



시스코 ISR 제품 발표회 Cisco Integrated Services Routers

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Tech-Ops Team

Cisco Systems Korea



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1

Agenda

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Market Requirements for SMB & Enterprise

시스코 Integrated Services Routing 제품 소개

시스코 ISR의 Concurrent Integrated Services & Applications

시스코 ISR Performance information

Summary



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2



Market Requirements for SMB & Enterprise



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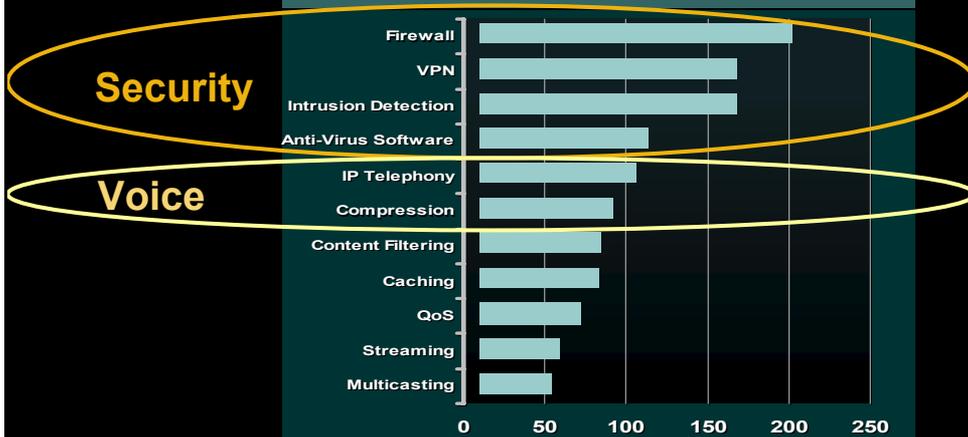
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3

SMB와 엔터프라이즈 를 위한 서비스 요구사항

Cisco.com

Functions that **SHOULD**
be router-integrated n=331



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Cisco Survey: June 03

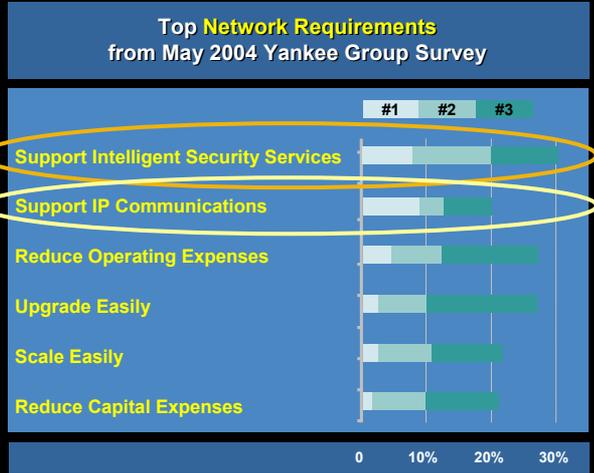
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SMB와 엔터프라이즈를 위한 네트워크 요구사항

Cisco.com

고객 요구사항 :

- **지능형 보안기능**
Support Intelligent Security Services
- **직접적인 Biz의 지원**
Support IP Communications
Reduce Operating Expenses
Reduce Capital Expenses
- **Future-Proof**
Upgrade Easily
Scale Easily



Source: Cisco/Yankee Group
May 2004 Survey - 300 US, UK, & German companies

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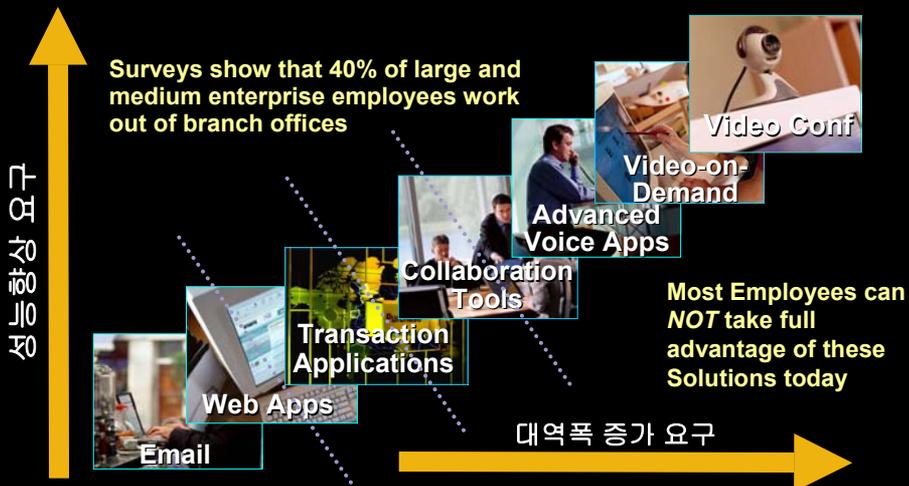
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6

