



Cisco Digital Network Architecture

The Network Helps Enable Digital Business

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Digital Transformation Is Moving IT to the Boardroom

UPS

UPS My Choice
Delivery Control
Personalized Service

Boeing

Workforce Efficiency
WIP Inventory and
Part Tracking

Starbucks

Starbucks Apps
Order Ahead
Skip the Line

Louis Vuitton

Customer Experience
Physical and Virtual
RFID Content

American Express

American Express
Personalized Service
Through Mobile

...And Creating New Priorities for Digital Organization



Transform Processes
and Business Models

Innovations
Faster Time to Market



Empower Workforce
Efficiency and Innovation

Increased Productivity
Better Retention



Personalize Customer/
Citizen Experience

Increased Loyalty
Greater Insight

Mobility

Mobile traffic will exceed
wired traffic by 2017

IoT

IoT devices will
triple by 2020

Analytics

75% of companies planning
to or investing in big data

Cloud

80% of organizations will
primarily use SaaS by 2018

Network Requirements for the Digital Organization



Insights and Experiences

Drive Business Innovations



Automation and Assurance

Speed, Simplicity, and Visibility



Security and Compliance

Real-time and Dynamic Threat Defense

The Network Helps Enable Digital Business

Evolution of Networking Software

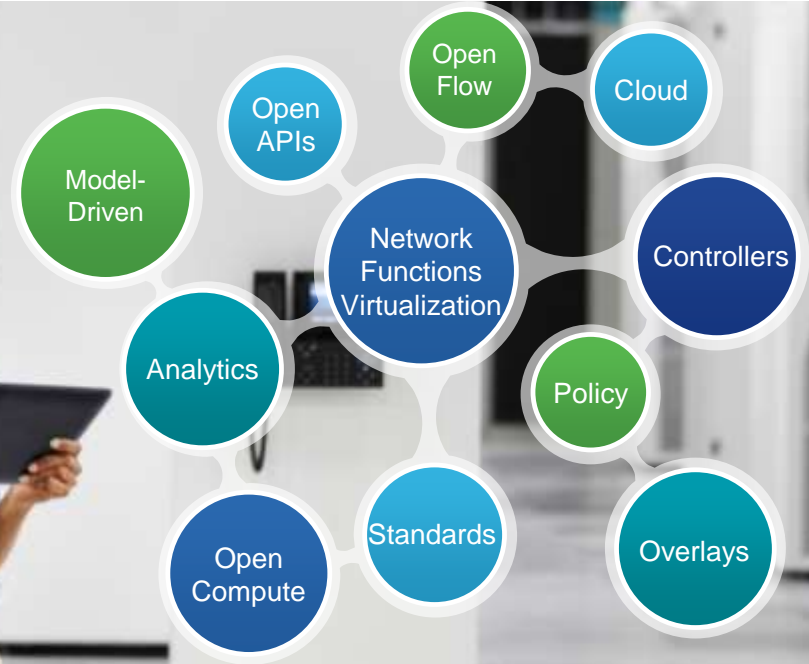
How do I deliver new **applications**?

How do I improve **security**?

How do I achieve **speed and simplicity**?

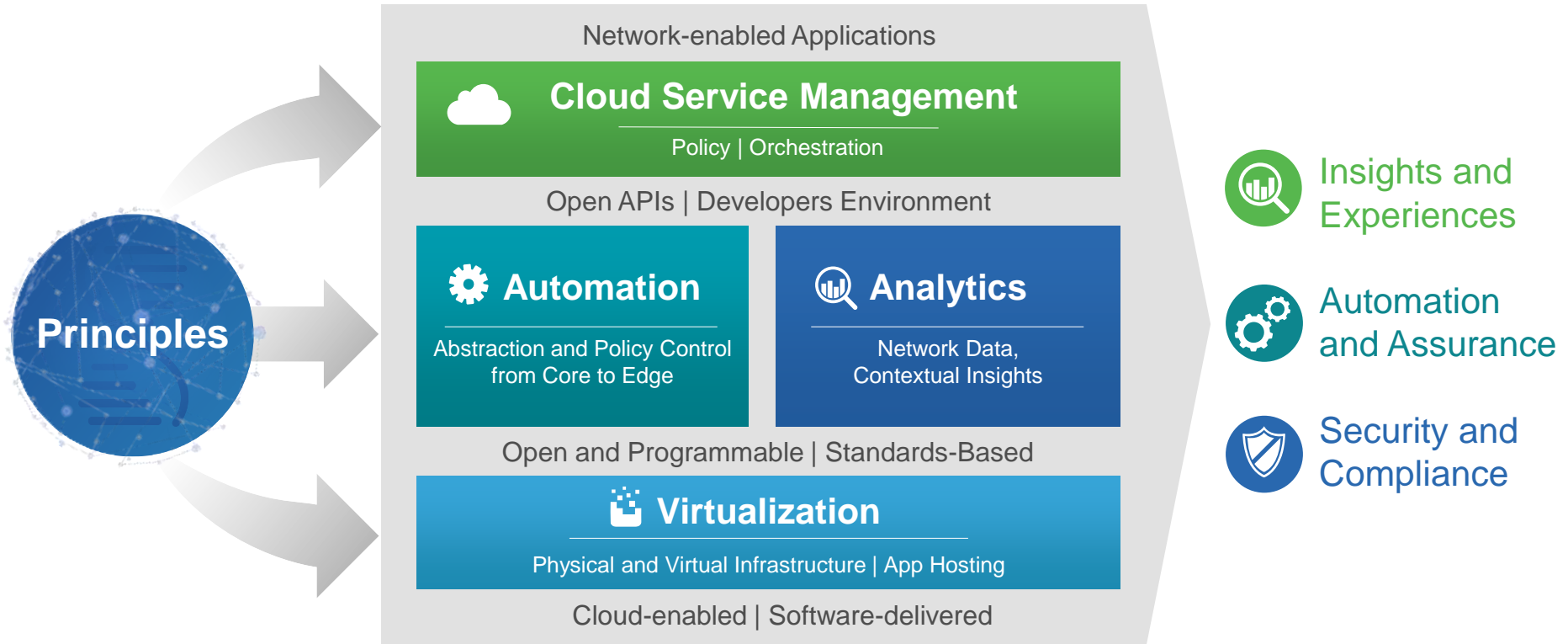
How do I learn **new software skills**?

