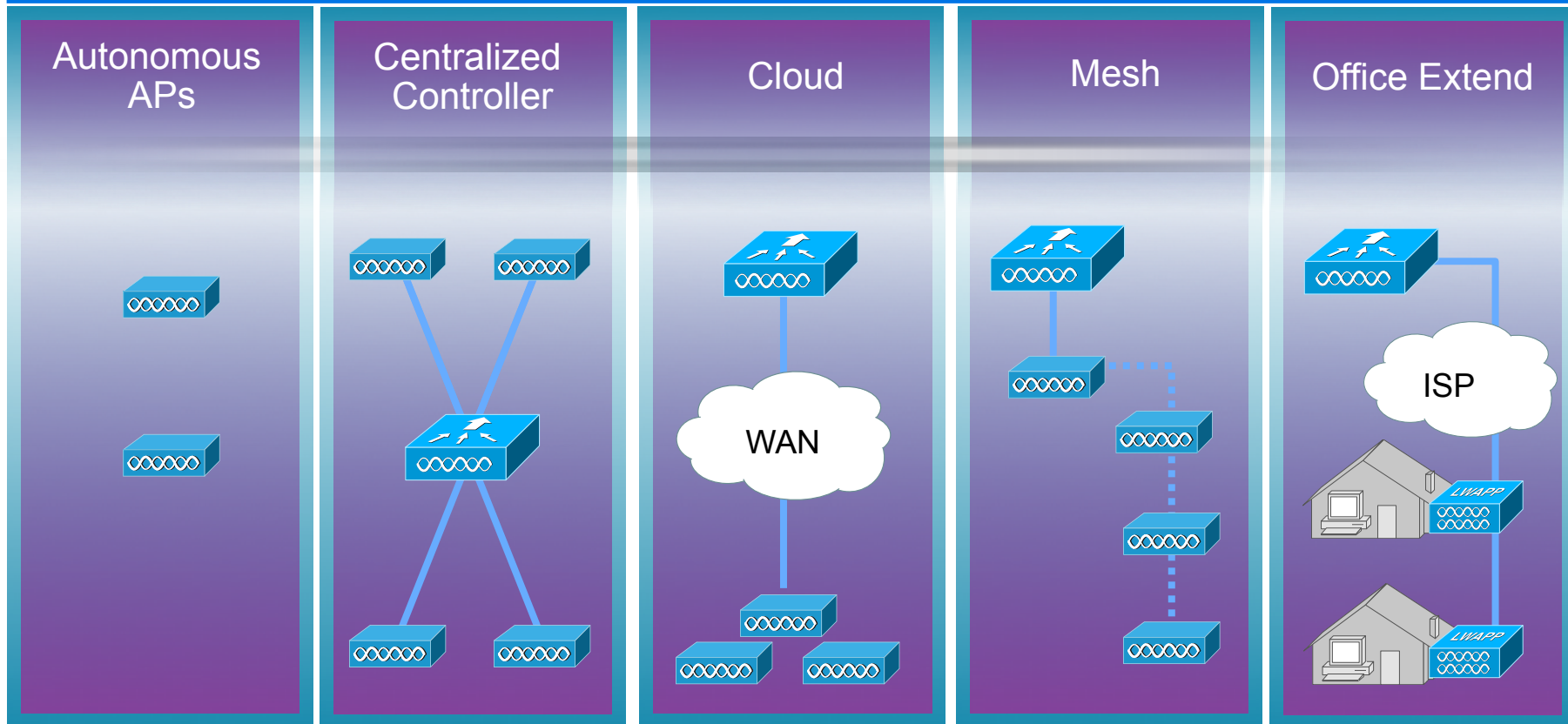
One  
Network

**BYOD**

**Beyond BYOD**

# WLAN Architectural Flexibility

## Cisco Prime Network Control System



## Same AP Across All Deployment Types

Controller-less deployments

Simplified ops WLAN services

AP scale over thin WAN links

Full ethernet cabling no longer required

Simplified teleworker solution

# Cisco Mobility / BYOD Differentiators

Best in Class and Best of Breed

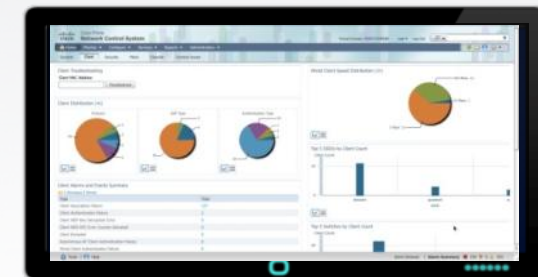
## Mobility / RF Innovation (Predictability)

CleanAir	Chip level proactive and automatic interference mitigation
ClientLink	Chip level proactive and automatic electronic beamforming
Radio Resource Management	Simplified advanced RF management
BandSelect	Proactive and automatic band steering for 5GHz capable clients
VideoStream	Chip level wired multicast over a Wireless network
AnyConnect	Persistent context-aware VPN connectivity