SMB 와 엔터프라이즈의 Biz 환경 변화

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본점과 지점, 지사의 동일한 생산성 향상을 위한 동일 인프라 조성 필요증대



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네트워크에 반드시 필요한 기능은 ?

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Reliability

Performance

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라우터에 반드시 추가해야 할 기능은 ?

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Voice

Security



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9

차세대 액세스 플랫폼은 ?

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Cisco Integrated Services Routing 제품 소개



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11

시스코 ISR 제품의 특징

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Secure, Concurrent Services At Wire-speed!

성능 개선

5X service density,
7X performance,
4X memory!



Wire-speed performance with concurrent services

보안기능 강화
IOS FW & IPS, IDS, NAC

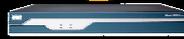


Integrated Services Routers

Voice기능강화

투자보호

기존 NM 모듈 호환



유연한 서비스 확장

L2 switching, Power over Ethernet,
caching, video, network analysis, etc

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12

Biz 형태와 서비스 제공에 따른 ISR 제품의 구분

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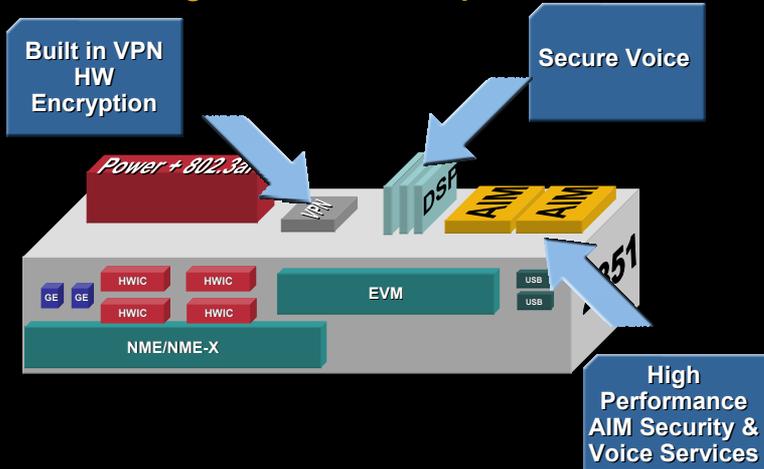
13

시스코 ISR의 차별화

Security 서비스를 위한 HW 구성 방식의 개선

Cisco.com

Cisco Self-defending Network at Wire-speed!



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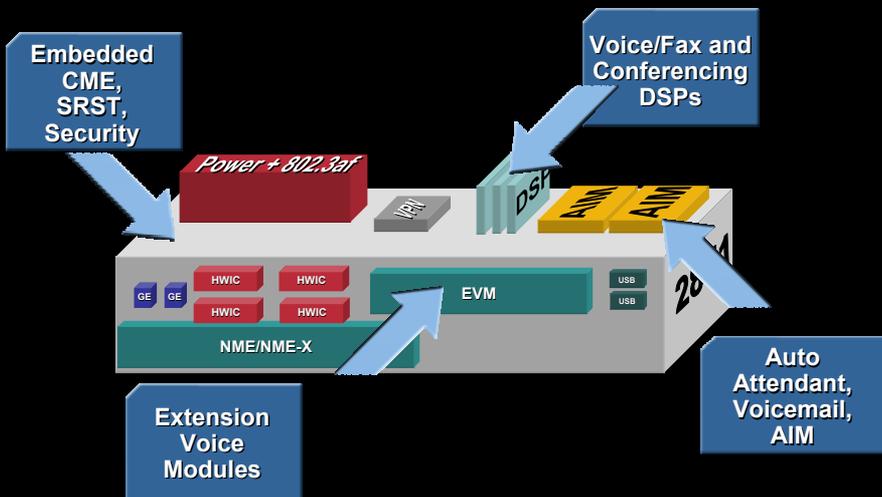
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시스코 ISR의 차별화

Voice 서비스를 위한 HW 구성 방식의 개선

Cisco.com

Cisco Services and Applications at Wire-speed!