How does this **come together**?



Cisco® Digital Network Architecture
Open | Extensible | Software-driven

Cisco Digital Network Architecture



Customer Objectives

Make Money

Save Money

Risk Reduction

Digitisation

Fast IT

Security

Customer Objectives

Make Money

Save Money

Risk Reduction

Digitisation

Fast IT

Security

Use Cases

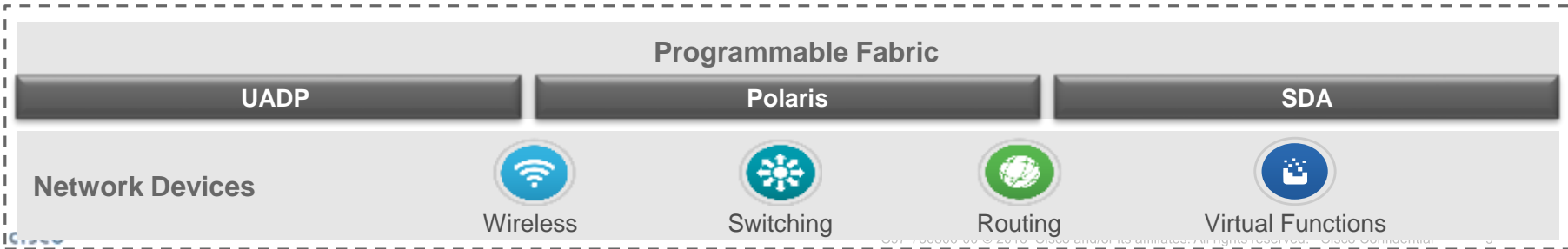
Business Analytics

Next Generation Branch

Customer Experience

Mobility

Risk & Compliance



Customer Objectives

Make Money

Save Money

Risk Reduction

Digitisation

Fast IT

Security

Use Cases

Business Analytics

Next Generation Branch

Customer Experience

Mobility

Risk & Compliance

Abstraction and Policy

APIC-EM

ISE

Meraki Dashboard

ACI

Programmable Fabric

UADP

Polaris

SDA

Network Devices



Wireless



Switching



Routing



Virtual Functions

Customer Objectives

Make Money

Save Money

Risk Reduction

Digitisation

Fast IT

Security

Use Cases

Business Analytics

Next Generation Branch

Customer Experience

Mobility

Risk & Compliance

Application

Orchestration + Automation

ESA (eNFV)

PnP

IWAN

Trace

QoS

Inv.

Top.

