Branch Optimization through Application Integration

Dave Bornstein (born@cisco.com)
Cisco Systems
Mgr, Application Extension Platform
End user experience must be consistent regardless of physical location

“Thin” branch implies many things:
• Smaller branch application footprint
• Server consolidation both locally and in the Data-Center
• Increase in client-server traffic over the WAN
• Limited IT staff and management challenges

Energy / power consumption concerns must be considered for “green” initiatives

Source: Nemertes Research, 2008 Branch Survey
Leveraging “Network as a Platform” to Drive Application Value

A Few Years Ago

- Services Integration
- Survivability
- 50–70% lower Opex

Multiple Overlay Products

- Network Consolidation

- Application and Server Consolidation

Integrated Services

- Open applications platform
- Server, Application consolidation
- Increased security, and survivability
- Lowest TCO

Operational Efficiency

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Application eXtension Platform

- AIM-102
  256MB, 1GB, Intel Celeron
  Light-Weight Applications

- NME-302/502/522
  512MB-2GB, 80/160GB,
  Intel Pentium M
  General-Purpose Applications

- SDK and Development Portal

- AXP Partner Program

- AXP Developer Services

- AXP Advanced Services

Complete Ecosystem

- Linux-based integration environment with downloadable SDK
- Multi-app support: segment and guarantee CPU, memory, disk
- Extensible Cisco CLI with Cisco IOS APIs
- Cisco ISR 1841, 2800, 3800 series support

www.cisco.com/go/axp
AXP Use Cases—In a Nutshell

**Vertical Applications**
- Financial Voice Recording
- Utilities Monitoring
- eHealthcare Records

**Horizontal Applications**
- Voice Recording
- Fax Over IP
- Desktop/Server Mgmt
- Power Management
- VoIP Paging

**In-House and Custom Applications**
- Management Tools
- Custom Applications
- MSP Applications

Cisco Supported Services, 3rd-Party Business Applications, and Custom Applications and Utilities
Cisco AXP Solution Partners

Vertical Solutions

Healthcare | icw | Secure Healthcare Connector
Financial Services | NICE | VoIP Recording
Energy | OSIsoft | Real-Time Information Management

Horizontal Solutions

CDW BERBEE | VoIP Paging
Sagem-Interstar | Fax-Over-IP
Avocent | LANDesk | Remote Device Management

Technology and Specialty Partners

NEW | JBoss | J2EE Application Server
NEW | Infoblox | IPAM (IP Address Management)
NEW | Global Protocols | Space Communication Protocols
**AXP Technical Overview**

**Dedicated Application Resources**
- Dedicated CPU, memory and Disk
- Application separated from core router functionality
- Full networking

**Standards-Based Hosting Infrastructure**
- Hardened Cisco Linux OS with virtualization
- Complete install/upgrade packaging utilities
- Logging and debugging infrastructure

**Programming Support**
- Support for Native x86 C/C++
- Java support w/ optional OSGI and Tomcat
- Scripting Support (bash, perl, python)

**Value-Added Features**
- Serial tunneling providing application access to external devices
- Syslog server to store logs from router and other local devices
- Netflow collector to persist and analyze flows locally

**Cisco IOS APIs Integrate the Application into the Network**
- Programmatically configure and monitor Cisco IOS
- React to changes in network conditions
- Programmatically Influence Routing, QoS and IP-SLA
- Monitor packets flowing through network
IOS Integration API

**Packet Monitoring API**: Monitoring and Analysis; No need for complex wiring or Span ports

**Information API**: provides all info. available to IOS CLI and SNMP agents

**Event Trigger API**: allows application to react to router events incl. interface failover, packet loss etc.

**IOS config. API**: allows app. to dynamically change the router config; Can change the behavior of router in real-time

**Serial Device API**: provides the ability to communicate directly with serial ports; Supports connectivity to legacy and non standard devices
Deployment Options

**Application Hosting**

1. Client sends traffic directly to application running on AXP service-module (standard server model)
2. Application responds to client

- IP address configured on ISE0/1 interface
- Bind application to Interface

*My_app*
Deployment Options

**Application Transparency**

1. Client sends traffic to application in Data Center
2. Cisco ISR router intercepts traffic while application is “online”
3. If application is “offline”, Cisco ISR router forwards traffic to Data Center instance of application

- IP address configured on ISE0/1 interface
- Bind application to Interface
- PBR configured on ISR router
Deployment Options

**Passive Applications**

1. Client sends traffic directly to application in Data Center

2. Cisco ISR router creates and forwards copies of packets to application running on AXP service-module

- IP address configured on ISE0/1 interface
- Bind application to Interface
- RITE or NAM Packet Capture feature configured on ISR router
"Now, what do \textbf{YOU} want your router to be?"
Important Web Links

- Cisco External Site:
  http://www.cisco.com/go/axp

- BU Alias:
  Product Management: ask-axp-pm@cisco.com
Partner Structure

Investment

Go-to-Market Support

Premier Partners and OEMs

Mature ISVs, SIs, VARs, MSPs

Entry-level Developers

Solution Partners

Strategic Partners

Business Development
- Cisco Re-sale and OEM

Sales Enablement
- Sales, Co-Marketing and Certification
- Product Discounts

Technical Enablement
- SDK and Documentation
- Developer Forums

Developer Partners