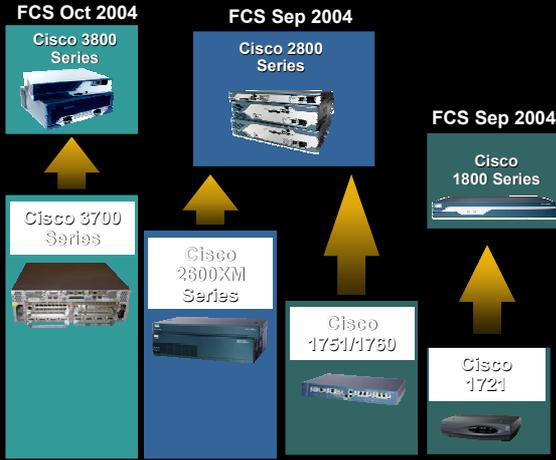
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15

기존 고객을 위한 투자보호

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기존의 플랫폼과 모듈의 호환성을 활용한 투자보호

Cross compatibility with existing router modules

Increased default memory across 1700, 2600, 3700 line

Additional DRAM, reduced costs

New feature development and additions until IOS 12.5 mainline

No end of sale for at least 18-24 months

Continued software support for 5 years after last sale

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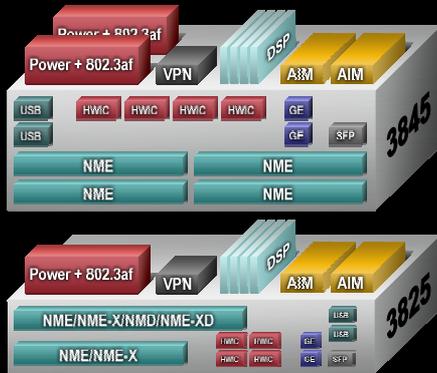
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16

New Cisco 3825 and 3845 Routers

최상의 동시서비스용 엔터프라이즈 대형 지점/지사급 라우터

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고집적도, 최고의 서비스 통합 성능 지원

Security: On-board encryption, up to 2500 VPN tunnels (AIM); IOS FW, NAC, IPS in hardware and Content Security

Voice: Highest densities for analog/digital voice support; CCME support for up to 240 IP phones

Highest performance for maximum concurrent services at up to T3/E3 rates

Integrated GE ports with copper/fiber support
Integrated L2 switching with PoE

모듈방식 지원 및 기존의 투자 보호

Up to 4 NME, DSP slots to run unprecedented number of services concurrently

Supports existing NM, WIC/VIC/VWIC, AIMS

최고의 확장성과 가용성

Architected for scalable services deployment; advanced availability features minimize network downtime

Hot-swap modules, integrated redundant power

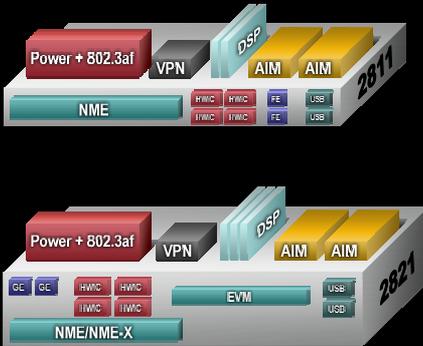
	3825	3845
NME Slots	2	4
Onboard DSP Slots	4	4
Dual Internal Power Supplies	N/A	Yes
Form Factor	2RU	3RU

17

New Cisco 2801, 2811, 2821, 2851 Routers

고성능, 고집적도를 지원하는 SMB와 엔터프라이즈 중형지점/지사급 라우터

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	2801	2811	2821	2851
NME / EVM Slot	0/0	1/0	1/1	1/1
Onboard DSP Slots	2	2	3	3
Onboard LAN	2 FE	2 FE	2 GE	2 GE
Form Factor	1RU	1RU	2RU	2RU

