



# Networked Banking Architecture



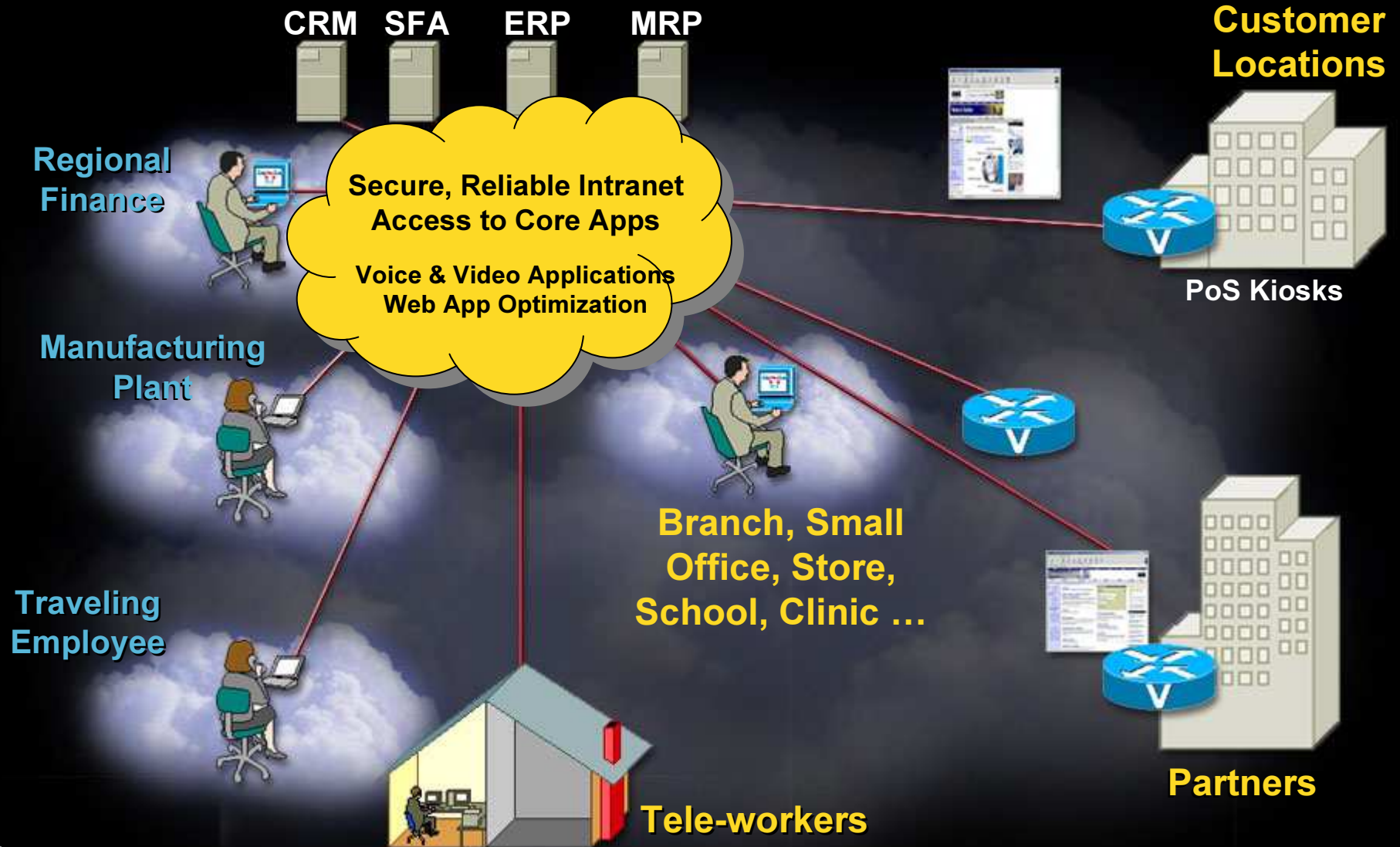
Arun Shetty  
Country Manager- Systems Engineering, Commercial  
Cisco India and SAARC

# Agenda

- Business & Technology trends
- ISR ( Integrated Services Router )
- Self Defending Network
- Virtual Datacenter
- Application Networking
- Questions ?



# Businesses Require an Empowered Environment for Everyone, Everywhere



**Slide 3**

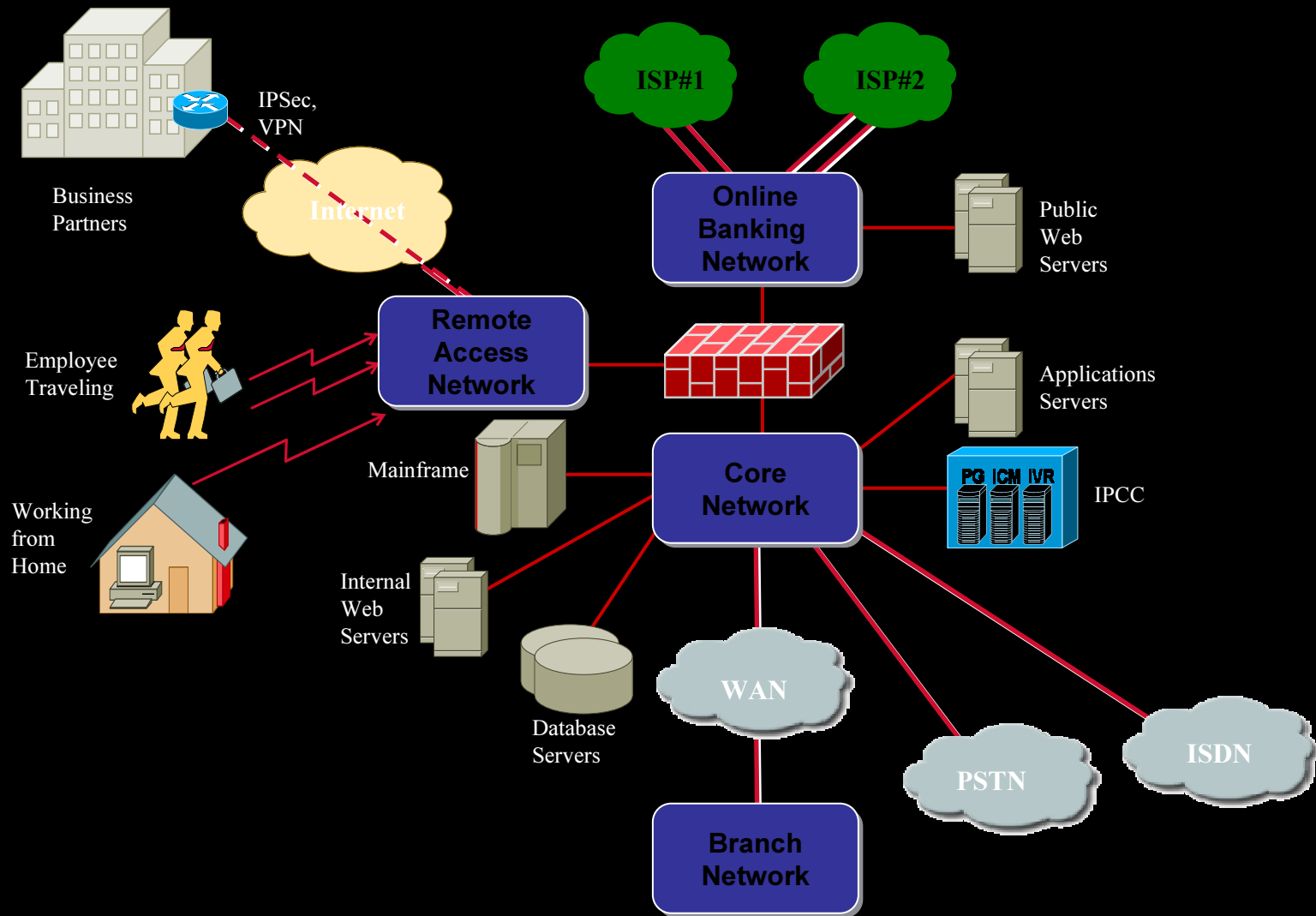
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**jhford1**