## Policy & Network Management

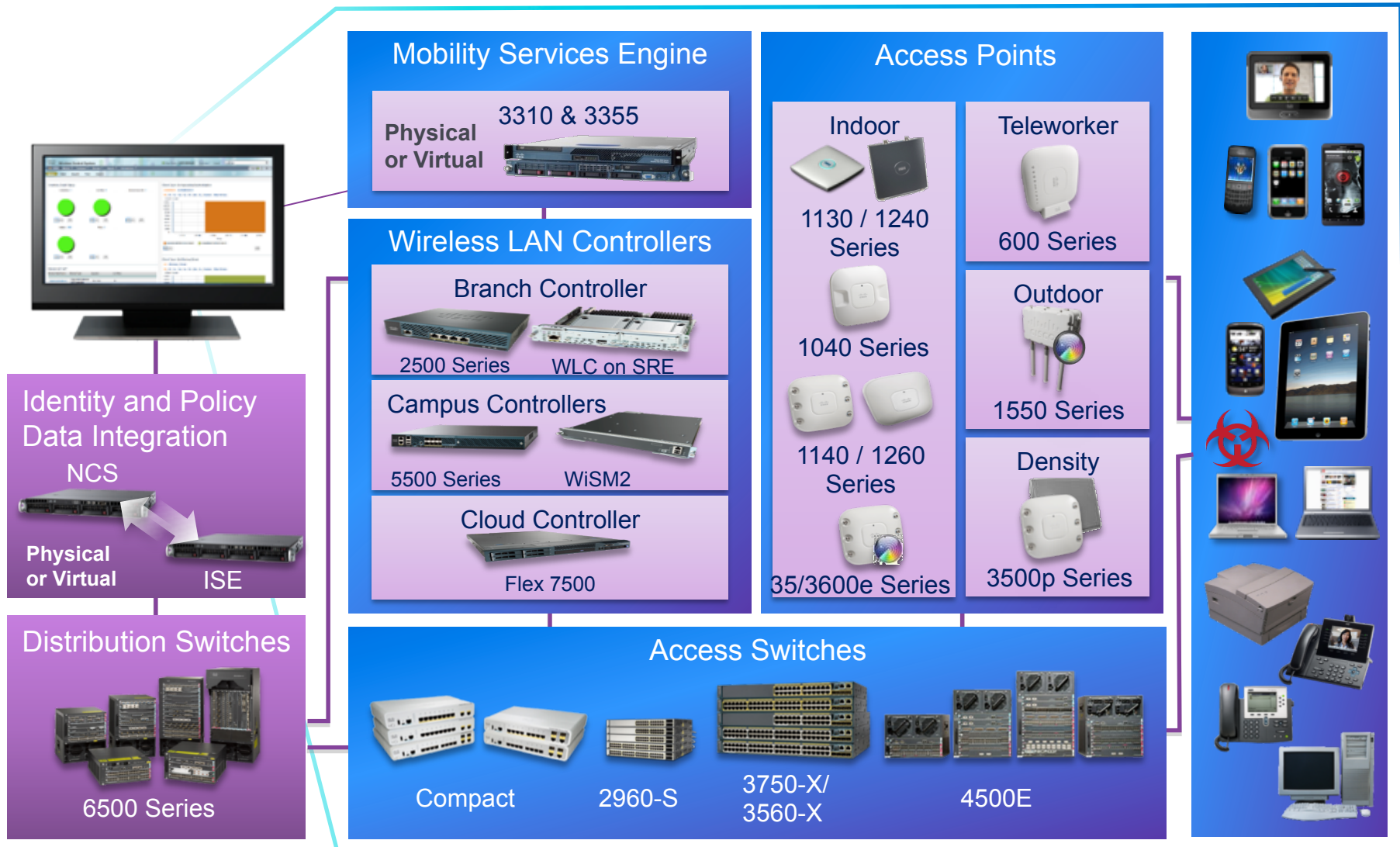


ISE  
(Control)



Prime NCS  
(Visibility)

# Cisco's Mobility Portfolio – Unmatched Product Breadth





# One Management One Policy

# Cisco's Unified Network Management

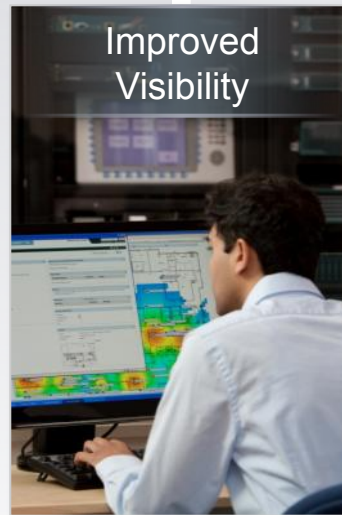
Single Pane of Glass View and Management of Wired+Wireless+Identity

**BEFORE**  
Separated management



- ✗ **Siloed** Inefficient Operational Model
- ✗ **Repetitive** Manual correlation of data
- ✗ **Error Prone** Consumes time and resources

