Cisco-Router mit integrierten Services - maßgeschneidert für Ihr Business

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Abstract

- Integrierte Services und Anwendungshosting – maßgeschneidert für Ihr Business

  Die flexible Vernetzung von Niederlassungen und Außenstellen mithilfe der aktuellen Cisco ISR-Familie bedeutet heute bereits einen schlagenden Vorteil im harten Wettbewerb. Lassen sich aber nicht nur Standard-Applikationen, sondern auch individuelle Unternehmensanwendungen nach Wunsch im Netzwerk verteilen, liegen die Business-Vorteile auch für sehr spezielle Anforderungen klar auf der Hand. Wir geben Ihnen an Hand von Beispielen eine umfassende Vorstellung von den Möglichkeiten – und der Bandbreite von Anwendungen und Services, die via AXP-Einschubmodul im ISR-Router unternehmensweit verfügbar werden können (Lawful Intercept, Voice Recording, Protokoll-Umsetzung u.v.m.).

Ueberblick – ISR-Router

Service auf den ISR-Routern

AXP-Board im Detail

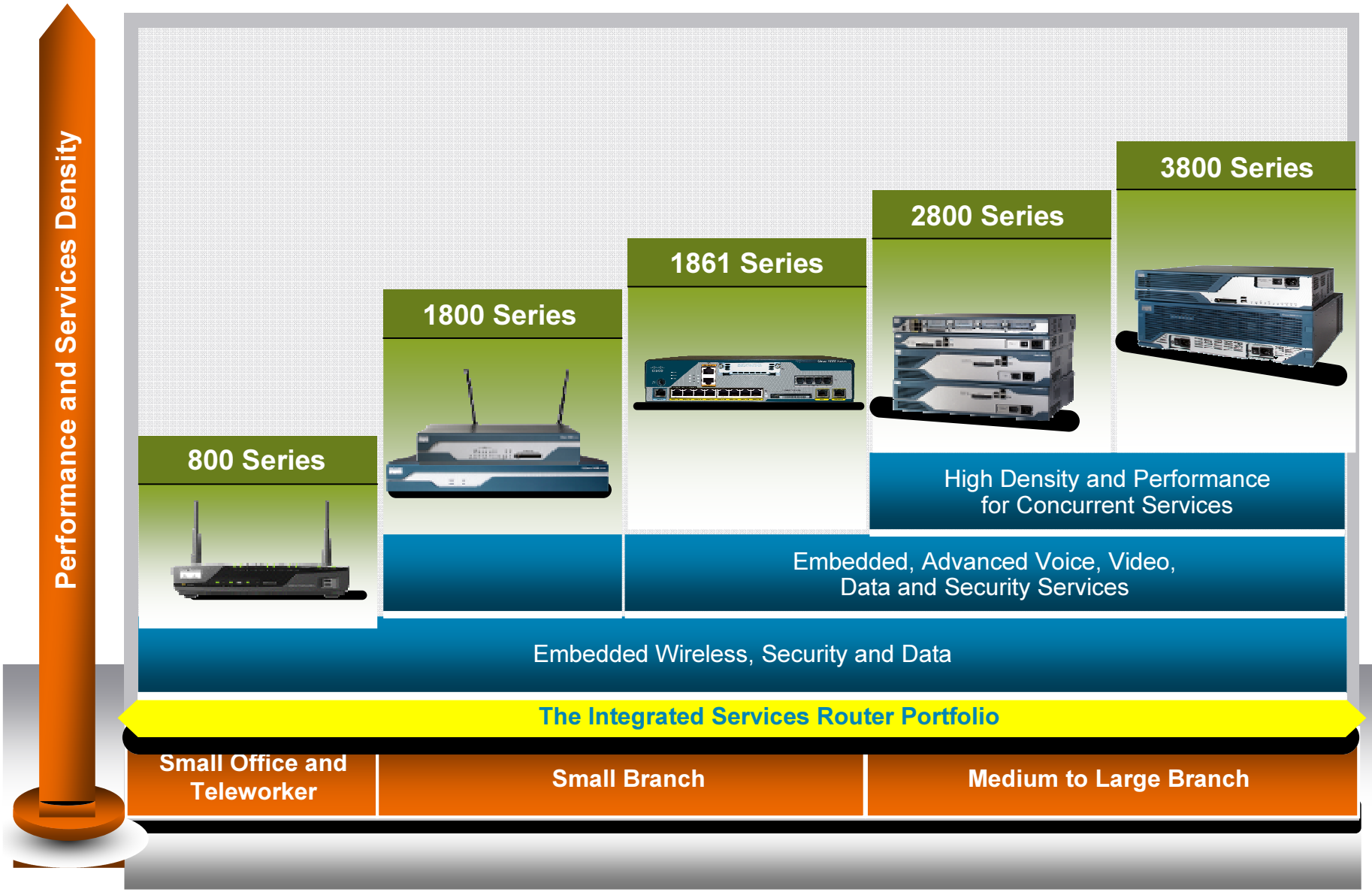
Anwendungs-Beispiele fuer AXP

Ueberblick – ASR 1000 Router

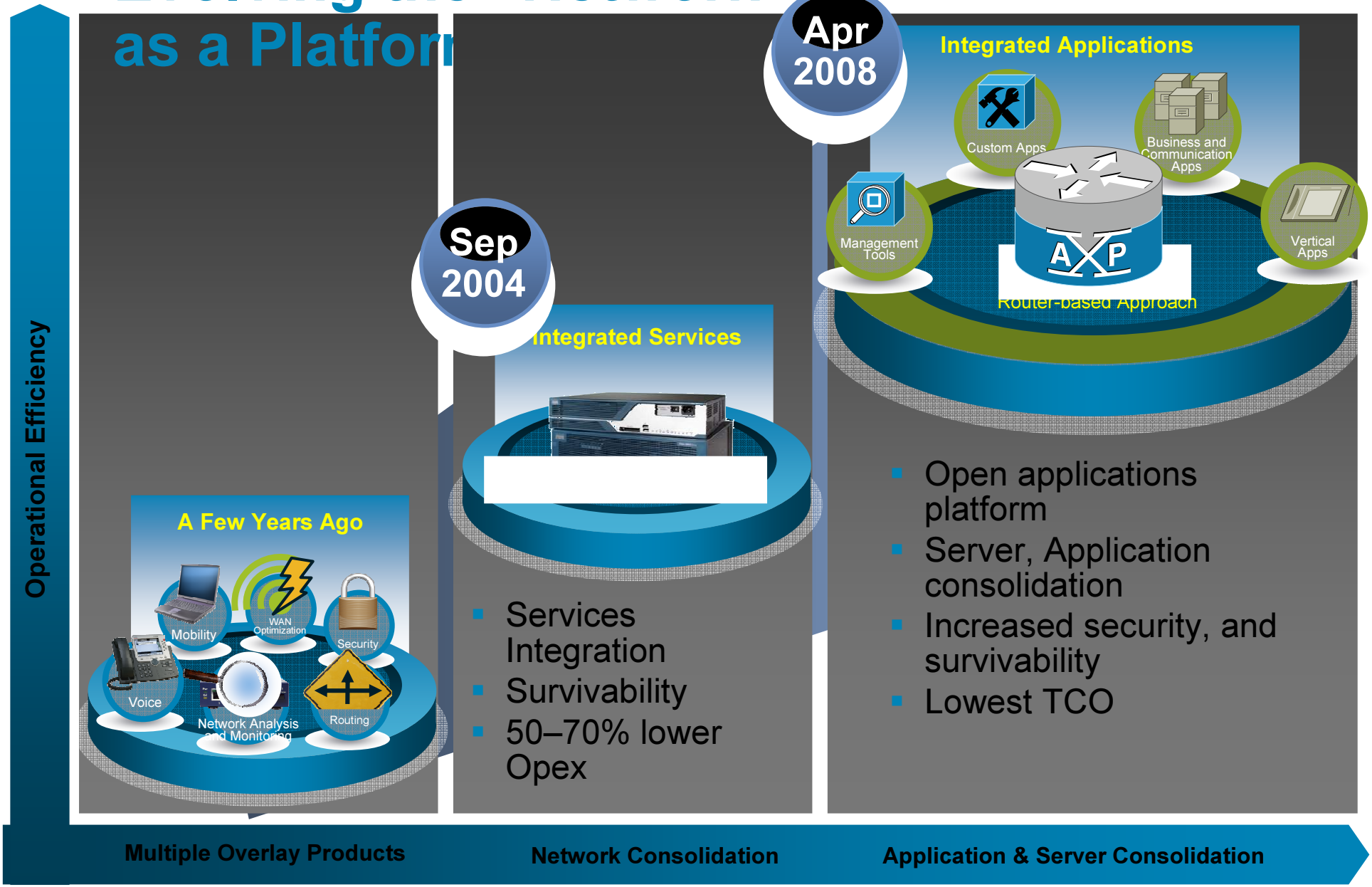
Service auf den ASR 1000 Routern

Webex-Service auf ASR 1000

Cisco Integrated Services Router Portfolio



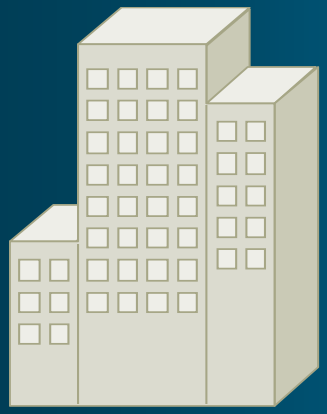
Evolving the "Network as a Platform"



