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The SIP-Enabled Organization



SIP Trunking Designs That Enhance **Business Agility**

Brought to you by: Verizon and Cisco



Your Presenters

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Multi-vendor Voice / PBX Interoperability

- Getting the most value and flexibility from your current infrastructure
- Centralized, distributed, or hybrid
 - Developing an architecture to fit your business
- Maintain flexibility for current and future applications
 - Designing your SIP infrastructure for best results today and tomorrow

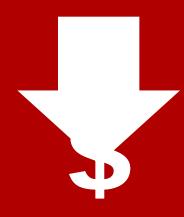


SIP Trunking by Cisco Press. Yours Free For Attending

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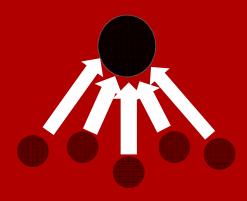


SIP Trunking Enables Business **Transformation**



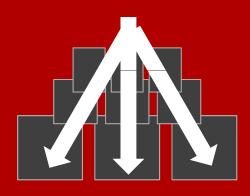
CONTROL COSTS

By efficiently interconnecting networks



SIMPLIFY

By streamlining and aggregating services



EXTEND

By bridging collaborative services around the globe

Multi-vendor Voice / PBX Interoperability







- Multiple choice: What is your Dominant PBX architecture?
 - ATDM
 - **B** Hybrid IP/TDM
 - CAII IP



What is the state of your current network design?

An all-IP, single-vendor PBX architecture has many benefits, but some customers aren't ready to make the transition. Some common considerations:

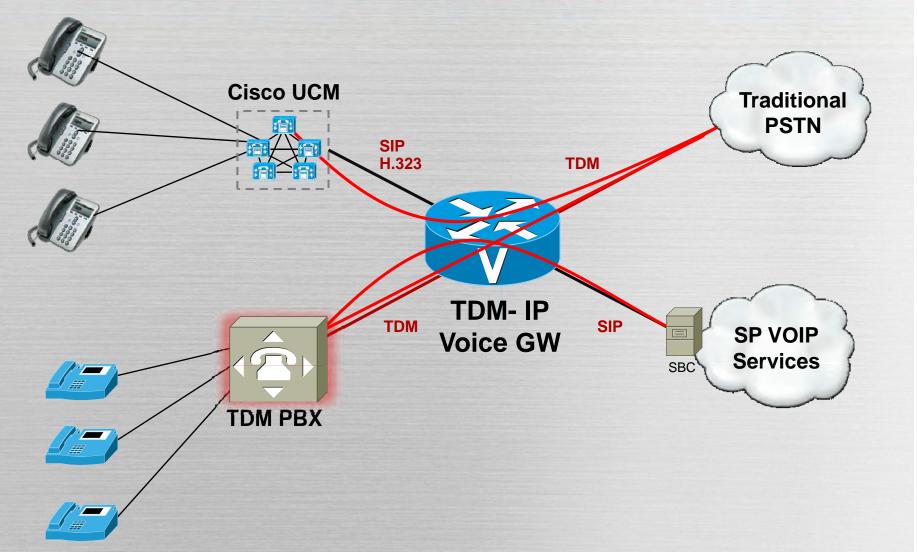
- Has your Investment in PBX equipment been fully depreciated?
- Do you have multiple vendors to meet different applications –
 i.e. call center versus corporate office and branch needs?
- Have you established a corporate-wide PBX standard?

Have you struggled to cost-justify PBX architecture refresh?

It is possible to take a multi-vendor approach, even while transitioning to SIP trunking.