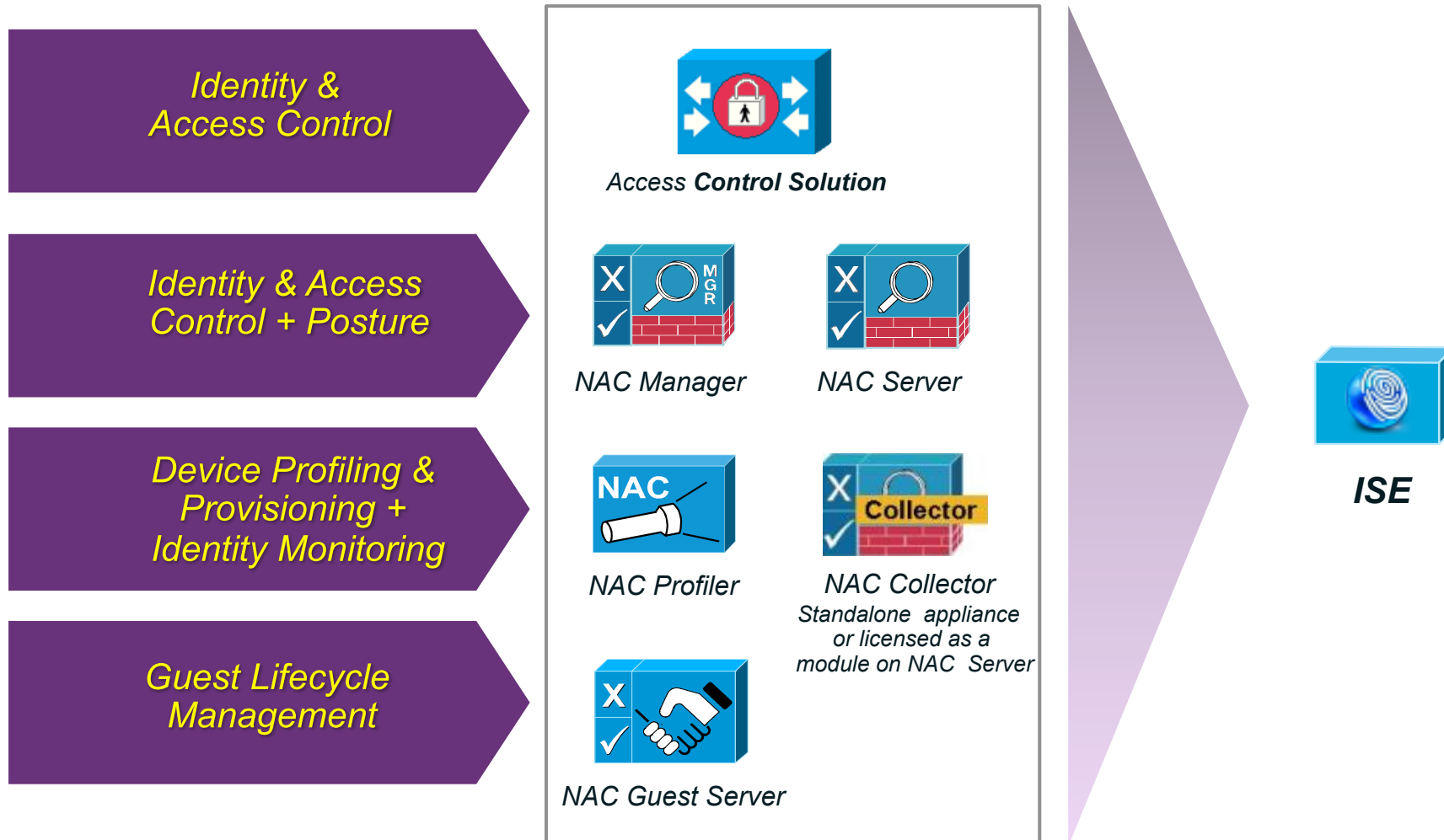
**AFTER**  
Comprehensive user and access visibility with advanced troubleshooting



- ✓ **Simple** Improves IT efficiency
- ✓ **Unified** Single view of all user access data
- ✓ **Advanced Troubleshooting** Less time and resources consumed

Cisco Prime NCS—Provides Unparalleled Visibility

# Simplifying Policy Definition & Deployment



# Cisco's Borderless – Unified Policy Management

Industry's first context-based Wired+Wireless+VPN policy management

**BEFORE**  
Separated policy management



Wired | VPN | Wireless

**AFTER**  
Context-based policy management  
for employees and guests across network



Simple | Unified | Automated

## Cisco ISE – Simplified Policy Management

# Mobility / BYOD / Unified Access

## 5 Dimensions of Policy and Provisioning

User	Device	Access Method	Location	Time	Policy
Guest	Personal Device	Wireless	Conference Rooms	M-S 8 am-6 pm	Captive Portal DMZ Guest Tunnel Guest VLAN
Contractor	Contractor Device	Wired	Anywhere	Anytime	Contractor VLAN
	Personal Device	Wireless	Anywhere	M - S 8 am -6 pm	Contractor ACL
Employee	Corporate Device	Wired	Anywhere	Anywhere	Employee VLAN
	Personal Device	Wireless	Anywhere	Anywhere	Employee ACL
		VPN		Anywhere	