Centralized

Decentralized

Data Center



Pros

- Simplified administration
- Operational efficiency
- Lower cost

Cons

- Performance
- WAN dependence
- Productivity
- Decision making

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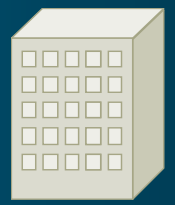
Branch



Centralized

ISR

Decentralized

- Core Business Logic
- Heavy Lifting Computes
- Global Services

- Local Business Logic
- Distributed Computes
- Survivable Services

Data Center

Pros

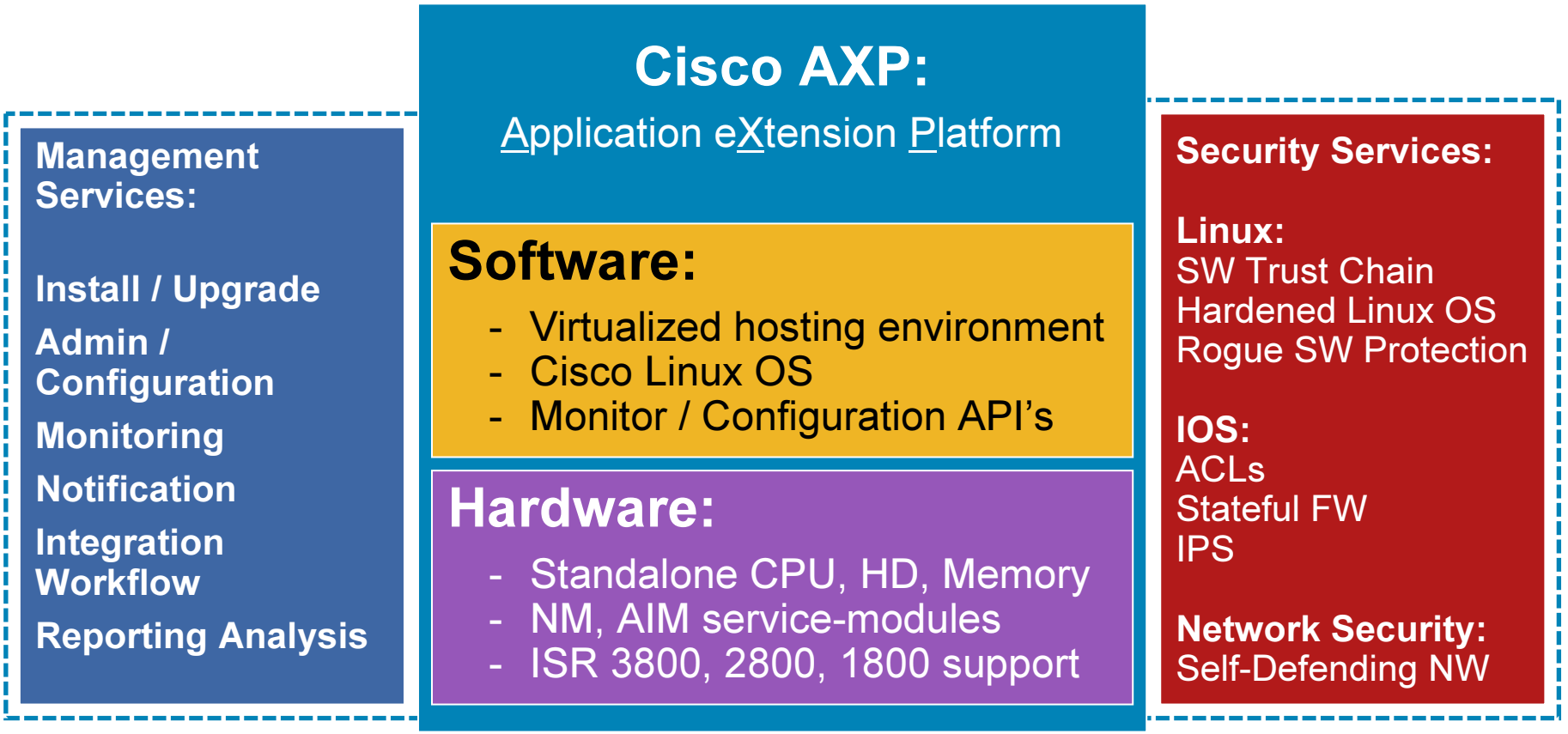
- Branch performance
- Branch productivity
- Localized decision making

Cons

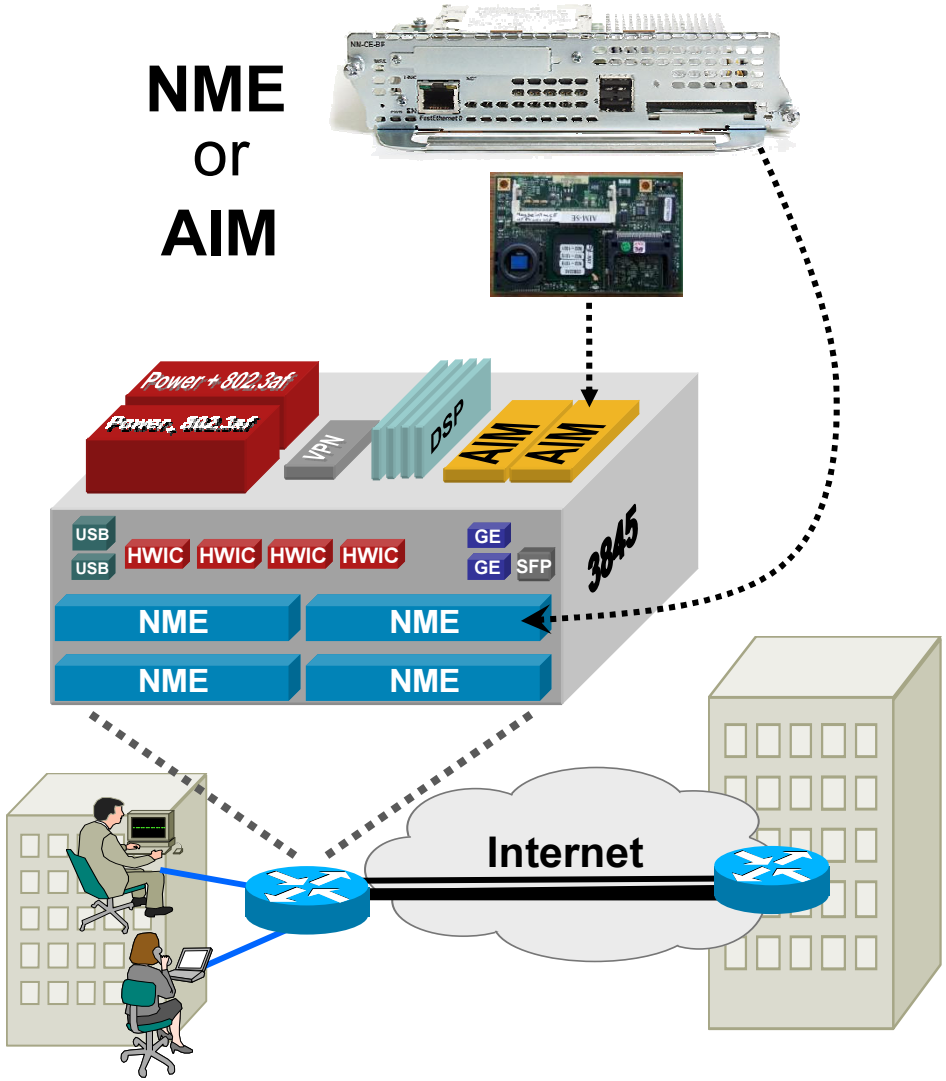
- Multiple appliances
- Operational inefficiency
- Cost with branch scale
- Administration

Integrated Branch

New Technology Services Model



Services Engine Overview



- Router integration
  - Direct backplane connection
- Incremental system resources
  - Additional CPU/RAM/ Storage
- Common hardware
  - Improved MTBF
  - “Pay as you grow”
- Lower total cost of ownership
  - Simplifies deployment/ maintenance/management

Supported Hardware

- **AIM 102**
  - CPU: 300 Mhz
  - Memory: 256 MB
  - Compact Flash: 1 GB
- **NME 302**
  - CPU: 1.0 Ghz
  - Memory: 512 MB
  - Disk: 80 GB
- **NME 522**
  - CPU: 1.4 Ghz
  - Memory: 2 GB
  - Disk: 160 GB