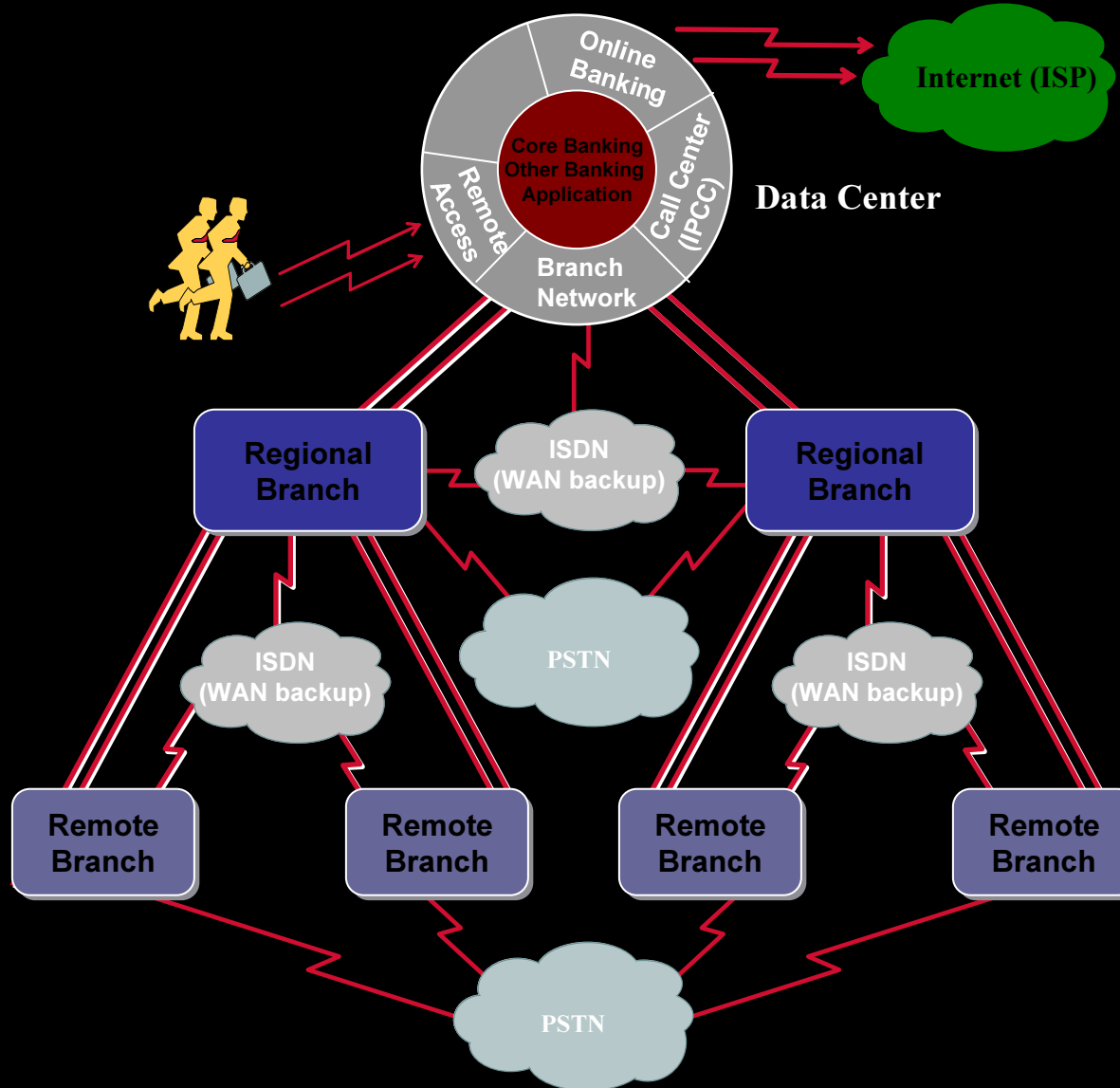
**Cogs -**

Julie Ford-Hagen (jhford), 8/27/2003

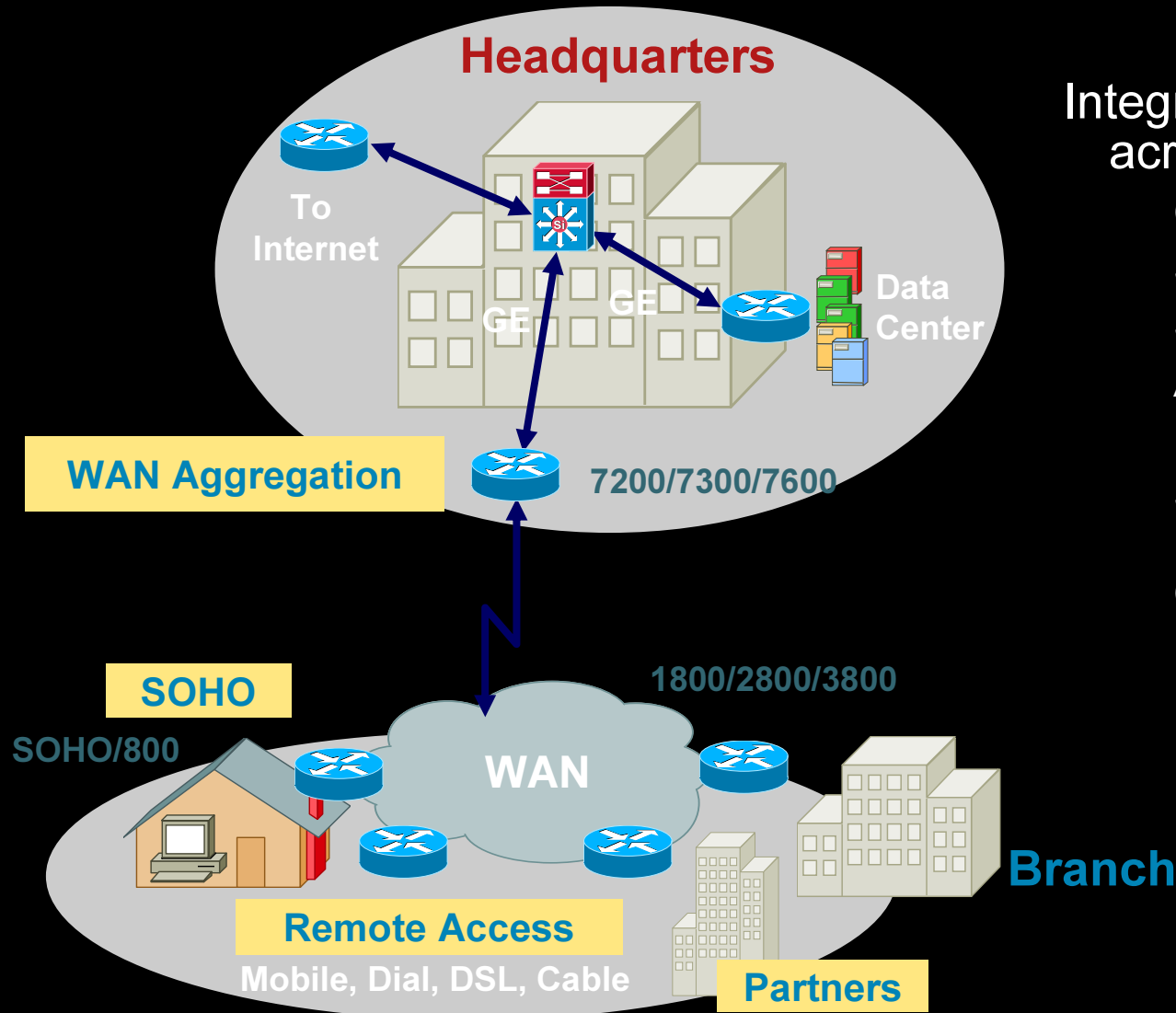
# Data Center Architecture



# Branch Network Architecture



# Enterprise-wide Integrated Services from Headquarter to the Branch



Integrated services delivery across the WAN

- Converged Voice/Video/Data
- Site to site VPN
- Security
- Advanced QoS
- High Availability
- Services Flexibility
- Integrated GE LAN/Data Center Connectivity
- IP/MPLS Routing
- Multi-protocol WAN Traffic