Policy

SDA

Management

Prime

Analytics

CMX

Lancope

NDP

Abstraction and Policy

APIC-EM

ISE

Meraki Dashboard

ACI

Programmable Fabric

UADP

Polaris

SDA

Network Devices



Wireless



Switching



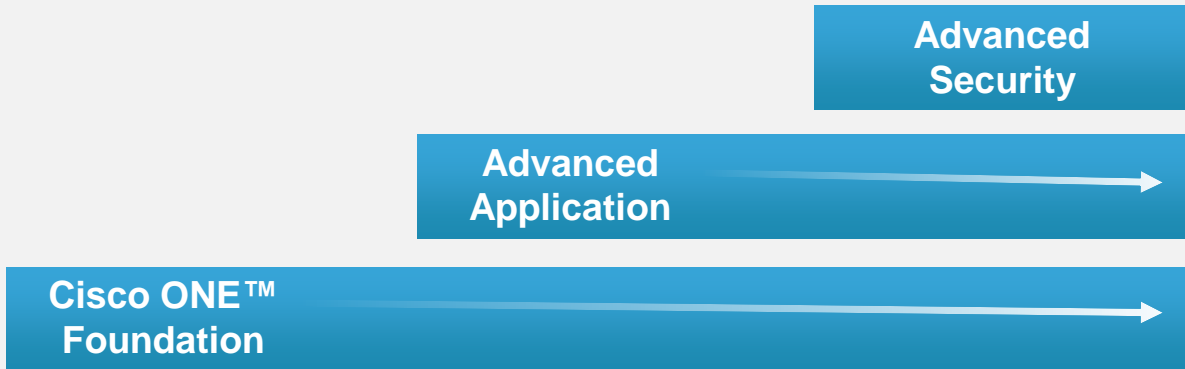
Routing



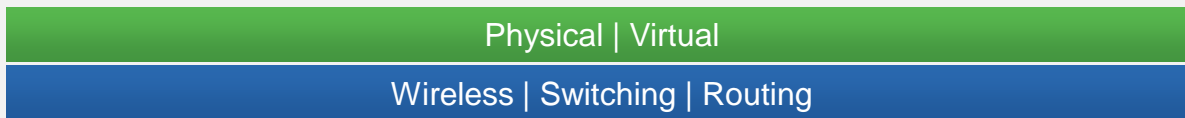
Virtual Functions

Cisco ONE Simplifies DNA Software Purchasing

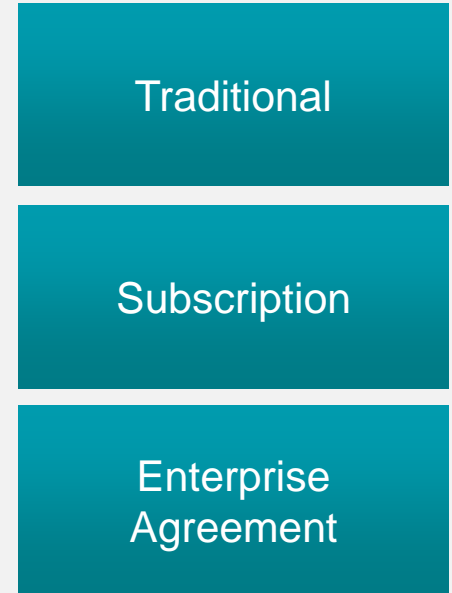
1 Select Software Capabilities

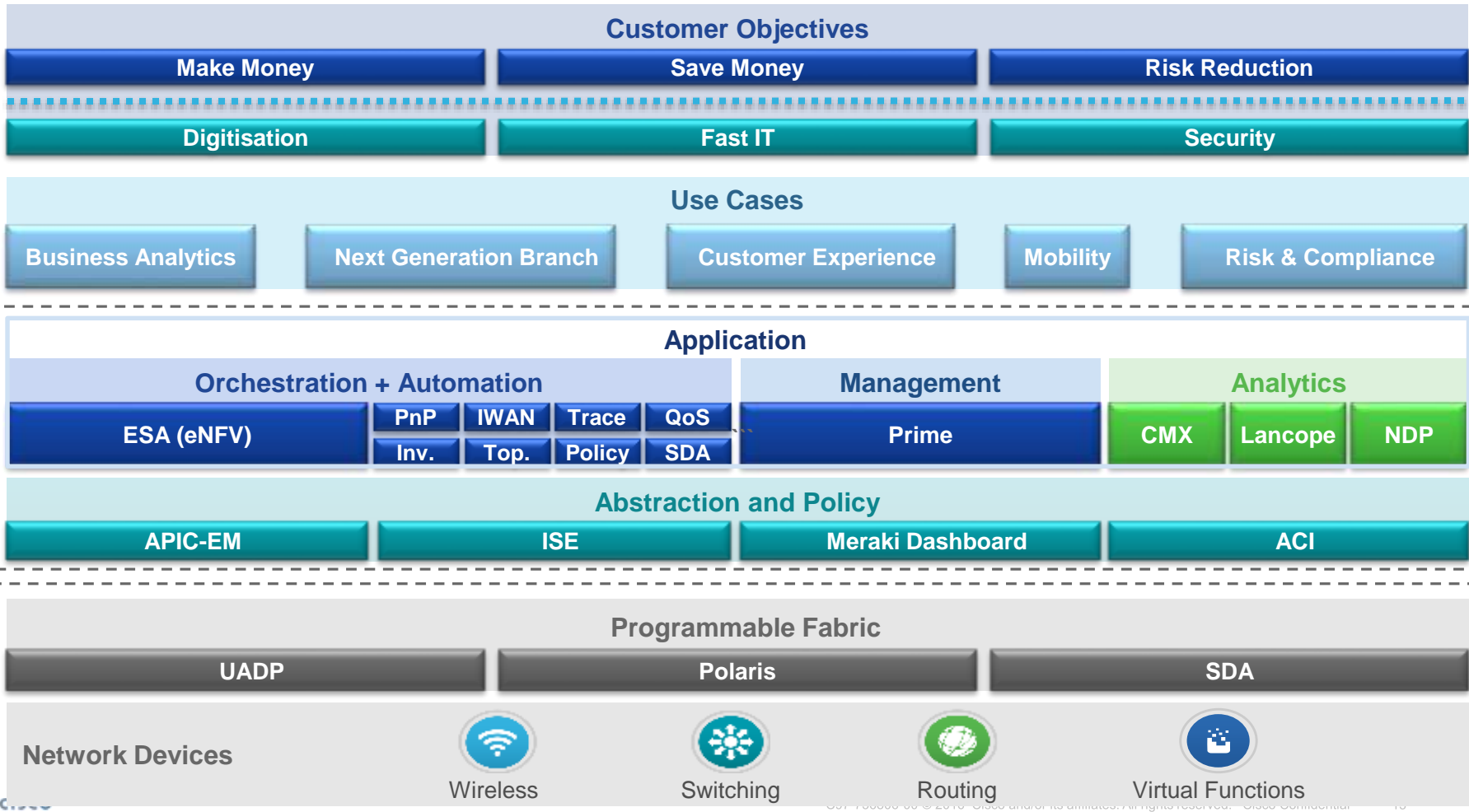


2 Select Platform



3 Select Purchasing Model







Cisco ONE Software

Aleksandar Stepancev, EN PSS

September/October 2016

Software Options: What and How

What



How



Collaboration



Security



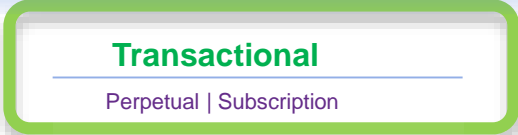
Infrastructure:
Cisco ONE

DC | WAN | Access |
Network Security



Analytics

Focus of this presentation



Transactional

Perpetual | Subscription

Volume Based

Advantage

ELAs

Plus | Cross Catalog

What Is Cisco ONE Software?

A More Valuable and Flexible Way to Consume Cisco Software

Current Model

100s

A La Carte, Separately Priced Items



Licensing Tied to Hardware



Perpetual for the Lifetime of the Box

3x3

Software Suites Offered as a Solution

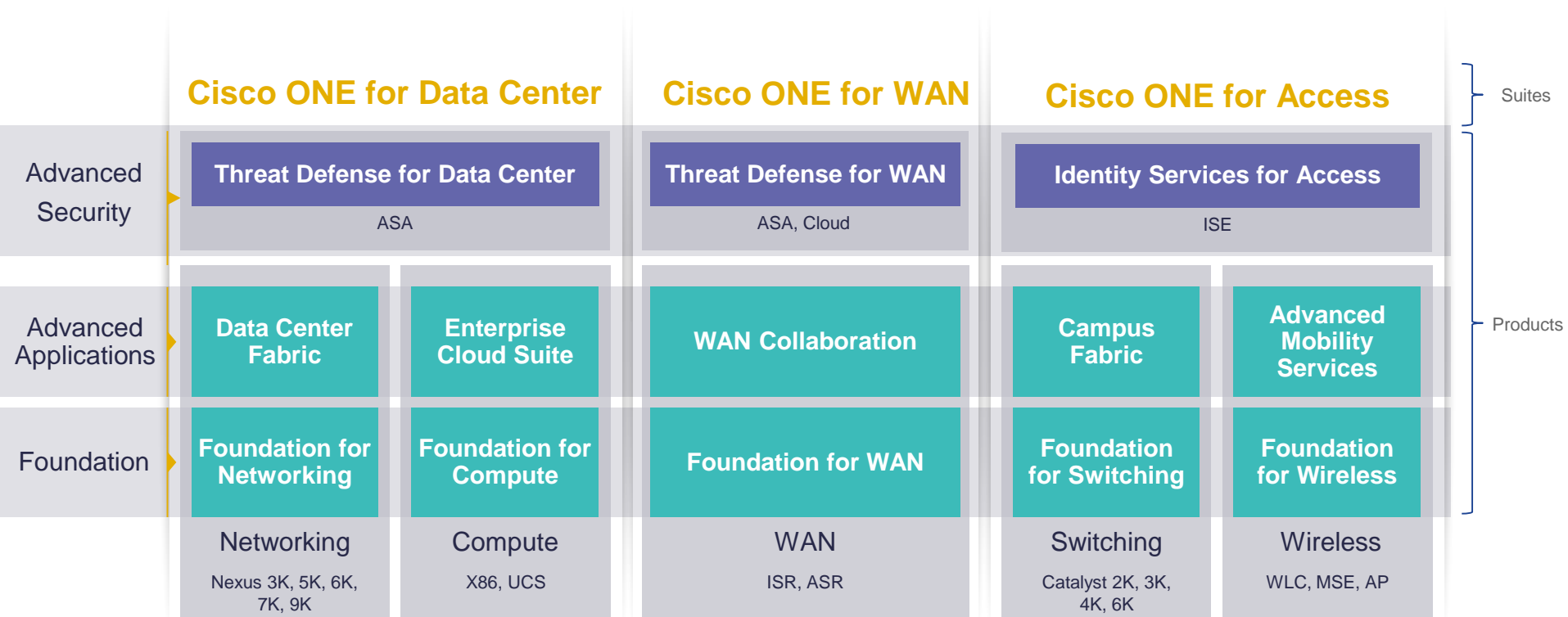