ISR Router Support

	AIM 102	NME 302	NME 522
1841	Y		
2801	Y		
2811	Y	Y	
2821	Y	Y	
2851	Y	Y	
3825	Y	Y	Y
3845	Y	Y	Y

AXP Technical Overview

Dedicated Application resources

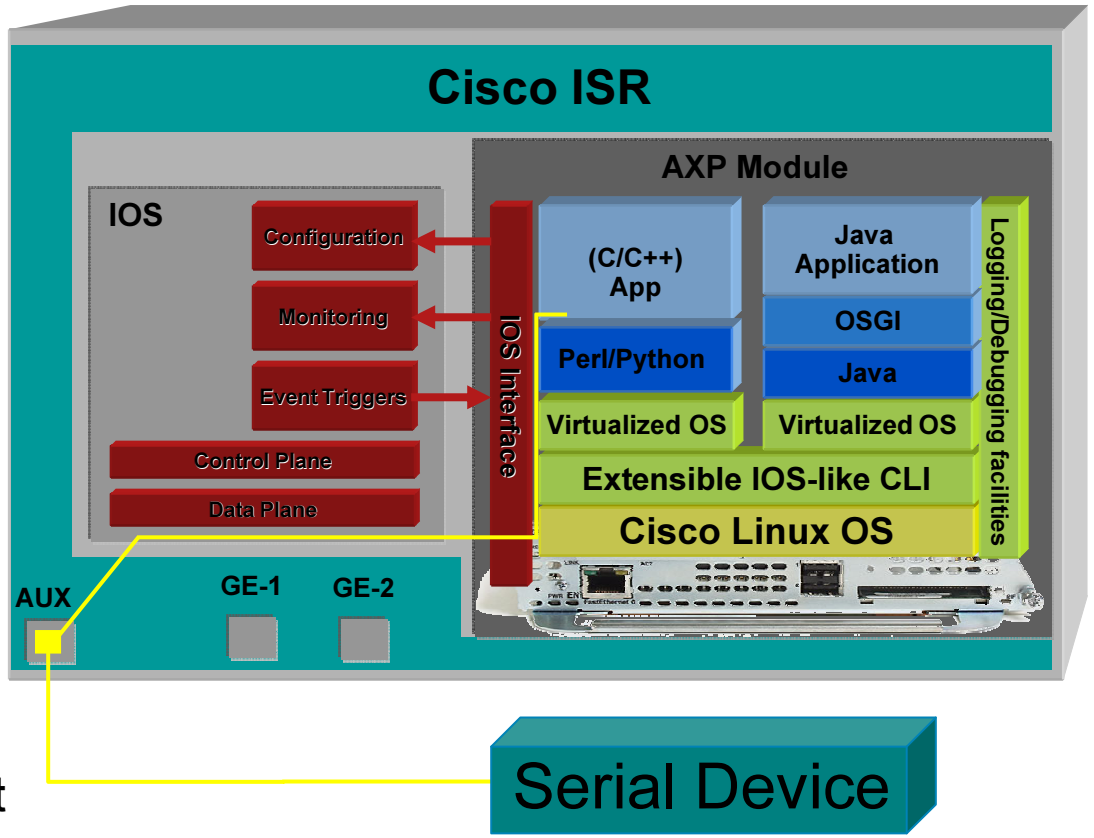
- CPU, Memory, Storage

Standards Based Hosting infrastructure

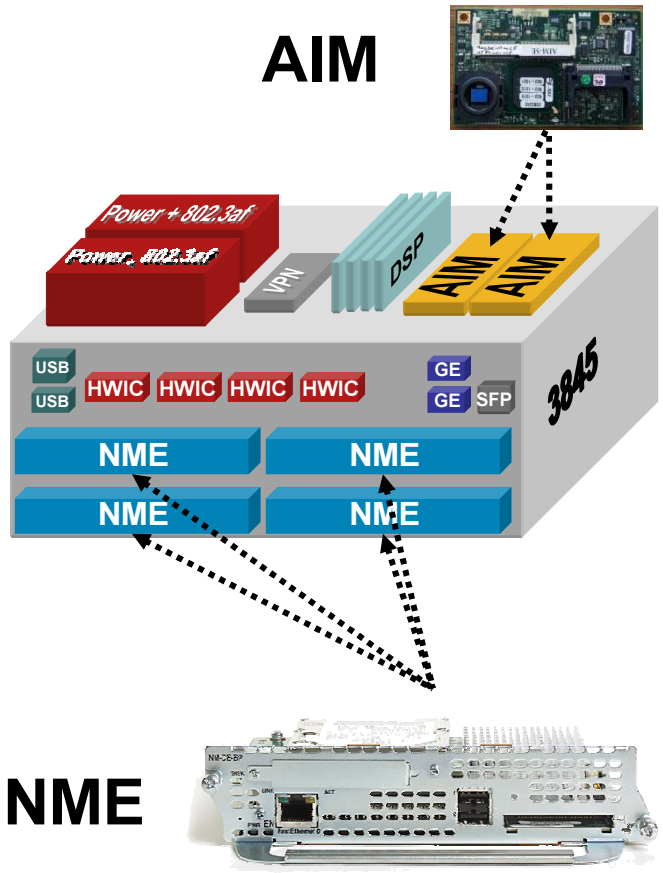
- Hardened Cisco Linux OS
- Linux Vserver “sandboxing”

Additional Features:

- Standard programming support
- ISR serial port virtualization
- Monitoring, Configuration, and EEM API’s



How Many AXP Service-Modules Per ISR Chassis?



Blades per Chassis Limits?

- No
- Dependent on open module bays (varies per ISR model)

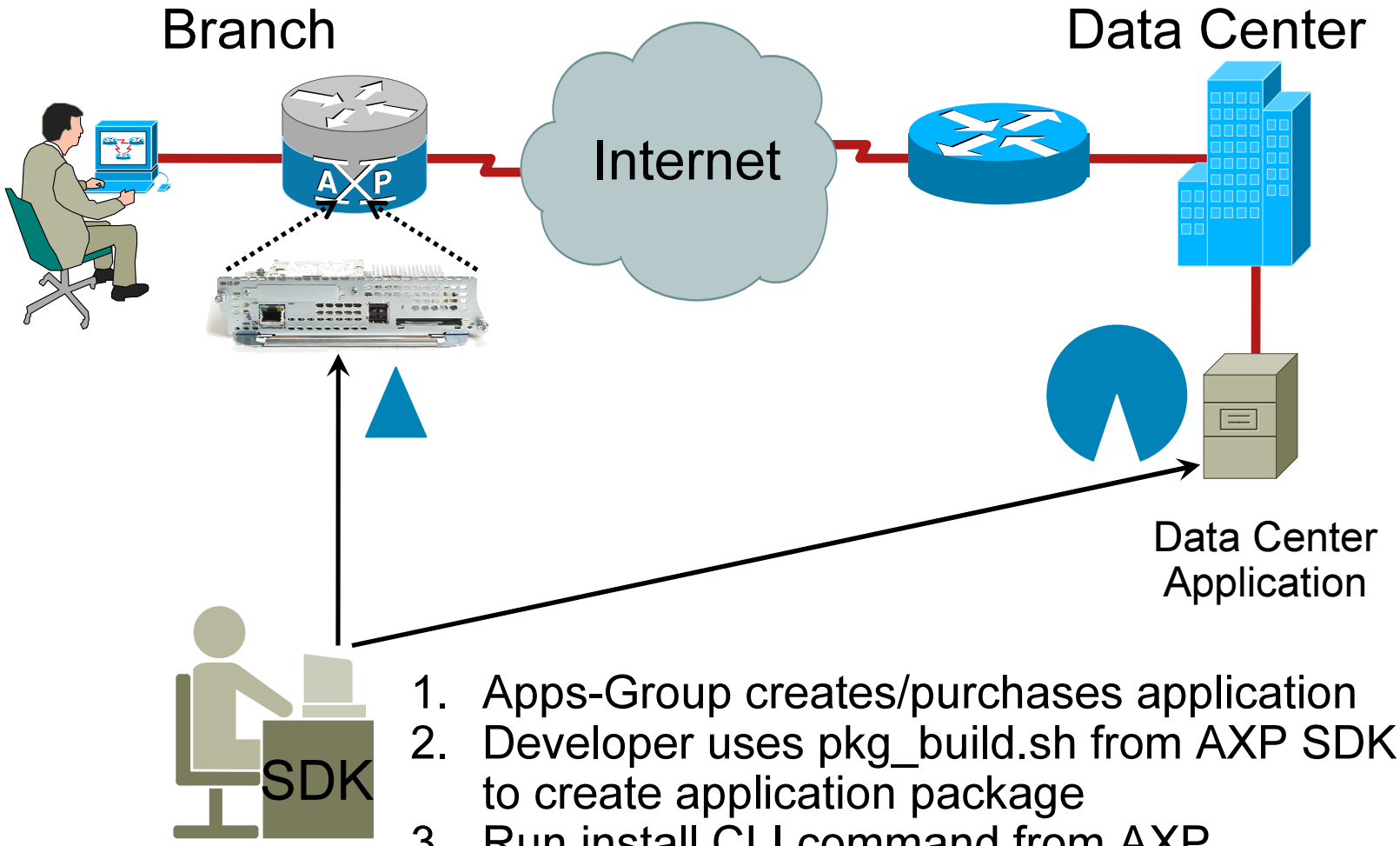
Any Co-Dependencies with Other Service-Modules?

- No
- AXP peacefully coexists with other service-modules

Example:

- ISR 3845
- Two AIM's maximum
- Four NME's maximum

How Do I Deploy My Application?