# Integrated Services Router



# Traditional Business Solution: Separate Applications and Appliances

Security

Firewall, IDS and VPN  
Appliances

Content Delivery

Content Engine

Voice Services

Hybrid / Key System

Data

Branch Access Router

Local Connectivity

LAN Switch



# Integrated Solution for Advanced Services

## Integrated Services Router



**Embedded Security**

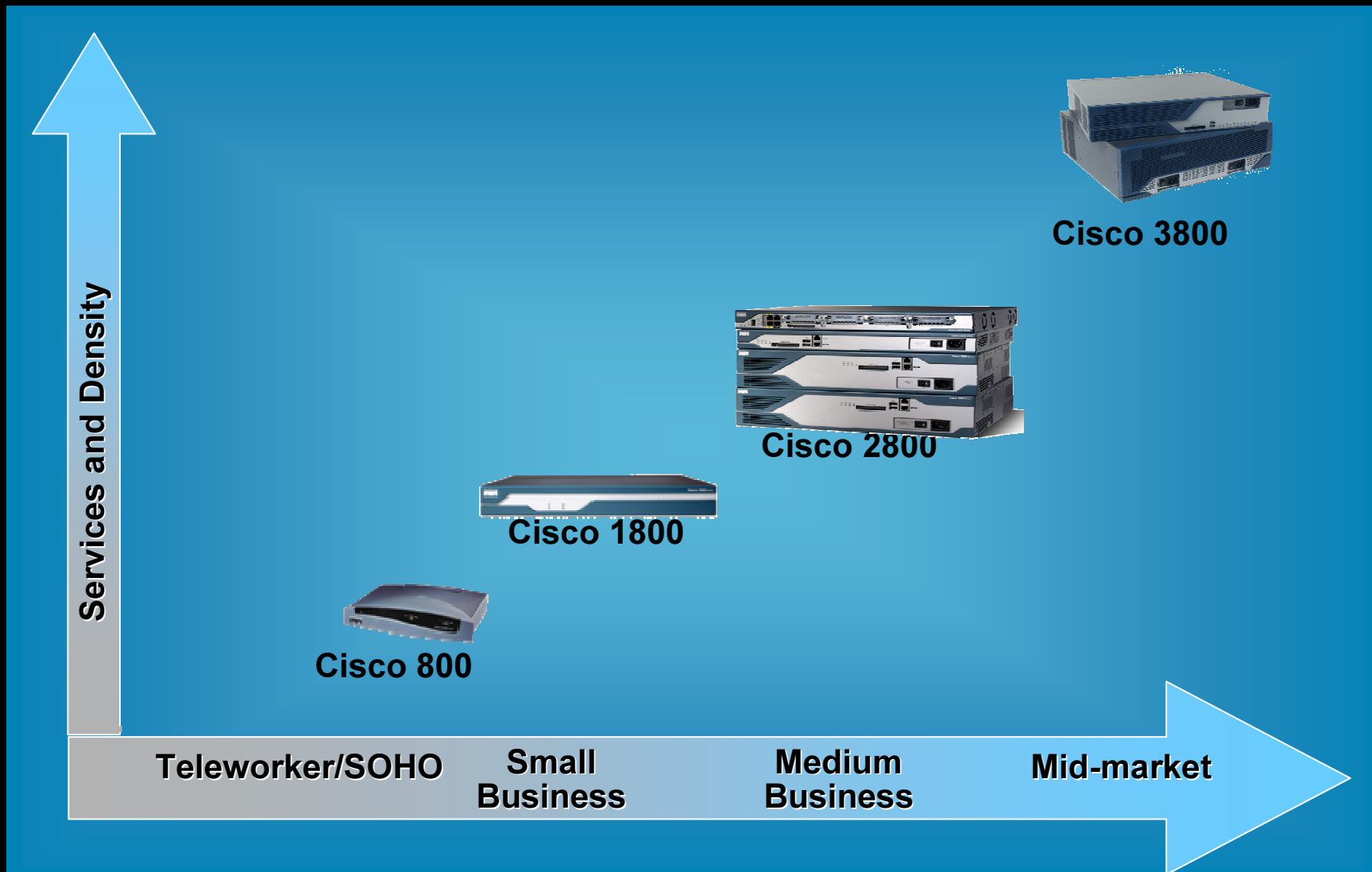
**Voice Ready**

**Video Integration**

**Low Density L2 Switching**

**Network Analysis**

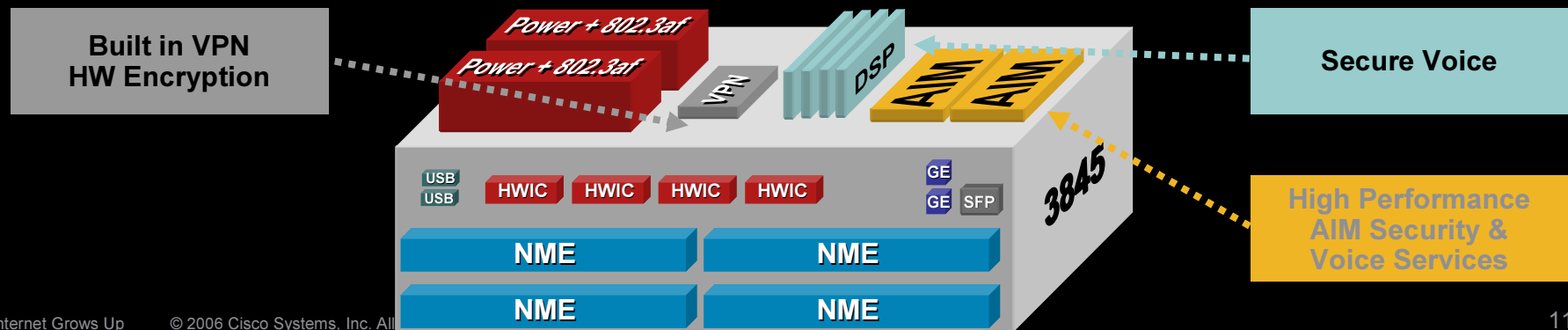
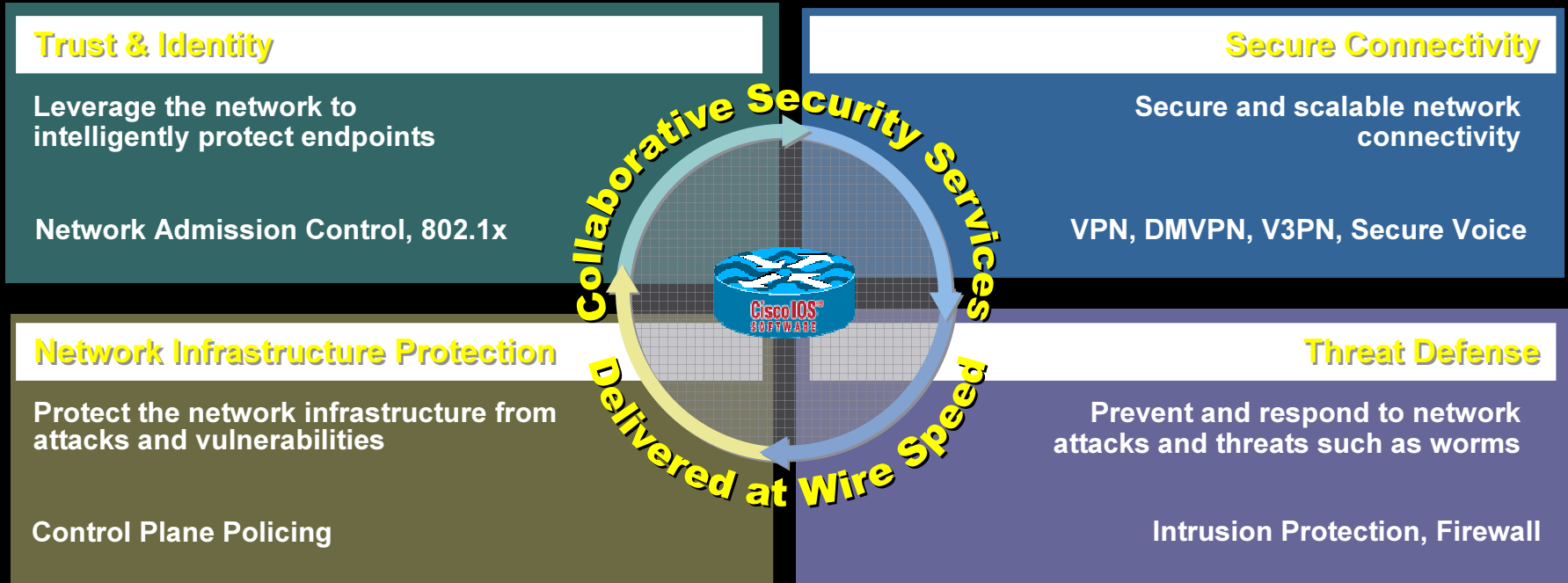
# The Complete Cisco SMB Class Network Foundation Portfolio



# Hardware Innovation Raises Security Leadership

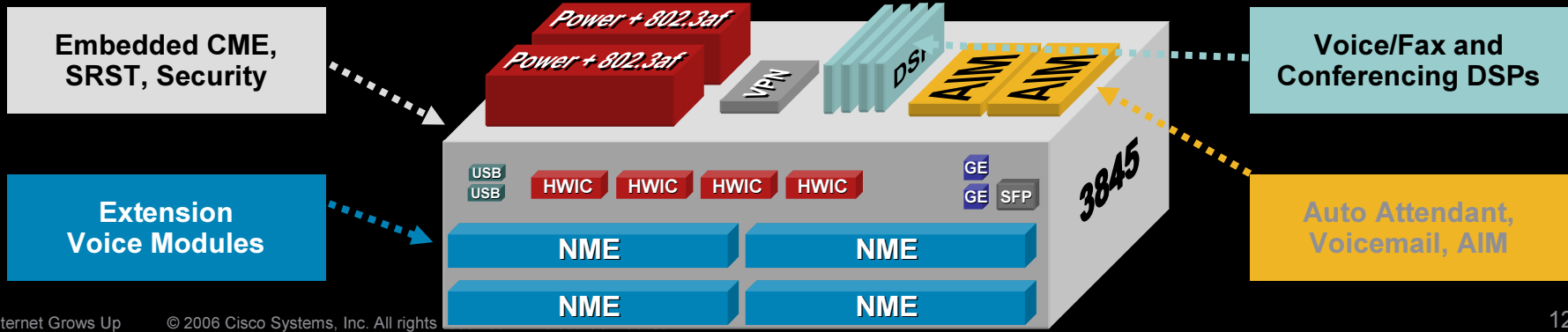
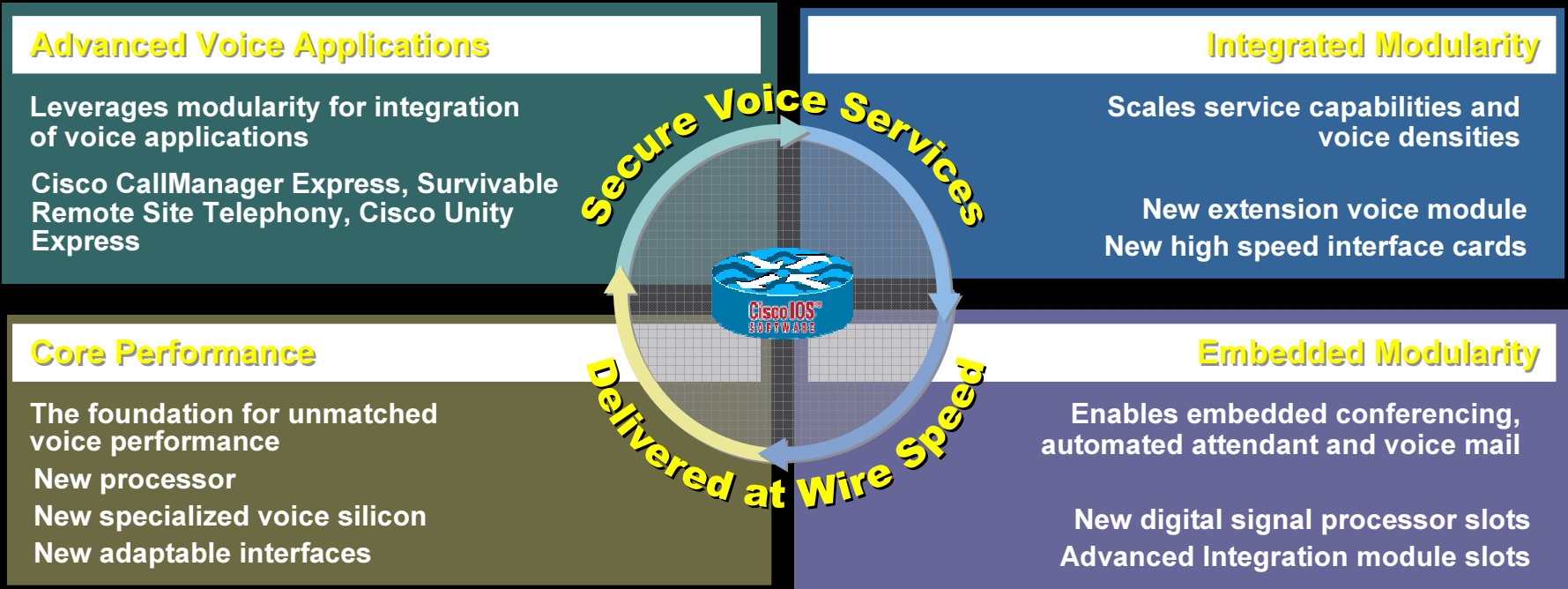
## Cisco Self-defending Networks Delivered At Wire-speed!