Software License Portability
Access to Ongoing Innovation



Perpetual, Subscription,
and ELA Options

Cisco ONE Software



Note: Not represented is the Base Software Platform (e.g., operating system) included with each device. These are not sold as a Cisco ONE bundle, but included with the device

Support Contracts with Cisco ONE Software

Cisco ONE for Data Center

Cisco ONE for WAN

Cisco ONE for Access

Advanced Security

Threat Defense for Data Center

Threat Defense for WAN

Identity Services for Access

ASA

ASA, Cloud

ISE

Software Support Service (SWSS)

Advanced Applications

Data Center Fabric

Enterprise Cloud Solutions

WAN Cloud Managed

Spine Fabric

Advanced Mobility Services

Technical Support, Updates / Upgrades, License Portability, Access to Ongoing Innovation

Foundation

Foundation for Networking

Foundation for Compute

Foundation for WAN

Foundation for Switching

Foundation for Wireless

Infrastructure and OS

Networking

Compute

WAN

Switching

Wireless

Nexus 3K, 5K, 6K, 7K, 9K, 1KV, MDS 9000

X86, UCS

ISR, ASR, CSR

Catalyst 2K, 3K, 4K, 6K, ISE

WLC, MSE, AP, ISE

SMARTnet or Smart Net Total Care

Technical Support (Hardware + Operating System), Device Replacement



Intelligent WAN

How To Order?