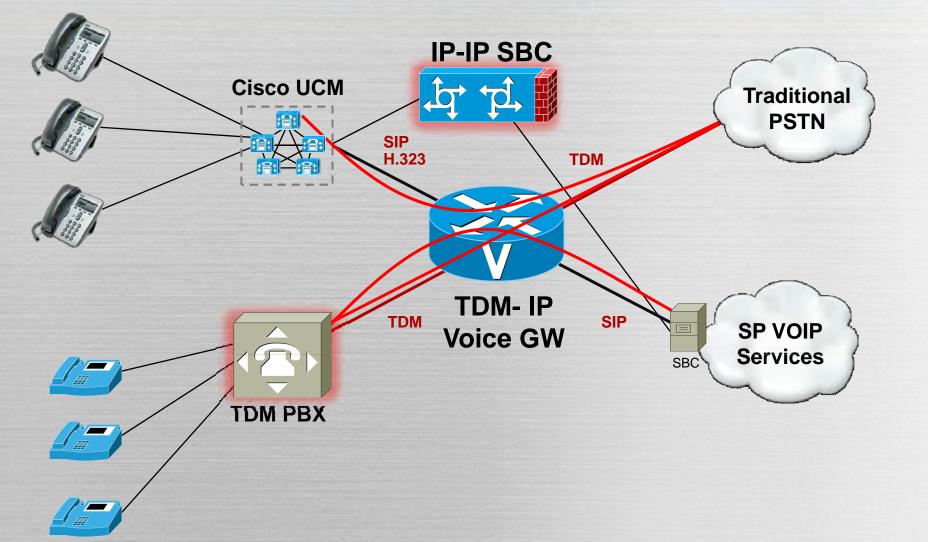


Voice gateway enables transition from TDM trunks to SIP Trunks



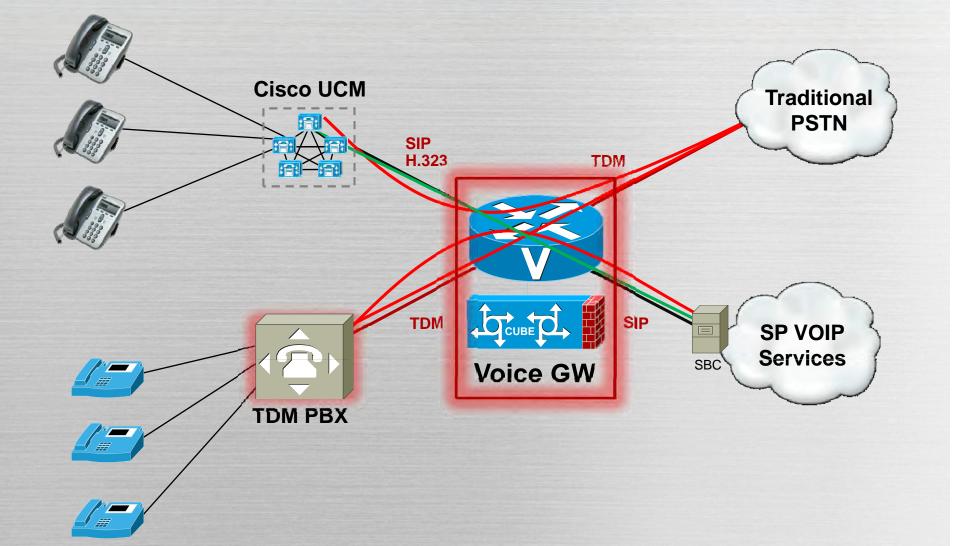


In moving from PBX to SP, an SBC is required to enable IP-IP Interoperability



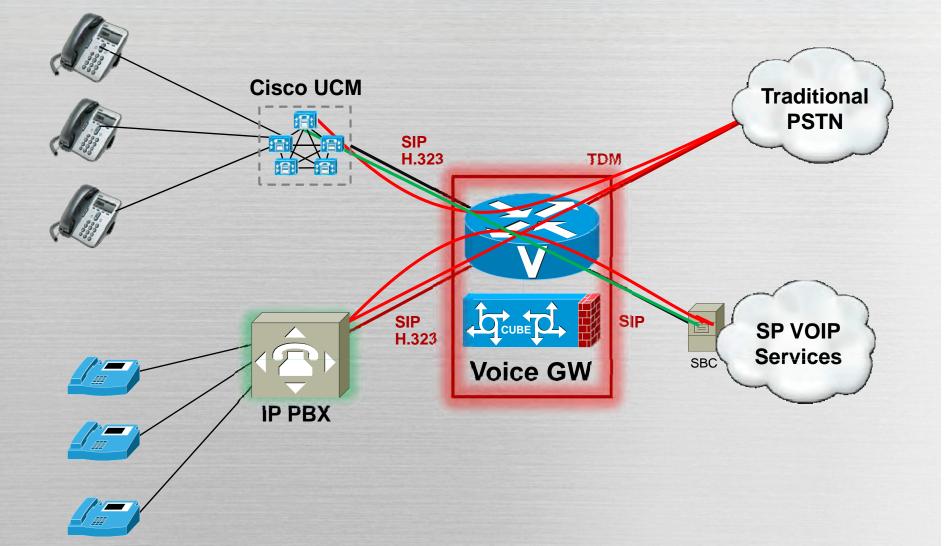


With Verizon you get a single device that provides reduced costs and complexity of TDM to IP migration





Our solution allows for Multi-Vendor **IP PBX Connect Multi-Service Trunks**





Verizon Interop Testing An established and widely used process

Certification Tests

- Verizon certifies major PBX releases directly with manufacturers
- Cisco certifies CUBE with manufacturers (www.cisco.com/go/interoperability)

The Interop Process

 Verizon Interop Lab runs a set of rigorous testing scenarios, works with customer to resolve issues, and documents the results and final configuration in an Application Note (App Note)

Interop Testing

- Customer CPE configurations involving multiple vendors leverage certification tests