Complete, Preventative, Scalable Security Solutions



# Hardware Innovation Raises Voice Leadership Cisco Services and Applications Delivered At Wire-speed!

## Affordable, Secure, Scalable Voice Solutions

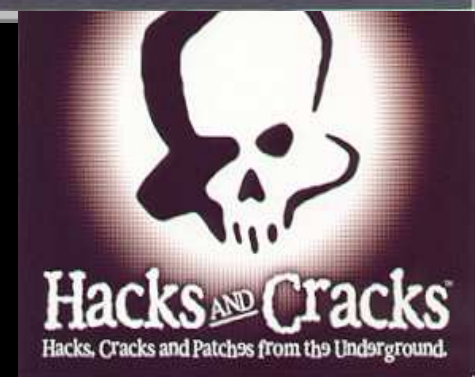
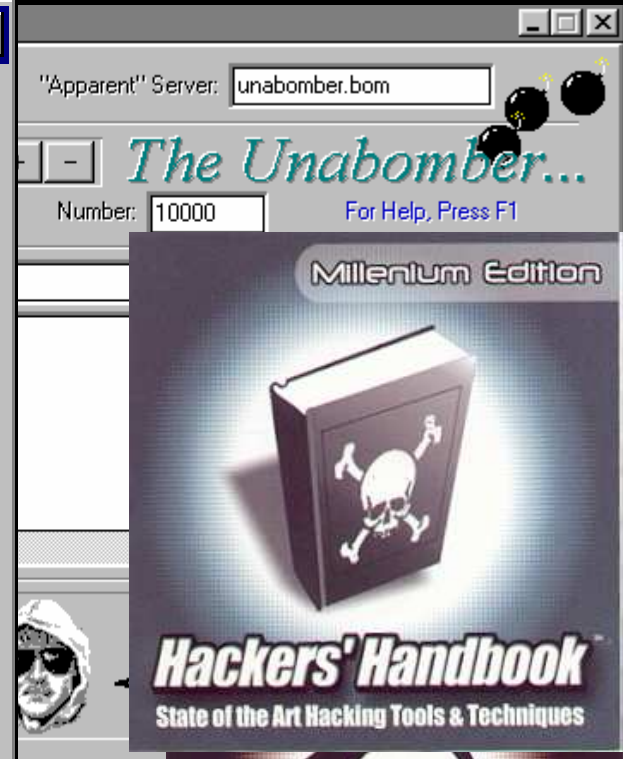
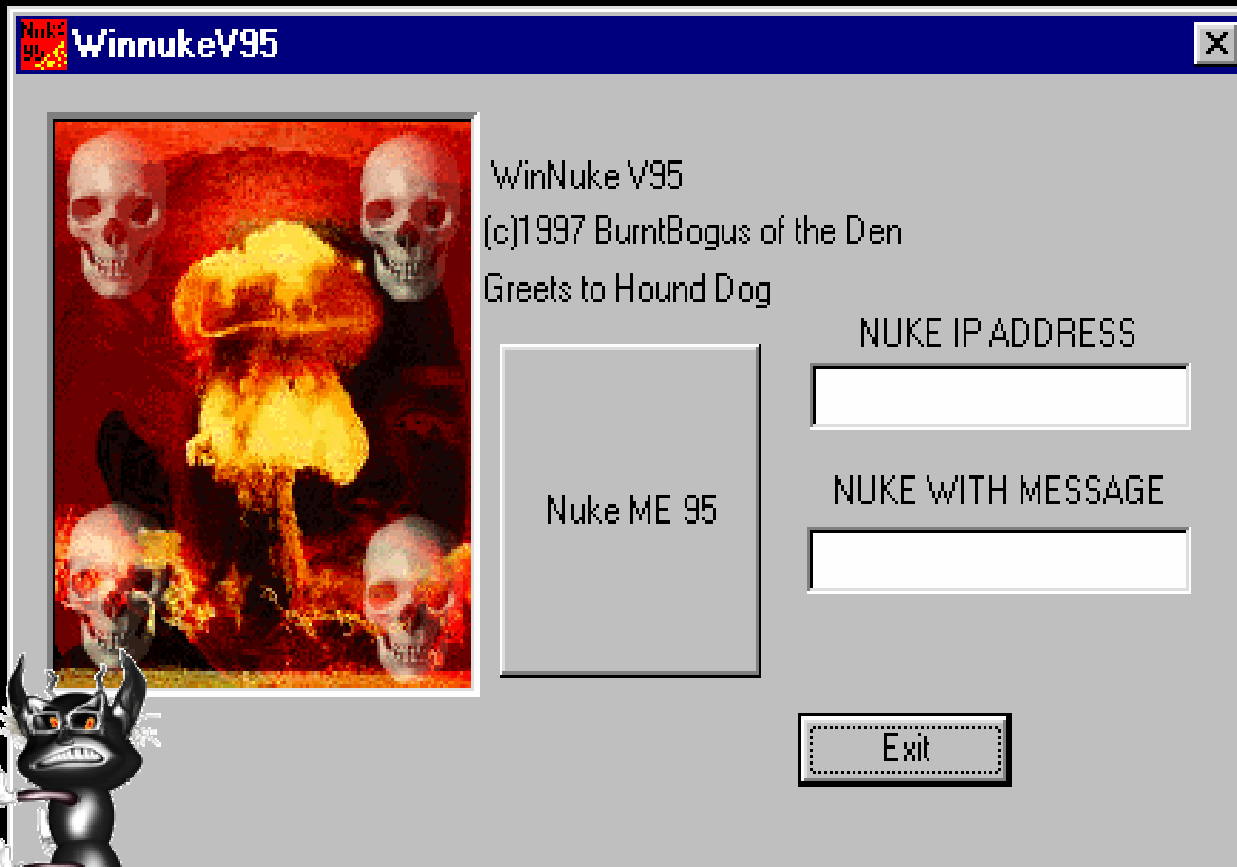




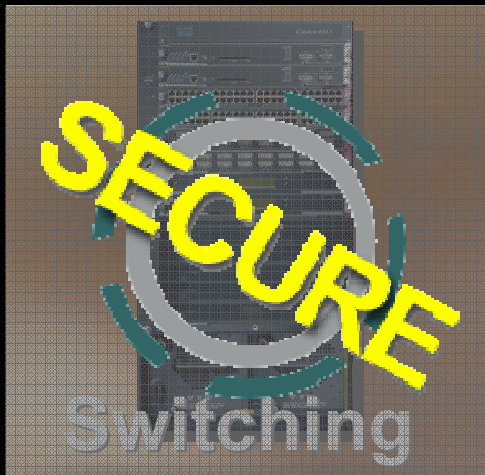
# Self Defending Networks



# Security Threats



# Security Is Now a Baseline Architecture for IT Infrastructure



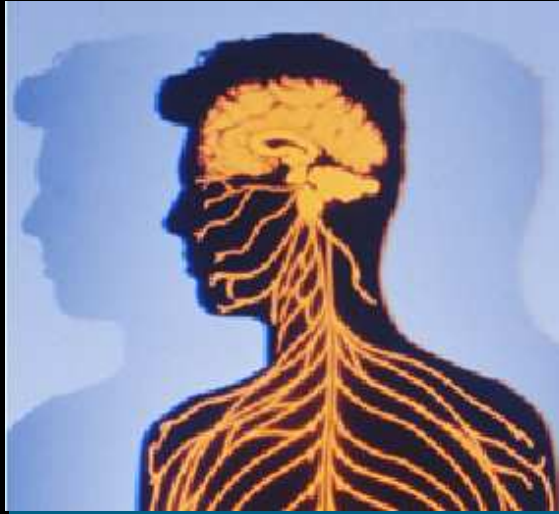
# Self-Defending Networks

## Cisco's Security Strategy



### Integrated

Enabling every element to be a point of defense and policy enforcement



### Adaptive

Proactive security technologies that automatically prevent threats

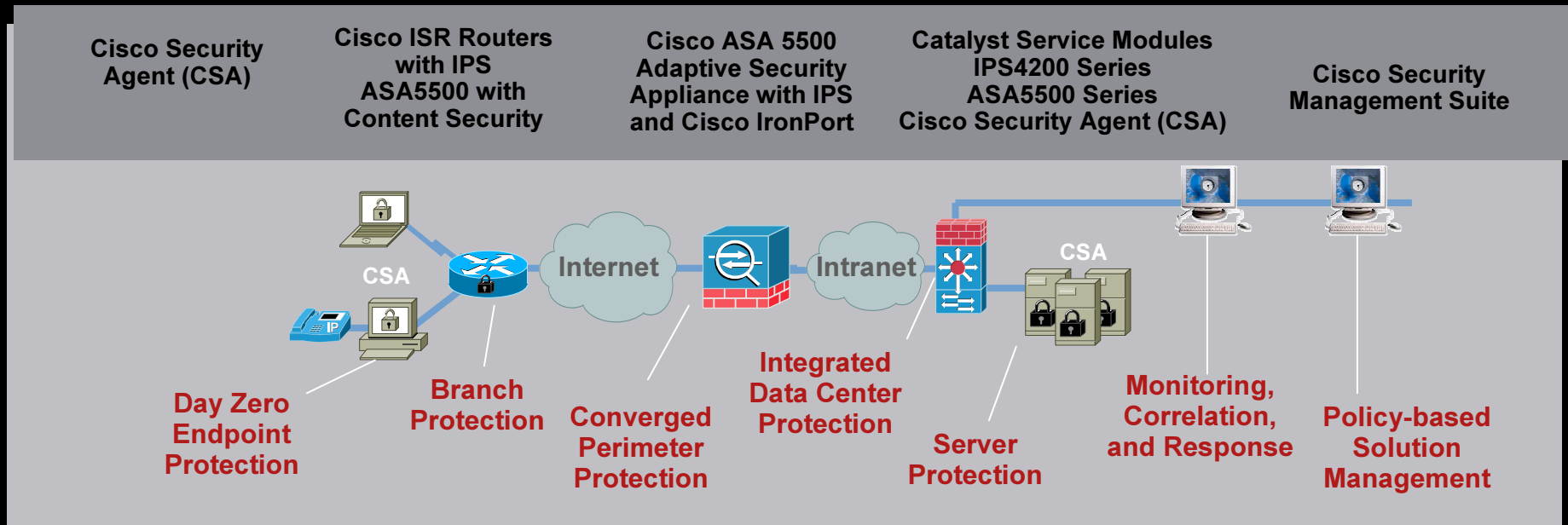


### Collaborative

Collaboration among the services and devices throughout the network to thwart attacks

