



Connected Industry Overview

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Agenda

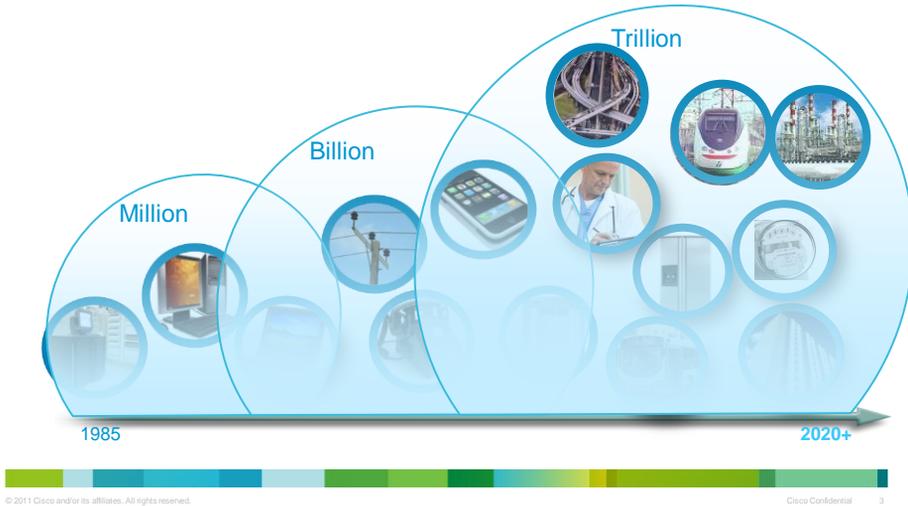
- Evolution of Industrial Networks
- Industrial Switches
- M2M Gateways
- Wireless Mesh

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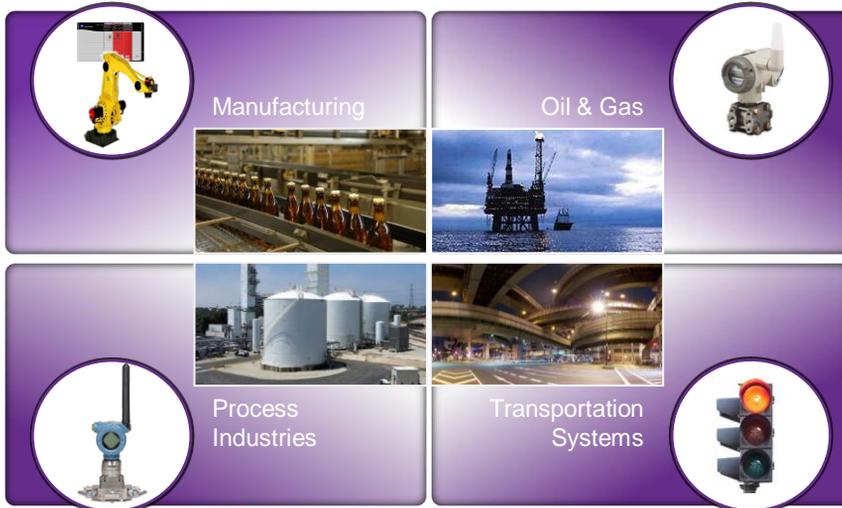
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Evolution of IP Networks

The Third Great Era



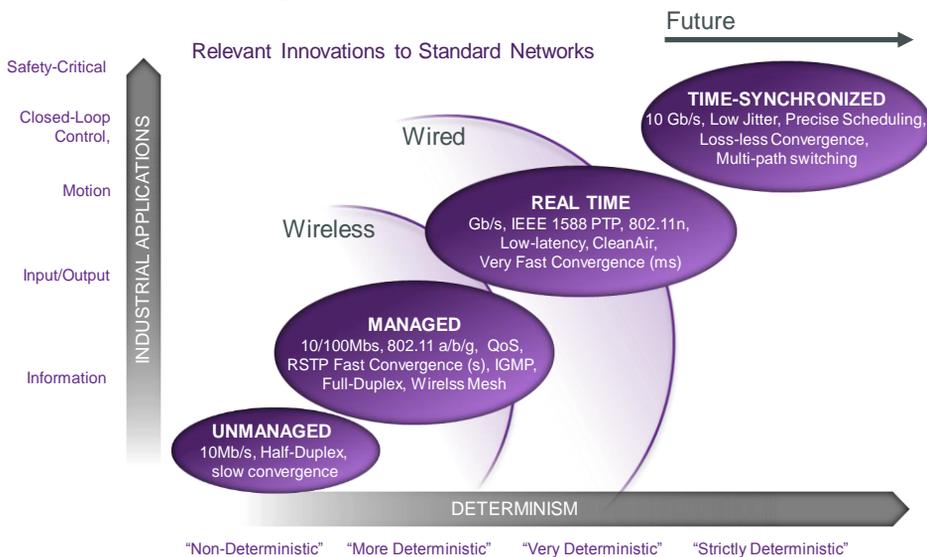
Industrial Networks: “Control” Plane going IP



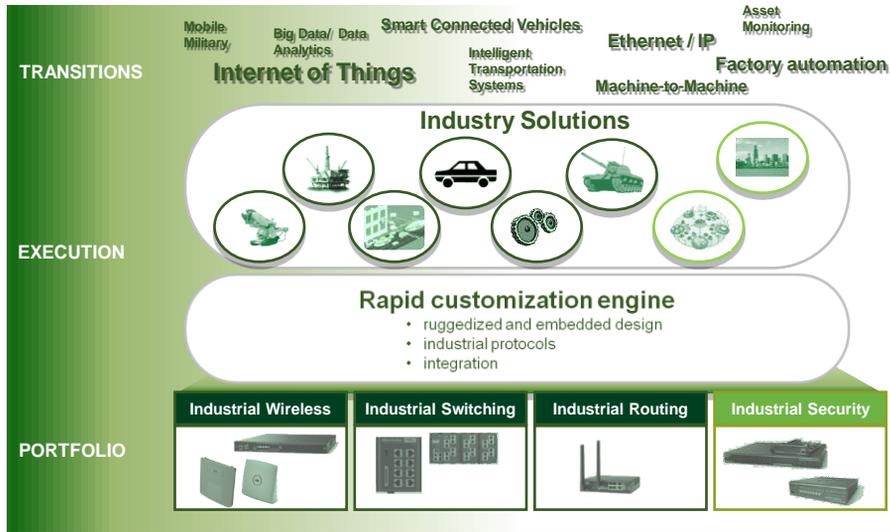
Industrial and Enterprise Networks Are Converging



Industrial Intelligence Requires Evolution



Connected Industries Approach



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Network Portfolio for End-to-End Connected Industries Architecture

- Built on Cisco Campus network framework and best practices
- Cisco IOS based platforms and consistent features
- Integration with Cisco and IT network management applications
- Resiliency and availability features
 - REP, Flexlinks, HSRP, Stackwise, ISSU, LWAP, CAP/WAP, CleanAir, Mesh
- Integrated catalyst network security
 - 802.1x, ACLs, ISE, encryption, VPN, etc.,
- Optimized delivery of application traffic
 - QoS, IGMP, PTP (IEEE 1588)
- Scalable network framework—integrate video, communication, wireless, and support new manufacturing applications