1. Apps-Group creates/purchases application
2. Developer uses pkg_build.sh from AXP SDK to create application package
3. Run install CLI command from AXP
4. AXP installs application into new container

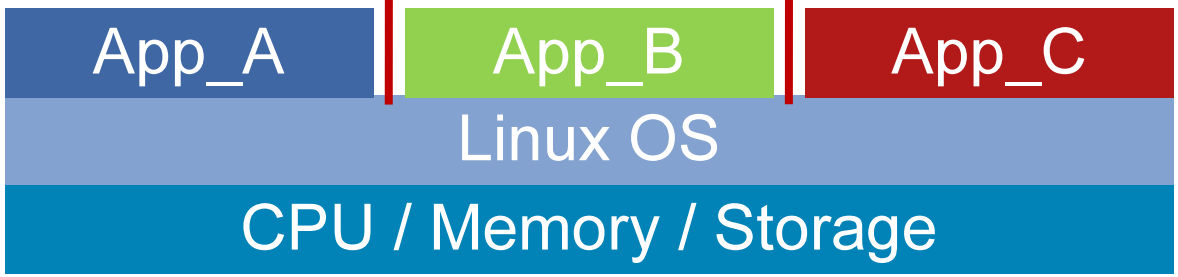
AXP

Sandboxing with Linux Vserver Technology

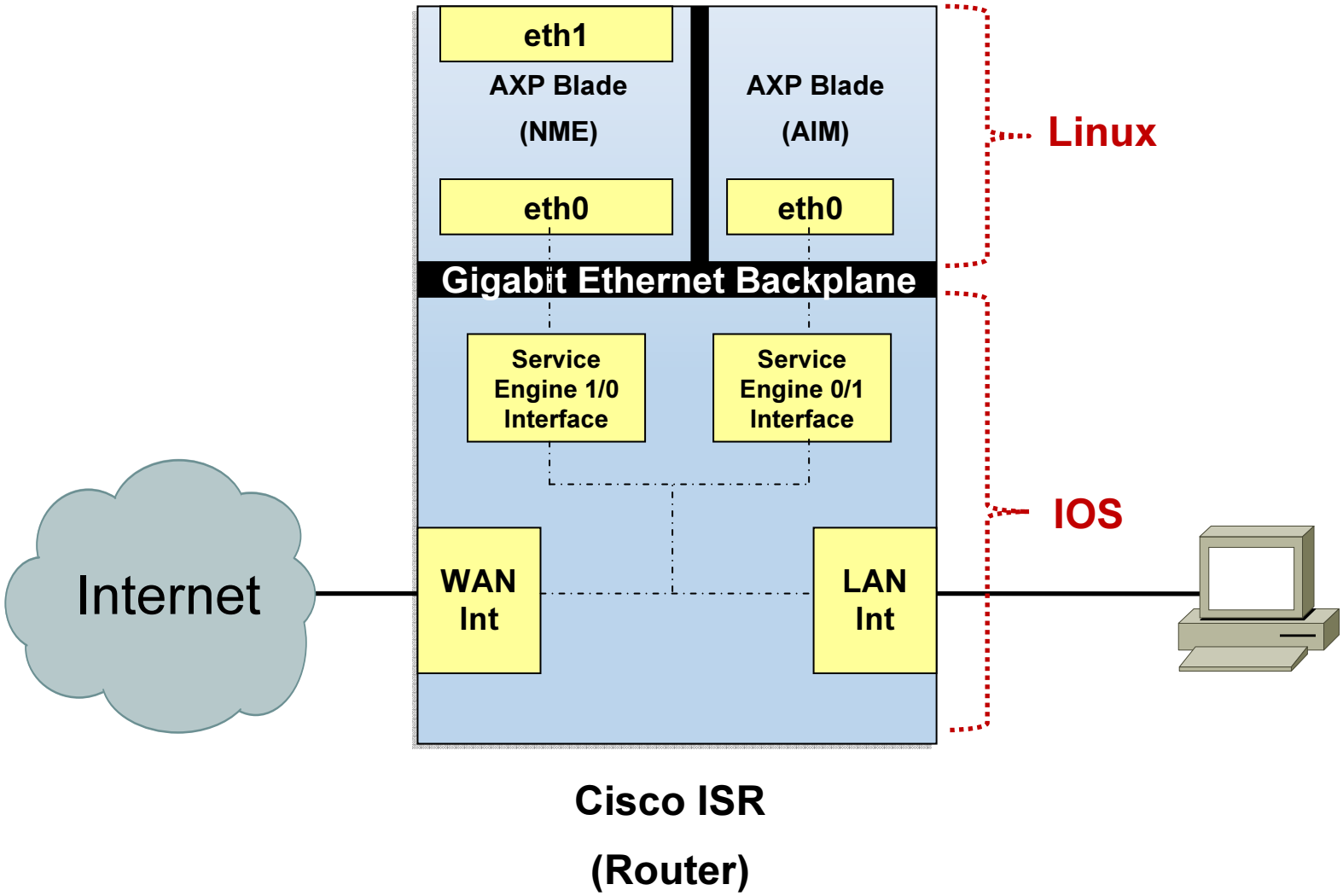
- Multiple 3rd-Party applications running simultaneously on a single AXP blade
- Each application runs its own virtual instance
- Flexible network connectivity

Ex:

CPU:	2,000	3,500	1,500
RAM:	500MB	750MB	256MB
Storage:	15GB	50GB	10GB



Basic Connectivity of AXP Service-Module



Advanced AXP Network Support

Internal Interface Connects Blade to the Router

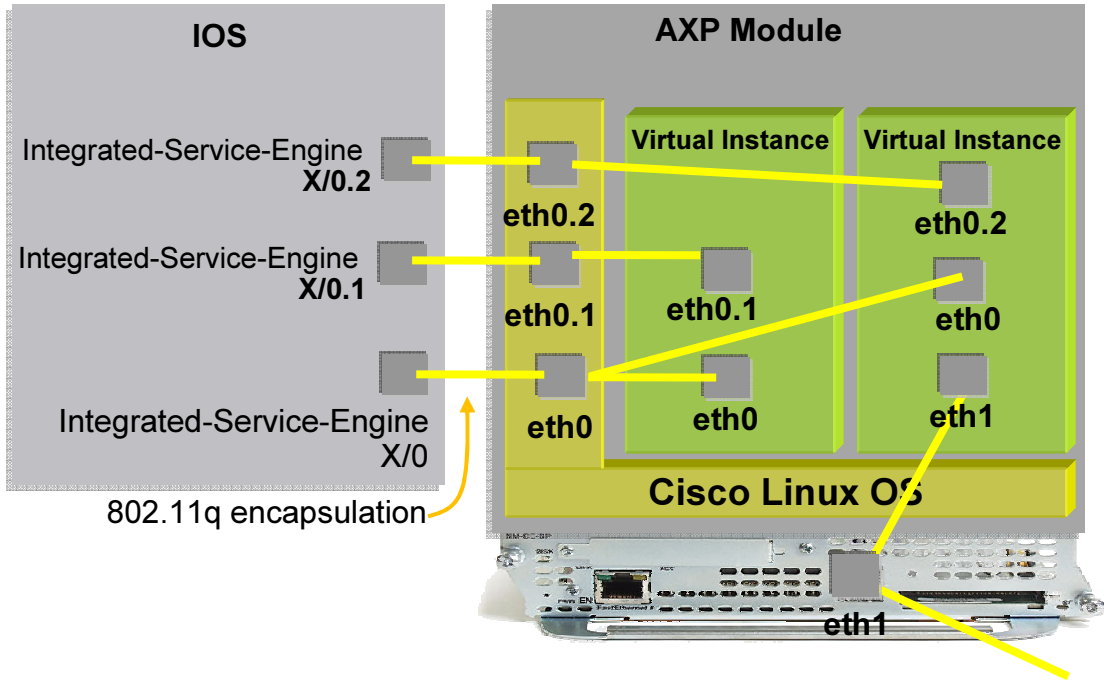
- Integrated-Service-Engine X/0 is the interface on IOS
- Eth0 is the interface on the Linux side

Virtual Interfaces "Bind" to Interface

- Flexible use of available interfaces
- Sub-interface support
- 802.1Q (VLAN) Encapsulation support

External (NME only)

- Interface exposed to Linux as Eth1
- Virtual instances optionally bind to interface



Flexibility means:

- Application migration easier
- Multiple applications afforded subnet separation
- Security per application instance

Configuring AXP Blade Interface on the ISR

Configuration Example:

```
!
interface GigabitEthernet0/0
   ip address 10.1.1.2 255.255.255.0
   duplex auto
   speed auto
   no mop enabled
!
interface Integrated-Service-Engine1/0
   ip address 10.1.2.1
   service-module ip address 10.1.2.2 255.255.255.0
   service-module ip default-gateway 10.1.2.1
   no keepalive
!
```