# Mitigating Targeted Attacks and Malware

## Self-Defending Network Applied



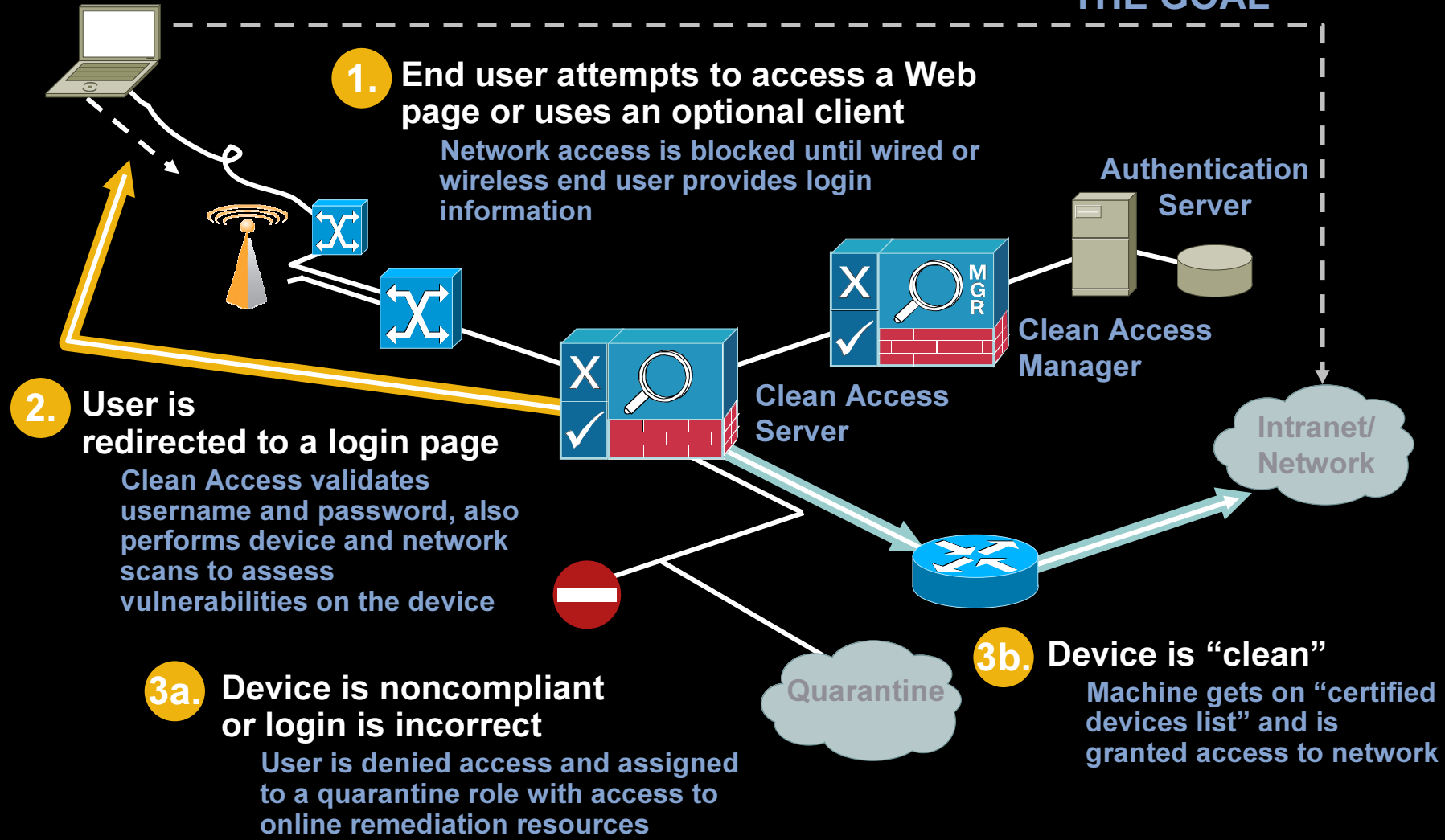
- ### Branch
- Converged branch protection
  - Local content scanning to mitigate malware introduction
  - Network Admission Control to prevent malware and enforce policy
  - Router-based IPS to protect local clients and preserve bandwidth

- ### Campus
- Endpoint protection from spyware, botnets, spam, trojans
  - High-capacity internet-edge security
  - Inbound, outbound, and intra-LAN protection and control
  - Content security and Network Admission Control to mitigate malware propagation

- ### Data Center
- High-capacity protection of servers and applications
  - Application and protocol inspection to protect servers and systems
  - Local server protection from targeted exploit attempts

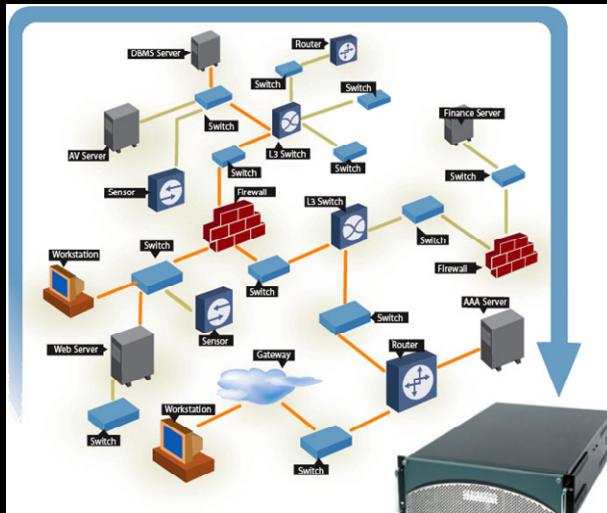
# NAC – Network Admission Control

THE GOAL



# Cisco Security – MARS Monitoring, Analysis and Response System

- Command and control of your existing investment to build “pervasive security”
- Correlate data from across the Enterprise  
NIDS, Firewalls, Routers, Switches, CSA  
Syslog, SNMP, RDEP, SDEE, NetFlow,  
Endpoint event logs, Multi-Vendor
- Rapidly locate and mitigate attacks

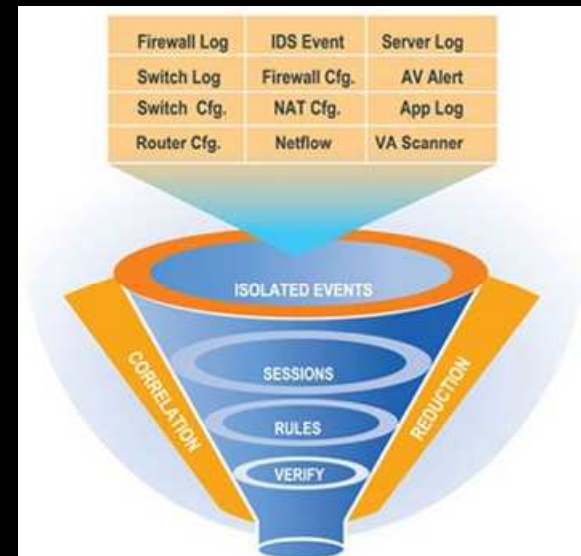


- Key Features

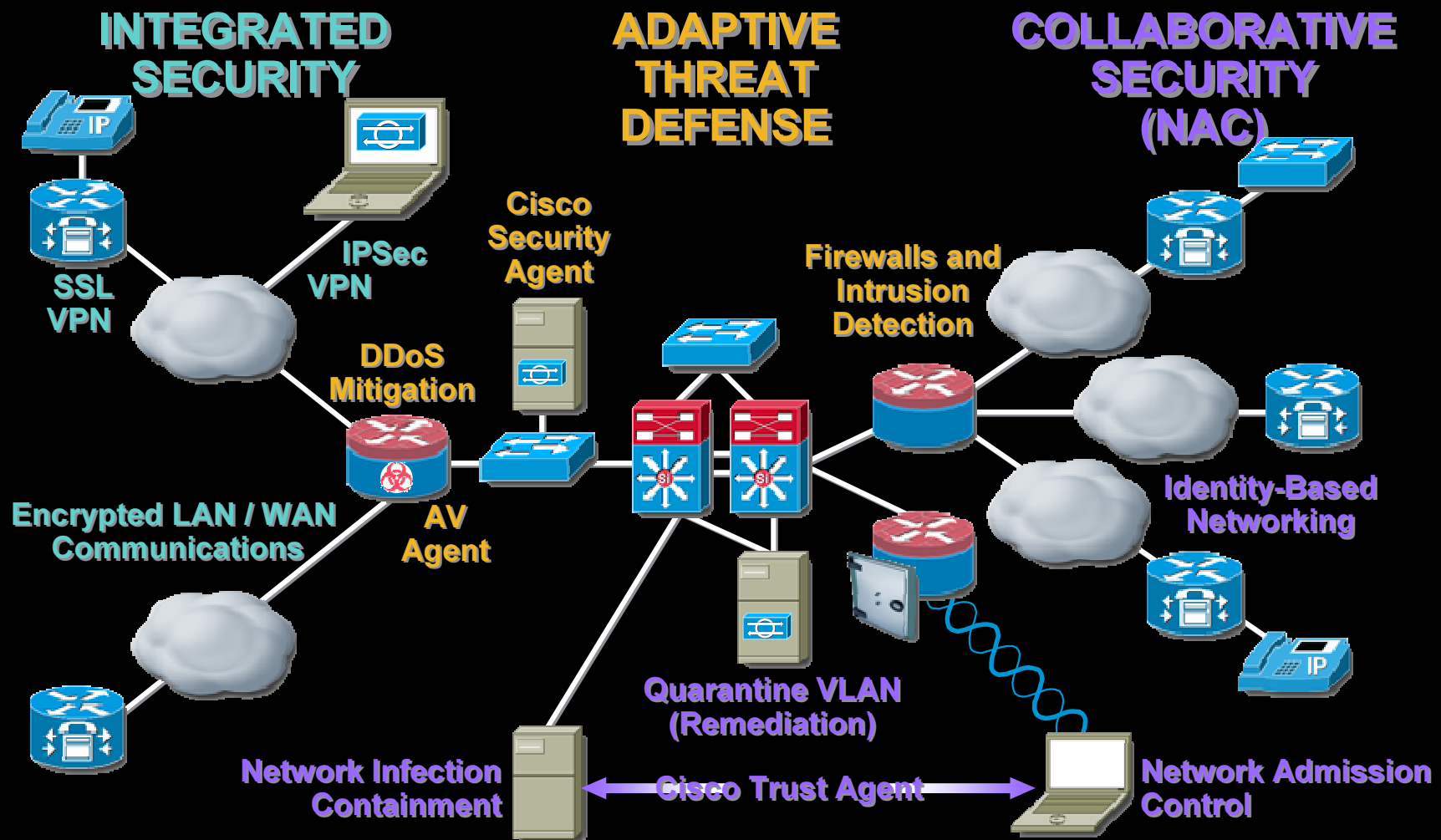
Determines security *incidents* based on device *messages*, *events*, and “*sessions*”