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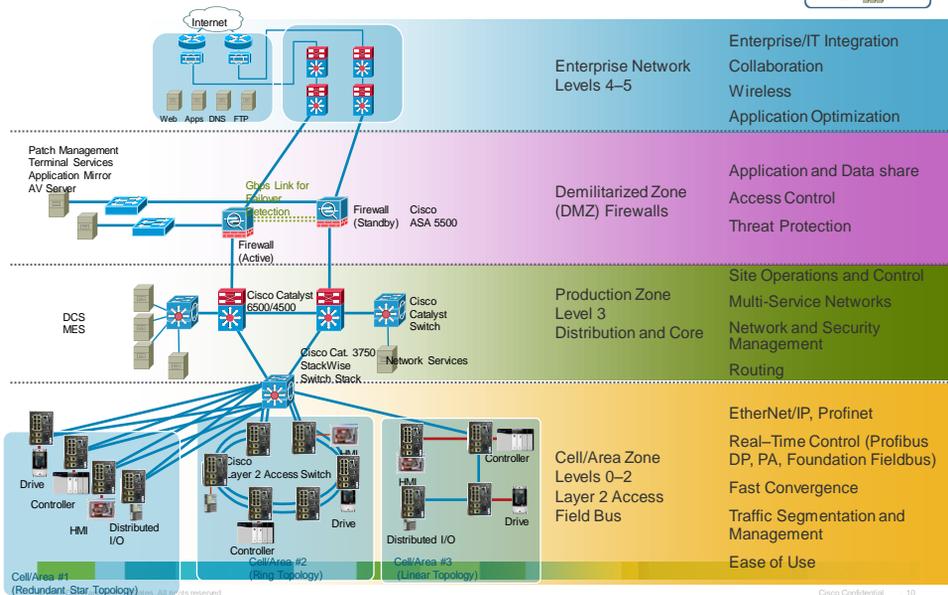
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Cisco Solutions for Connected Industries

Delivering Business Capabilities through Borderless Networks

Ethernet to the Factory	SAFE for Process Control	Secure Wireless Plant	Context Aware Solution
			
Industrial Wireless Video Surveillance	Unified Communications	Plant VoWLAN	Manufacturing Business Video Solutions
			
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Converged Plantwide Ethernet Architecture



INDUSTRIAL SWITCHES

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Product Overview

IE2000 Series



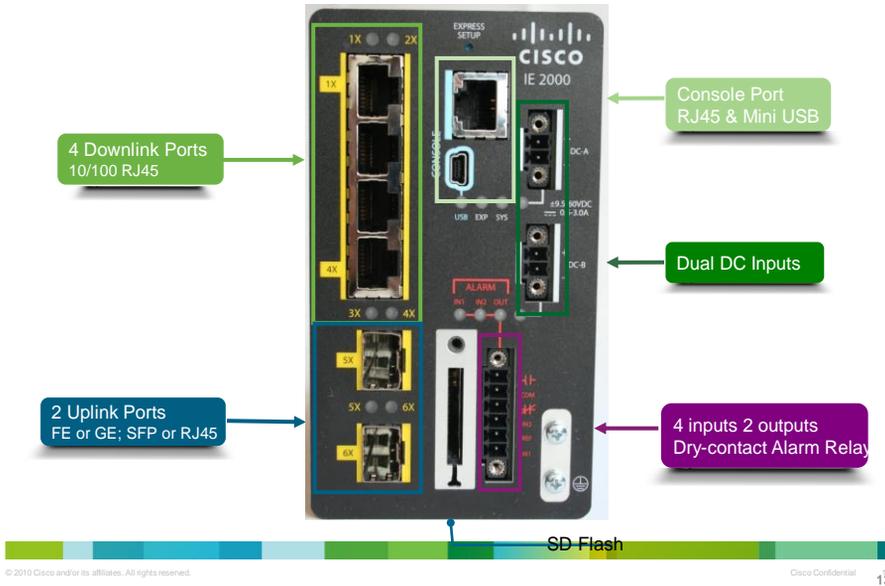
Key Highlights

- 4, 8 and 16 Port Fixed configurations, Compact form factor
- SFP Uplinks to minimize configurations while providing flexible fiber options
- Feature Variations – Support for Motion applications (IEEE 1588 PTP), IP addressing and Integration (NAT), Gig uplinks and Conformal coating in select configurations , IA Lite and Base IOS software packages
- Industrial Environmental and Certifications
- Integrated power supply, Alarm relay, IE Swap Drive (Removable SD) for easy switch replacement

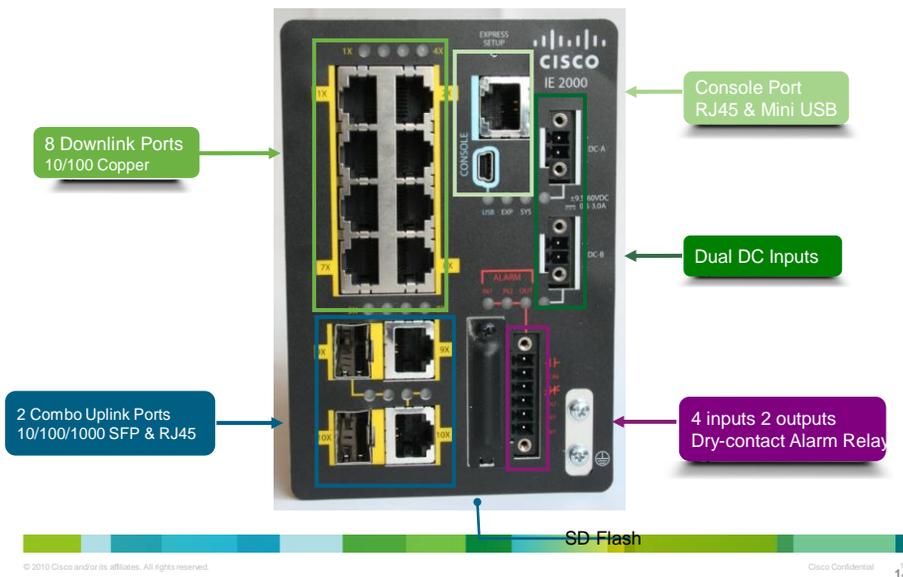
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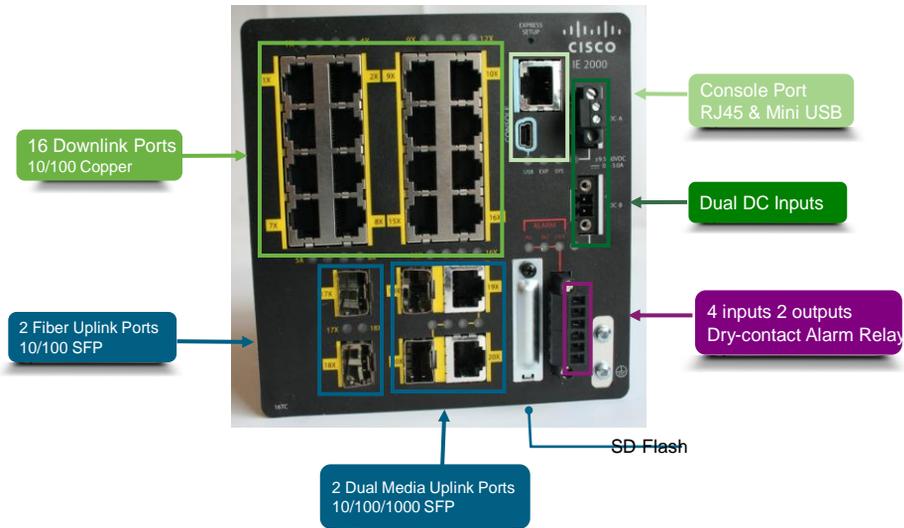
IE-2000-4T, IE-2000-4TS



IE-2000-8TC



IE-2000-16TC



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Cisco Industrial Ethernet Solutions (Current)

Cisco IE 3000

Cisco IE 3000
Rugged Switch Series

- Ruggedized for Industrial Applications, NEMA TS-2 compliant
- Modular design with many configurations
- Extended power options, AC and DC
- Surge protection
- IE SwapDrive for "Zero-Config" replacement
- Ease of use features
 - Cisco device manager & CNA support
 - Integration with factory management tools using Profinet, CIP
- Layer 3 Industrial Switches
 - A separate L3 SKU as well as a software upgradable option
 - Software is the same as the Catalyst 3750 IP Services

