

A man in a white shirt and red tie is holding a large red cable that forms a large arch over a landscape. The background is a textured, colorful wall with yellow, blue, and green sections. The man is standing on a green hillside.

Cisco VPN Solutions

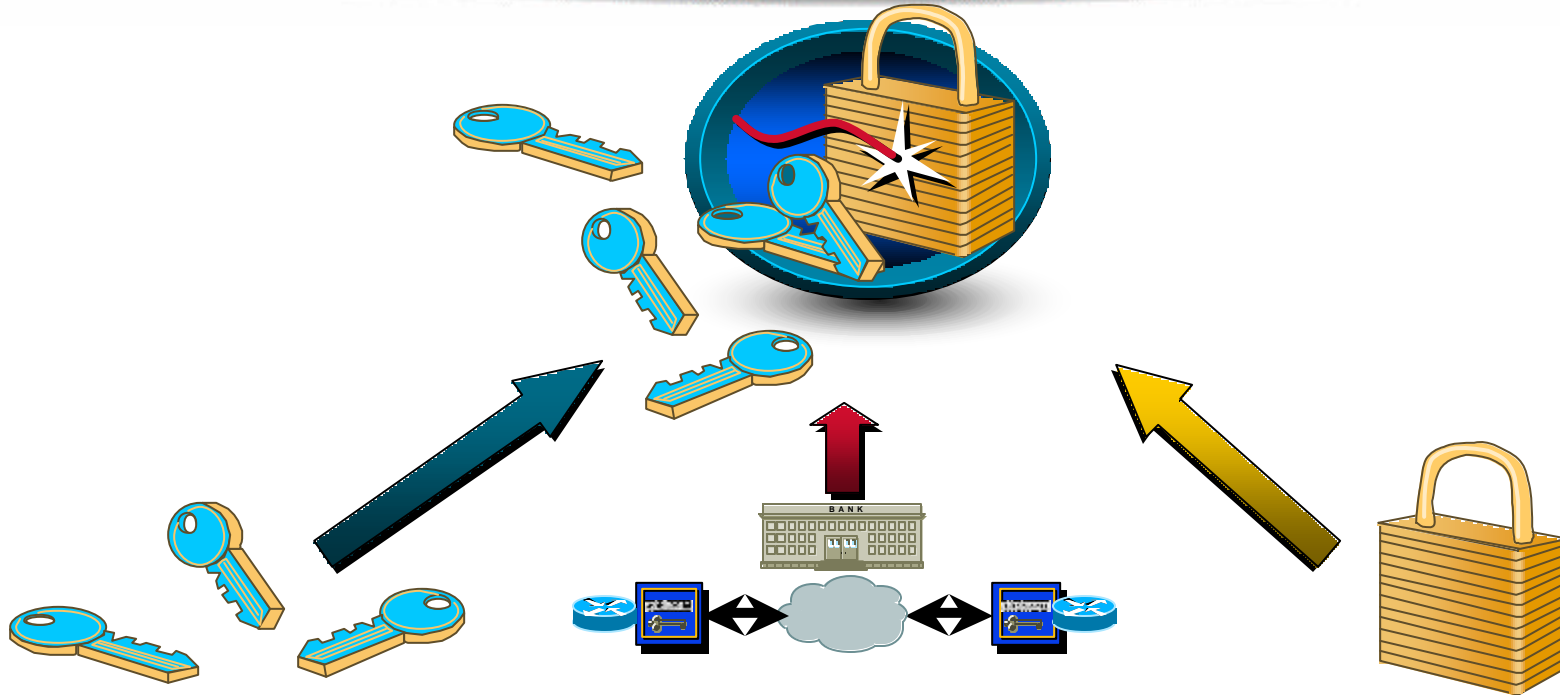


Agenda

- **Introduction to VPNs**
- **Cisco Remote Access VPN Solutions**
- **Cisco Site-to-Site VPN Solutions**
- **Cisco Firewall-Based VPN Solutions**



End-to-End Secured VPN



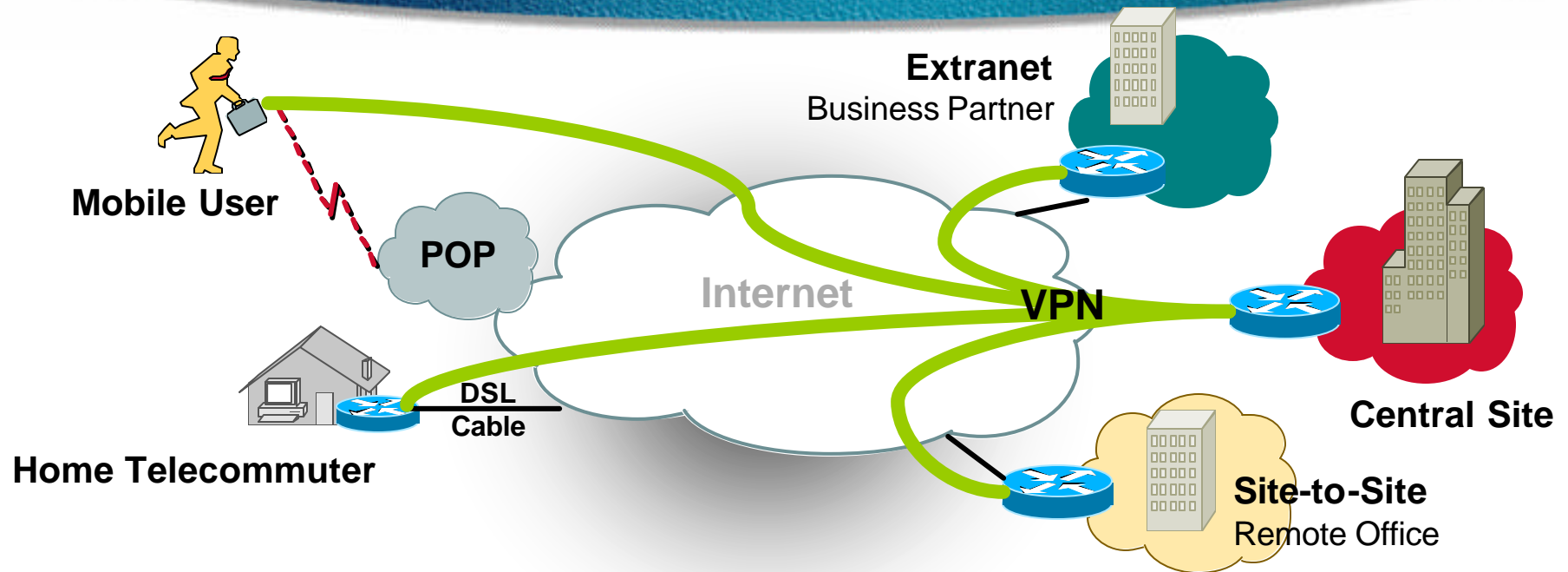
Cisco VPN Solutions Utilize Standards-Based Security