*Incidents* are topologically aware for visualization and replay

Mitigation on L2 ports and L3 chokepoints



# Security Vision: Comprehensive Architecture Approach





# Unified Communications



# Cisco Unified Communications Solution



**Productivity**



**Business Process**



**Business Transformation**

**Collaboration**

**E-Mail**

**Calendar**

**Audio-Conferencing**

**Web Application**



**Security**

**Video Conferencing**

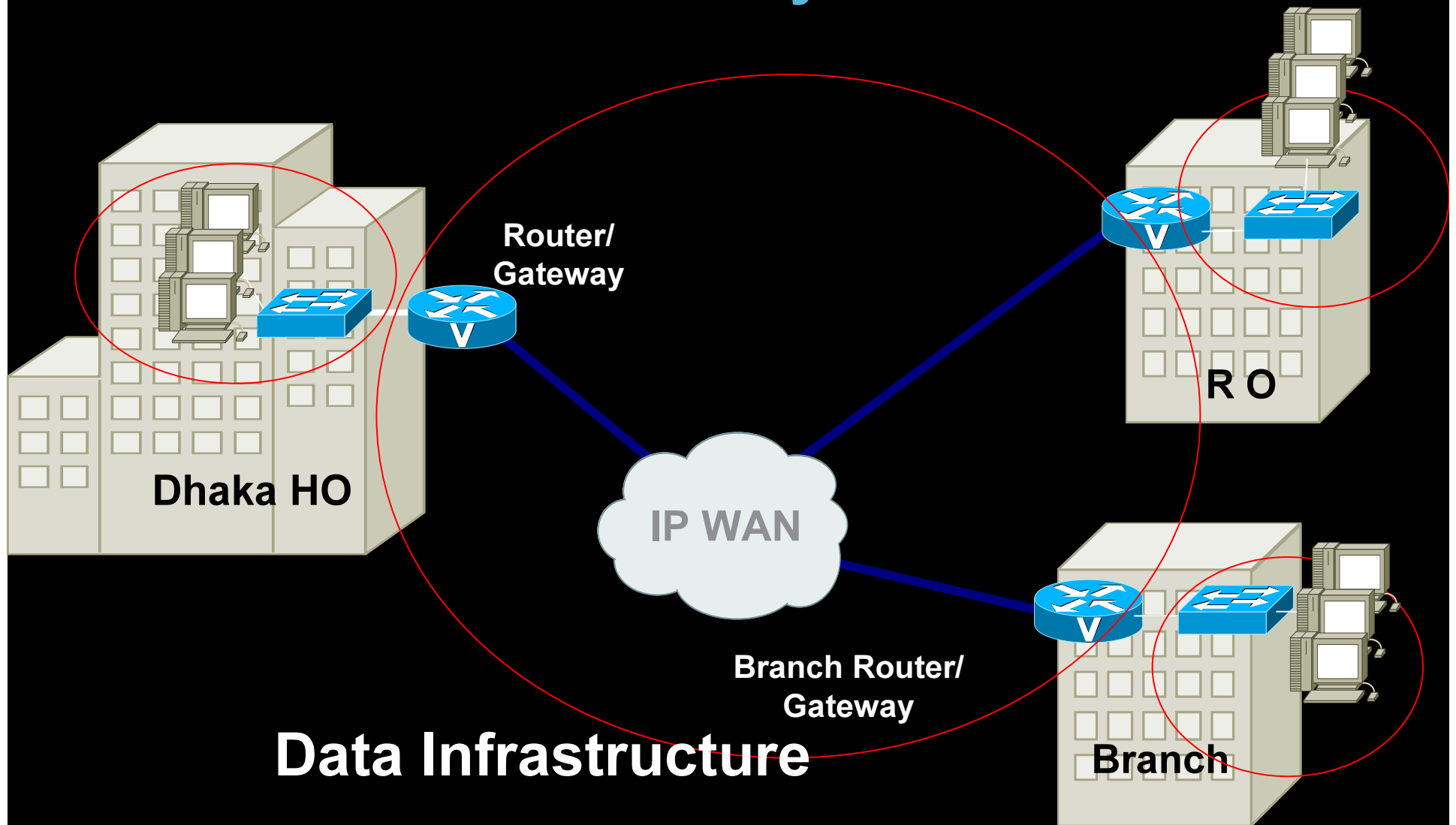
**Voice Messaging**

**Telephone Services**

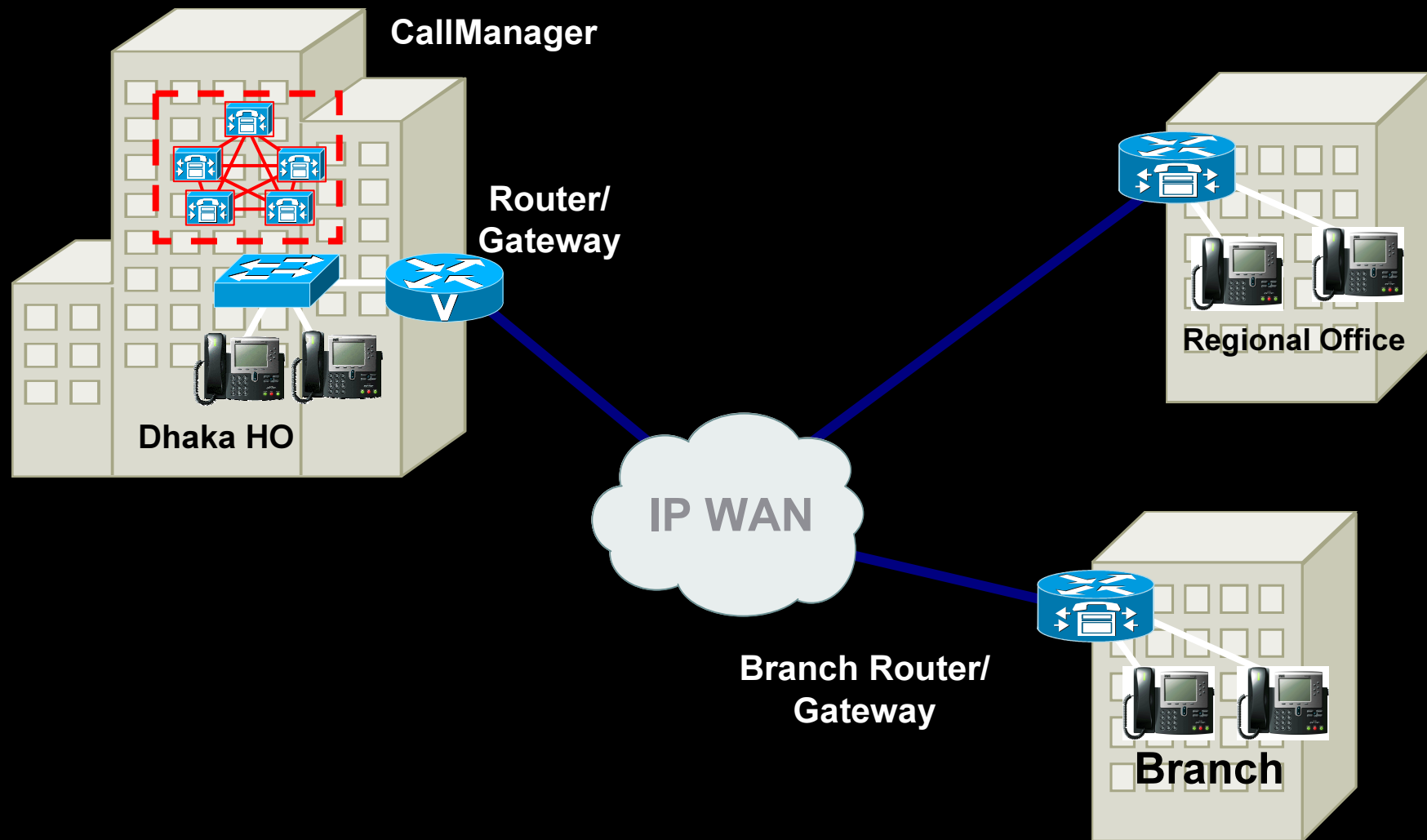
**Instant Messaging**

**Contact Center**

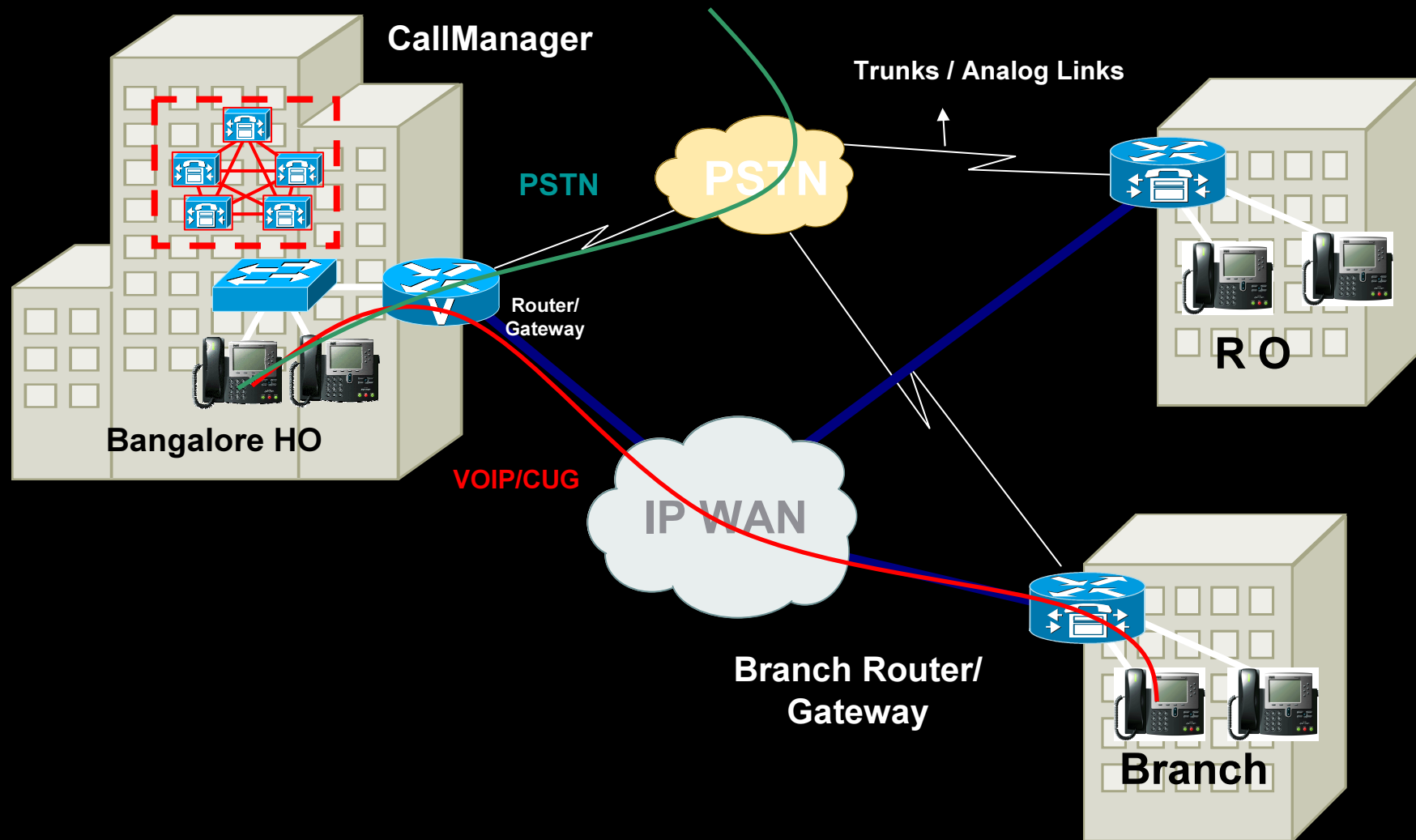
# LAN & WAN Connectivity



# Unified Communications



# Unified Communications – CUG and PSTN



# Continuous Development In Endpoints

## Executive

Cisco Unified IP Phone  
7970G/7971G-GE



Executives



## Manager

Cisco Unified IP Phone  
7960G/7961G/7961G-GE

## Business

Cisco Unified IP Phone  
7940G/7941G/7941G-GE



Branch Basic  
Cisco Unified IP Phones  
7905G/7912G/7911G  
Cisco Unified IP Phone  
7902G



## Video

Chairman's Office

Cisco Unified IP Phone  
7985G  
Cisco Unified Video  
Advantage



## Mobility

Cisco IP Communicator  
Cisco Unified Wireless  
IP Phone 7920