<http://www.cisco.com/ewtg/ds/ie3000/>



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IE 3000 Modular Switch

- **4 & 8-port base switch (10/100BaseT)**
 - Dual purpose uplinks
 - 10/100/1000BaseT or SFP
 - Dimensions
 - 6.0" w x 5.8" h x 4.4" d
- **8-port copper module (10/100BaseT)**
- **8-port fiber module (100FX)**
 - Expansion options:
 - One or two 8-port 10/100BaseT modules
 - One 8-port 100FX module
 - One 8-port 10/100BaseT module and one 8-port 100FX module
 - Dimensions
 - 3.5" w x 5.8 h x 4.4" d
- **Snap on power transformer module**
 - Power module inputs:
 - 85-265 VAC
 - 88-300 VDC
 - Dimensions:
 - 2" w x 5.8" h x 4.4" d

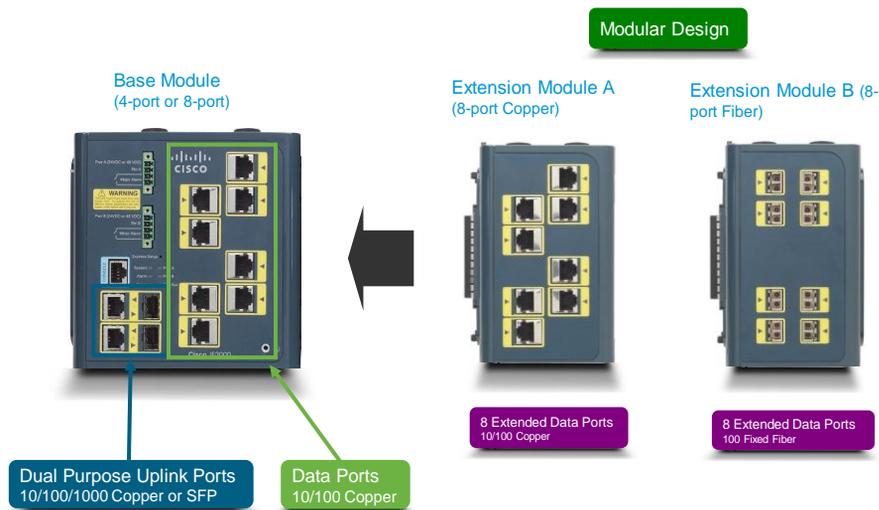


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IE 3000 Modular Design



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Dual Purpose Uplinks

CISCO

GigE Copper Uplinks
10/100/1000

OR

SFP Fiber Uplinks
10/100/1000

SFP Fiber Transceiver

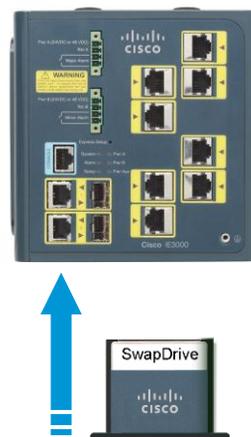
- Industrial SFPs Supported:
 - 100FX
 - 1000SX
 - 100LX
 - 1000LX
 - 1000EX
 - 1000ZX

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IE SwapDrive - “Zero-Config” Replacement

Easy to Use

- **“Zero-config” replacement**
 - Simple switch replacement in case of a failure
 - No networking expertise required
 - IE SwapDrive ensures fast recovery
- **Files stored on the SwapDrive**
 - IOS Image – (tar, html) – 2 sets
 - Config text
 - VLAN dat
 - Other devices configs



Industrial Automation Cisco IE-3010



IE-3010-24TC
24 10/100 ports
2 dual-port GE uplinks

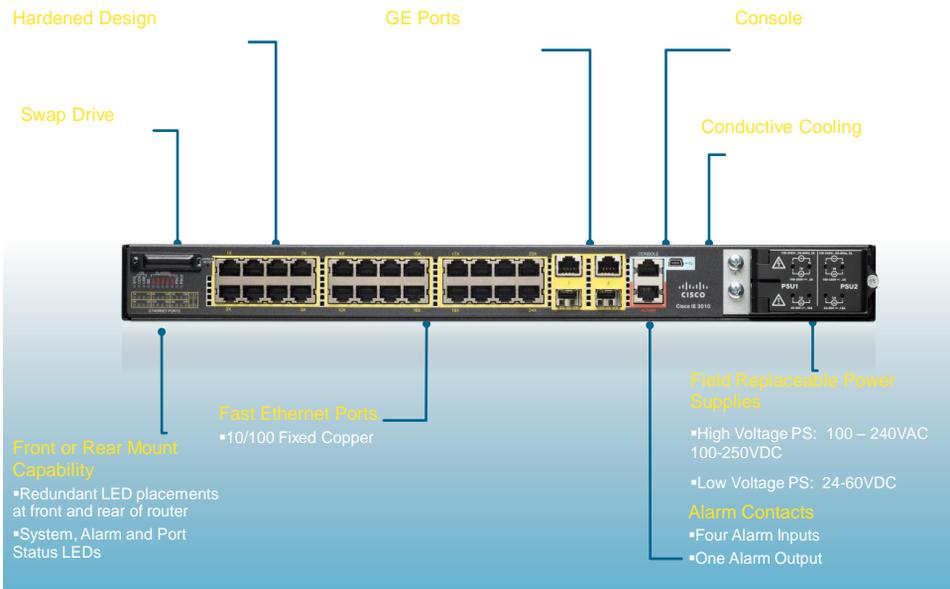
IE-3010-16S-8PC
16 FE SFP ports
8 10/100/PoE ports
2 dual-port GE uplinks

Based on the Cisco Catalyst 2K / 3K series, the most successful Enterprise Switches in the world today!

Hardened for harsh environments

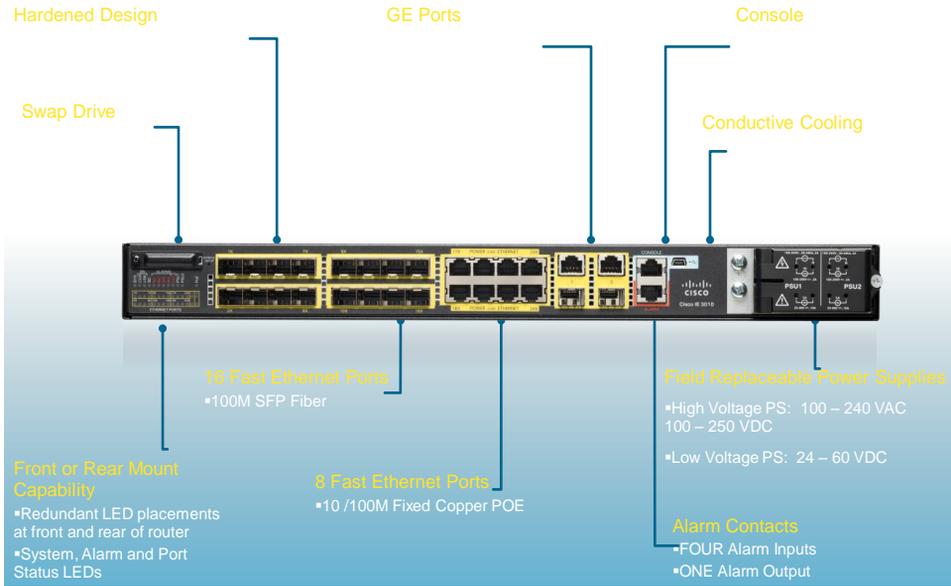
- ✓ Industrial Complies
- ✓ No Moving Parts
- ✓ Dual FRU Power Supplies
- ✓ Extended Temperature Range
- ✓ Extended Power Range Support
- ✓ Choice of Front or Reverse Cabling
- ✓ SwapDrive, "Zero-Touch" Support
- ✓ High Resiliency: REP, Flexlink
- ✓ Industrial Tailored Smartport Macros.
- ✓ Hardware Based Security Solution: SUDI
- ✓ Advanced Security Solution
- ✓ Advanced QoS