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18

• 중간 집적도, 고성능 서비스

Security: On-board encryption, up to 1500 VPN tunnels (AIM); IOS FW, NAC, IPS, or Content Security

Voice: Mid/High-density analog/digital voice with IP Telephony, Voice Mail; CCME support for up to 96 IP phones

High-performance concurrent security, voice and advanced services up to multiple T1/E1/DSL WAN rates

Integrated FE or GE ports with copper support

Integrated L2 switching with PoE

• 향상된 모듈방식 지원 및 가용성

Flexible expansion (HWIC NME, EVM), additional concurrent services

Existing NM, WIC/MIC/VWIC, AIM support

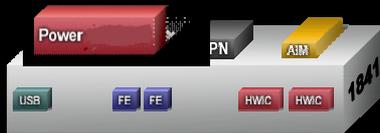
• 확장성과 가용성

Scalable services deployment and availability features

New Cisco 1841 Router

고성능 보안서비스 제공용 SMB & 소규모 지점용 라우터

Cisco.com



	1841
HWIC Slots	2
Onboard DSP Slots	N/A
AIM Slots	1
Form Factor	Desk

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19

• 종단 서비스를 위한 고성능 서비스

Security: On-board encryption, up to 800 VPN tunnels (AIM); IOS FW, NAC, IPS in software

Performance for security and data services up to T1/E/DSL WAN rates

Integrated FE Ports

Optional modular layer 2 switching

• AIM, HWIC, and VWIC Modularity

Wide range of connectivity options

Investment protection through support of existing WIC/MIC/VWICs (data mode only)

• 가용성과 유연성

Flexible and adaptable services deployment; entry-level availability features

시스코 ISR 장비의 활용

What If You ...

Cisco.com

CISCO 3845



And strengthen your applications and services across the network

Security, Voice, Content Engine, CallManager Express, Unity Express, SRST, Network Analysis, Redundancy & Availability

have a router with embedded security...	 Secure WAN Connectivity
...added voice services...	 CallManager Express, Unity Express, SRST
...included caching and video...	 Content Engine
...pitched network analysis...	 Network Analysis
...and drove demand for high availability...	 Redundancy and Availability

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20



시스코 ISR

Concurrent Integrated Services & Applications



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21

장비 관리용 Tool의 기본지원

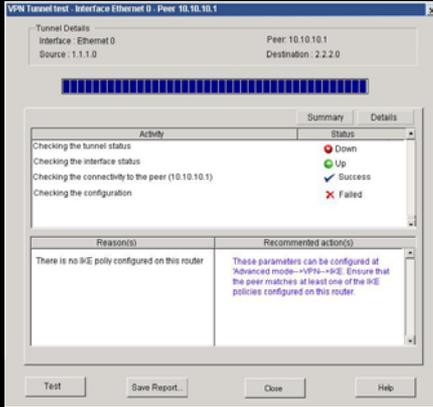
Cisco Router and Security Device Manager (SDM) 2.0



Cisco.com

라우터 서비스의 통합 관리 – Routing, Switching, Security, QoS
Web-Based, easy-to-use Management tool ships on all 1800, 2800 and 3800.

Use the Cisco TAC knowledgebase to troubleshoot VPN and WAN



- 신규보안기능 지원
 - Inline IPS with Dynamic Signature update and signature customization
 - Easy VPN Server and AAA
 - Role-Based Router Access, SSHv2
 - Digital Certificates for IPsec VPNs
- New Wizards for non-experts
 - QoS Policy and NBAR
- New Troubleshooting tools
 - VPN, WAN connection
- Major UI Improvements - Router Services Dashboard, Task-based Navigation
- Real-Time and Graphical router and application traffic monitoring

<http://www.cisco.com/go/sdm>



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장비 관리용 Tool의 지원

Cisco Router and Security Device Manager (SDM) 2.0

Cisco.com

Interface	IP/Mask	Slot/Port	Description
GigabitEthernet0/0	172.28.54.202	0/0	\$FW_INSIDE\$\$EXT
Dialer0 (GigabitEth	2.2.2.2	0	\$FW_OUTSIDE