IOS-Side → ip address 10.1.2.1

AXP-Side → service-module ip address 10.1.2.2 255.255.255.0

To IOS → service-module ip default-gateway 10.1.2.1

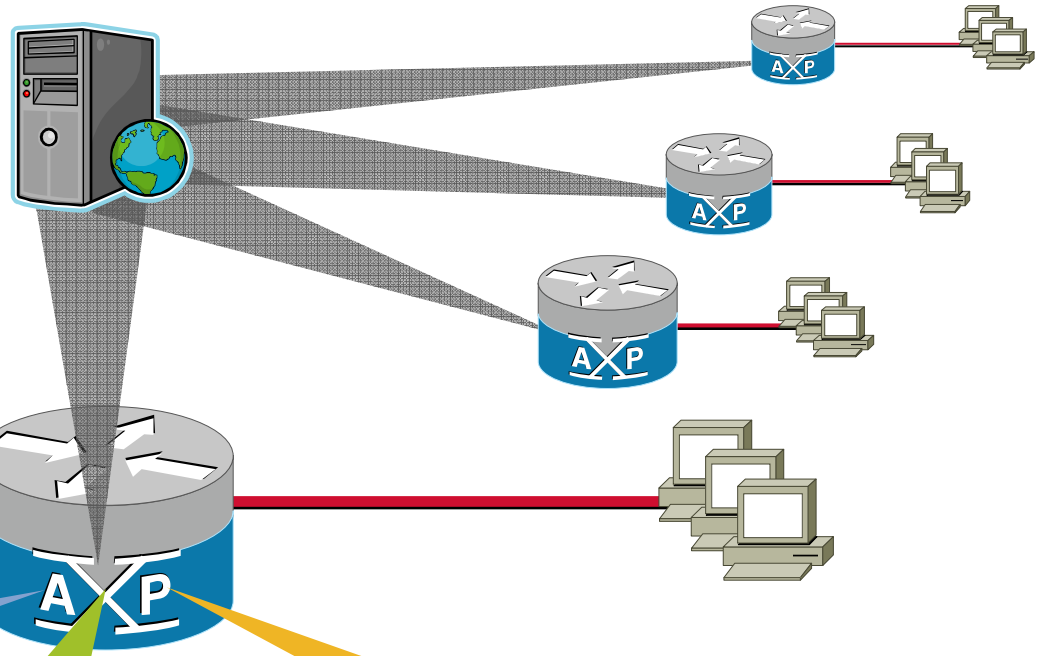
Anwendungsbeispiele

AXP Use Cases—In a Nutshell

Integrating Business Value into Your Branch Router

AXP Central Management

- Software Management (install, upgrade, patches)
- Application/platform Configuration + monitoring
- Extensible architecture to manage custom apps



Network Services
- AAA Server
- DNS Server
- NTP Services
- File Services
- Syslog Server

Home-Grown Utilities
- Management Agents
- Monitoring Tools
- Custom Scripts
- NetFlow Analysis

Applications
- Business Applications
- Vertical Applications
- Telephone Applications
- Software Mgmt Systems

Cisco AXP
Major Solution Partners

Vertical Solutions

Healthcare	icw	Secure Healthcare Connector
Financial Services	NICE	VoIP Recording
Energy	OSIsoft.	Real-Time Info. Management

Horizontal Solutions

Infoblox	IP Address Management, DNS, DHCP and TFTP
em-Interstar Group	Fax-Over-IP
Avocent. LANDesk SOFTWARE	Remote Device Management
CDW BERBEE	VoIP Paging

Technology and Specialty Partners

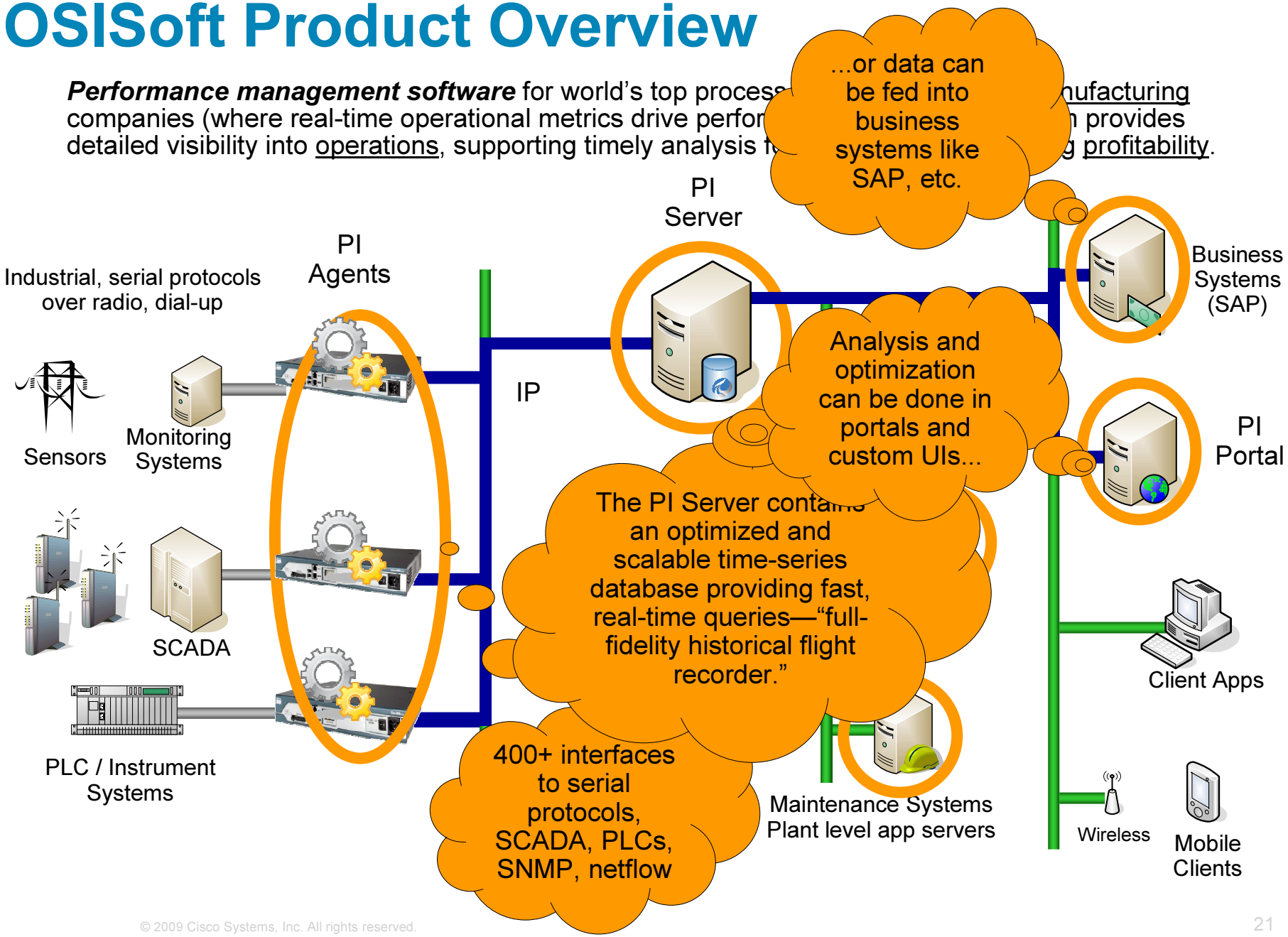
- JBoss — J2EE Application Server
- ProSyst — Remote AXP Management
- Global Protocols — Space Communication Protocols

System Integrators and VARs

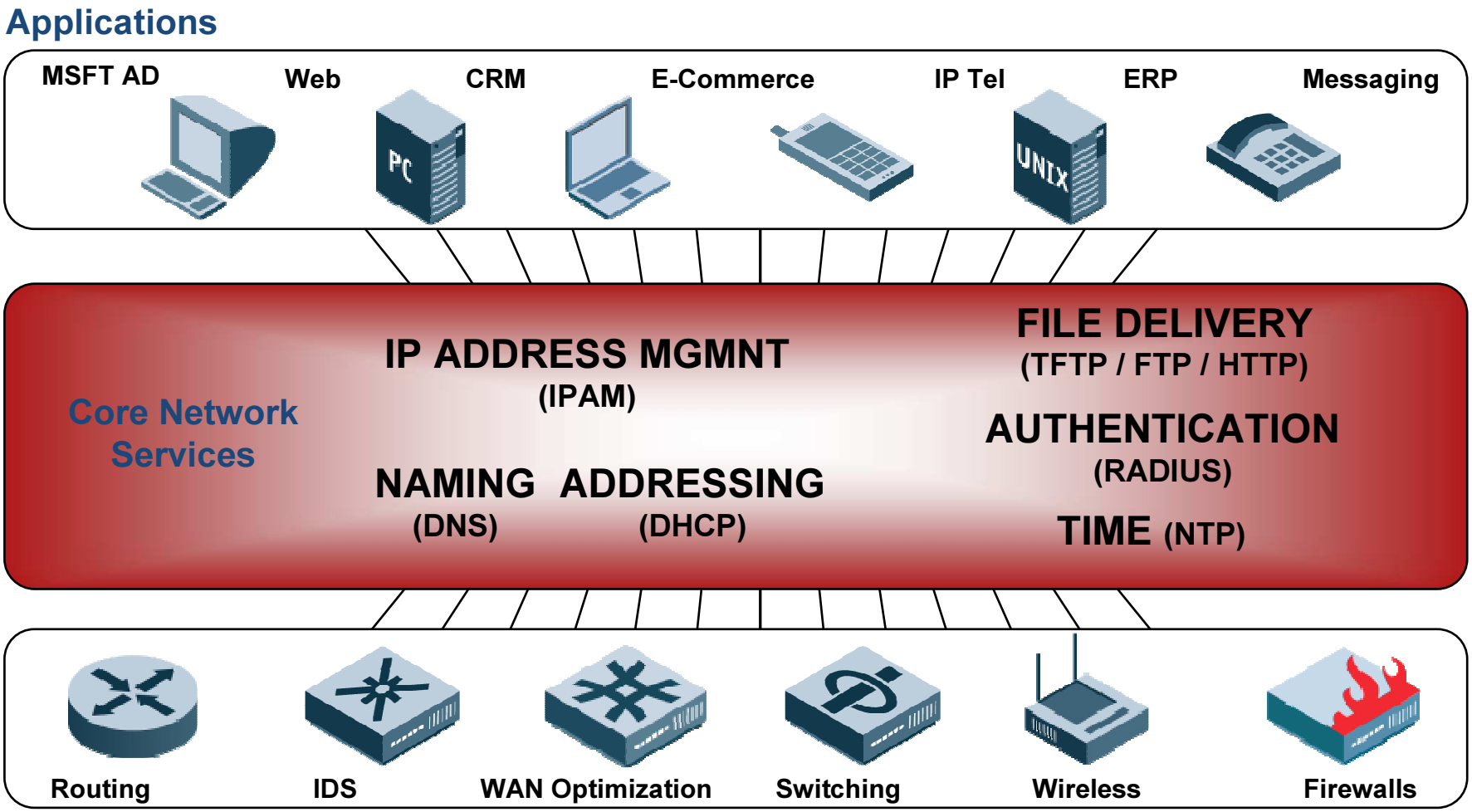
SISCO, Dimension Data, relax, hp invent, Lockheed Martin