Tunneling	Encryption	Authentication	Integrity
<ul style="list-style-type: none">• IPSec• GRE• L2TP/PPTP	<ul style="list-style-type: none">• DES• 3DES• AES (soon)	<ul style="list-style-type: none">• RSA digital certificates• RADIUS	<ul style="list-style-type: none">• HMAC-MD5• HMAC-SHA1

VPN Types and Applications

Type	Application	As Alternative To	Benefits
Remote Access VPN	Remote Dial Connectivity	Dedicated Dial ISDN	Ubiquitous Access Lower Cost
Site-to-Site VPN	Site-to-Site Internal Connectivity	Leased Line Frame Relay ATM	Extend Connectivity Increased Bandwidth Lower Cost
Extranet VPN	Biz-to-Biz External Connectivity	Fax Mail EDI	Facilitates E-Commerce

VPN Requirements Vary By Application



Remote Access VPN	Site-to-Site VPN
<ul style="list-style-type: none"> • Evolution away from dial • Per-user manageability • Multi-OS (desktop) support • Deployment scalability 	<ul style="list-style-type: none"> • Extension of classic WAN • Compatibility with diverse network traffic types • Integration with routing • Deployment scalability

Cisco VPN Portfolio

Purpose-Built for Specific VPN Environments

Cisco Provides the Industry's Broadest VPN Solution Set!

VPN Application	Large Enterprise	Medium Enterprise	Small Biz/Branch	SOHO
Remote Access <u>Cisco VPN 3000</u>	VPN 3080 VPN 3060 Concentrators	VPN 3030 Concentrator	VPN 3015 VPN 3005 Concentrators	VPN 3002 Hardware Client VPN 3000 Software Client
Site-to-Site <u>IOS Routers</u>	7200 7100	7100 3600	3600 2600 1700	900 800
Firewall-Based VPN <u>Pix Firewall</u>	Pix 535 Pix 525	Pix 525 Pix 515	Pix 515 Pix 506	Pix 506



VPN Product Function Matrix

	Site-to-Site VPN	Remote Access VPN
IOS VPN Routers	<ul style="list-style-type: none"> • Primary role • All encompassing site-to-site connectivity features • Provides routing, QoS, WAN interfaces, multicast and multiprotocol support 	<ul style="list-style-type: none"> • Basic remote access functionality
PIX Firewalls	<ul style="list-style-type: none"> • Solution for security organizations that prefer operating firewalls • Provides full firewall features • Basic site-to-site functionality 	<ul style="list-style-type: none"> • Provides most remote access features • Solution for security organizations that prefer operating firewalls • Provides full firewall features
VPN 3000 Concentrators	<ul style="list-style-type: none"> • Basic site-to-site functionality 	<ul style="list-style-type: none"> • Primary role • Full featured remote access solution

Agenda

- Introduction to VPNs
- **Cisco Remote Access VPN Solutions**
- Cisco Site-to-Site VPN Solutions
- Cisco Firewall-Based VPN Solutions

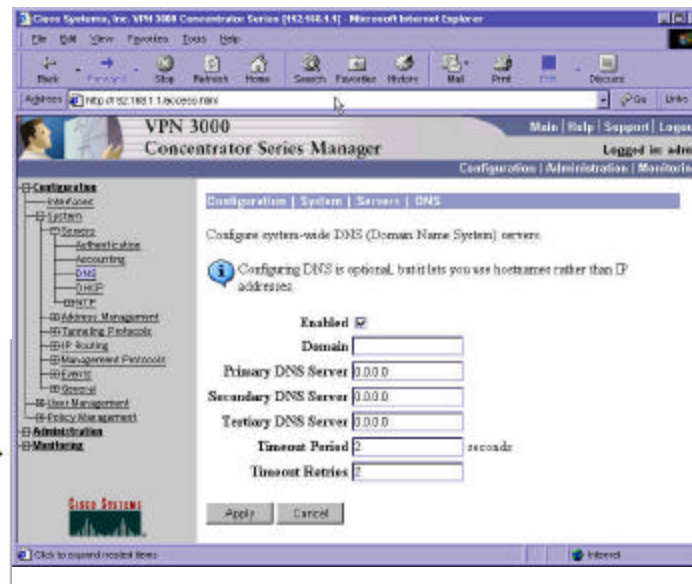
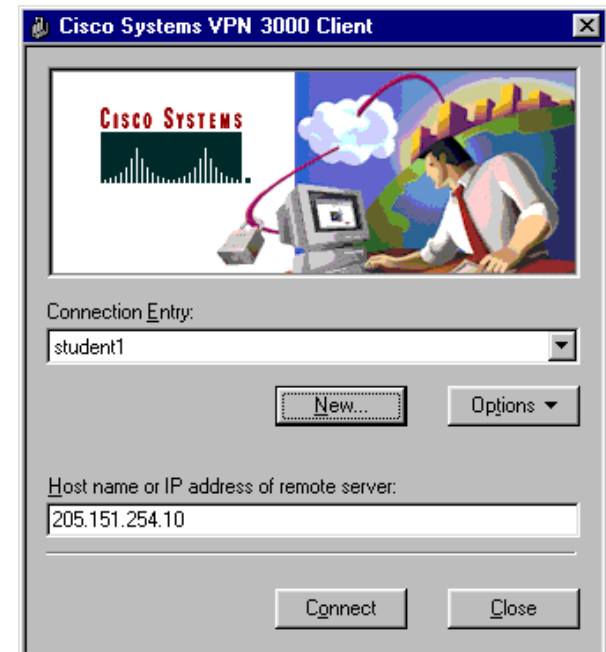