- Tested by Verizon and customer, directly through the Interop process

Remediation

- After installation, performance issues are handled with a Verizon trouble ticket
- Interop App Note is used to confirm correct configuration, and works with customer to restore service



Get the benefits of SIP Trunking now

- Offerings that help organizations obtain the benefits of SIP Trunking now, while migrating to the desired voice processing end-state
 - Interop Testing
 - Professional services and consultation
 - Verizon Integrated Access (Service Provider Gateway)
 - Session Border Controller with Premise Gateway

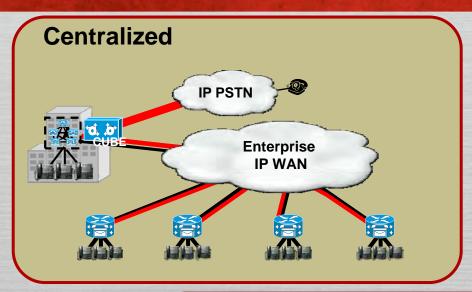


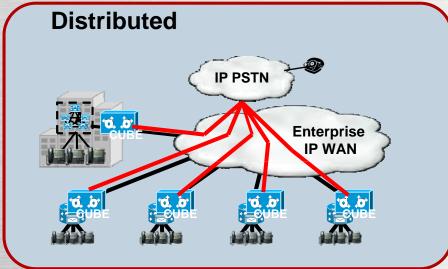
Developing an architecture to fit your business

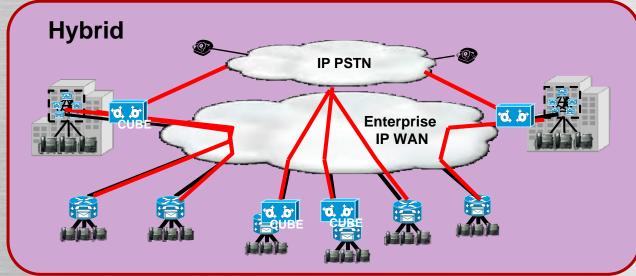




There are Three Basic Models of SIP Trunk Deployment









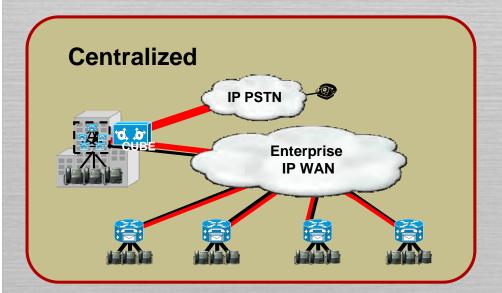
The Centralized Model

Operational Benefits

- Centralizes Physical Operations
- Centralizes Dial-Peer Management
- Centralizes SIP Trunk Capacity