Cisco IE-3010 IE-3010-24TC Front Panel



Cisco IE-3010

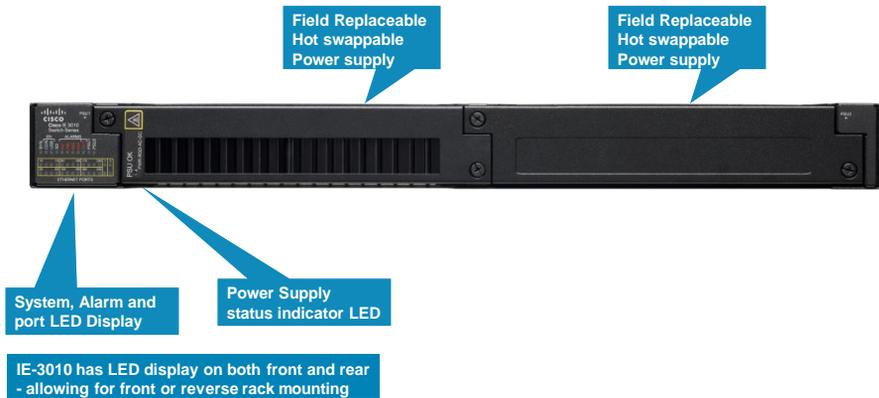
IE-3010-16S-8PC Front Panel



Cisco IE-3010

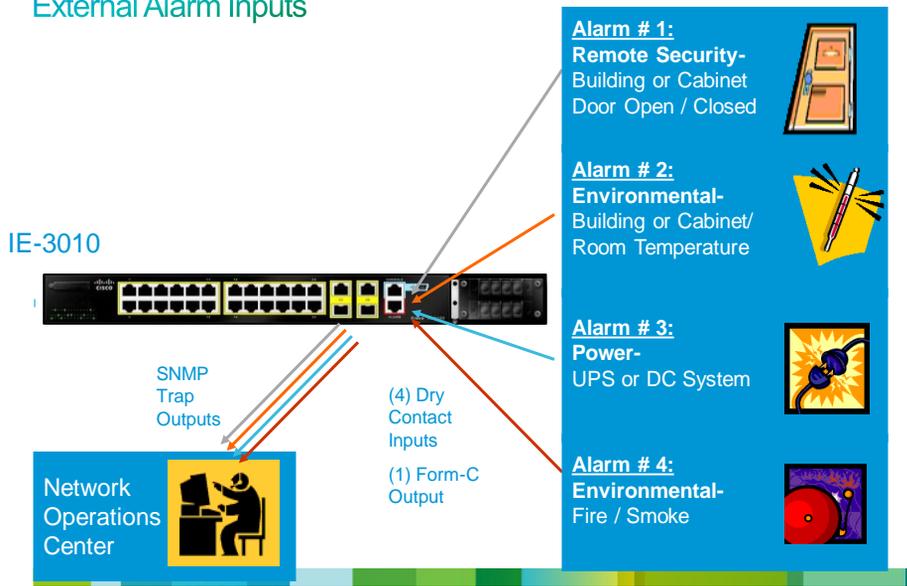
Hardware Details

Rear View



Cisco IE-3010

External Alarm Inputs



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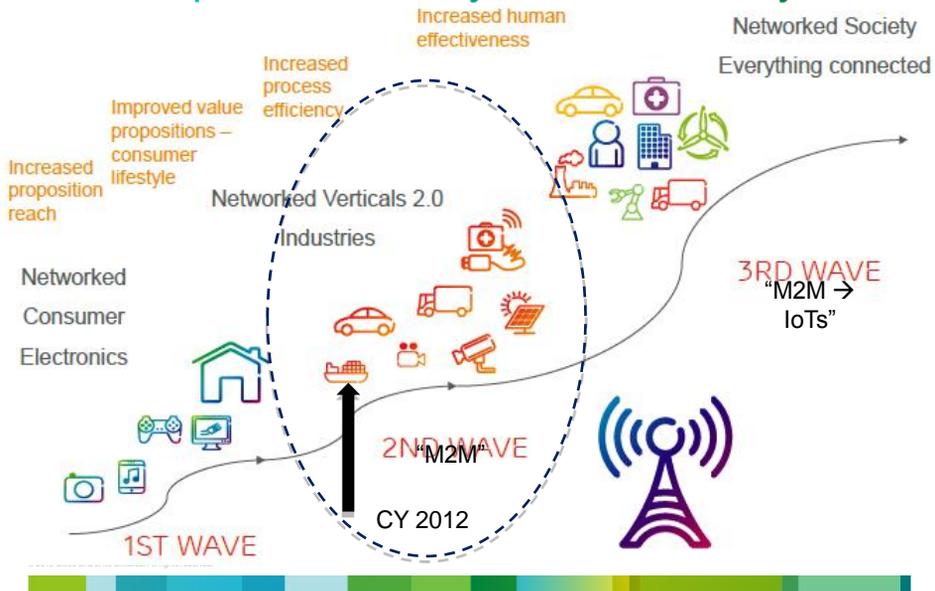
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M2M

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M2M: Improve Efficiency and Productivity



Cisco ISR 819 Machine-to-Machine Gateway

Rich IOS Capabilities

- Integrated Security (Cloud, VPN, IPS)
- WAN Optimization ready
- Medianet ready

Comprehensive Management Capabilities

- Cisco Prime
- Cellular Management (3G, SMS)

Introducing the Cisco ISR 819 M2M Gateway

Compact	Hardened	Services-Rich
<p>Industry's Most Compact Hardened M2M Gateway with Dual SIM</p>	<p>Built for challenging environment – shock/vibe, humidity, splash water, temperature, dust</p>	<p>IOS-Based – ISR Compatible, Secure native SMS Gateway with GPS Support</p>
 <p>Mobile IP and IPv6 Ready</p> <p>Cisco ISR 819</p>		
<p>BENEFITS: Increased revenue with new business models</p>	<p>Greater efficiency with remote real-time monitoring with existing management</p>	<p>Flexible operations with ease of installation/deployment and lower TCO</p>

Use Case across different M2M Vertical

Financial: ATM/POS/Vending	Transportation	Industrial Automation	Tele-Healthcare
			
<ul style="list-style-type: none"> • Installation of ATMs with wireless backhauled • Video surveillance from ATMs • Emerging market with no wired infrastructure 	<ul style="list-style-type: none"> • Access to corporate applications • Connect roadside equipment • Remote camera integration • Mobile applications 	<ul style="list-style-type: none"> • Remote telemetry • Utilities • Process control • Road transportation • New service and business models 	<ul style="list-style-type: none"> • Remote monitoring of patients • Personal emergency response system • Triage