Cisco Remote Access VPN

Cisco VPN 3000 Concentrator Series



Cisco 3000 VPN Client



**HTML-Based
Management**

Remote Access VPNs

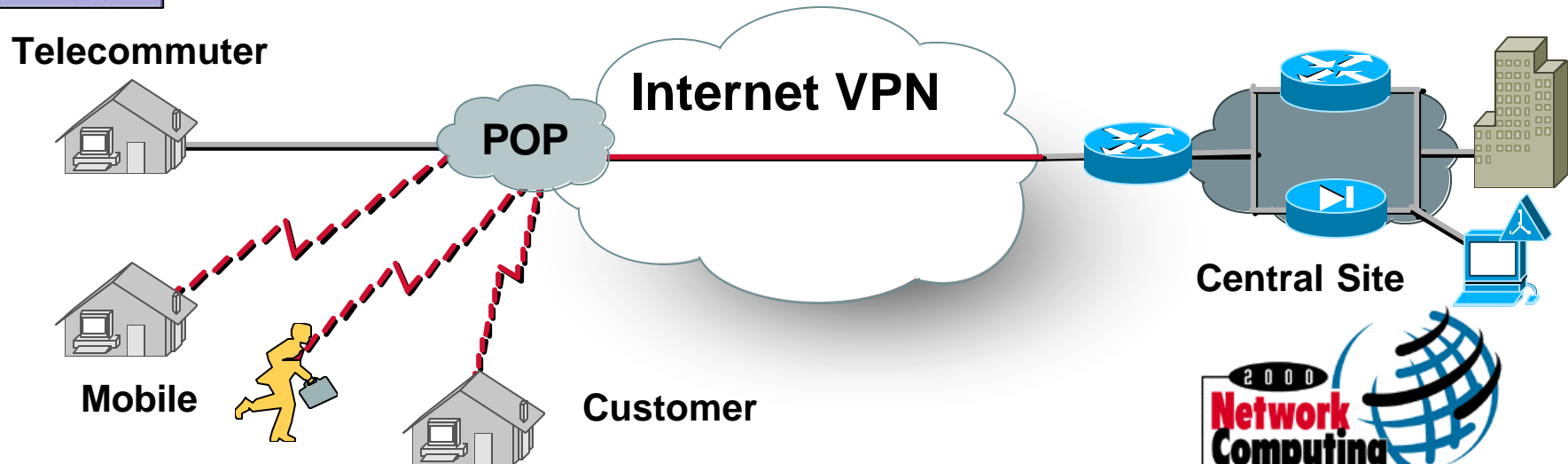
Cisco VPN 3000

- Connection of remote sites, users and partners across VPN
- High density, low bandwidth connections



Cisco VPN Clients
Microsoft Win 2000 (IPSec)
Microsoft Win 9x/NT (PPTP)

WAN Router
PIX Firewall
Cisco VPN 3000 Concentrator
Cisco Secure ACS (AAA)



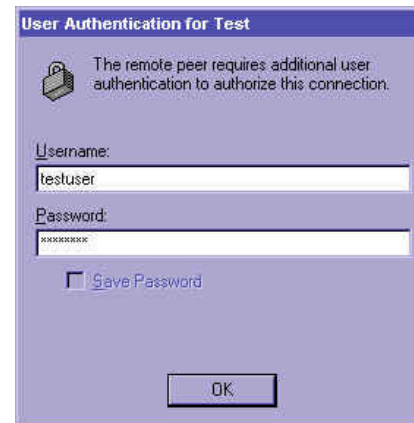
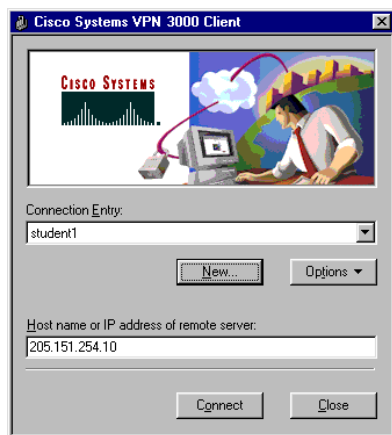
Cisco VPN 3000 Client

- **Single-click installation**
- **Easy to manage**
 - User-transparent configuration**
 - Centralized policy management**
- **Easy to operate**
- **Supports “split tunneling”**
- **For Windows 95, 98, 2000 or NT environments**



VPN 3000 Client Connect!

- **Dial into ISP / IP network provider**
 - Dial-up number local to user
 - Standard Windows DUN / works with all dialers
- **Start VPN 3000 Client**
 - Respond to authentication request when prompted
- **Link is now secure!**



Cisco VPN Device Manager for 3000 Series

- **Embedded Web Management**

Per VPN 3000 Concentrator

Easy client management

Secure browser interface (SSL)

Quick-start installation

Extensive usage statistics

Multi-level administration

Username	IP Address	Protocol	Encryption	SEP	Login Time	Duration	Bytes Tx	Bytes Rx
user1	100.50.75.1	PPTP	RC4-40 Stateful	SW	04/30/1999 16:02:21	0:05:54	255	600
user2	100.50.75.2	PPTP	RC4-40 Stateful	SW	04/30/1999 16:02:25	0:05:49	485	872
user3	100.50.75.3	PPTP	RC4-40 Stateful	SW	04/30/1999 16:02:29	0:05:45	255	668
user4	100.50.75.4	PPTP	RC4-40 Stateful	SW	04/30/1999 16:02:34	0:05:40	255	872

Cisco VPN 3000 Concentrators



	3005	3015	3030	3060	3080
Simultaneous Users	100	100	1,500	5,000	10,000
Performance (Mbps)	4	4	50	100	100
Encryption Cards	-	0	1	2	4
Upgradeable	No	Yes	Yes	Yes	No
Dual Power Supply	No	Optional	Optional	Optional	Optional
Redundancy	No	Yes	Yes	Yes	Yes
Site-to-Site Tunnels	100	100	500	1,000	1,000