OSISoft Product Overview

Performance management software for world's top process… …nufacturing companies (where real-time operational metrics drive perfor… …n provides detailed visibility into operations, supporting timely analysis f… …g profitability.



Core Network Services – The "Glue" Between Networks and Applications



Infoblox Appliances Provide Robust Infrastructure with Integrated Management

IPAM DNS DHCP FTP/TFTP/HTTP MORE…

- Integrated core network services on hardened appliances and virtual appliances
- Centralized visibility and control
- Powerful IPAM and service automation

SIMPLER TO MANAGE

MORE RESILIENT AND SECURE

LOWER COST

Gesundheitskarte

Die elektronische Gesundheitskarte ist die Voraussetzung für eine grundlegende Modernisierung des deutschen Gesundheitswesens. Sie ist der Schlüssel zu einer Vielzahl von neuen Funktionen und wird in Verbindung mit einer Telematikinfrastruktur für die Datenkommunikation die Qualität der medizinischen Versorgung erhöhen und das Recht auf Eigenverantwortung der Patienten stärken.

Verwendete Hardware und Tools

- ISR Router mit AIM bzw. NM Slot

  VPN IPSec Part

- AXP Board

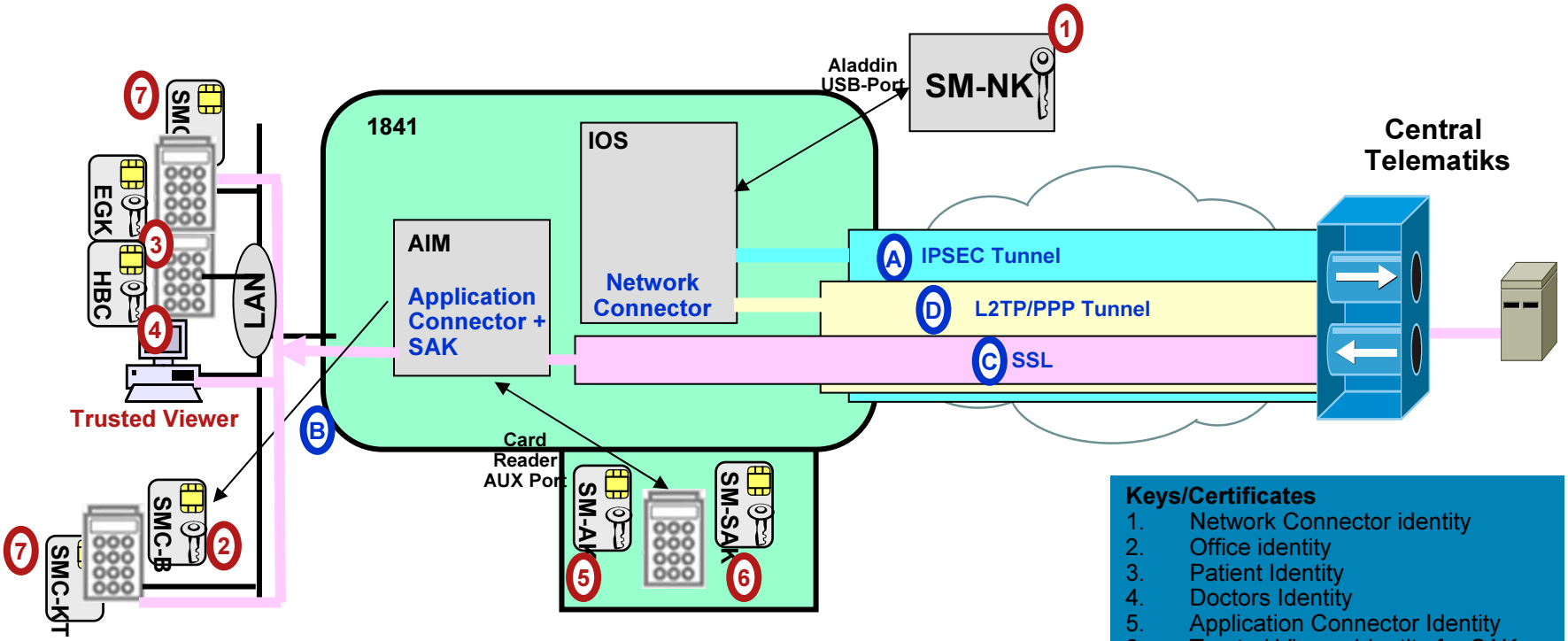
  Träger für netzbasierende Applikationen

- IOS 12.4T

  EEM für neue Befehle und notwendige dynamische Anpassungen die über Standard-Konfigurationen hinausgehen

- Aladdin für sicheren Speicher
- Kartenleser mit Verbindung zum AXP Board

Übersicht: Anforderung der Gematik



Keys/Certificates

1. Network Connector identity
2. Office identity
3. Patient Identity
4. Doctors Identity
5. Application Connector Identity
6. Trusted Viewer Identity for SAK
7. Identity of the Card Reader (not visualized SM-KT)

A. Network Connector establishes IPSEC connection to head-end
   a. Utilizes Network Connector identity (1) stored in SM-NK to encrypt the connection. WAN

B. Application Connector establishes SSL connections to local systems (card readers, office systems, etc.)
   a. eGK, SMC-B and HBC is used for this communication using SM-AK (LAN). SM-AK must authenticate the secure channel to the external card reader to accept the other cards. SM-SAK is necessary for bulg signature.

C. Network Connector establishes a L2TP/PPP connection over the IPSEC tunnel
   username/Password via PAP/CHAP, if not possible common username and password WAN

D. Application Connector establishes an SSL connection to the head-end
   a. The Certificate used by this will come from the SMC-B.

E. Application Connector initiate SSL connection to trusted viewer software (LAN)

Zusammenfassung ISR


Payment Gateway
Branch Recorder
Health Care Router
Fax-over-IP Router
Green Router
Device Mgmt. Router
"Now, what do YOU want your rou

Maximizing Branch Application Integration

Cisco ASR 1000 Series

SPA Slots	3-slot	8-slot	12-slot
# of ESP Slots	1	1	2
# of RP Slots	Integrated (RP1)	1	2
# of SIP Slots	Integrated (SIP10)	2	3
IOS Redundancy	S/W	S/W	H/W
Built in GigE	4	n/a	n/a
Height	3.5” (2RU)	7” (4RU)	10.5” (6RU)
Bandwidth	5-10 Gbps	10-40+ Gbps	10-40+ Gbps
Performance	4-8 Mpps	8-16+ Mpps	8-16+ Mpps
Air Flow	Front to Back	Front to Back	Front to Back
Power Supply (Watts)	470	765	1275