## Analog

Cisco ATA 186/188  
Cisco VG248 Analog  
Phone Gateway





# WAN Optimization and Application Acceleration



# Key Issues being faced in the Branch



## APPLICATION / DATA ACCESS PERFORMANCE

- WAN bandwidth/latency limits
- Application response time
- Global information access

## BRANCH INFRASTRUCTURE COST & COMPLEXITY

- Server, storage, and backup
- Limited IT resources
- Quality of data protection
- Compliance to Gov. regulations

## INCREASED NETWORK DEMANDS

- VoIP, other applications already placing demands on the network
- More applications adds to QoS, security, troubleshooting needs

# The WAN Is A Barrier To Consolidation

- Applications are designed for LAN environments

High bandwidth

Low latency

Reliability

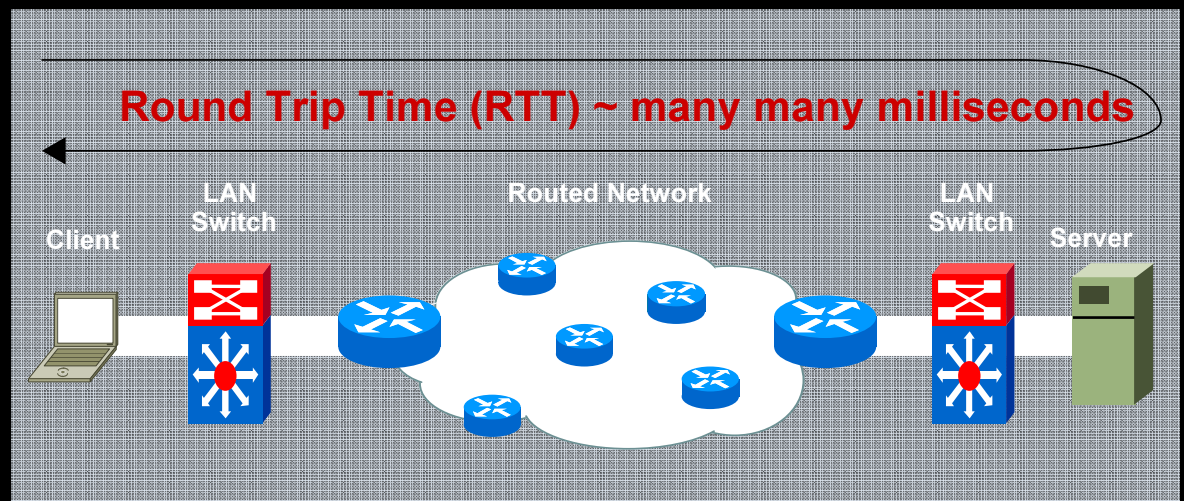
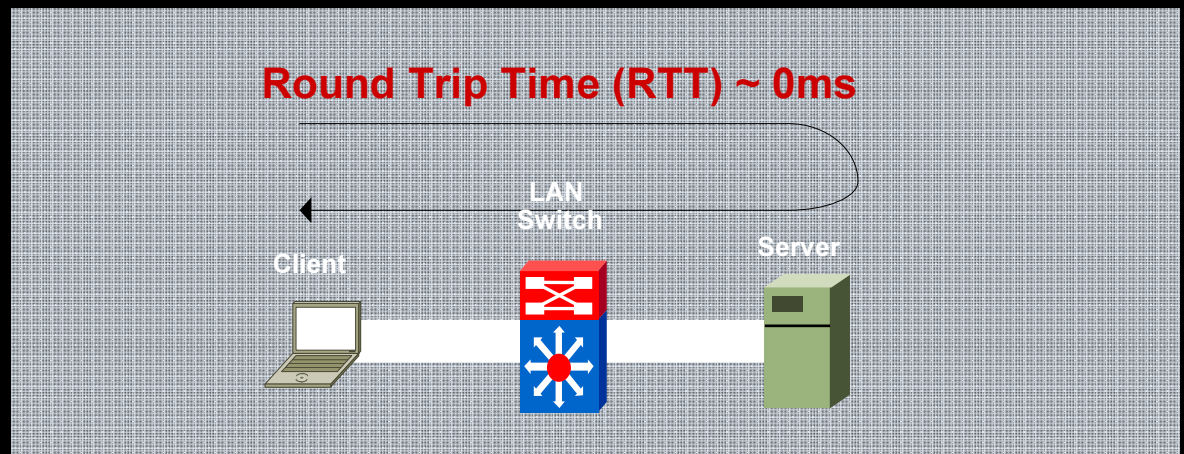
- WAN characteristics hinder consolidation

Already congested

Low bandwidth

Latency

Packet Loss

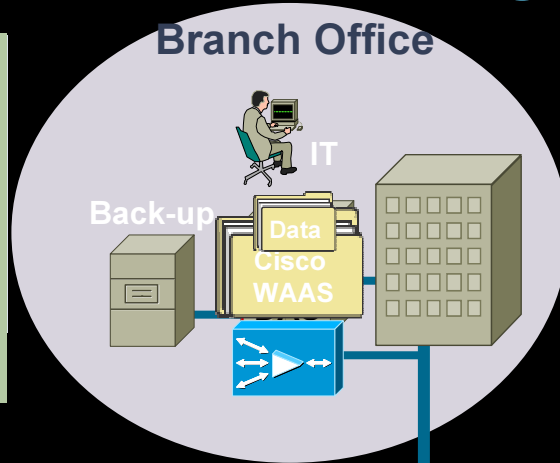


# Enabling the Serverless Branch Office Cisco Wide Area Application Engine (WAAS)

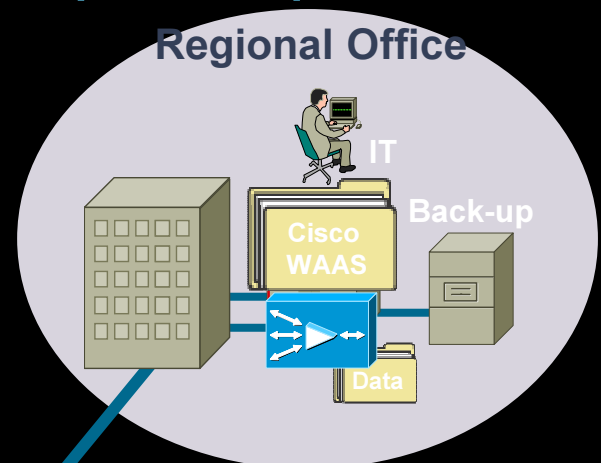
## Cost per Branch Office

- Distributed server model = \$20–40 K/yr
- Centralized servers with Cisco WAAS = \$10K/yr
- **SAVINGS per Branch Office = \$10-30K/yr**