Example: Branch IWAN for RetailCo (ISR 4k)

TRADITIONAL

Product

ISR4331-AX/K9	Cisco ISR 4331 AX Bundle w/ APP SEC lic	1	\$5,300
		Total	\$5,300

Support

CON-SNT-ISR4331AX	SMARTNET 8X5XNBD Cisco ISR 4331 AX Bundle	1	\$630
Technical Services Support			\$630
Hardware, Software, and Support			\$5,930

CISCO ONE

Product

C1-CISCO4331/K9	Cisco ONE ISR 4331	1	\$3,300
C1F1PISR4330SK9	Cisco ONE Foundation Perpetual License ISR 4331	1	\$2,000
		Total	\$5,300

Support

CON-SNT-C14331K9	SMARTNET 8X5XNBD C1 ISR 4331	1	\$382
CON-ECMU-C1F4330S	SWSS UPGRADES C1 Foundation Perpetual	1	\$300
Technical Services Support		Total	\$682
Hardware, Software, and Support		Total	\$5,982

What You Get with Cisco ONE WAN Foundation

1. Secure connectivity and threat defense: IOS security (VPN, firewall, IPS)
2. Application visibility and WAN optimization: APP (AVC, WAN optimization, MPLS, PfR, etc.) and Prime
3. Network management: Prime lifecycle, assurance
4. Energy management (JouleX)

**\$5,000
Value
Priced at
\$2,000!**

Value of License Portability

Example: Branch IWAN for RetailCo

ISR



Mobility

Better Together Pricing

Example: Wireless Deployment

TRADITIONAL

Product

AIR-CT8510-1K-K9	Cisco 8500 Series Wireless Controller Supporting 1000 Aps	1	\$175,000.
L-PI2X-LF-N-1K	Prime Infrastructure 2.x - Lifecycle - 1K Device Lic-NNL	1	\$69,000
L-ISE-BSE-25K	Cisco ISE 25,000 Endpoint Base License	1	\$45,000
		Total	\$289,000

Support

CON-SNT-AIRCT85Z	SMARTNET 8X5XNBD Cisco 8500 Series Wi	1	\$22,750
CON-ECMU-LPI2XL1K	SWSS UPGRADES Prime Infrastructure 2.x - Lifecycle	1	\$13,800
Technical Services Support			\$36,550
Hardware, Software, and Support			\$325,550

CISCO ONE

Product

C1-AIR-CT8510-K9	Cisco 8500 Series Wireless Controller	1	\$40,000
C1FPAIR1000K9	Cisco ONE Wireless: Foundation	1000	\$225,000
		Total	\$265,000

Support

CON-SNT-CT8510K9	SMARTNET 8X5XNBD Cisco 8510 Series	1	\$5,200
CON-ECMU-C1FPAI1K	Software Support For Wireless Foundation	1000	\$34,000
Technical Services Support			\$39,200
Hardware, Software, and Support			\$304,200

7% Savings vs. Traditional

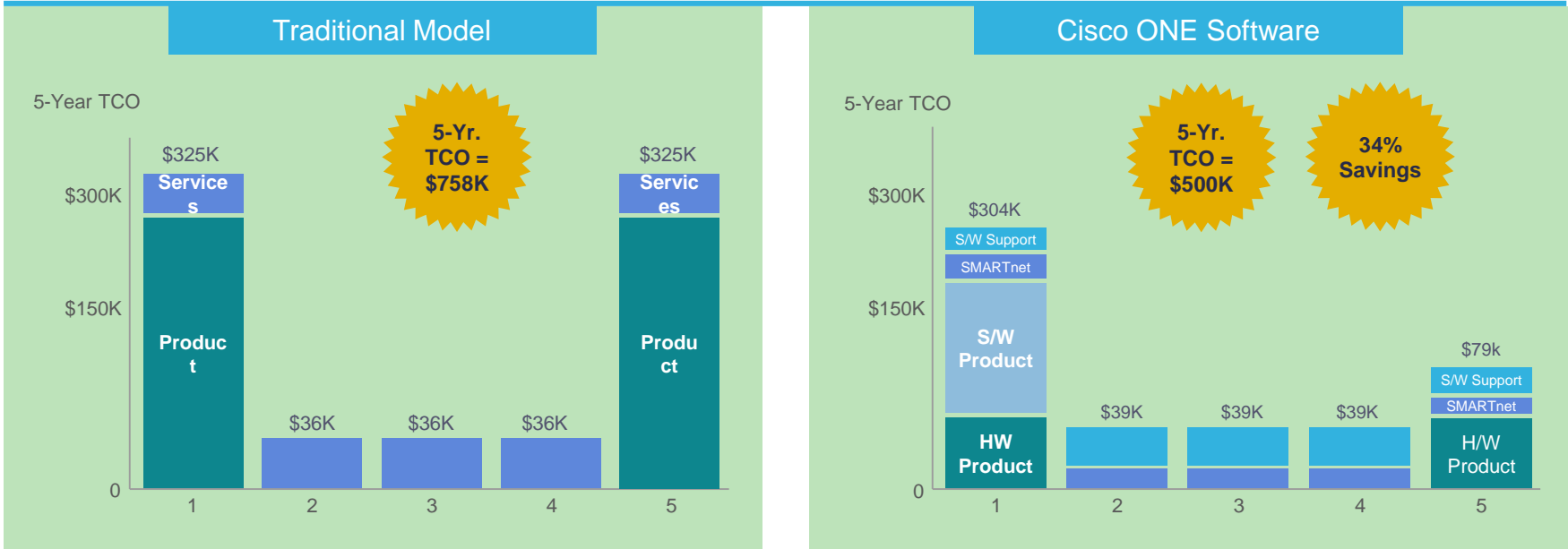
What You Get with Cisco ONE Suite for Wireless