Aggregated Services & Scale

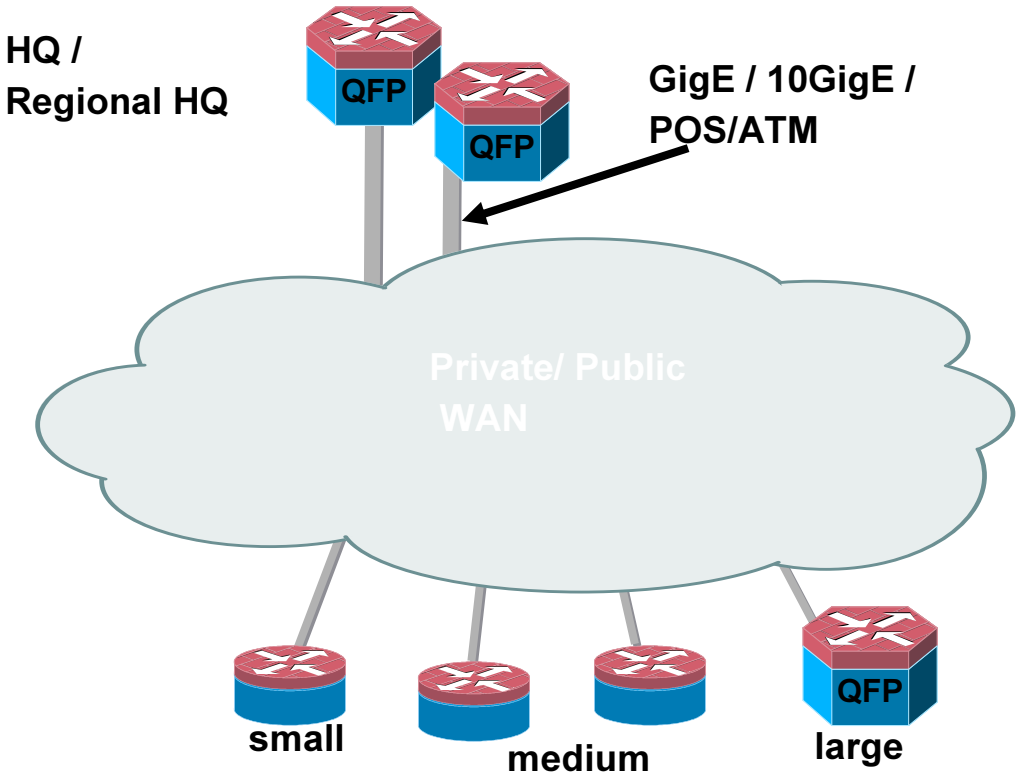
ASR 1000 ESP Generations

	ESP-5G	ESP-10G	ESP-20G
Bandwidth	5Gbps	10Gbps	20Gbps
Based on	QFP	QFP	QFP
# of Processors	20	40	40
Clock Rate	900 Mhz	900 Mhz	1.2 Ghz
Crypto Engine BW	~1Gbps	3Gbps	8Gbps
QFP Memory	256MB	512MB	1GB
Packet Buffer	64MB	128MB	256MB
TCAM	10MB	10MB	40MB

Unmatched IOS Zone-Based Firewall scale

Multi-Gigabit Firewall in a Router

WAN Aggregation or Internet Gateway



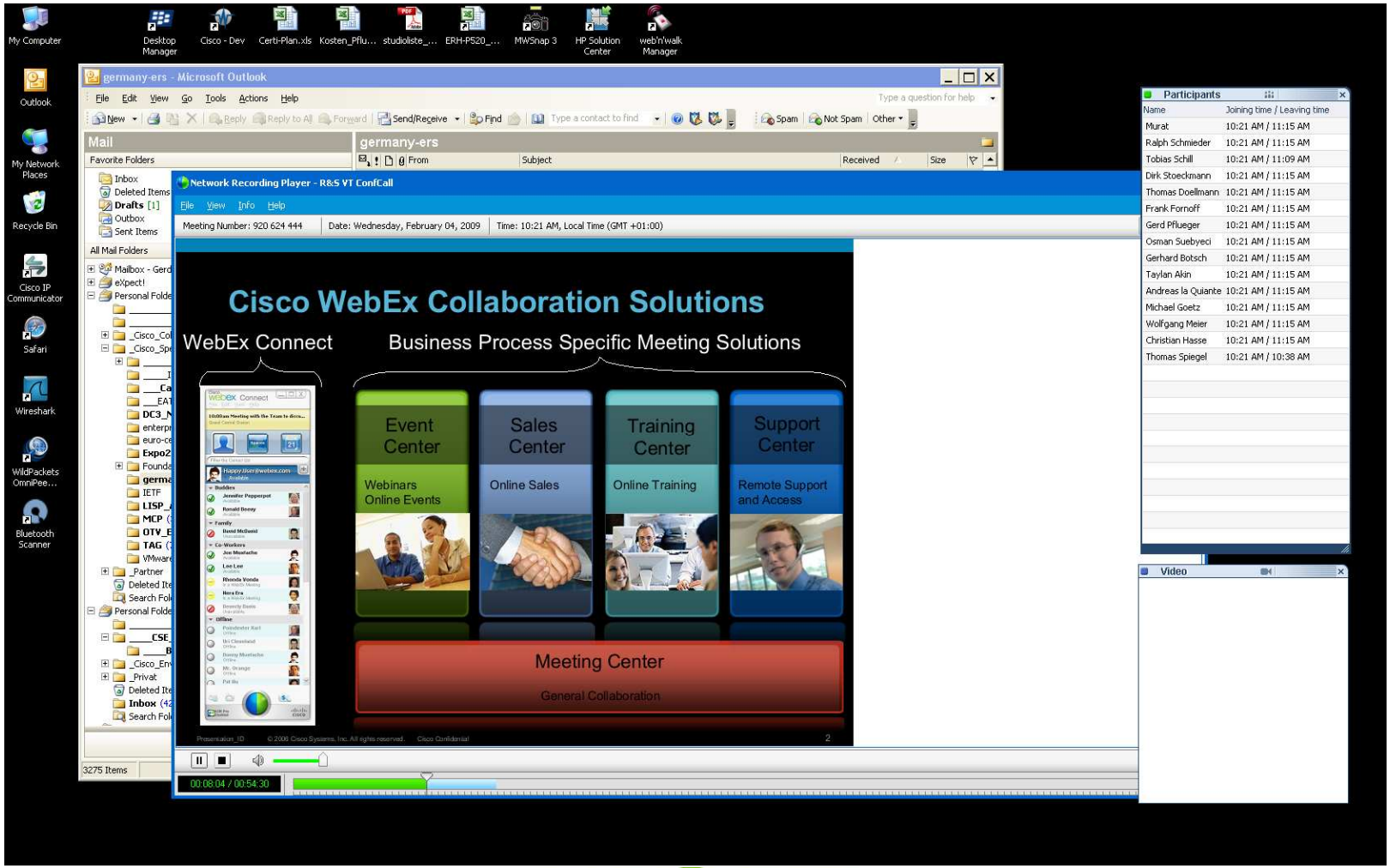
Branch Offices

Full T1's w/ satellite, DSL etc. backup

Going to multiples of Ethernet/DSL/Wireless…

- Being able to use IOS Zone-Based FW up to Multi-Gigabit BW
- In-box stateful HA
- Firewalling supported on all interfaces in the router
- No service blades required
- Full Firewalling is done within QFP (including ALGs)
- High-Speed Security Event Logging available via NetFlow v9

WebEx Products and Services



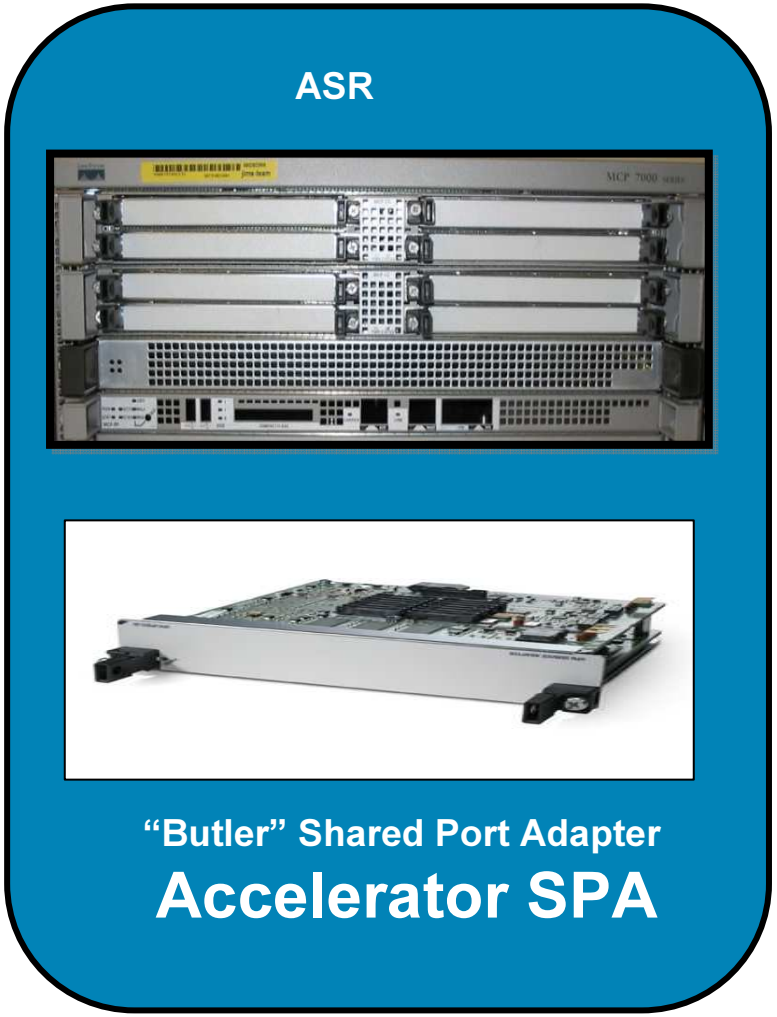
webex™

Video • Web Conferencing • Audio Conferencing • Instant Messaging • Workspaces • Presence • Email • IP Telephony