Platform Highlights

Models 3015, 3030, 3060, 3080



- Modular
- Expandable
- Redundant / VRRP
- Hardware Encryption



- Extensive Instrumentation
- 2U Form Factor

Cisco VPN 3000 High Availability

- **200,000+ hrs. calculated MTBF**
- **Redundant Power Supplies**
- **Hot Swap & Redundant Encryption Modules**
- **Redundant Fans with tachometers**
- **Two temperature sensors--CPU and ambient**
- **Dual Image Flash Memory**

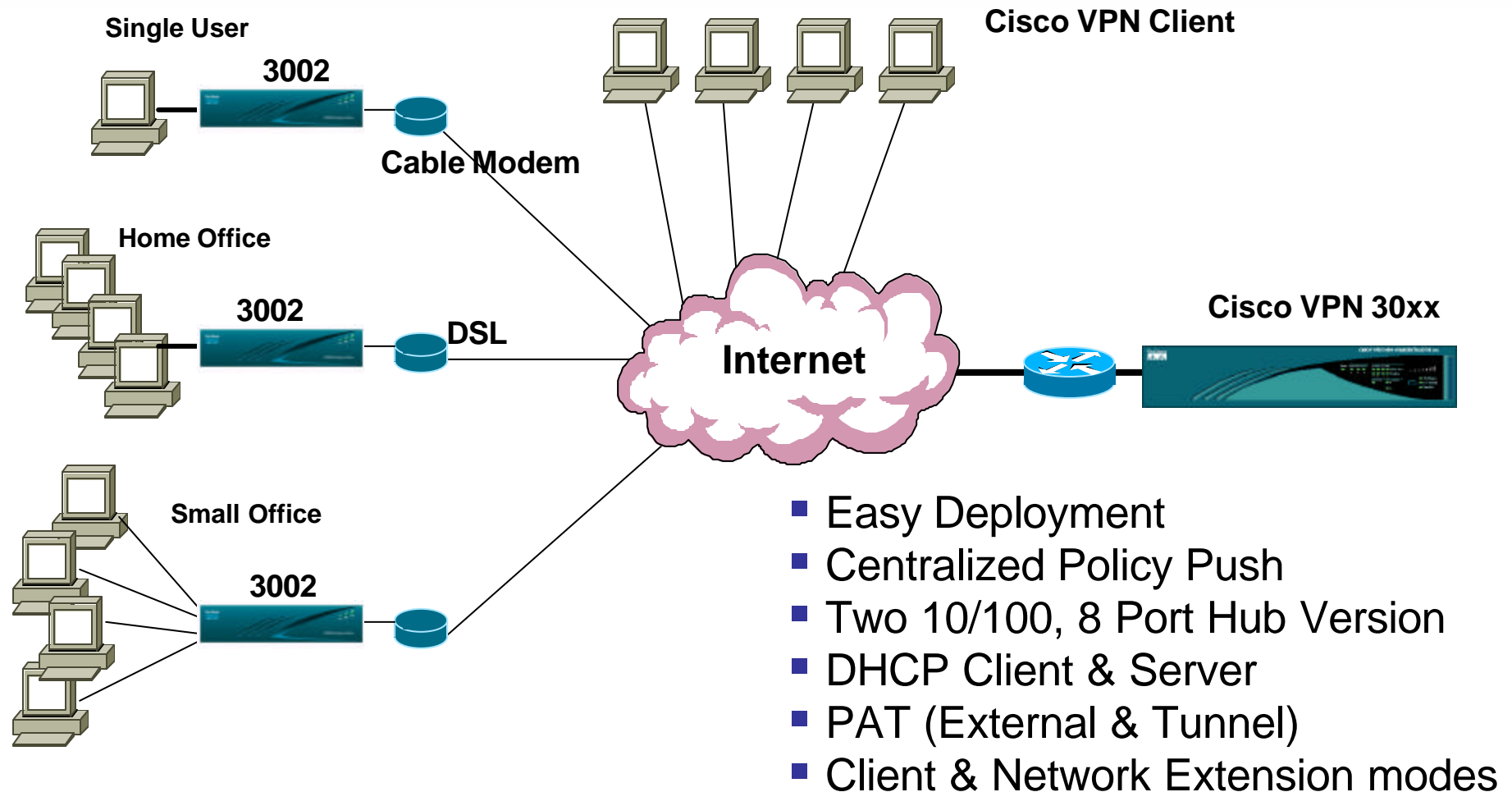
Platform Highlights

Model 3005



- Fixed Configuration
 - Software Encryption
 - 1U Form Factor
 - Limited Instrumentation
- Best Choice for:
 - Managed Service
 - Branch Office
 - Medium Business