1. WLAN Access Point licenses
2. Network-wide device management (Prime lifecycle + Assurance)
3. Mobility Services Engine base location
4. Basic BYOD, 802.1X, guest/employee access (Identity Services Engine-Base)

**\$450K
Value
Priced at
\$225k!**

License Portability and TCO

Example: Wireless deployment



Cisco Catalyst Switches – from Access to Backbone!

Catalyst 2960



Smart, simple,
green & secure
wired access

LOWER
TCO



Catalyst 3850/3650



Advanced fixed
switching with
Unified Access

END-TO-END
SECURITY

Catalyst 4500E with SUP8-E



Flexible, scalable,
feature-rich
modular access

INVESTMENT
PROTECTION

Catalyst 6500/6800



Enterprise
backbone
optimized for
10/40/100G

PERFORMANCE
& SCALE

Cisco Multigigabit Ethernet Cabling Support

Maximum Investment Protection



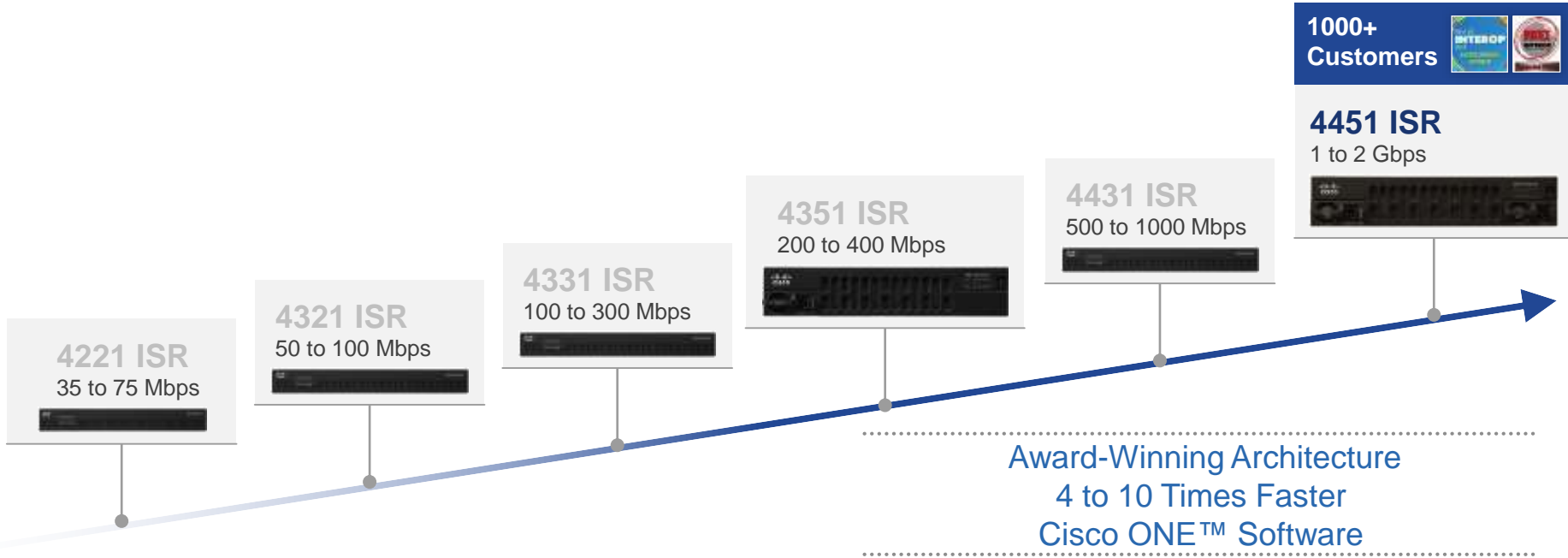
Cable Type	1G	2.5G	5G	10G
Cat5e	100m	100m	100m *	N/A
Cat6	100m	100m	100m	55m
Cat6a	100m	100m	100m	100m

- Auto-negotiation of cable type of speeds supported

*

- 0-55m: no restrictions
- 55-100m: based on customer cabling infrastructure and configuration, there are some corner cases in which customers will experience less than 100m support. In these cases, the system will automatically default to 2.5G (post-FCS SW release support)