ISR 819 Roadmap

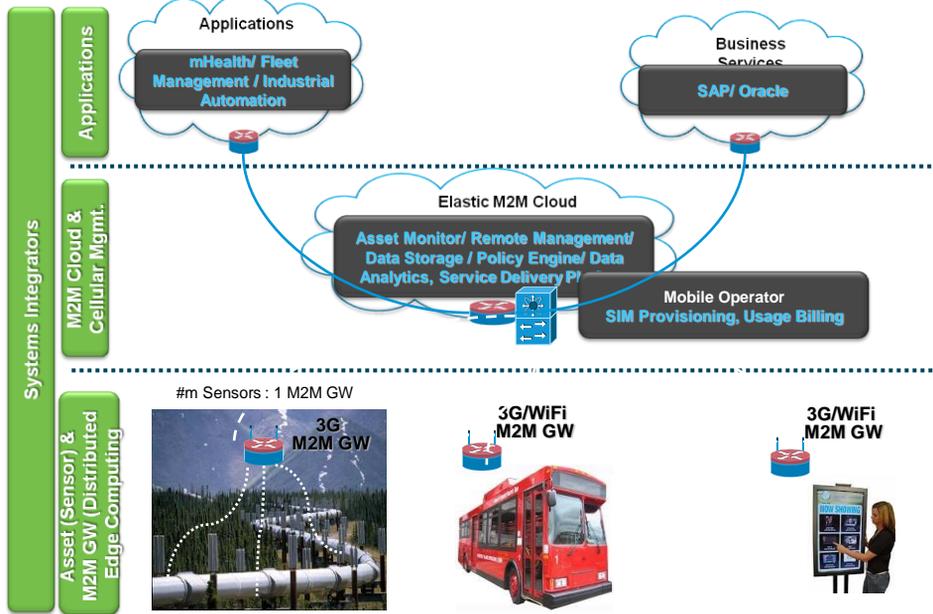


	C819	C819H	C819HWG	C819H-4G
3G/4G WAN	EVDO or HSPA+	EVDO or HSPA+	EVDO or HSPA+	Multi-mode LTE
3G Antenna	External/Diversity	External/Diversity	External/Diversity	External/Diversity
WLAN (a/b/g/n)	No	No	2.4 and 5.0 GHz	No
Unified Support (Licensed Option)	No	No	yes	No
Wifi Antenna	No	No	Internal/External	No
Onboard WAN Ports	1 GE	1 GE	1 GE	1GE
12-in-1 Serial (Licensed Option for Sync WAN)	1	1	1	1
Onboard LAN Ports	4 FE	4 FE	4 FE	4 FE
GPS / SMS	Yes	Yes	Yes	Yes
IOS (Universal Image)	15.1(4)M1 & 15.2(1)T	PI18	PI 19	TBD
Reset to Safe/Golden IOS & Config	Yes	Yes	Yes	Yes
WAAS Express (Option)	Optional	Yes	Yes	Yes
Cloud Security(ScanSafe)	Optional	Optional	Optional	Optional
Hardened (-25/55C / IP41)	No	Yes	Yes	Yes(-25-50C)
Humidity < 95 %	No	Yes	Yes	Yes
Shock and Vibe	No	Yes	Yes	Yes
Power Supply (AC, DC 12, 24, 52, 72 VDC)	External	External	External	External
Estimated Availability	Shipping	Shipping	Q4CY2012	Q4CY2012

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OTP M2M End-to-End Architecture



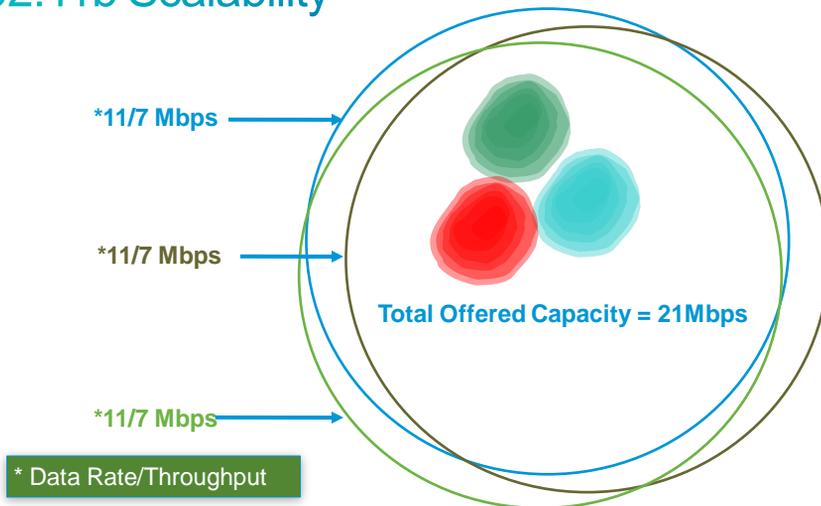
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WIRELESS MESH



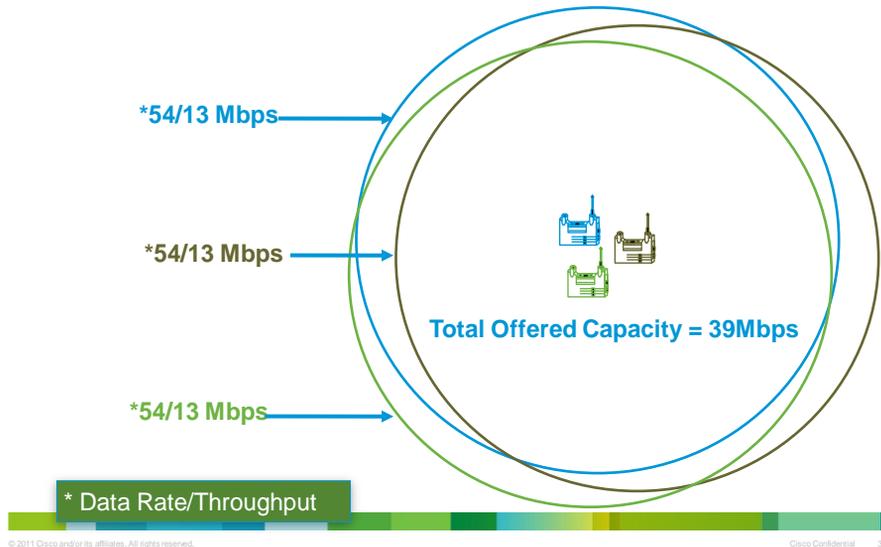
802.11b Scalability



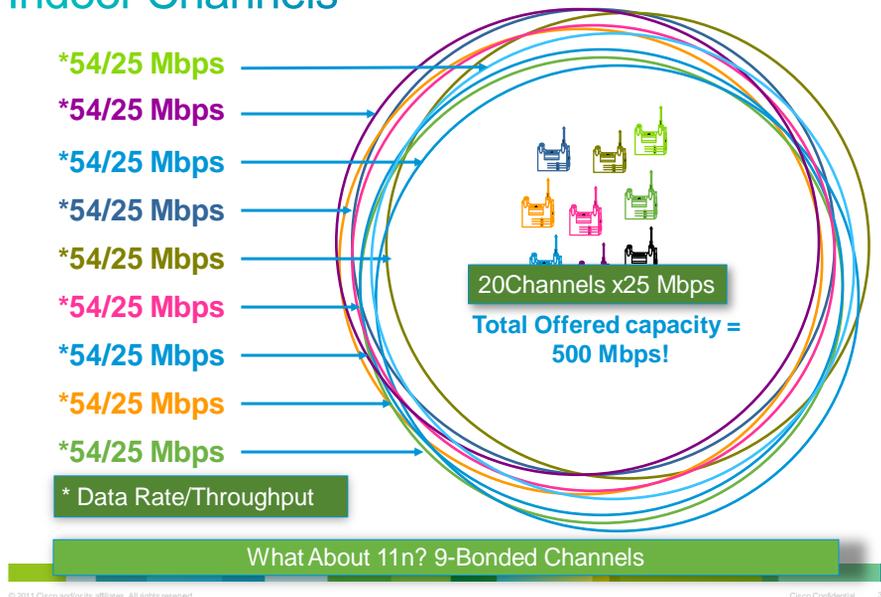
What If We Added Three More APs to This Coverage Area?