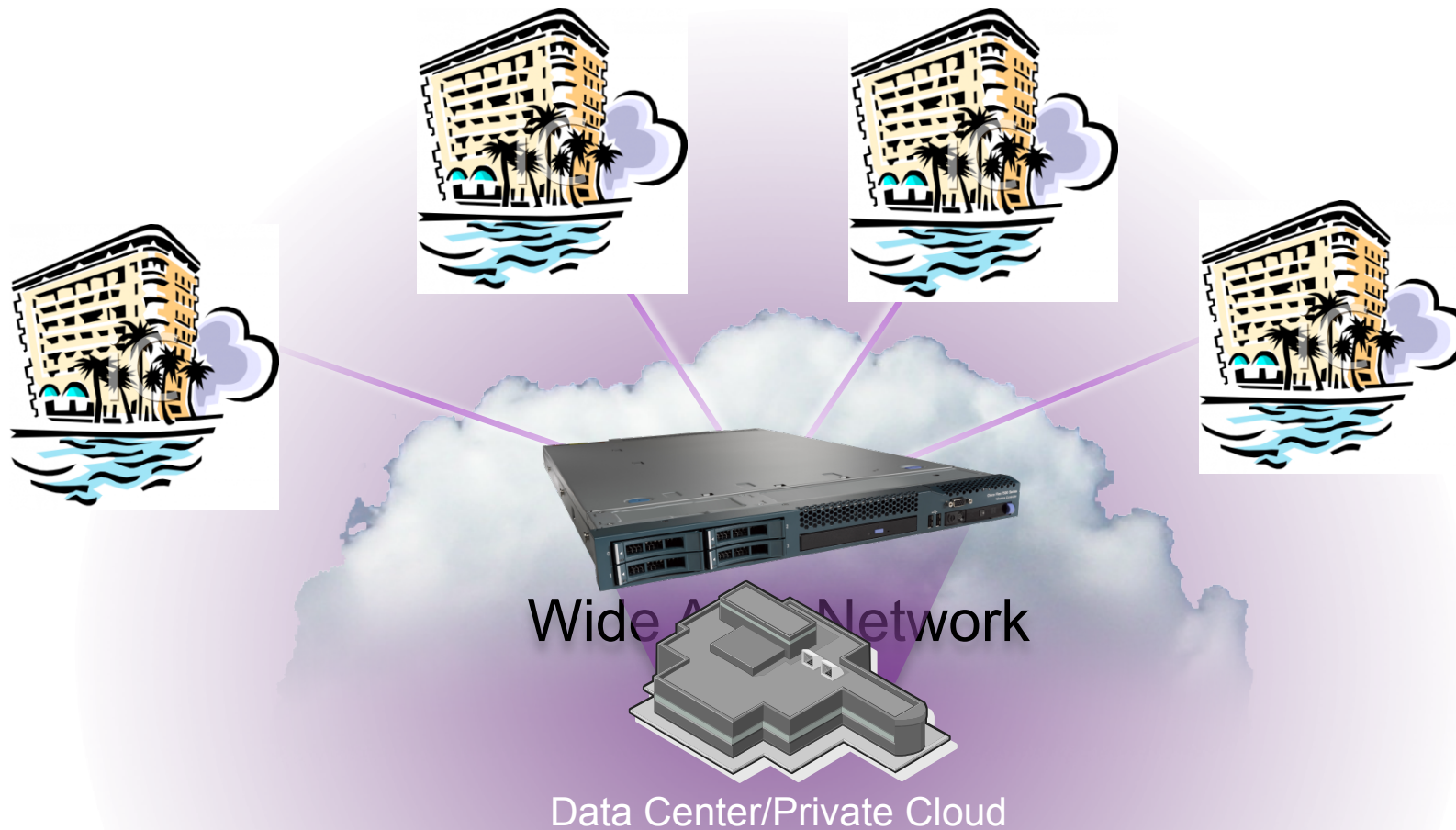
IF \$Identity AND \$Device AND \$Access  
AND \$Location AND \$Time THEN \$Policy