LAN/WAN Interface Monitoring

View Interval: Real-time data every 10 seconds

Packets Input: 26235, Output: 25088

Bandwidth Usage: 0%

GigabitEthernet0/0, Packets Output

GigabitEthernet0/0, Bandwidth Usage

16:56:49 UTC Thu Jul 22 2004

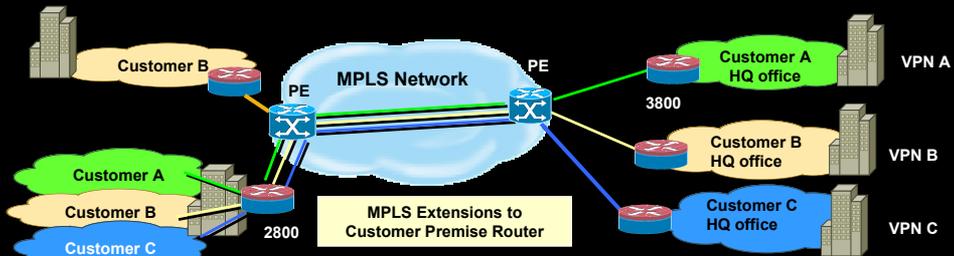
Wizard mode firewall status: IOS Firewall : Active | Active CLI View : SDM Firewall | 06:56:44 UTC Thu Jul 22 2004 | 25

Secure Connectivity

Multi-VRF and MPLS support

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- Cisco ISR support the Multi-VRF (Virtual Routing and Forwarding) technology



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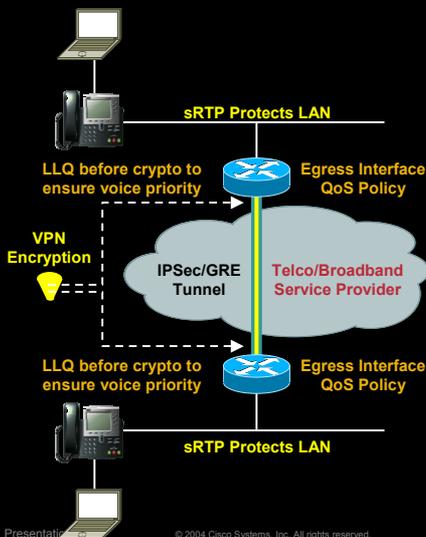
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26

V3PN: Secure, Toll Quality Voice, Video, Data

Cisco.com

V3PN : 시스코 Video 및 Voice 서비스를 지원하는 IPsec VPN



V3PN:

- IPsec VPN tunnel built over GRE interface for site to site access
- Data, voice and video traffic delivered with QoS policies for latency sensitive traffic

Benefits:

- LAN and WAN security
- Higher productivity
- Toll quality voice and video
- Lower bandwidth costs



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27

Router-Integrated Services

LAN Switching with Transparent Firewall

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다수의 지점과 지사용 랜 구성 망의 비용 효율적이고 빠른 FW 보안 서비스 적용

Solution: EtherSwitch (NM-ESW or HWIC-ESW) and IOS Transparent Firewall

- **VLAN and transparent IOS FW** enables segmented networks with secure access control
- Simplify subnets, no changing IP addresses on a device by device basis
- Configure the router and integrated switch without visiting the remote site



NM-ESW

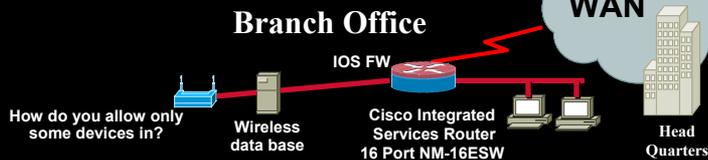
16 and 36 ports of 10/100 Ethernet



HWIC-ESW

4 and 9 port

Hi-Speed WAN Interface Card



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28

High-Speed WAN Interfaces

New



Gigabit Ethernet HWIC

- Offers Optical and Copper connectivity without NM occupancy
- Support in 2811, 2821, 2851 & 3800 only

4 & 9 port Etherswitch HWIC

- Low density L2 switching
- Supports 802.1Q and 802.1P up to 15 VLANs
- Cisco and 802.3af standards-based PoE support on 3800 and 2800 series ISR