802.11b/g Mixed Scalability



802.11a Scalability – US 5 GHz Has 21 Indoor Channels



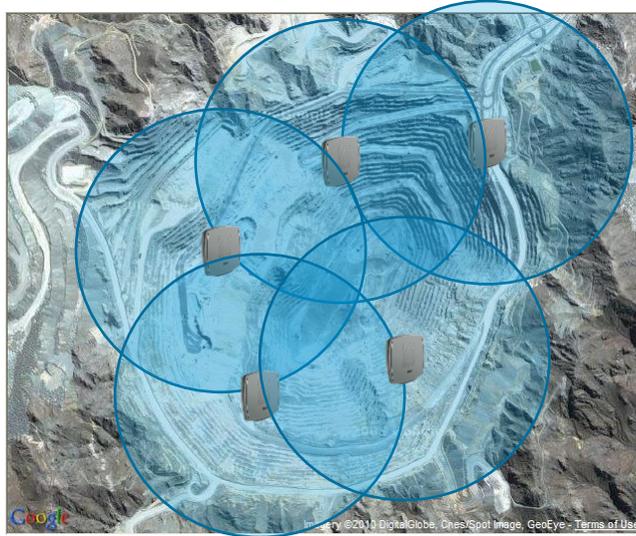
Implementación básica monoservicio

Datarate con 802.11b usando amplificadores y repetidores:

11Mbit/s

Throughput obtenido en este ejemplo:

0.33Mbit/s



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Implementación avanzada multiservicio

Datarate por AP con 802.11a/b/g usando WiFi Mesh:

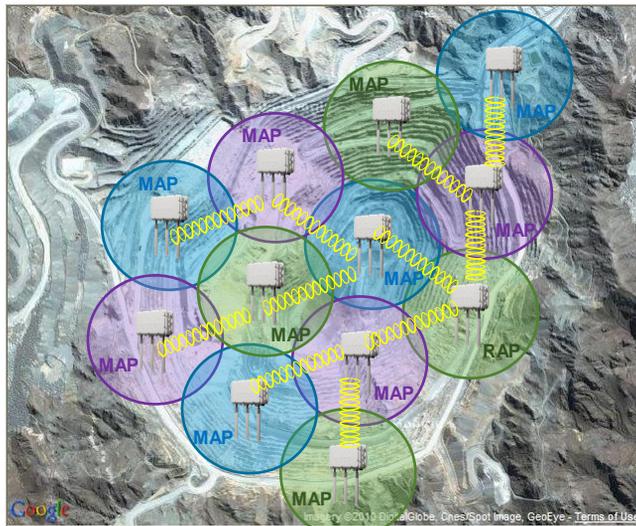
54Mbit/s

Throughput obtenido en este ejemplo:

3.8Mbit/s

Backhaul throughput:

1.32Mbit/s



Datarate por AP con 802.11a/g/n usando WiFi Mesh:

144Mbit/s*
300Mbit/s**

Throughput obtenido en este ejemplo:

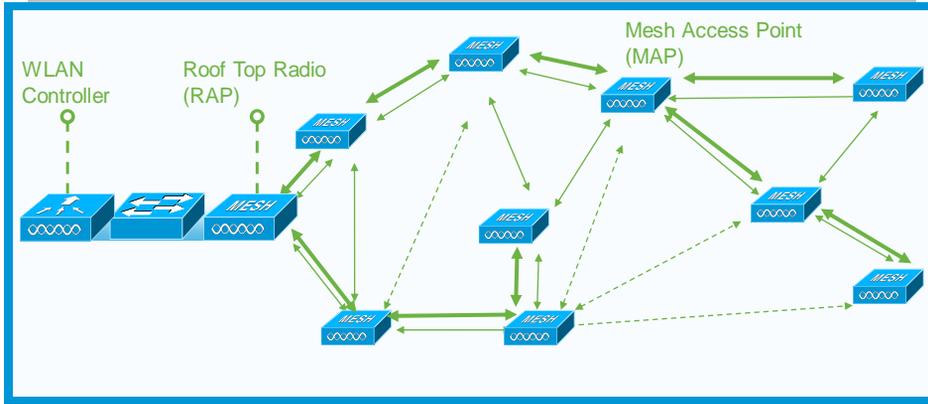
3.8Mbit/s*
8.8Mbit/s**

Backhaul throughput:

2.06Mbit/s

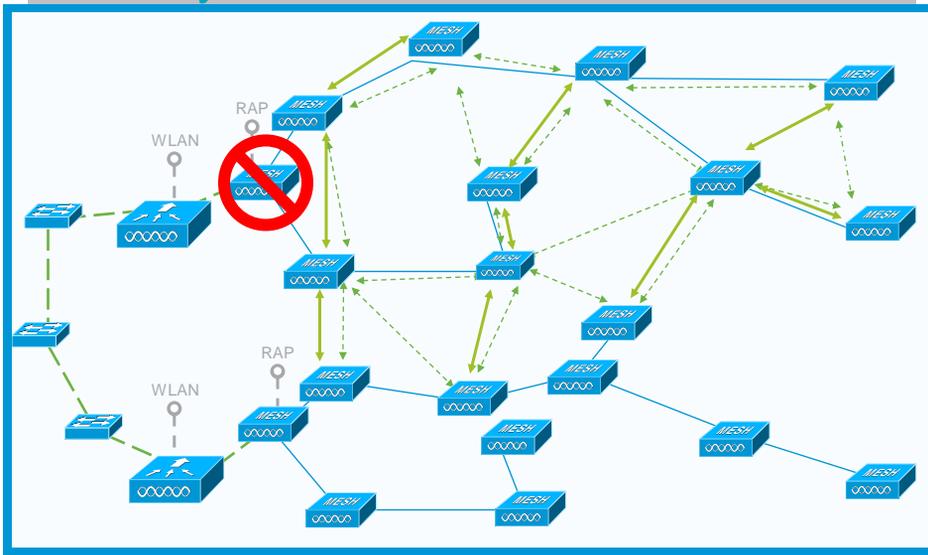
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Self-Organizing Wireless Mesh



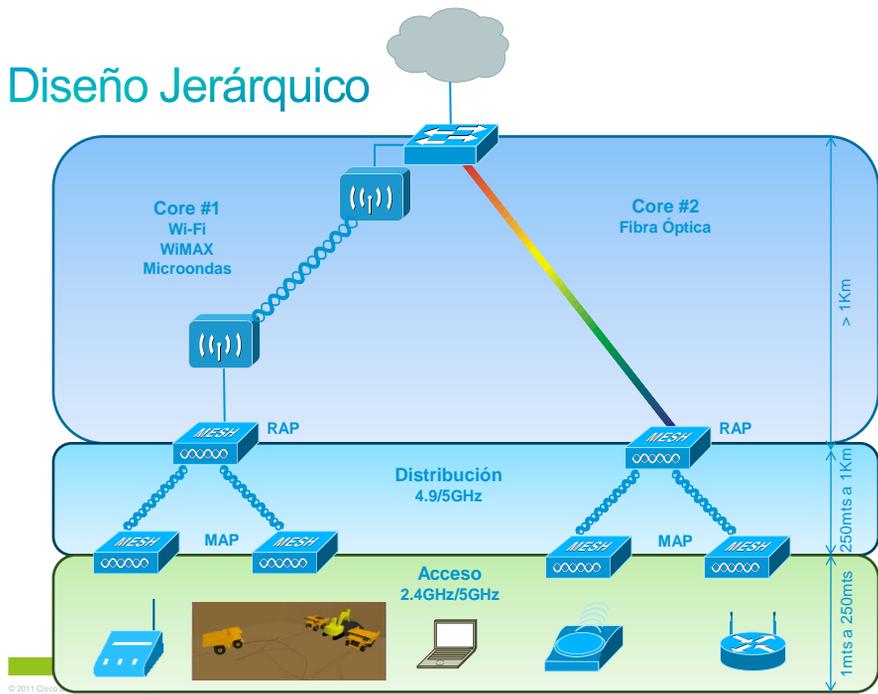
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Reliability and Failover