# One Network Uncompromised User Experience

## Cisco's Mobility Innovations

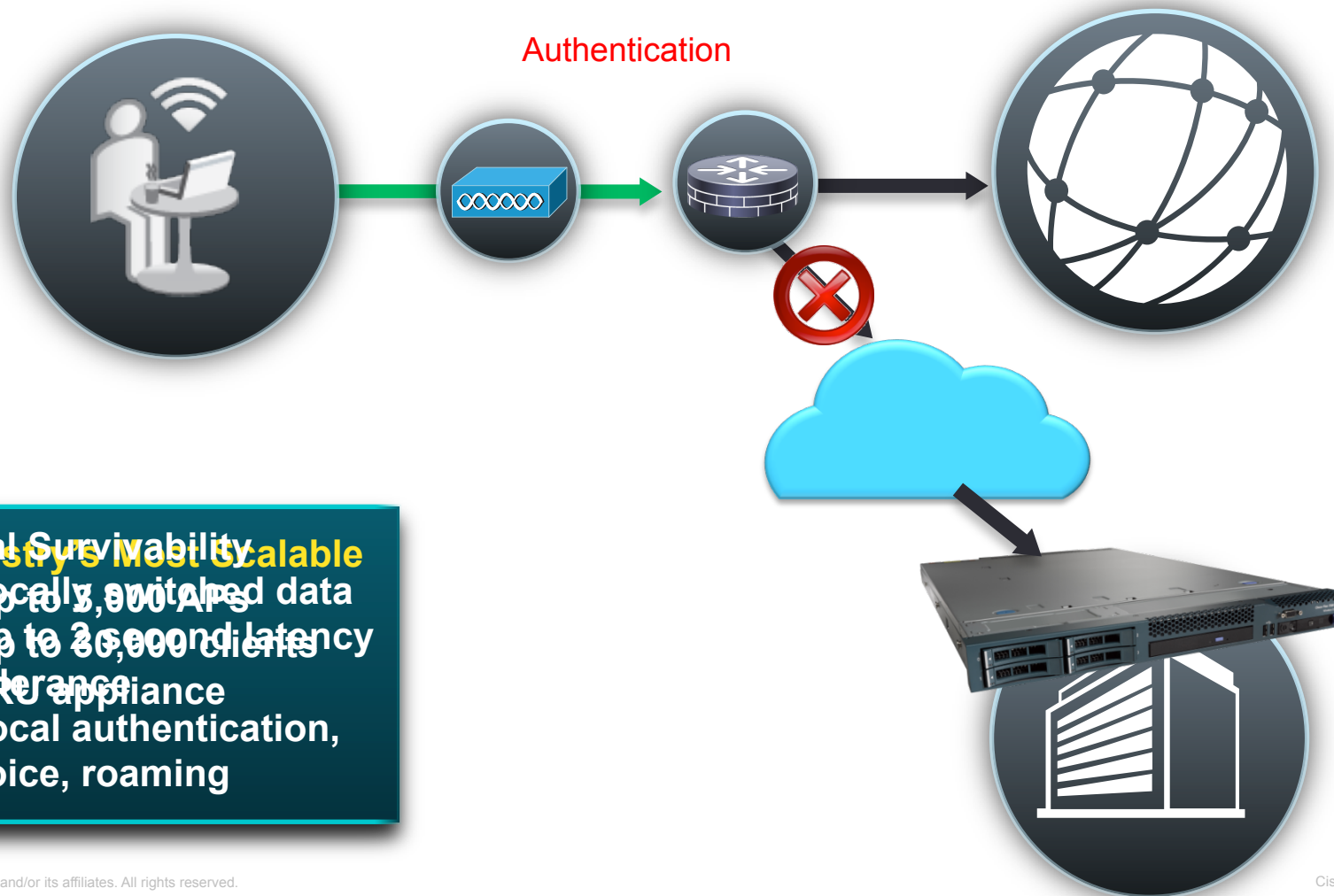
# Private Cloud Based Controller Scales to support hundreds of locations



Lower Cost  
Consistent configuration and easier troubleshooting  
No need for in-hotel WLAN expertise

# Extend Mobility to Remote Locations

Centralized Controller Functions in Data Center / Private Cloud



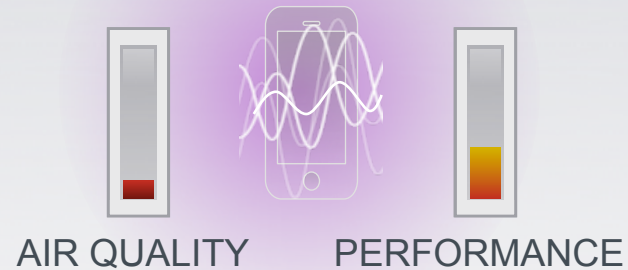
- Local Survivability**  
**Industry's Most Scalable**
- Locally stored data
  - Up to 20,000 clients
  - 1RU appliance
  - Local authentication, voice, roaming

# Cisco's CleanAir Technology

Industry's First Chip Level Proactive and Automatic Interference Protection

## BEFORE

Wireless interference decreases reliability and performance

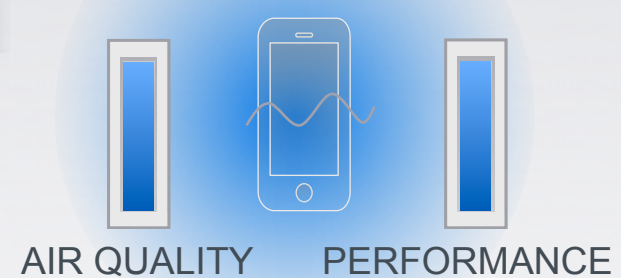


## Wireless Client Performance



## AFTER

CleanAir mitigates RF interference improving reliability and performance



Cisco CleanAir—Improves Performance and Predictability

# Why is Cisco's CleanAir Technology so Unique?

High Resolution Interference Detection, Classification, and Mitigation at Chip Level