Characteristics of Centralized

- Central Site is the only location with SIP session connectivity to IP PSTN
- Voice services delivered to Branch Offices over the Enterprise IP WAN (usually MPLS)
- Media traffic hairpins through central site between SP and branches



Site-SP Media



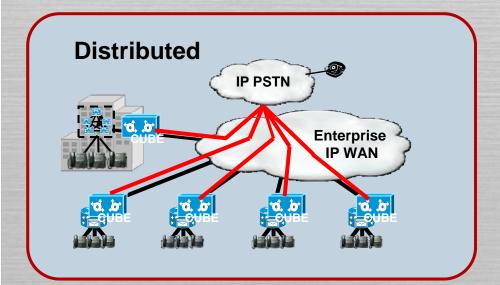
The Distributed Model

Operational Benefits

- Leverages existing branch routers
- No media hairpinning thru any site
- Lower latency on voice or video
- **Built-in Redundancy strategy**
- Quickest transition from existing TDM

Characteristics of Distributed

- Each site has direct connection for SIP sessions to SP
- Takes advantage of SP session pooling, if offered by SP
- Media traffic goes direct from each branch site to the SP



Site-SP Media



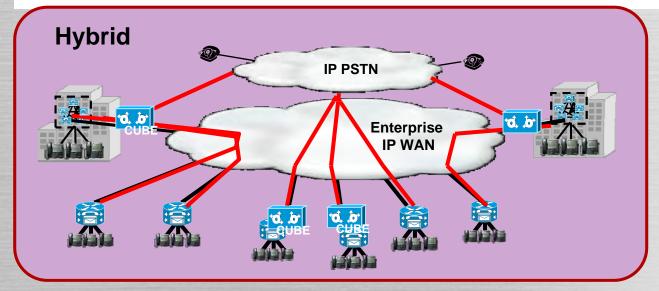
And the Hybrid Model

Benefits

- Adaptable to site specific requirements
- Optimizes BW use on Enterprise WAN
- Adaptable to regional SP issues
- Built-in redundancy strategy

Characteristics of Hybrid

- Connection to SP SIP service is determined on a site by site basis to be either direct or routed through a regional site
- Decision to route call direct or indirect based on various criteria
- Media traffic goes direct from site to SP or hairpins through another site, depending on branch configuration



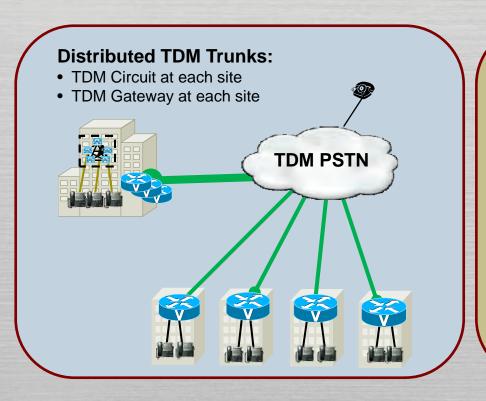
Site-SP Media



- What type of SIP Trunking Architecture are you considering?
 - A Centralized
 - B Distributed
 - C Hybrid
 - D Unknown

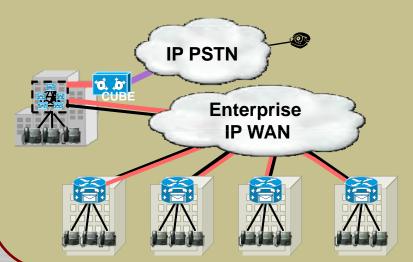


There are a few challenges in transitioning to a Centralized SIP Model



Centralized SIP Trunks:

- SIP sessions to IP-PSTN from central site only
- Enterprise WAN carries voice to remote sites