Cisco VPN 3002 Hardware VPN Client



Cisco VPN 3002 Hardware VPN Client



Front



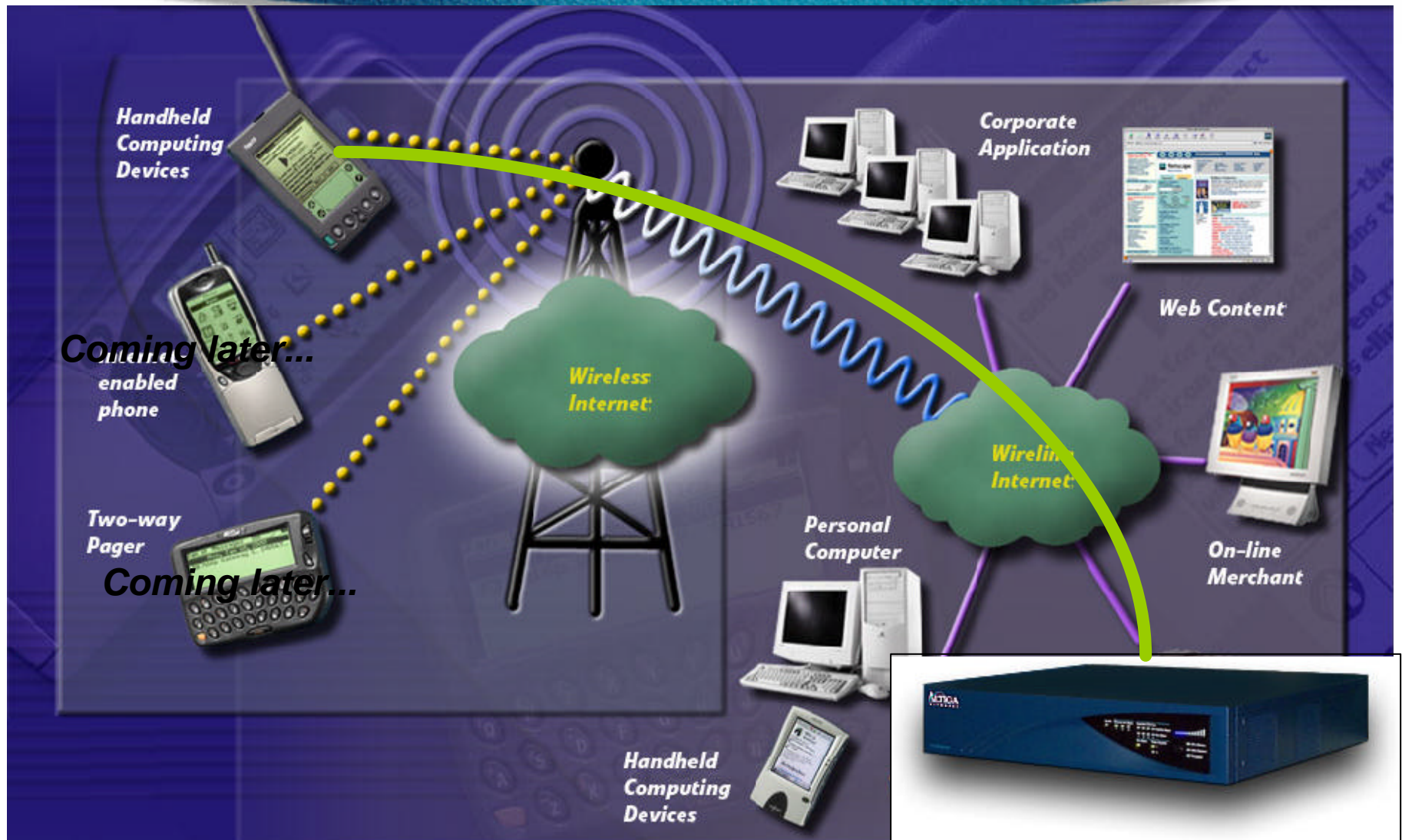
Basic 3002 w/o Hub



3002 unit with 8 Port 10/100 Hub

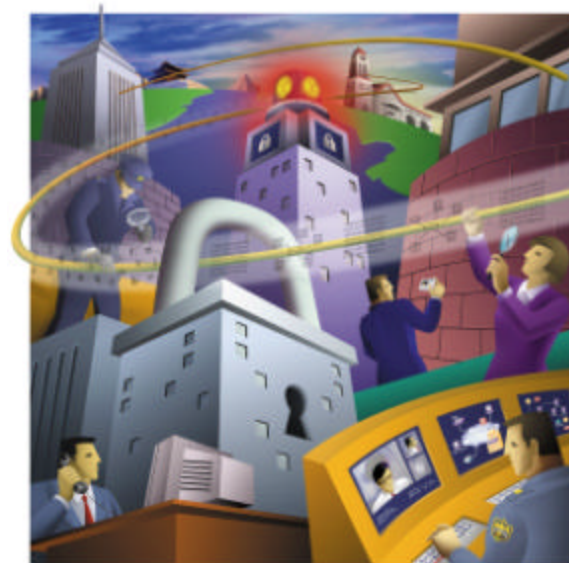
- External 6 foot power with country specific pigtail cord
- Console uses RS-232 signaling and RJ-45 connector
- Ethernet ports are 10/100 Mbps
- Hub supports Auto-MDIX eliminating x-over cables
- Recessed reset switch returns unit to default configuration
- 6x8x2" size with flat top and wall mount key holes
- Silent, convection cooled operation
- FCC Class B Certification, CISPR, CUL, others

VPN Goes Mobile



Agenda

- Introduction to VPNs
- Cisco Remote Access VPN Solutions
- **Cisco Site-to-Site VPN Solutions**
- Cisco Firewall-Based VPN Solutions

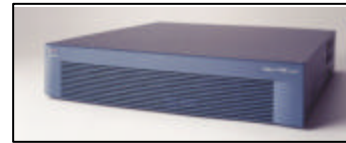


Cisco's Site-to-Site VPN Outlook

- **VPNs are an alternative WAN infrastructure**
 - Offer significant cost benefits**
 - Enables new infrastructure applications (Extranets, etc.)**
 - Extends and enhances network connectivity**
- **Still an end-to-end network**
 - Scalability, reliability, multi-protocol, multi-service, management, security, QoS, etc.**
- **Have specific additional requirements**
 - Heightened security**
 - New Quality of Service capabilities**
 - Policy management**

Cisco VPN Routers

Delivering Comprehensive Site-to-Site VPN Features

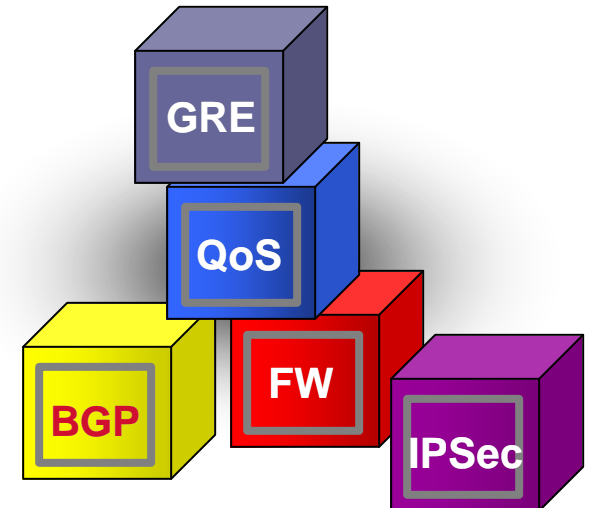


	Cisco VPN Routers	VPN Appliances
IPSec & PKI Support	✓	✓
Routing Across VPN	✓	x
Multicast Across VPN	✓	x
Multiprotocol Support	✓	x
Voice-Ready VPN	✓	x
Application-Aware QoS	✓	Limited
Integrated Firewall	✓	Some
Integrated WAN Connectivity	✓	Limited
Single-Box Solution for Remote Office Deployments	✓	x
Device Infrastructure Management	✓	x