Delivers 48V DC Power over a standard copper Ethernet cable

Hi-Speed WAN Interface Card (HWIC) →

Small Form Factor Pluggable (SFP) GE Transceiver →

Supports SX, LX/LH, ZX, CWDM and Copper Cisco SFPs



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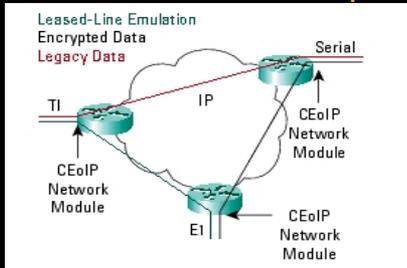
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29

CEoIP Network Module

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Circuit Emulation = imitation of a physical communication link
CEoIP imitates a physical communication link across an IP network
Allows the transport of any type of communication over IP
Ideal for TDM or Leased Line replacement and legacy network consolidation



Ingress data accepted with **no expectation of packet structure, cell format, etc.**

Data bits encapsulated into IP packets and routed to a similar port elsewhere in the network.

This is a bit-transparent service. Data bits are not examined, interpreted, or manipulated at all.

Two versions available:

NM-CEM-4TE1

4 T1/E1 ports

NM-CEM-4SER

4 serial ports



Supports X.21, V.35, RS232/449/530/530A

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30

트래픽 모니터링

네트워크 트래픽 분석(NM-NAM, NAM Application Software)

Cisco.com

NM-NAM network module for Integrated Services Routers
(runs with NAM SW 3.2)

- Quick to deploy and easy to use with embedded web based Traffic Analyzer GUI

NEW •New NAM SW v3.3 includes major feature enhancements for VoIP monitoring, mini-RMON statistics, improved data collection and reporting

NEW •Increased capture buffer size (to 150MB) with wrap when full option for NAM-2

NM-NAM



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31

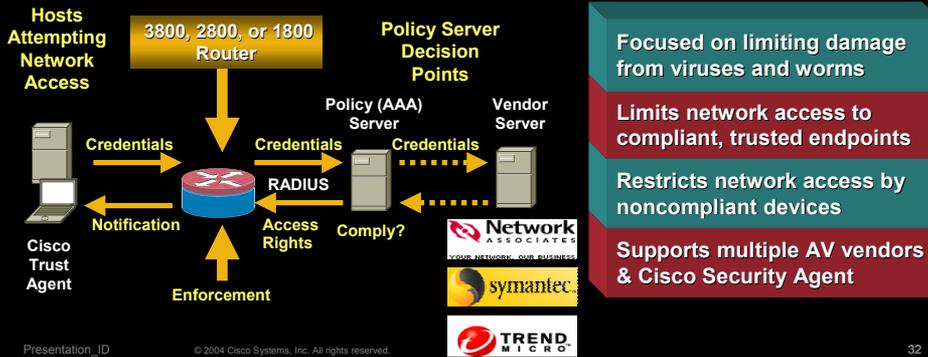
Router-Integrated Services

NAC (Network Admission Control)

Cisco.com

기업은 웜 과 바이러스 공격으로부터 기업 네트워크를 최대한 보호하고, 다운타임의 최소화 및 네트워크 가용성을 높이기 위하여 네트워크 액세스 대상과 범위 등을 관리하는 보안 규정을 실행하는 보안 서비스 솔루션

Solution: Cisco Network Admission Control (NAC)



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32

Router-Integrated Services

Intrusion Prevention Systems (NM-CIDS, IOS IPS)

Cisco First to Market with IPS in a Router!

Cisco.com

웜 과 바이러스 등에 의한 네트워크 공격을 방어하는 IPS 보안 서비스 솔루션

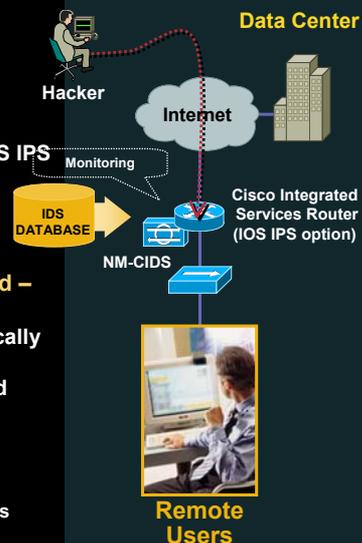
Solution: Intrusion Prevention System (IPS)