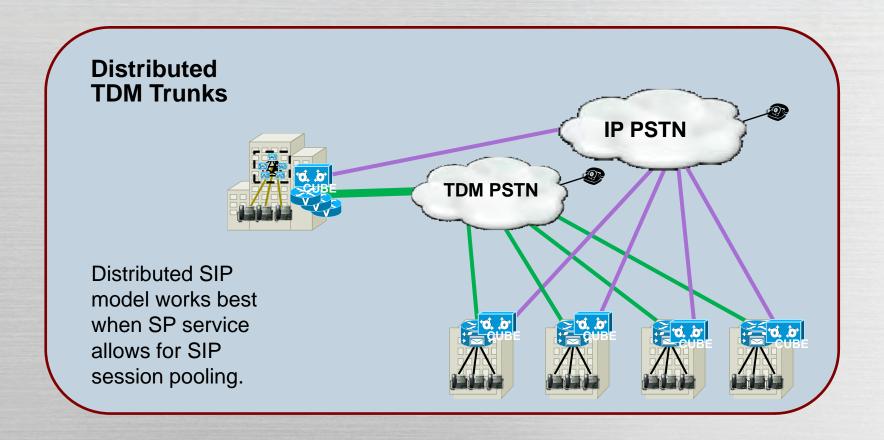
TDM Circuits to SP

SIP Trunks to SP

Internal SIP Trunks



These challenges can be simplified using the Distributed Model



TDM Circuits to SP

SIP Trunks to SP



So which model fits your business?

Customer Experience				
Distributed	Hybrid	Centralized		
 Large Retailer 1000+ locations Distributed IP PBX network already in place Convenience of following the TDM model Reduced risk of a big change Decided on distributed SIP architecture 	 Health Insurance Provider 4 primary locations, 1500 employees Centralized IP PBX at HQ 2 call centers separate from HQ system Decided on hybrid SIP architecture 	 Large Retailer Centralized TDM PBXs Multiple Servers at each location – inventory, POS, Security Centralized SIP architecture via CUBE, UCS Express, WAAS, Security integrated into 2945 ISR G2 at each site 		



SIP Trunk Deployment Models Selection Criteria Summary

SELECTION CRITERIA	CENTRALIZED	DISTRIBUTED	HYBRID
Limitations on Headend Bandwidth Availability	Requires strong QoS strategies on Enterprise WAN	Not affected by Headend BW availability	Adaptable to BW availability
Use of Existing Distributed PBX infrastructure	Not Recommended	Preferred	Allowable
Variability of branch office service requirements	Recommended with uniform and simple branch office requirements	Recommended with uniform but complex branch requirements	Optimal when branch requirements are variable
Variability of branch office capacity requirements	Optimal when branch office capacity is low (<20% of trunks)	Optimal when branch office capacity is high (>50% of trunks)	Optimal when branch office capacity is high but varies from site to site.
Video conferencing / Video telephony requirements thru Service Provider	Requires strong QoS strategies on Enterprise WAN	Requires adequate BW at each site.	Provides flexibility in phased deployment
Desire / Need to Maintain branch site IT functions	Allowable	Recommended	Allowable
Maintain consistent latency across voice network	Inconsistent latency can occur	Recommended	Recommended
Degree of Centralized services (voicemail, conferencing)	Optimal if Branches have minimal IT infrastructure elements.	Optimal if Branches support IT infrastructure elements.	
Data Center strategy	Optimal if Branches have minimal IT infrastructure elements.	Optimal if Branches support IT infrastructure elements.	
Voice Gateway protocols for TDM access	If MGCP is used on TDM GW then SIP centralization may be easiest transition.	H323 or SIP used on TDM GW allows easy transition to SIP trunks	Preferred when both MGCP and H323/SIP are used on various TDM GW
Capabilities of centralized management	Device management may be adequate	Requires strong centralized management	Same as distributed
Standardization of branch office platforms		Recommend Standardized definition of platforms & configs	
Enterprise WAN Capabilities	Requires strong QoS & CAC	Not a consideration	Requires QoS & CAC
Survivability & Alternative Path Strategy	Requires TDM backup in distributed branch offices	Multiple SIP connection points provide survivability	Multiple SIP connection points provide survivability