Detect | Classify | Locate | Mitigate

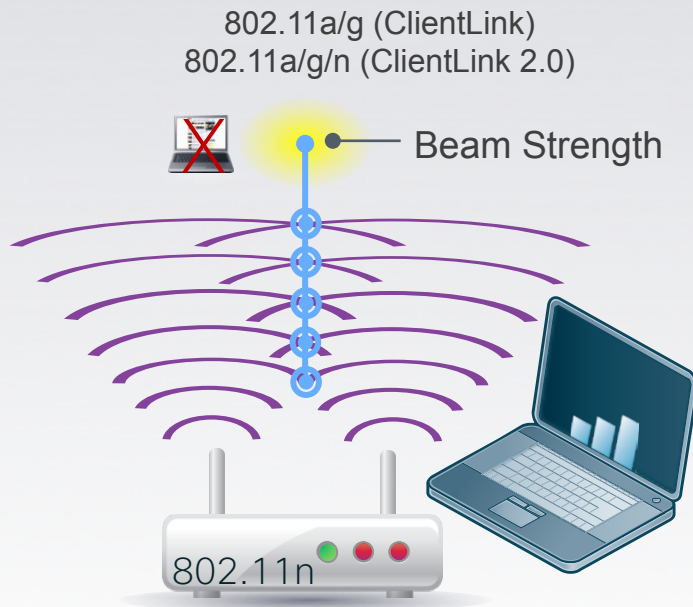
- CleanAir Radio ASIC
- Detect Wi-Fi and non-Wi-Fi interference sources
- Assess impact to Wi-Fi performance
- Proactively change channels when interference occurs
- Monitor air quality