- IPS in hardware with NM-CIDS, or software with IOS IPS
- **IOS IPS: Inline Intrusion Prevention**
—send alarm, drop packet, reset connection
- Dynamically load customizable signatures
- Wide range of attack/worm signatures supported – 740+
- IDS Network Module stores signature data base locally and captures/logs all events
- External NM FE allows for complete IDS segmented Net/Op and Sec/Op management



NM-CIDS

- ➔ Dedicated CPU
- ➔ Monitors, and Report alarms
- ➔ Built in GU for Graphical reports



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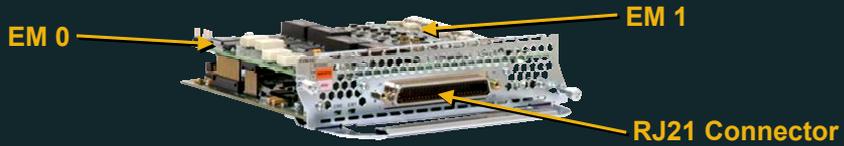
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Extended Voice Module (EVM-HD)

고밀도 VOICE 서비스 모듈의 구성 활용

New

Cisco.com



- The EVM card (with expansion modules) supports high-density FXS, FXO, Analog-DID and BRI ports
- Architecturally similar to the NM-HDA and shares one EM
- **Baseboard:**
EVM-HD-8FXS/DID: High density voice/fax extension module – 8FXS/DID
- **Expansion Modules:**
EM-HDA-8FXS: 8-port voice/fax expansion module—8FXS
EM-4BRI-NT/TE: 4-port voice/fax expansion module—BRI (NT& TE)
EM-HDA-3FXS/4FXO: 7-port voice/fax expansion module—3FXS/4FXO
EM-HDA-6FXO: 6-port voice/fax expansion module—6FXO

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34

Voice/Fax 서비스 지원

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	NM-HD-1V	NM-HD-2V	NM-HDA	EVM-HD	NM-HD-2VE	NM-HDV	NM-HDV2
Station-side							
FXS	4	8	12	24	8		4
Trunk-side							
FXO	4	8	8	12	8		4
BRI	2	4		8	4		2
T1/E1					1	2	4

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35

Cisco IP Communications on 28/3800

주요 Voice 기능과 장점

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- **On-Board Digital Signal Processors**
 - Integrated PVDMS deliver support for analog voice, digital voice, conferencing, transcoding, Secure RTP media while enabling network module or AIM slots for switching, concurrent apps, content, voice mail
- **High Performance Integrated Processor**
 - Delivers high densities of terminated voice calls or aggregation of calls with or without cRTP
- **Standards Based Secure Voice**
 - Media & signaling encryption provide call privacy & security for IPC deployments
- **Support of SRST for up to 720 Phones**
 - Reliable branch office support for centralized IP telephony deployments
- **Scalable to 100 voice mail boxes**
 - Ability to support CME and CCM voice mail requirements
- **Scalable to 240 CME IP Phones**
 - Ability to offer from 24 to 240 IP Phones with one portfolio
- **Scalable to 24 T1/E1 Trunks**
 - Support for small to large branch offices in a single portfolio
- **Scalable to 88 FXS Ports**
 - Complete support for a range of analog phones, fax machines, keysystems & conference stations
- **Scalable to 48 FXO or 32 BRI ports**
 - Flexibility to support local or long distance calling via analog or BRI ports to nearly any desirable density
- **Scalable to 48 line powered switch ports**

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36

시스코 ISR의 서비스 가용성

Cisco.com

최적화된 어플리케이션 서비스의 공급과 다운타임의
최소화 구현을 위한 엔드투엔드 시스템 가용성



Hardware Resiliency

Resilient Platforms designed for High Availability

- Redundant System Power*
- Redundant Inline Power*
- Online Insertion & Removal of Like NME*
- Online Insertion & Removal of SFP**
- Power Over Ethernet (POE) – 802.3af Remote Power Reset
- Error-Correcting Code (ECC) Memory

* 3845 only
**3825 and 3845 only

System Resiliency

Cisco IOS Software functionality that mitigates the impact of HW and SW failures

- Warm Reload
- Warm Upgrade
- Control Plane Policing
- Gateway Load Balancing Protocol (GLBP)
- Stateful NAT
- Stateful IPSec***

*** Q1, CY05

Network Resiliency

Cisco IOS Software functionality for faster network convergence, protection and restoration