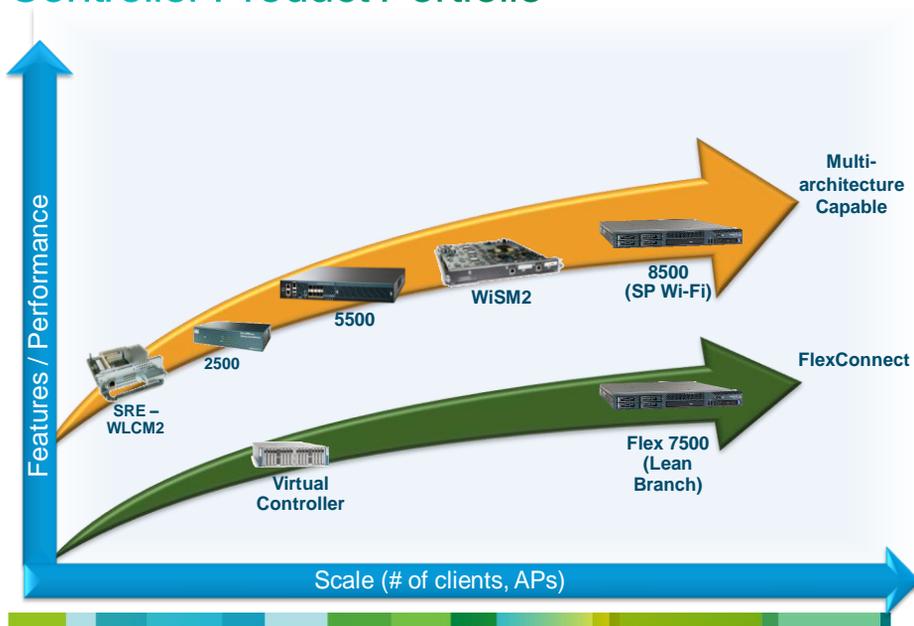


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Diseño Jerárquico



Controller Product Portfolio

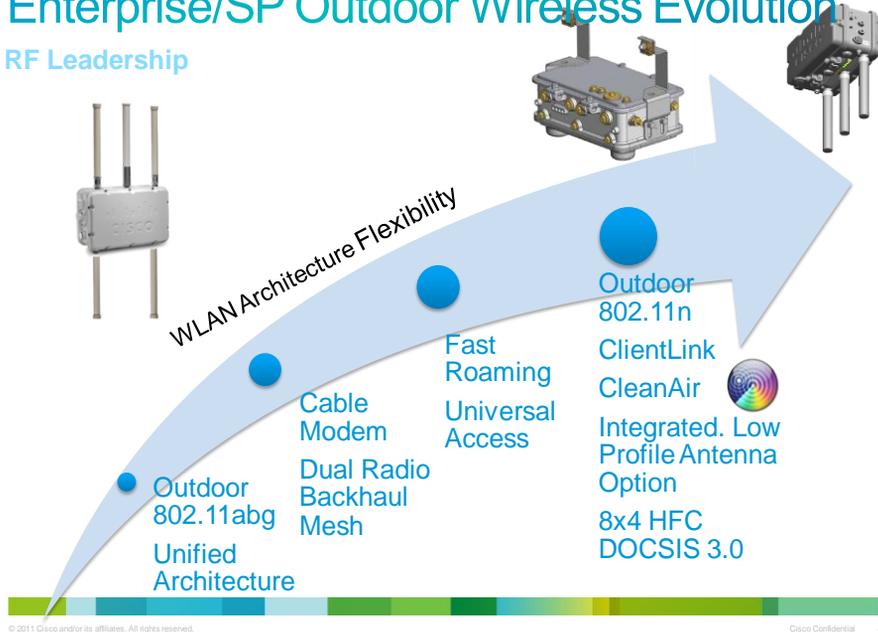


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Roadmap is highly confidential and reflects current plan. Subject to change without notice.

Enterprise/SP Outdoor Wireless Evolution

RF Leadership



Cisco Aironet Outdoor Access Points 1552 Series Portfolio

LOW PROFILE
1552I

VERSATILE
1552E

MSO/CABLE
1552C
1552CU

INDUSTRIAL SENSOR
1552H
1552S

Enterprise → Target Verticals

1550 Series Development Highlights

- 1552: Dual-Band (2.4 & 5 GHz), 2 Models
 - 40 MHz BW channel support, Data rates < = 300 Mbps
 - MIMO (2X3), 2 SS (Spatial Streams)
 - CleanAir 2.4 GHz Spectrum Intelligence
 - ClientLink 1.0 Legacy Beam Forming
 - Universal Access for 5 GHz clients
 - DFS capability to detect 0.5us pulses
 - (3) Dual band, Omni-directional antennas
- Antennas are 4 dBi (2.4 GHz)
& 7 dBi (5 GHz)

1552E/H



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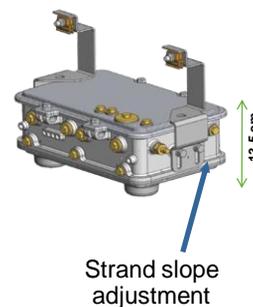
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1550 Series Development Highlights

Similar RF features as 1552E/H

- Dual-Band (2.4 & 5 GHz), 2 Models (low profile / cable modem)
- DOCSIS 3.0 or Euro-DOCSIS 3.0, (8x4)/ (304 x108) Mbps and (4x4) / (152 x 108) Mbps Cable Modem
- Reduce weight and size by Power Supply reduction and redesign of Ethernet board
- Reduce complexity by simplified covers, and elimination of additional cables and connectors
- 1552I has no SFP, No POE (In or Out) no battery backup
- Internal Antennas are 2 dBi (2.4 GHz) & 4 dBi (5 GHz)

1552I/C



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Cisco 1550 Series Where Targeted



1552 E

- Standard and flexible model with dual-radio system
- Targeting municipal & campus deployments, video surveillance apps, mining environments, & data offload



1552 C

- Integrated cable modem interface with DOCSIS 3.0/ EuroDOCSIS 3.0
- Targeted for 3G data offload applications & public Wi-Fi



1552 S

- Class 1, Div 2/Zone 2 hazardous location certified
- Integrated ISA100 Std-Compliant Backbone Router
- Targeted for Sensor Networks in Industrial Plants, Oil & Gas facilities

1552 H

- Class 1, Div 2/Zone 2 hazardous location certified
- Targeted hazardous environments like Oil & Gas refineries, chemical plants, mining pits, & mfg factories

1552 I

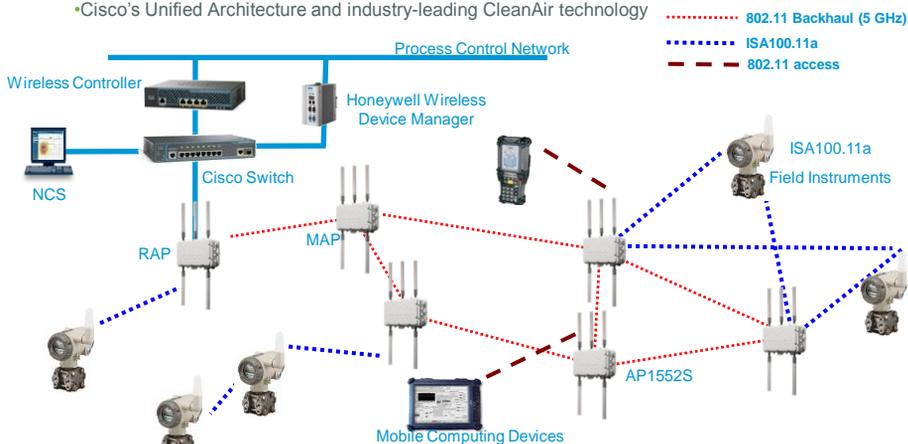
- Lightweight, Low power & energy efficient
- Designed to blend in with the surrounding environment

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AP 1552S – 802.11n + ISA100.11a

- Integrate Honeywell ISA-100.11a compliant gateway into AP1552
 - Field sensors communicate telemetry using (IEEE 802.15.4 radio) to gateway & AP provides Wi-Fi access and backhaul connectivity
- Improves upon Honeywell's current solution
 - Changes older 2-box solution into an integrated one, easier installation
 - Upgrades from 802.11a/b/g to 802.11n Wi-Fi performance
 - Cisco's Unified Architecture and industry-leading CleanAir technology