# Cisco's ClientLink/ClientLink 2.0 Technology

Advanced Beam Forming Technology Improves Wireless Client Performance

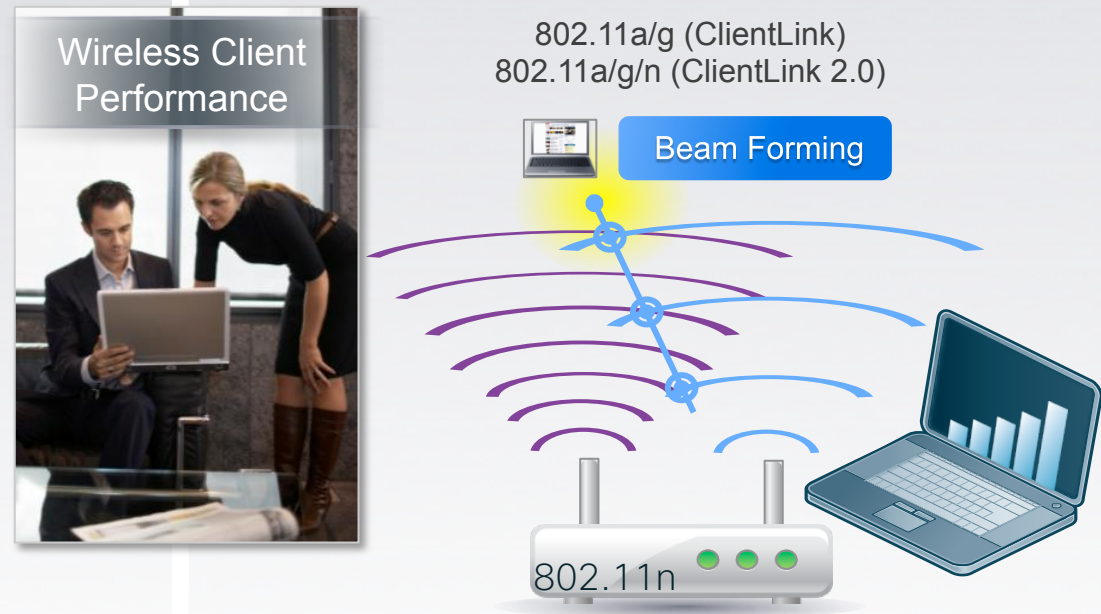
## BEFORE

Beam not directed towards clients resulting in inconsistent performance



## AFTER

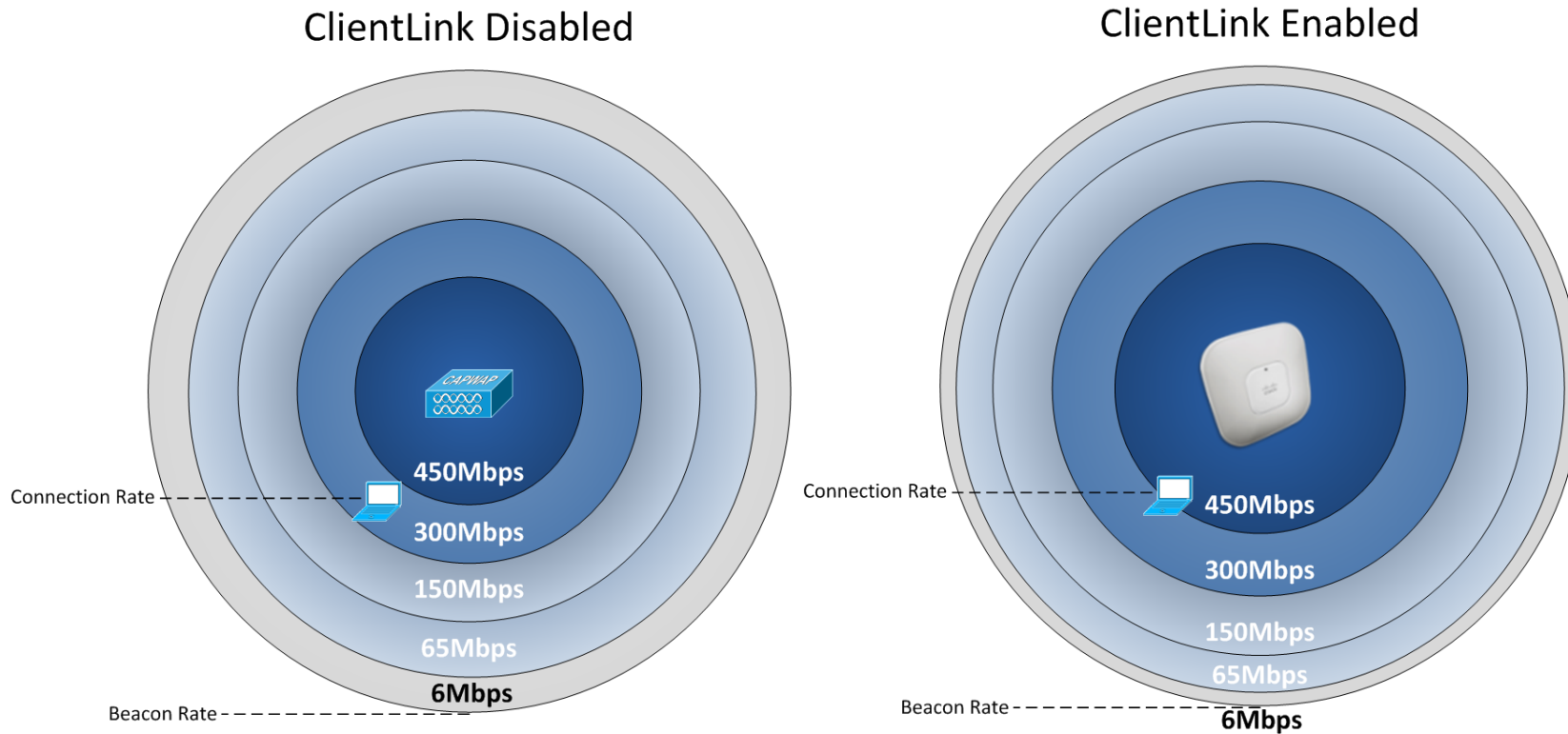
Beam directed towards client resulting in consistent experience and better performance



Cisco ClientLink—Improves Predictability and Performance

# Why is Cisco's ClientLink 2.0 so Unique?

Reduces Coverage Holes/Improves both Upstream and Downstream

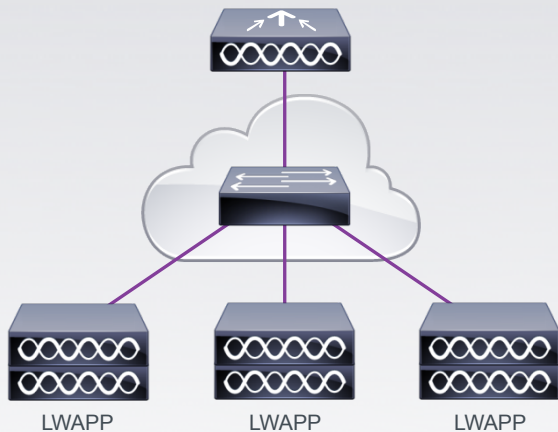


Cisco ClientLink 2.0 —Improves Predictability and Performance

# Cisco Radio Resource Management

Simplify IT Operations with Automatic/Dynamic RF Management

BEFORE  
Manual RF management



- ✗ Manual Channel Assignment
- ✗ Manual Transmit Power Adjustment
- ✗ Manual Coverage Hole Detection/Mitigation

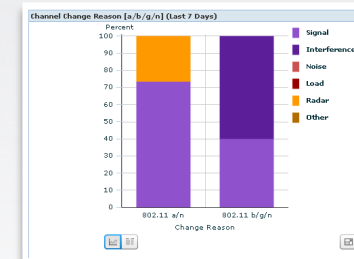
AFTER  
Dynamic RF management



RRM  
Monitor > RRM

RRM Statistics (Last 24 Hours)

Statistics	Value
Number of RF Groups	1
AP's at maximum power (a/n)	46.59 % (34 out of 73)
AP's at maximum power (b/g/n)	1.37 % (1 out of 73)
Total Configuration Mismatches	0



- ✓ Dynamic Channel Assignment
- ✓ Dynamic Transmit Power Adjustment
- ✓ Dynamic Coverage Hole Detection/Mitigation

Channels

Power

Coverage

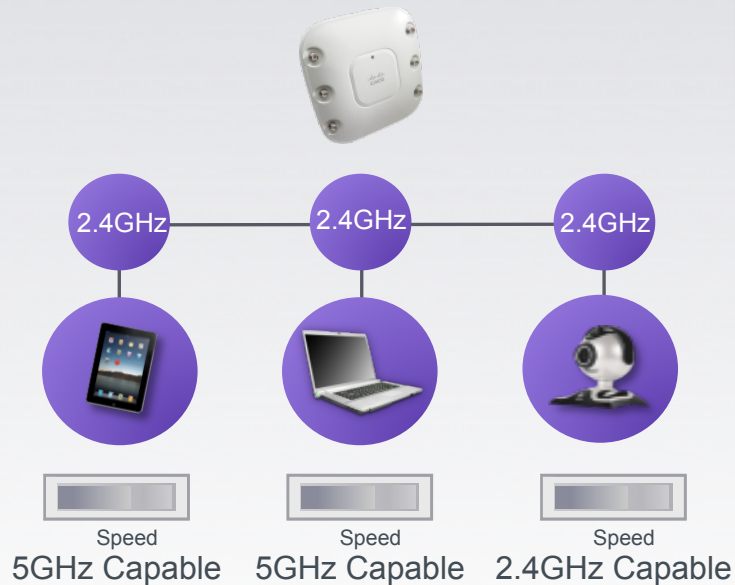
Cisco RRM—Improves Predictability and Performance