Cisco 4000 Series ISR Portfolio



Cisco 4000 Series Integrated Services Routers (ISRs)

Digital-Ready Branch Foundation

WAN and Application Assurance

Software-defined WAN (SD-WAN)
Application optimization
Content caching

Unified Communications

Voice with survivability
High-quality video
Session border controller



Virtualization

Cisco or third-party
virtual network functions (VNF)
and app hosting



Proactive Security

Secure connectivity
Branch threat defense
Visibility and analytics

Physical



Cisco® Integrated Services Router

Converged



Cisco Unified Computing System™ E-Series

Virtual

Third Party

VNF

App

Cisco Mobility Express Access Points Portfolio

Industry's Best 802.11ac Series Access Points

soon

Enterprise Class

1810



- 2x2:2SS 80 MHz; 867 Mbps
- Tx Beam Forming
- 1 GE Port uplink
- 3 GE Local Ports, including 1 PoE out
- Local ports 802.1x ready
- Integrated BLE Gateway*

Enterprise Class

1830



- 802.11ac W2
- 870 Mbps PHY
- 3x3:2SS
- Spectrum Analysis*
- Tx Beam Forming
- USB 2.0

Enterprise Class

1850



- 802.11ac W2
- 2.0 Gbps PHY
- 4x4:4SS
- Spectrum Analysis*
- Tx Beam Forming
- 2 GE Ports, USB 2.0

New

Mission Critical

2800



- 5 Gbps PHY
- 4x4:3SS – 160 MHz – MU-MIMO
- 2 Ethernet Ports, 2xGbE
- Dual 5 GHz
- HDX Technology
- USB 2.0
- StadiumVision
- CleanAir 160MHz, ClientLink 4.0, Videostream

New

Best in Class

3800



- 5 Gbps PHY
- 4x4:3SS, 160 MHz, MU-MIMO
- 2 Ethernet Ports, GbE + mGig (1G, 2.5G, 5G)
- Dual 5 GHz
- HDX Technology
- USB 2.0
- StadiumVision
- CleanAir 160MHz, ClientLink 4.0, Videostream
- Side Mount Modular Architecture
- Centralized, FlexConnect

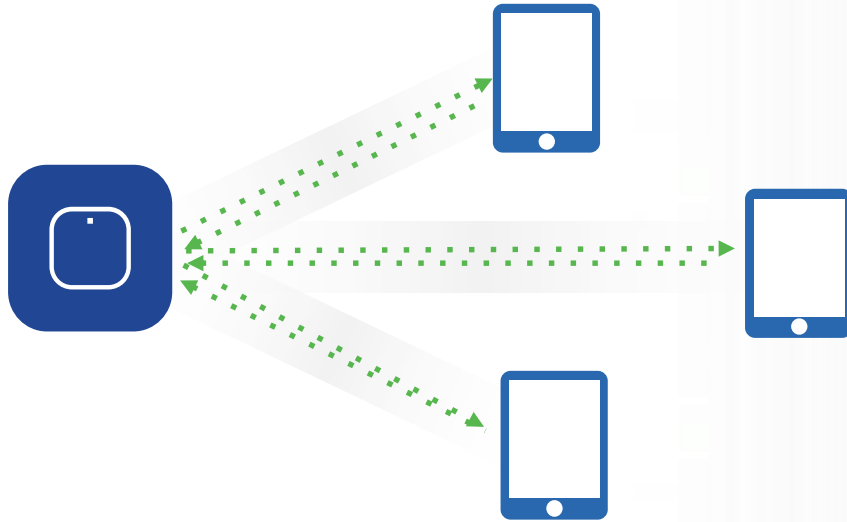
Cisco Mobility Express is supported on all 11ac Wave 2 Access Points