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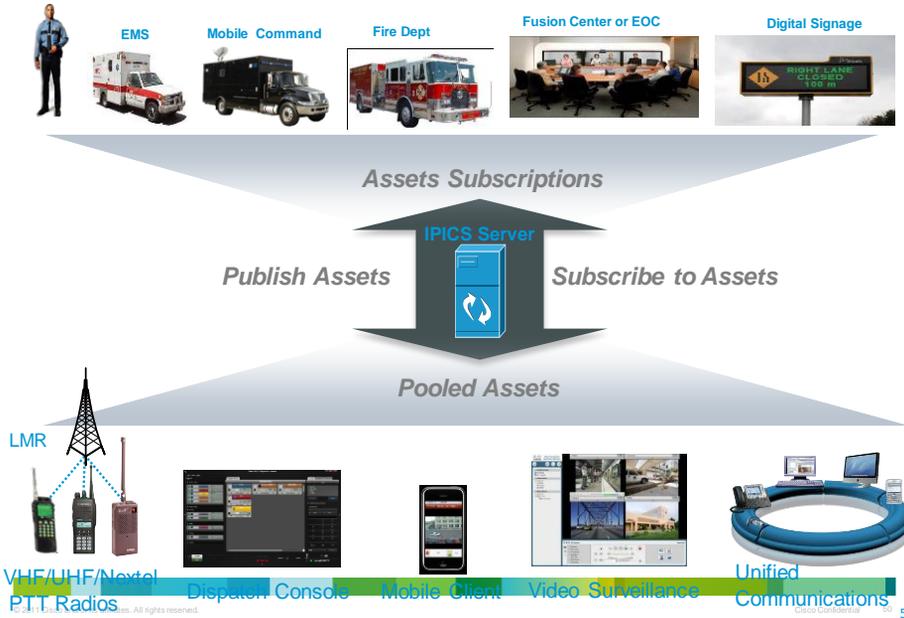
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IPICS Overview



The IPICS Solution Architecture... Push to Everything!



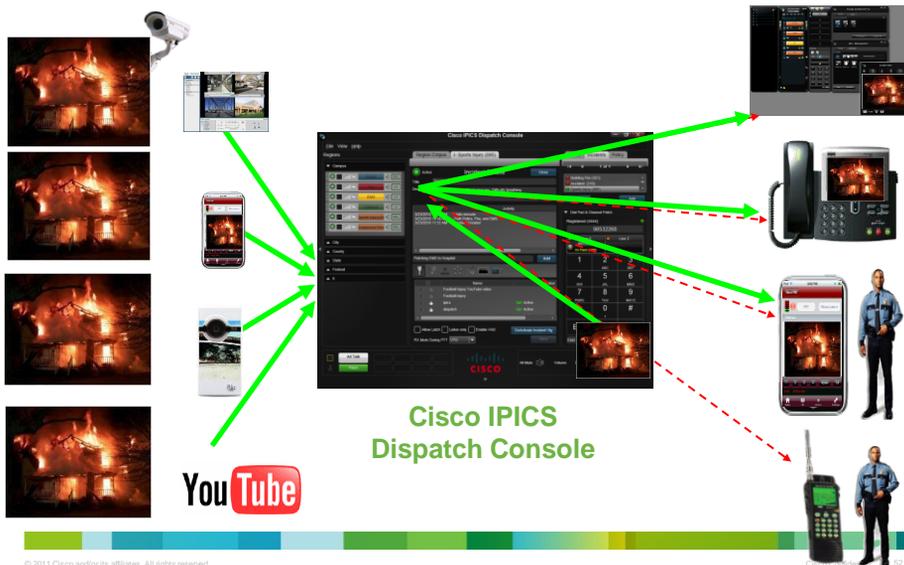
Threat Incident work flow

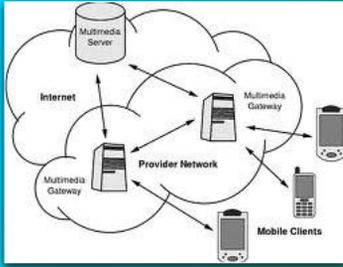


The Next Generation in Incident Response and Situation Awareness

Detection and Monitoring

Response

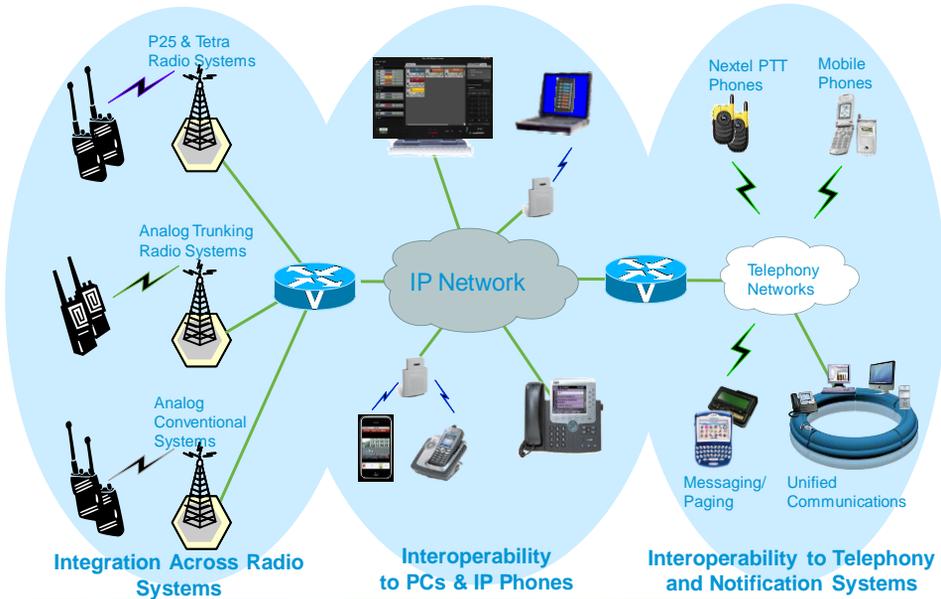




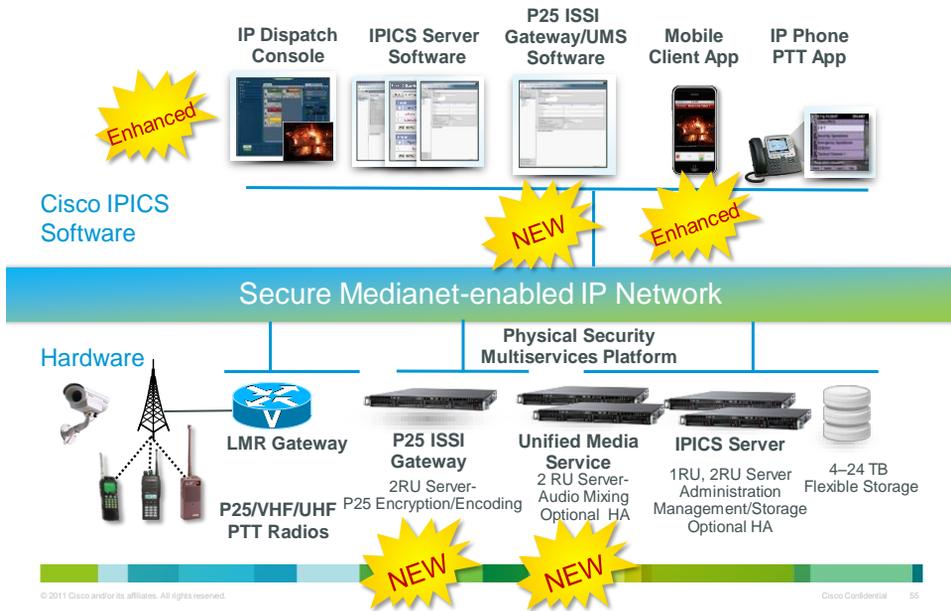
IPICS Architecture



IPICS Comprehensive Communications Interoperability



Cisco IPICS Solution Architecture



Gracias.
Thank you.
Obrigado.