# Cisco BandSelect Technology

Automatic Band Steering and Selection For 5GHz Capable Devices

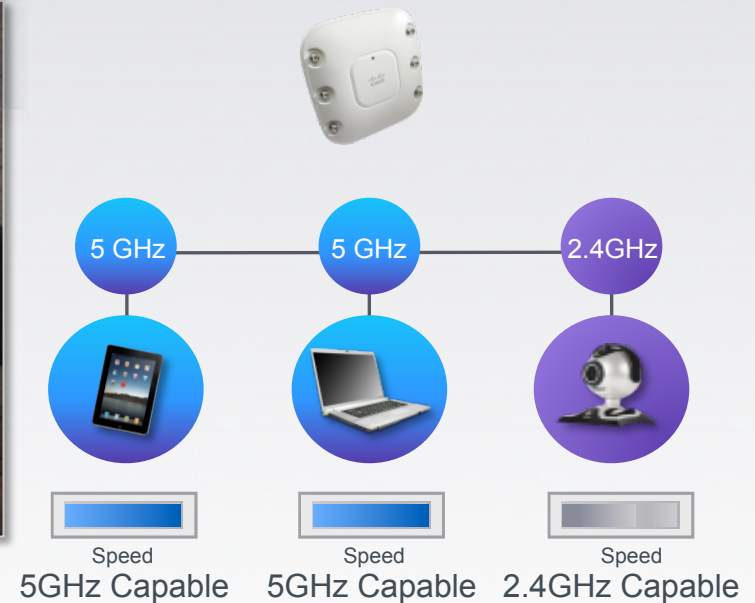
## BEFORE

All clients crowd the 2.4GHz spectrum lowering performance



## AFTER

5GHz capable clients are automatically moved to cleaner 5GHz spectrum



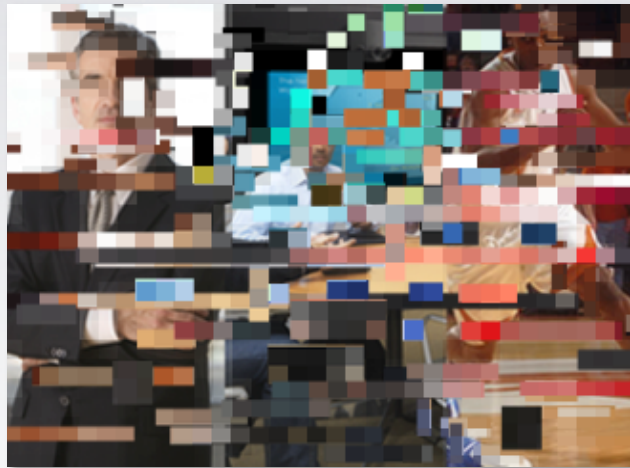
**Miercom**

Cisco BandSelect—Improves Predictability and Performance

# Cisco VideoStream Technology

Wired-Like Video Delivery over Wireless

BEFORE  
Manual RF Management

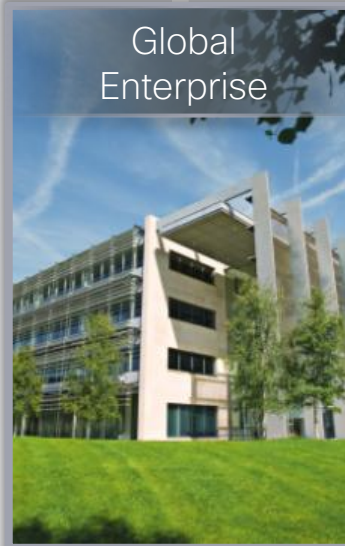


CEO Meeting

M&A Negotiation

Sports Event

Global Enterprise



AFTER  
Dynamic RF Management



CEO Meeting

M&A Negotiation

Sports Event

Cisco VideoStream—Improves Predictability and Performance

# Why is Cisco's VideoStream so Unique?

We Optimize End-to-End Video Starting at the Access Point

## Multicast to Unicast Conversion at the AP

Multicast Stream



## Selectable Stream Prioritization

High Priority Event

Meeting Room Event

Live Sporting Event



## Resource Reservation Prevents Oversubscription



**Miercom**

Tested for 30X Less Bandwidth Consumed  
and Double the Performance of Competitors

# Cisco AnyConnect Technology

Industry's First Context-Based and Persistent VPN Connectivity

**BEFORE**

Unmanaged devices—  
risk of data loss and lack of access



Mobile  
Worker



**AFTER**

Always-on VPN connectivity



- ✓ Acceptable Use
- ✓ Access Control
- ✓ Data Loss Prevention

Cisco AnyConnect—Always On VPN Connectivity

Thank You