Cisco IOS Software

Enhanced VPN Software Features

- **Quality of Service**
 - Application-aware packet classification
 - Congestion management and packet queuing
 - Traffic shaping and policing
- **Stateful IOS Firewall**
 - Per application content filtering and Java blocking
 - Denial of service protection and intrusion detection
 - Time-based ACLs
- **VPN Resiliency**
 - Dynamic Route Recovery - using routing protocols through IPSec secured GRE tunnel
 - Dynamic Tunnel Recovery - IPSec Keep-Alives
- **Automated Tunnel Provisioning**
 - Using IPSec Tunnel Endpoint Discovery for large mesh network deployments
- **Full Layer 3 Routing and Broad Interface Support**
 - EIGRP, BGP, OSPF, and others
 - Numerous LAN and WAN interfaces



Cisco Site-to-Site VPN Solutions

Scalability for Every Site

Cisco 1700 Series

- VPN-optimized router connecting remote offices at T1/E1 speeds

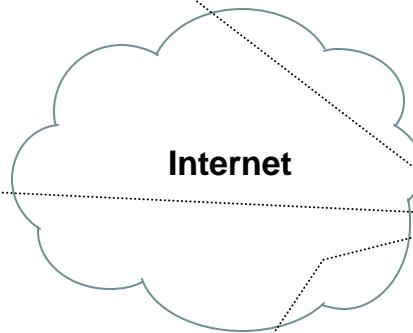
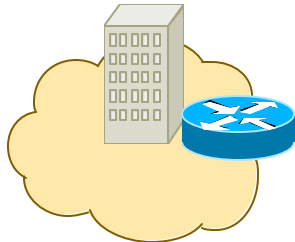


Cisco 7100 & 7200 Series

- 7100 for dedicated VPN head-end
- 7200 for hybrid private WAN + VPN connectivity

Main Office

Regional Office



Cisco 2600 & 3600 Series

- VPN-optimized routers connecting branch and regional offices at nxT1/E1 speeds



Small Office/ Home Office

Cisco 800 & 900 Series

- VPN-optimized routers for ISDN, DSL, and cable connectivity

VPN-Enabled Broadband Routers



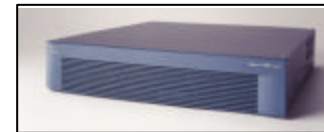
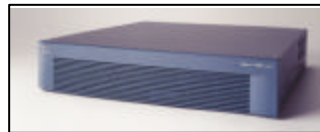
	806	827/804	905
Simultaneous Tunnels	50	50	50
Performance	384 kbps	384 kbps	6 Mbps
Hardware Acceleration	None	None	(built-in)
WAN Interfaces	Ethernet	DSL/ISDN	Cable
LAN Interfaces	4xEthernet	1xEthernet	4xEthernet

VPN-Enabled Routers



	1710	1720/1750	2611/2621	2651	3620/3640
Simultaneous Tunnels	100	100	300	800	800
Performance (Mbps)	4	4	10/12	14	10/19
Hardware Acceleration	(built-in)	VPN Module	AIM-VPN/BP	AIM-VPN/EP	NM-VPN/MP
WAN Interfaces	1xEthernet	(varies)	(varies)	(varies)	(varies)
LAN Interfaces	1xFE	1xFE	2xFE	2xFE	(varies)

VPN-Enabled Routers



	3660	7120	7140	7140	7200
Simultaneous Tunnels	1,300	2,000	2,000	3,000	5,000
Performance (Mbps)	40	50	90	140	145
Hardware Acceleration	AIM-VPN/HP	ISM	ISM	ISM & ISA	SA-VAM
WAN Interfaces	(varies)	(varies)	(varies)	None	(varies)
LAN Interfaces	1xFE	2xFE	2xFE	2xFE	(varies)

Cisco 806 Broadband Gateway Router

Provides shared, secure access for small businesses, small offices and telecommuters from a single broadband connection

Ethernet-to-Ethernet connectivity for use behind-broadband devices

Multi-User access

Business-class security

Manageability, reliability and scalability

QoS for voice and video applications



Cisco 1710 Security Access Router

New!



Ethernet-to-Ethernet Connectivity Comprehensive Security

- VPN Encryption and Tunneling
- Stateful Inspection Firewall
- Intrusion Detection

High-Performance VPN

- T1 Wire Speed 3DES Hardware Encryption

Advanced QoS Features

- Bandwidth Optimization
- Traffic Prioritization

Remote Manageability

2650 Enhanced Performance VPN Module

New!

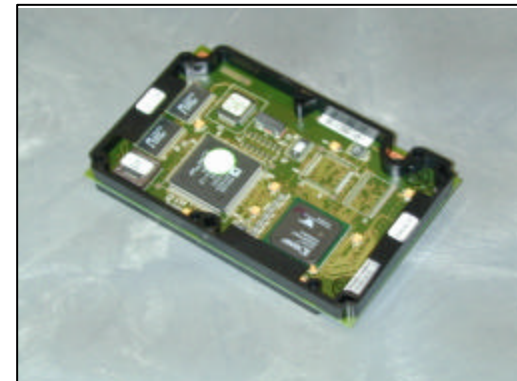
- **AIM-VPN/EP Enhanced Performance Module**

Delivers 14 Mbps 3DES performance

New AIM-VPN/EP is specially designed to take advantage of the 2650 High Performance Router

This VPN Module is being offered in addition to our present AIM-VPN/BP (Base Performance Module)

Supported on all 2600 platforms



New 2600/3600 VPN Bundles

New!