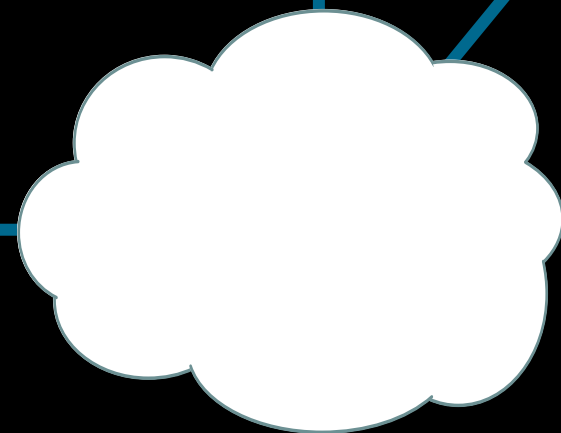
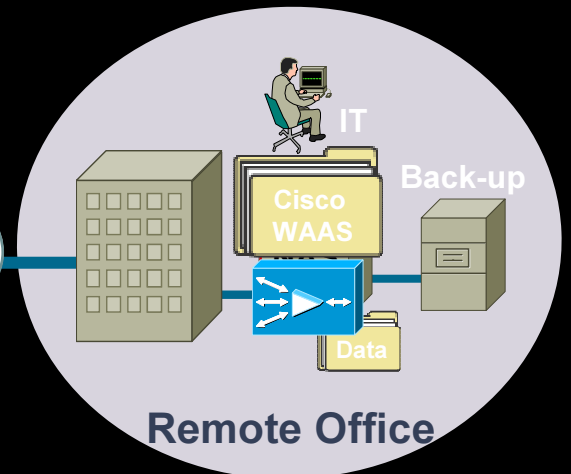
## Branch Office



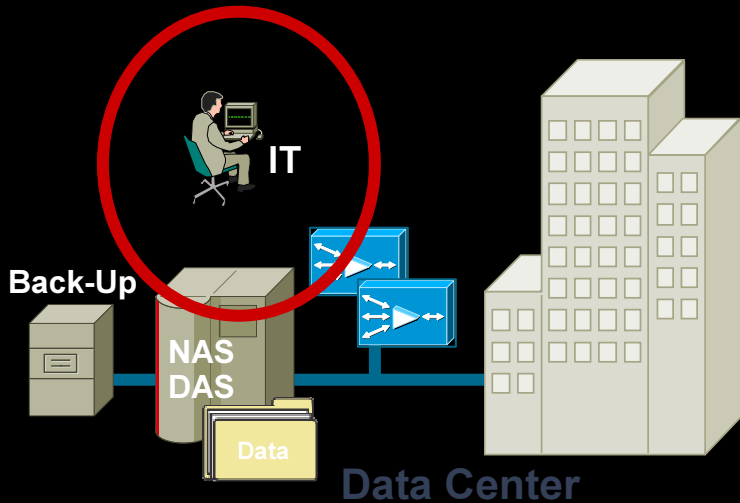
## Regional Office



## Remote Office



## Data Center



# Cisco WAAS - Accelerates Applications

Category	Applications	2X	5X	10X	25X	50X	100X+
File Sharing	CIFS NFS	2-20X Avg			>100X Peak		
Email	Microsoft Exchange Lotus Notes Internet Mail	2-5X Avg		20X Peak			
Web and Collaboration	HTTP WebDAV FTP Microsoft Sharepoint	2-10X Avg			100X Peak		
Software Distribution	Microsoft SMS Altiris HP Radia	2-20X Avg			>100X Peak		
Enterprise Applications	Microsoft SQL Oracle, SAP Lotus Notes	2-5X Avg		20X Peak			
Backup Applications	Microsoft NTBackup Legato Networker Veritas Netbackup CommVault Galaxy	2-10X Avg			50X Peak		
Data Replication	EMC SRDF/A EMC IP Replicator NetApp SnapMirror Data Domain Double-Take Veritas Vol Replicator	2-10X Avg			50X Peak		

\* Performance improvement varies based on user workload, compressibility of data, and WAN characteristics and utilization. Actual numbers are case-specific and results may vary. Cisco WAAS can employ optimization on almost any TCP-based application.



# VFrame Datacenter - VFDC



# Key Datacenter Infrastructure Issues

- Rigid mapping of infrastructure to applications
- Duplication of devices provisioned for peak capacity
- Heat & Power issues due to large numbers of devices
- Sharing of infrastructure is very minimal
- Limited application scaling

## Application A



## Infrastructure A

## Application B



## Infrastructure B

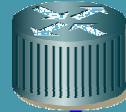
## Application C



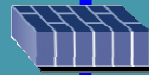
## Infrastructure C

# Box Silo's Reduce Operational Agility

NetOps ensures Branch connectivity/ Routable Subnet



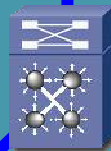
SecOps checks security policy, expands FW Port Range



SLB Admin Adds Server to Pool



NetOps connects Ethernet cabling, configures VLAN/Port Config



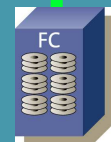
SysAdmin racks new server Loads O/S and Applications



StorageOps configures LUN, maps to Server



StorageOps provisions disk volume and resources

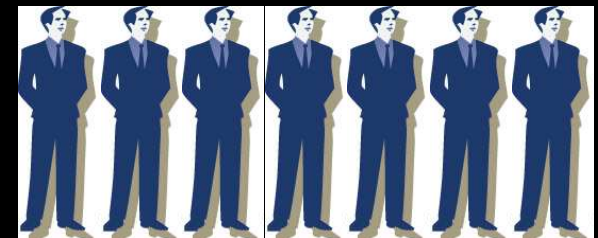


Assume you just want to add one server to a web-farm...

The challenge is one of 'coordination delays'. This type of simple scale-out of an existing serve often takes enterprises 90-days.

New service turn-ups, after the application has been developed, often take months of planning

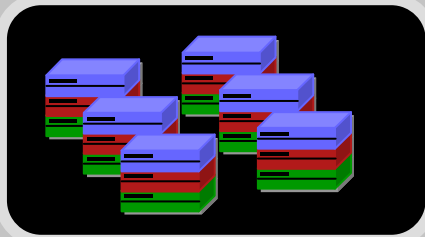
Orchestration is designed to eliminate these delays and automate the provisioning of services



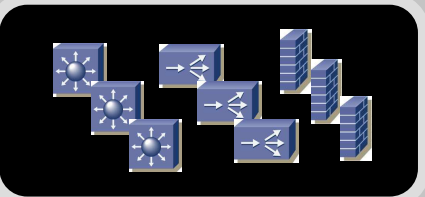
# Utility Resource Pooling

## End to End Infrastructure Visibility

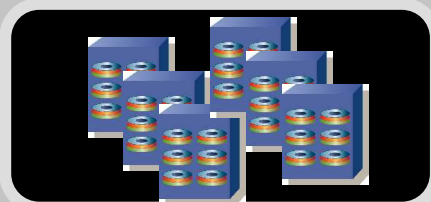
### Servers



### Network



### Storage



Discover your physical datacenter assets from one place

No more piece-meal views of your Data Center infrastructure

**View Server, Storage and Network Resources from a single pane**

An end to manual corelation of application infrastrucure

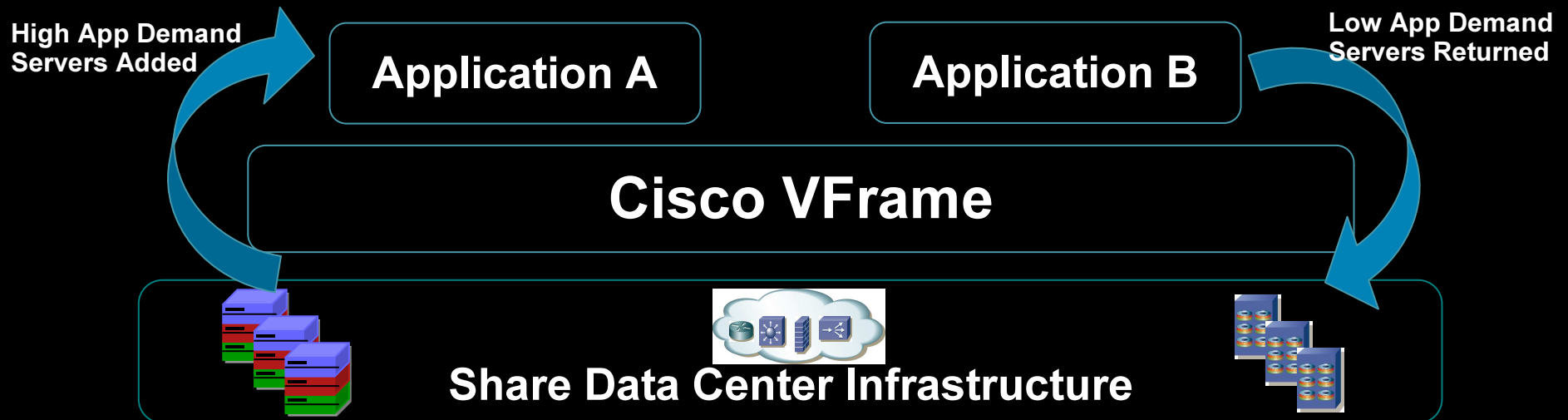
Clearly identify which resource is in use for which application

# Dynamic Repurposing

Move resources around based on demand

- Change resources from application group to another on demand  
e.g. server from Oracle group moves to SAP group based on application load. The server is re-imaged, connected to the right network and storage.
- Failover of physical servers in the event of a hardware outage.  
The exact same OS image brought up on another server without manual intervention

*True Lights Out Operation without affecting application availability*



# Summary

- Simple Scalable Branch Solutions
- Secured End to End infrastructure
- Converged Voice / Video solutions
- Application Acceleration over low Speed links
- Optimization of resources