Maintain flexibility for future applications



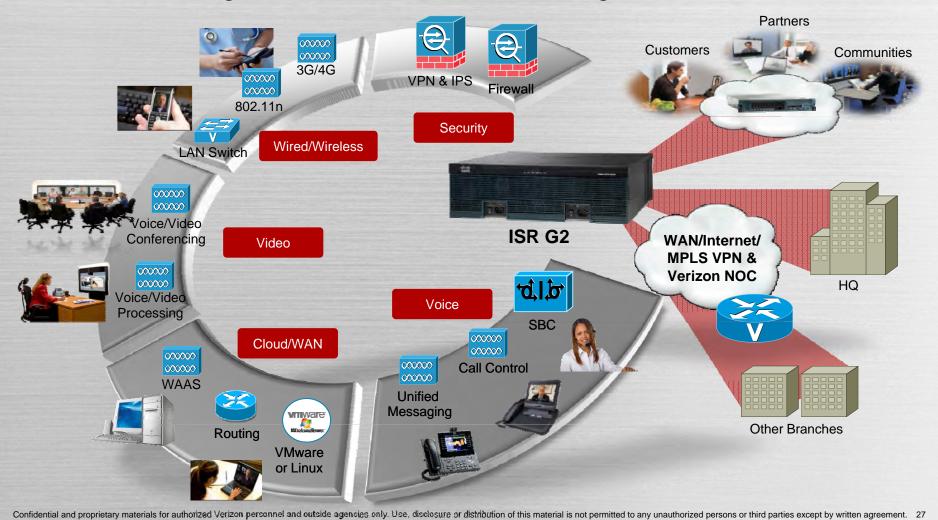


- Which services are you planning to add or enhance for branches in the next year?
 - A Security
 - BUC
 - C Video
 - **D** WAN Optimization
 - E Server Virtualization
 - F All of the above



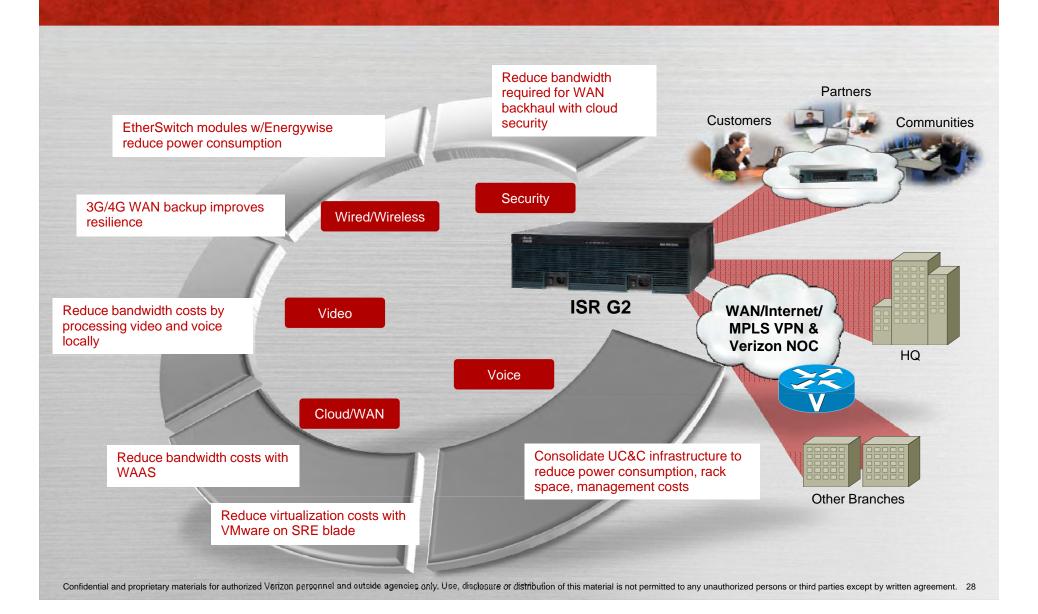
Solutions enabled by SIP Trunking infrastructure – more integration and flexibility