New 2600/3600 VPN bundles:

- Chassis / processor
- System memory (64Mbps)
- Packet memory
- Flash memory (16 Mbps)
- Power supply
- VPN accelerator card
- IOS Plus IPsec/FW/IDS 3DES K9 or DES bundle available K8



C2611-2FE/VPN

- Cisco 2611 Router, Dual 10/100, AC, AIM-VPN/BP, IOS Plus Firewall/IPSec

C2651-2FE/VPN

- Cisco 2651 Router, Dual 10/100, AC, AIM-VPN/EP, IOS Plus Firewall/IPSec

C3640-2FE/VPN

- Cisco 3640 Router, Dual 10/100, AC, NM-VPN/MP, IOS Plus Firewall/IPSec

C3662-2FE/VPN

- Cisco 3662 Router, Dual 10/100, AC, AIM-VPN/HP, IOS Plus Firewall/IPSec

VPN Acceleration Module (VAM) for 7100/7200

New!

Greater than DS3 encryption performance

145 Mbps 3DES IPsec performance for
scalable site-to-site encryption

Allows large number of VPN Tunnels

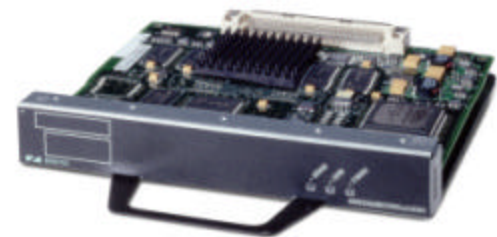
5000 simultaneous IPsec sessions

Fast VPN tunnel setup time

Hardware acceleration for RSA: Tunnel setup
& key generation

Compression for bandwidth conservation

Hardware acceleration for IPPCP LZS
compression



SA-VAM for 7200



SM-VAM for 7100

New 7200 VPN Bundles

New!

New 7200 VPN bundles:

- Chassis / processor
- I/O board
- Packet memory
- Flash memory
- Power supply
- VAM VPN accelerator card
- IOS IPsec 3DES software
- DES bundles also available



7204VXR400/VPNK9

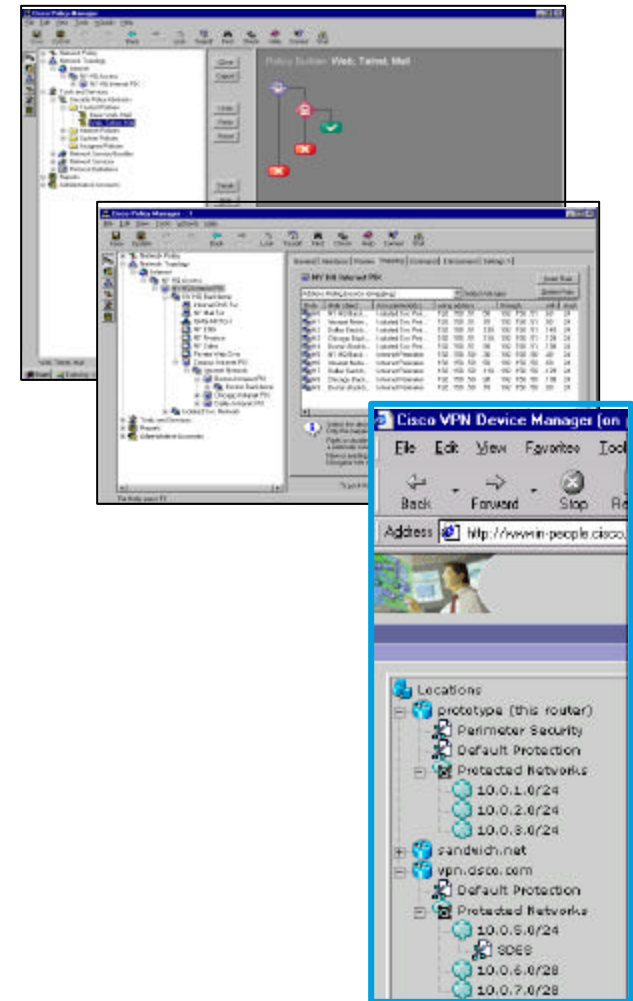
- Base VPN Bundle for adding WAN or behind WAN-edge
- Cisco 7204 Router, NPE-400, I/O Board w/ Dual 10/100, AC power, SA-VAM, IOS IPsec 3DES software

7204VXR400/T3VPNK9

- For High Bandwidth VPN Head-end
- Cisco 7204 Router, NPE-400, I/O Board w/ Dual 10/100, PA-T3+, SA-VAM, AC power, IOS IPsec 3DES software

VPN Management

- **VPN Device Manager**
Embedded web single device policy manager
- **VPN Management Solutions**
Enterprise VPN monitoring & policy manager
- **Cisco Secure Policy Manager**
Centralized, intelligent security policy management for firewall and VPN
- **Telnet/SSH/rlogin/rsh/rcp CLI, tftp, MIBs**



Infrastructure Management

- **Cisco Works 2000**

- Device and software inventory

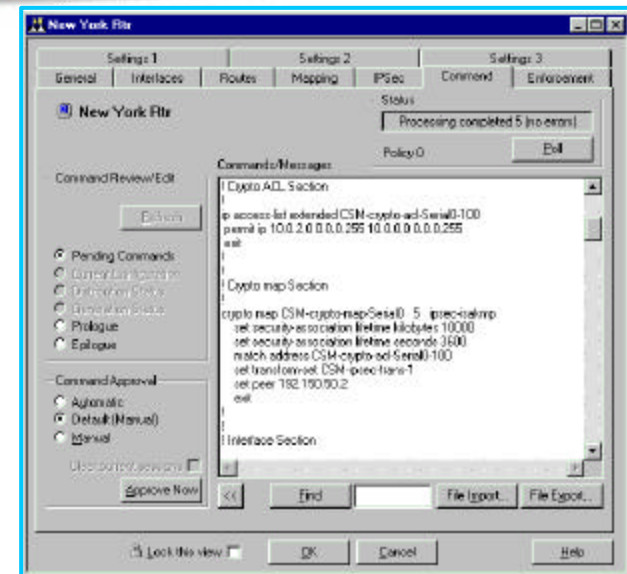
- Configuration change management

- Network response time analysis

- **QoS Policy Manager**

- Control bandwidth management features at VPN edge

- Centralized bandwidth management policy control for multiple sites



Site-to-Site VPN Interoperability

	IOS	PIX	3000	5000
IOS Required Release	-	12.1	12.1	12.1
PIX Required Release	5.2	-	5.2	5.2
3000 Required Release	2.5(2)	2.5(2)	-	n/a
5000 Required Release	5.2	5.2	n/a	-