Best in Class

Simultaneous Data Delivery to Many Devices

Multi-User, Multi-In, Multi-Out

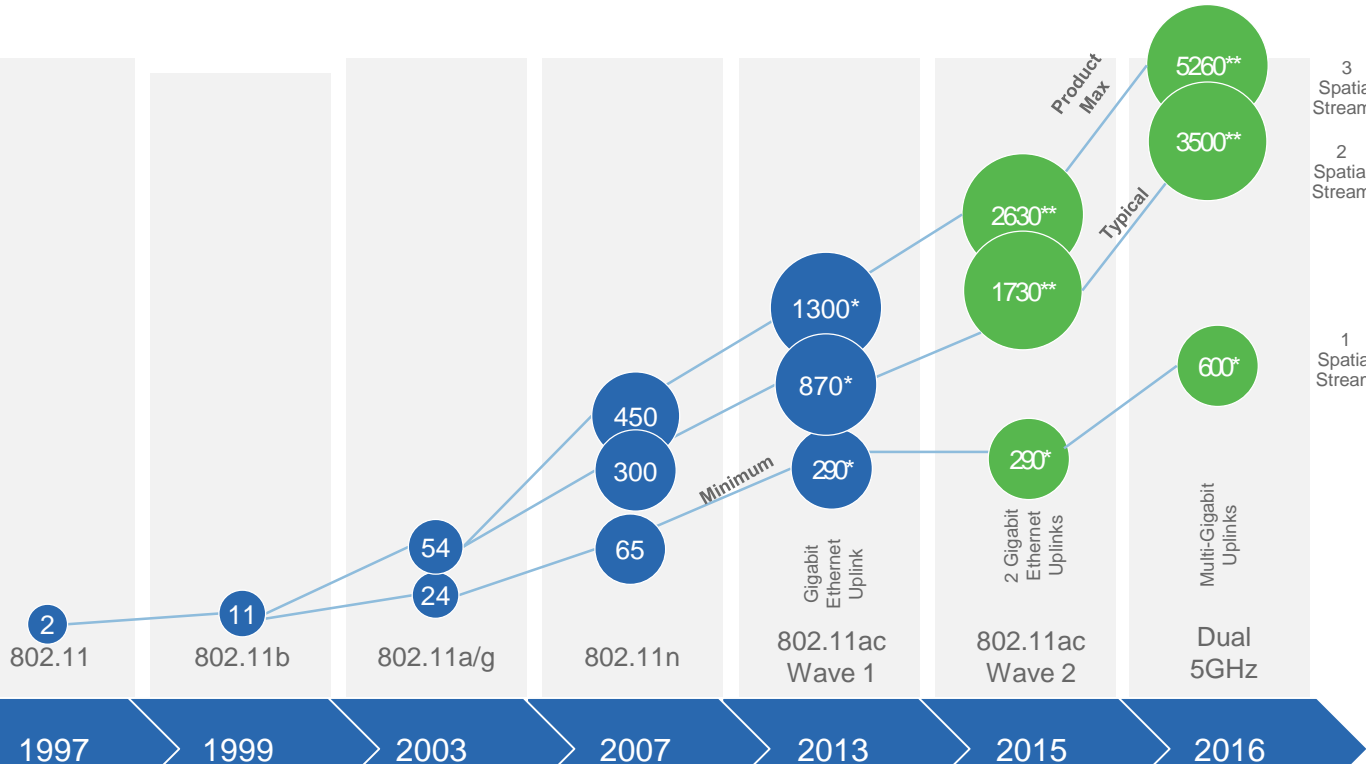
Single User MIMO (SU-MIMO)



Devices Get On and Off the Network Quicker, Allowing More Devices to Be Served

Wi-Fi Connectivity Speed Timeline

Gigabit Wi-Fi As Primary Access



3SS	Desktops / Laptops
2SS	Laptops / Tablets
1SS	Tablets / Smartphones

3 Spatial Streams
2 Spatial Stream
1 Spatial Stream

● = Connect Rates (Mbps)
SS = Spatial Streams

*Assuming 80 MHz channel is available and suitable

**Assuming 160 MHz channel is available and suitable

1997

1999

2003

2007

2013

2015

2016

Better Traffic Handling

802.11ac Wave 2 with 160MHz - Wider Channels

Wider Channels
Allow More Traffic to
Max Capacity



20-40 MHz



80-160 MHz

Simple by Design: Mobility Express

Optimized for Small Scale Wi-Fi implementations



3-step over-the-air wireless network configuration with Cisco WLAN Express Setup Wizard

1



Management for up to 25 Access Points and 500 clients

2



Runs on latest Cisco® Aironet® Series Access Points

3

Recap: Over-the-Air WLAN Express Setup

Connecting to CiscoAirProvision and starting setup wizard

1

Connect to **CiscoAirProvision** SSID



2

Enter Password as **password**



3

Connected to **CiscoAirProvision**; IP Address assigned



4

Launch setup wizard at <http://192.168.1.1> & create admin account



Recap: Over-the-Air WLAN Express Setup

4 Steps < 10 Minutes

1 Setup Your Controller

1 Setup Your Controller

System Name:

Country:

Date & Time:

Timezone:

DHCP Server:

Management IP Address:

Size of WLAN:

Default Domain:

2 Setup Wireless Networks

2 Setup Your Wireless Networks

Express Network

Network Name:

Security:

Pass Phrase:

Guest Pass Phrase:

VLAN:

DHCP Server Address:

Guest Network

3 Enable RF Parameter Optimization

3 Advanced Setting

RF Parameter Optimization

Client Density:

Traffic Type:

4 Confirm Settings and reboot the controller

4 Confirm Settings and Reboot

Summary:

- System Name: MobilityExpress
- Country: United States (US)
- Date & Time: 10/06/2019 18:10:18
- Timezone: Pacific Time (US and Canada)
- DHCP Server: 171.68.38.25
- Management IP Address: 10.10.10.18
- Size of WLAN: 200,250,250,5
- Default Domain: 10.10.10.1

Express Network:

- Network Name: Employee-WiFi
- Security: WPA2 Personal
- Pass Phrase: [Redacted]
- Guest Pass Phrase: [Redacted]
- VLAN: Management VLAN
- DHCP Server Address: 10.10.10.1

RF Parameter Optimization:

- Client Density: Typical
- Traffic Type: Data and Voice

Cisco Meraki: Bringing the cloud to enterprise networks



Meraki MR
Wireless LAN



Meraki MS
Ethernet Switches



Meraki MX
Security
Appliances



Meraki SM
Mobile Device
Management

Visit www.cisco.com/go/one for more information
Partner community: <http://go2.cisco.com/one4partners>