Branch/WAN integration via Cisco Validated Designs and Verizon Services





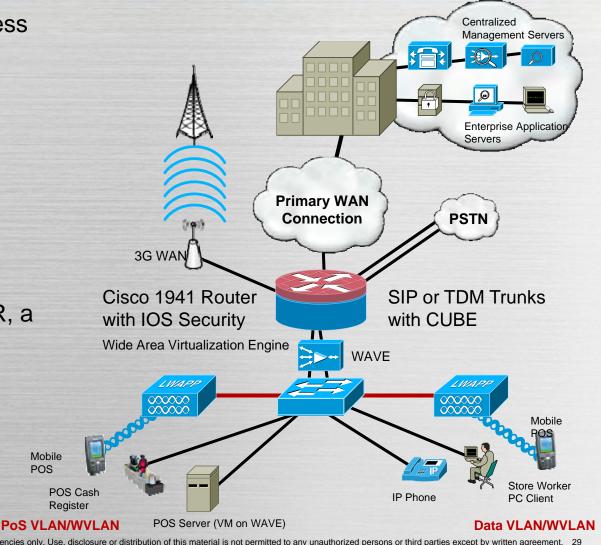
Solutions enabled by SIP Trunking infrastructure – Integration Benefits





Lean Retail Store Design – mini store

- The Retail Application business logic is centralized within the Data Center
- Primary and 3G WAN connections allow high availability in branches
- Cisco ISR runs PCI-based security as well as UC voice services
- WAAS runs as module in ISR, a external appliance or as a software service on store computers
- Wired and wireless design based on Connected Retail Reference Designs





SIP Trunking and other integrated services recent deployment examples

Large Department Store with 340 locations		
Before	 Centralized TDM PBXs Multiple servers at each location – inventory, POS, security 	
After	 Centralized SIP architecture via CUBE, UCS Express, WAAS, Security integrated into 2945 ISR G2 at each site 	

Large Regional Bank with 160 branches		
Before	 Distributed TDM PBX and Key Systems Multiple servers and security appliances at each branch 	
After	 Security, distributed voice and applications integrated into 3945 ISR G2 at each site 	



Range of Branch Services -Continuously Growing Portfolio of **Integrated Services**

Network and **Security Services**

Network Services



Control, Accelerate, Analyze

- Wireless LAN Controller (WLC)
- Infoblox Network Services (AXP)
- Cisco Network Analysis (NAM)
- Cisco Wide Area **Application Services** (WAAS)
- NetScout Network Monitoring (AXP)

Network and **Physical Security**



Secure, Protect, Comply

- Video Surveillance
- IOS Firewall

Collaboration Services

Unified Communications



Reach, Communicate, Collaborate.

- Cisco Unity Express (voicemail, IVR, autoattendant)
- Cisco Unified Border Element (CUBE)
- NICE Voice Recording (AXP)
- Sagem-Interstar Fax over IP (AXP)
- Singlewire InformaCast Paging over IP (AXP)

Compute Services and Applications

Application Infrastructure





Consolidate, Improve, Protect Investment

- Cisco Application Extension Platform (AXP)
- Integrated Storage System (ISS)
- Leading virtualization solutions
- Microsoft® Windows Server®+

Applications

Industry



Deliver Value-add Custom Solutions

- Medical Data Exchange (AXP)
- Orion Health Rhapsody Connect (AXP)
- Riverbed SkipWare (AXP)

+Scheduled Availability in 2012



Optimize your return on investment by delivering Integrated Collaboration Architecture

Verizon

- 10 years planning, executing and managing converged voice solutions
- Premise/Managed and Cloud/Hosted UC&C **Delivery Options**
- SIP / IP Network Provider around the globe
- Complete spectrum of professional services and consultative expertise



Controls Cost

Simplifies Deployment and Infrastructure

Extends New Collaborative Applications Around the World

Cisco

- Integrate multiple network services to manage OpEx
- Complete portfolio with pre-tested, validated designs
- Consolidated branch infrastructure on ISR G2 - SIP Trunking, UC, security, mobility, WAN optimization, virtualization
- Borderless Networks deliver voice, video and application seamlessly, reliably, securely



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- Whitepapers
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- An Insiders Look at PCI Technologies
- https://www.quickbase.com/up/bd87p3uqy/g/rbcz/eh5/va/TDW132_HTM L.html