Site-to-Site VPN Platform Summary

- **Comprehensive Suite of Site-to-Site VPN Features**
Supports the most diverse VPN environments
- **High Performance VPN**
Up to 145 Mbps 3DES/HMAC-SHA1 IPsec
Up to 5,000 simultaneous tunnels
- **Site Specific VPN Scalability**
DSL, Cable, & ISDN VPN routers
Ethernet-to-Ethernet broadband routers
- **Network Management Tailored for Site-to-Site Applications**

Agenda

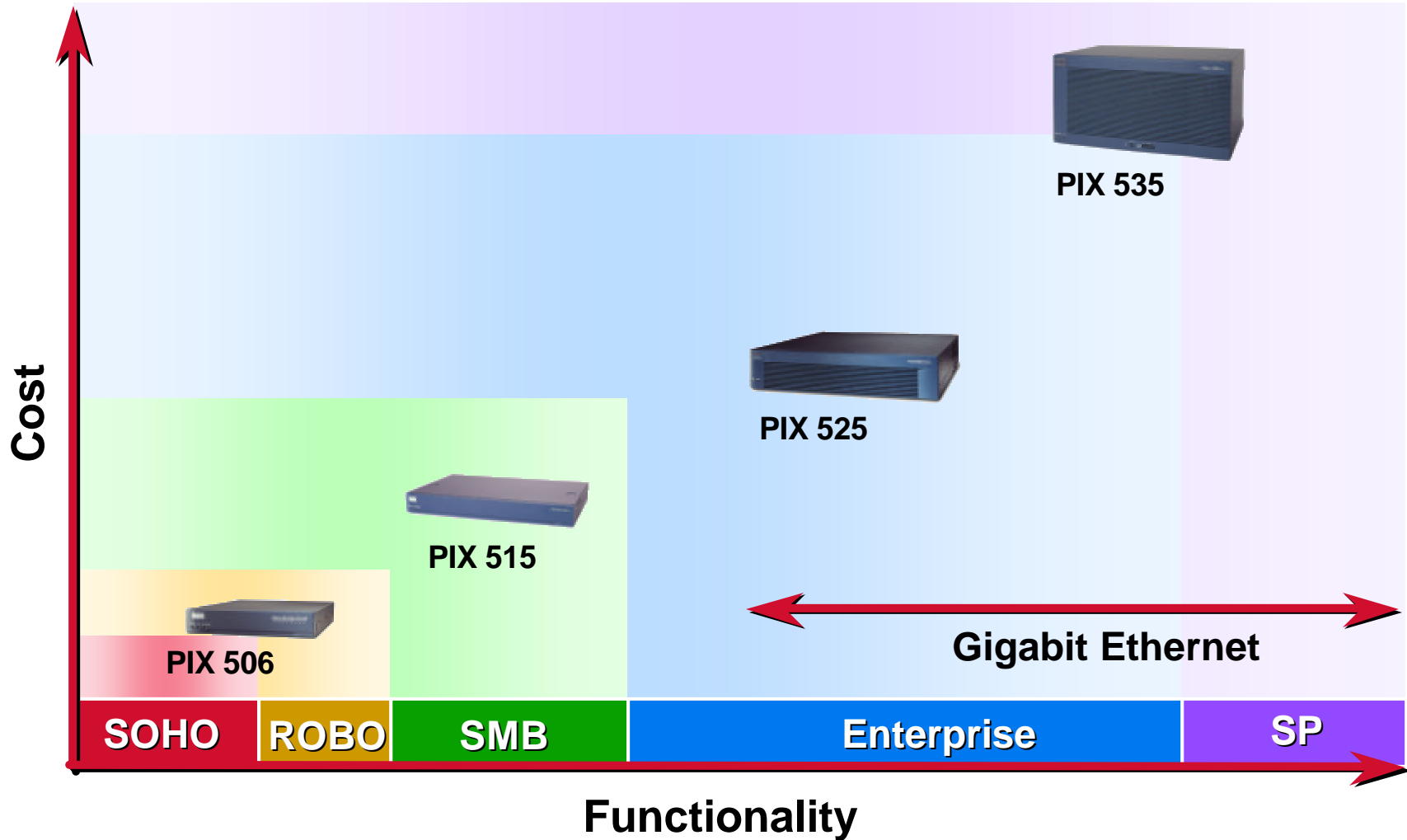
- Introduction to VPNs
- Cisco Remote Access VPN Solutions
- Cisco Site-to-Site VPN Solutions
- **Cisco Firewall-Based VPN Solutions**



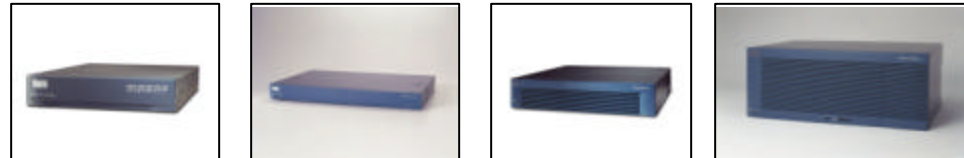
Firewall-Based VPN Scenarios

- **Security organization owns the VPN implementation**
- **Customers want to enhance their existing firewall systems to support VPN services**

PIX Firewall Family



PIX Product Line Overview



	506	515	525	535
Simultaneous Tunnels	4	400	1,000	2,000
Performance (Mbps)	6	11	35	55
VAC Simultaneous Tunnels	-	-	2,000	2,000
VAC Performance (Mbps)	-	-	70	100
Firewall Sessions	400	125,000	280,000	500,000
Firewall Performance (Mbps)	10	170	370	1,000
LAN Interfaces	2xEthernet	6xFE	8xFE/GE	8xFE/GE

Cisco VPN Market Position

- **Infonetics - May, 2001**

- #1 in VPN market with 67%**

- #1 in VPN Router market with 92%**

- #1 in Dedicated VPN (3000 and 7100) with 12%**

- **Synergy - May, 2001**

- #1 in VPN Gateways with 32%**

For More Information...

<http://www.cisco.com/GO/VPN>

CISCO SYSTEMS



EMPOWERING THE
INTERNET GENERATIONSM