MediaTone

Key Objective

- **Deliver Webex on SPA to ASR**
- Complement, extend and enhance the ASR integrated services value proposition
- Blend best aspects of;
  - On-site platform
    - Performance
    - Low WAN bandwidth/firewall/proxy requirements
    - Security
  - Hosted solution
    - Reach
    - Availability
    - Cost
- Fully hybrid solution
    - Hosted on WebEx
    - Acceleration in on-site router



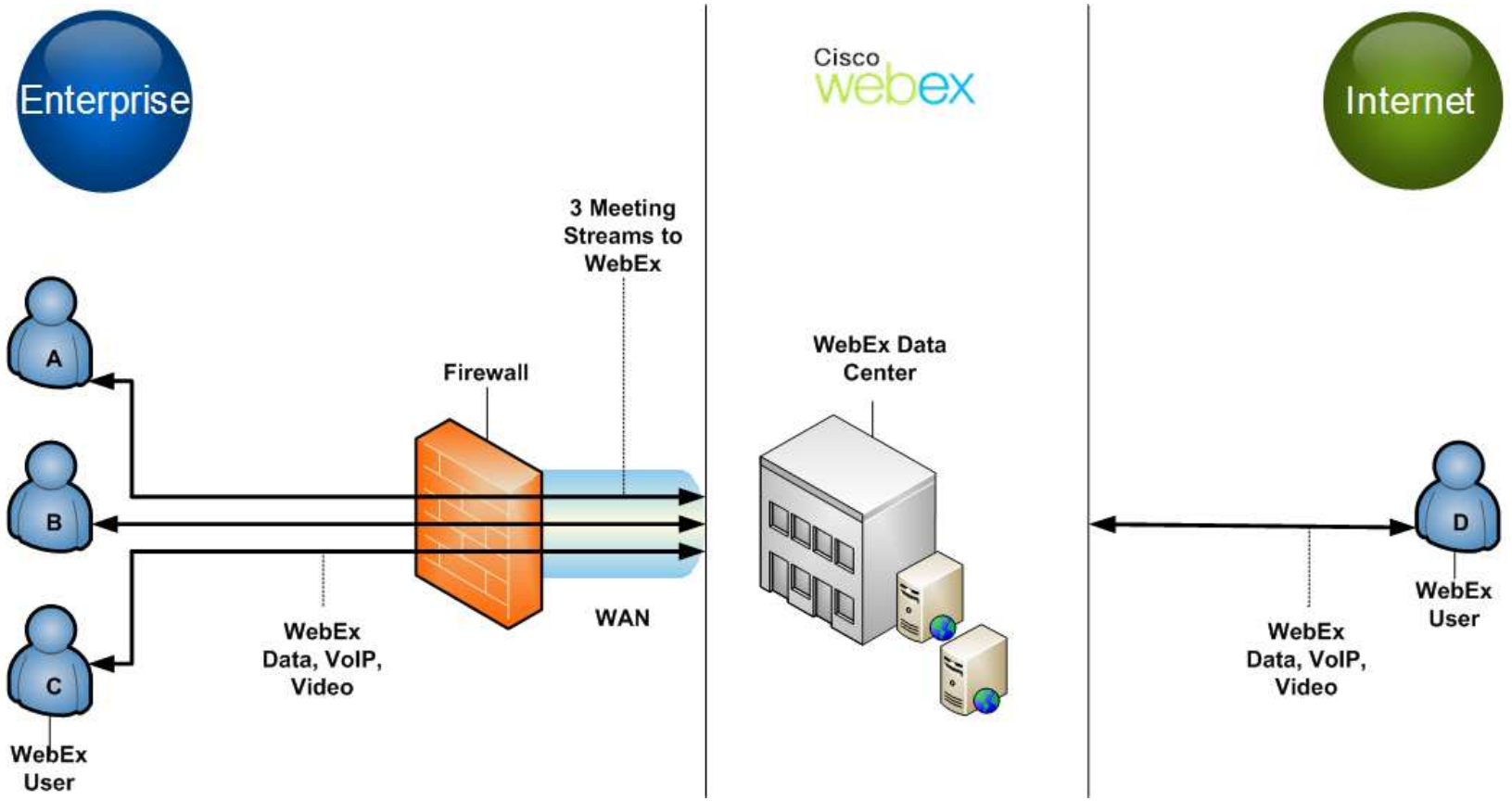
Customer Segments

Accelerator SPA in ASR

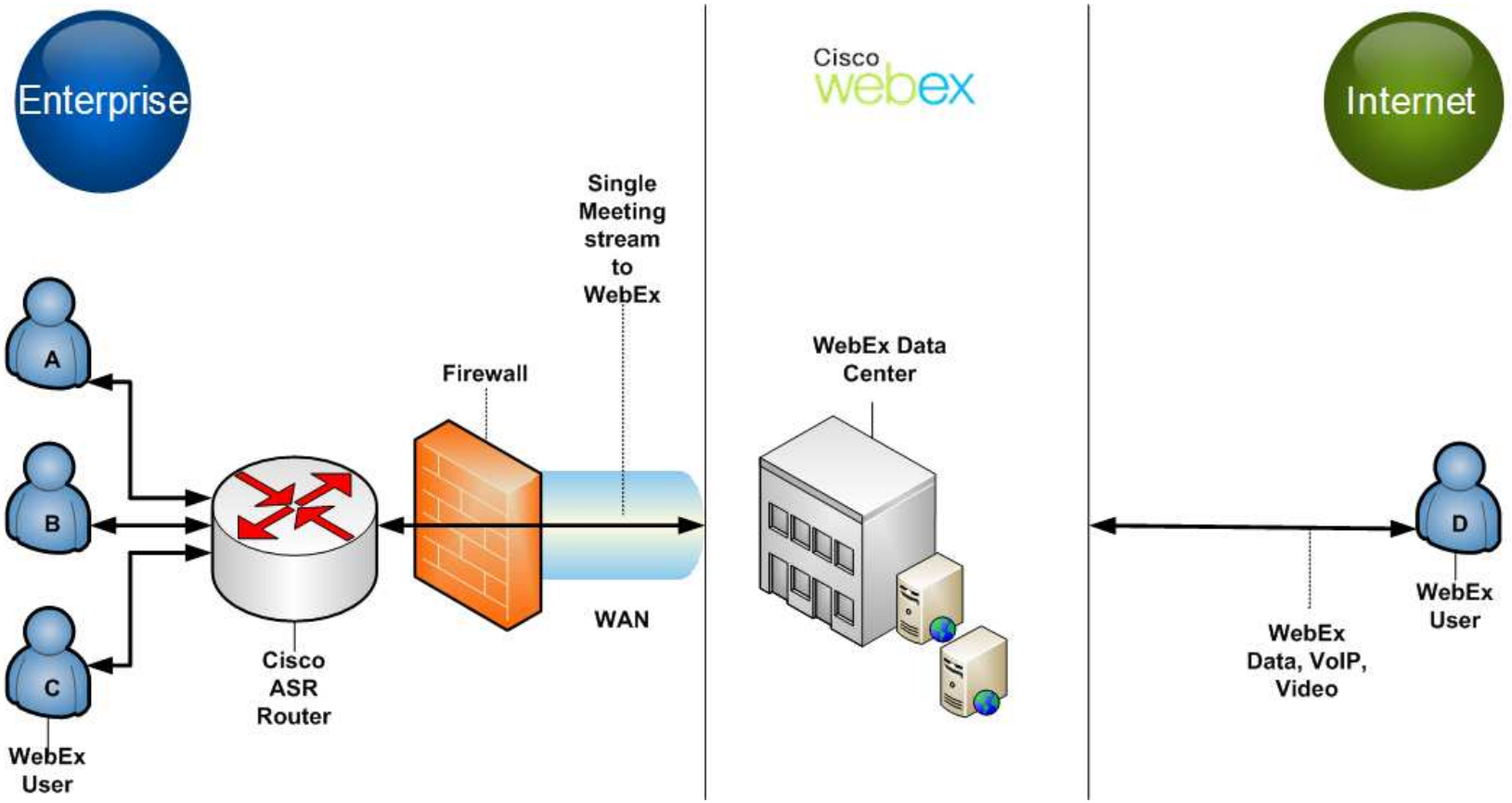
- **Mid-Large Enterprises deploying ASR routers at Enterprise WAN aggregation points, in large branches, and at Internet gateways**
- **Mid-Large Enterprises and Service Providers who are large scale users of Webex services and are**

  High load on internet connectivity and proxies/firewalls
- **Service Providers offering Managed Services**

WebEx without Accelerator



WebEx with Accelerator



Zusammenfassung

Key-Take Aways

- ISR als Service Router
- AXP mit 3rd Party-Applikationen oder SDK

- ASR 1000 als IOS Service Router (VPN, FW, SBC, …)
- ASR 1000 als Webex Accelerator