- Survivable Remote Site Telephony (SRST)
- Nonstop Forwarding (NSF) Awareness
- Routing Convergence Enhancements
- Multicast Sub-Second Convergence

Embedded Management

Embedded intelligence for proactive maintenance and local recovery

- Embedded Event Manager
- Embedded Syslog Manage
- Configuration Rollback
- Resource Management Infrastructure (RMI)

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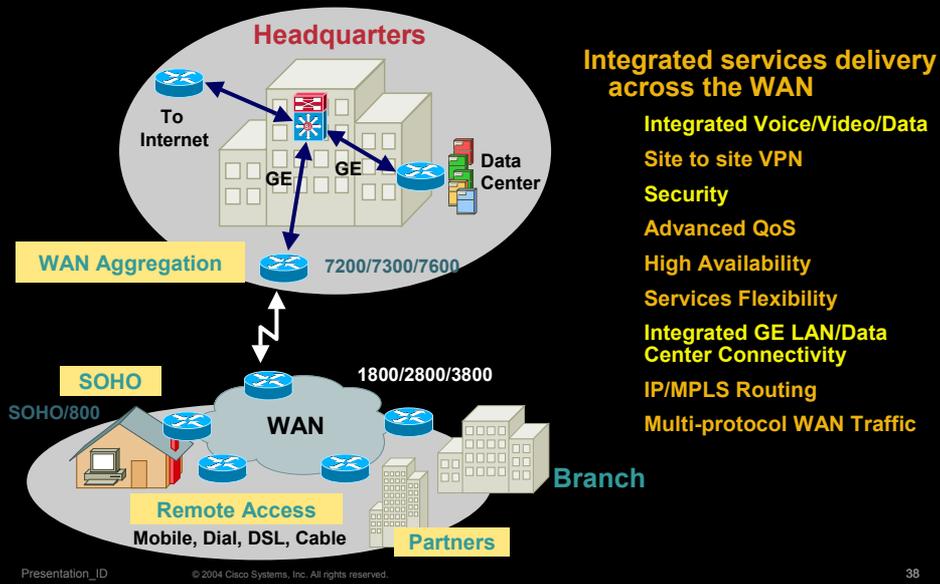
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37

시스코 ISR을 이용한 네트워크 구성

SMB & 엔터프라이즈 네트워크 구성의 장점

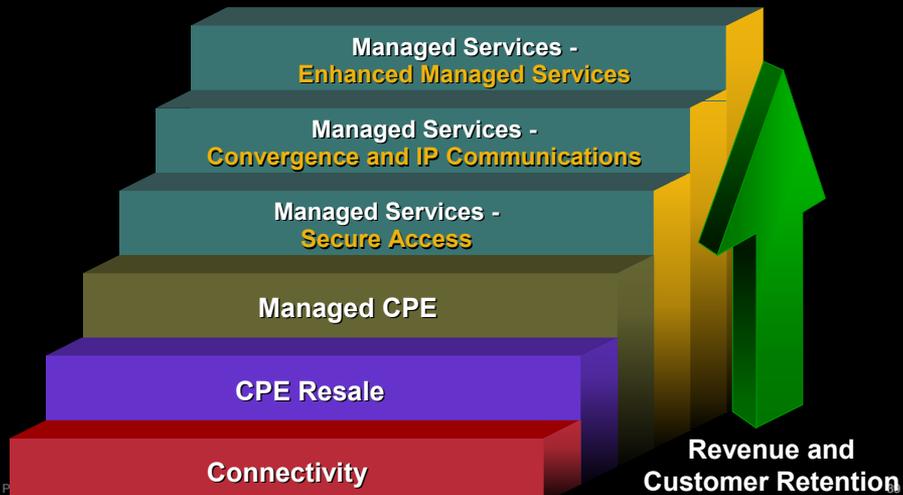
Cisco.com



시스코의 ISR을 이용한 SP/Ent 서비스

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Moving the customer up to integrated, profitable managed services all in one Integrated Services Router!





시스코 ISR Performance information



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40

외부 기관의 ISR 장비시험 보고서

Cisco.com

Objective

Prove “**Secure Concurrent Services at Wire-Speed**”

Highlight competitive feature and services advantages



Cisco 2821

- 4 T1's full duplex traffic
- concurrent Data, Security, Voice, QoS
- varying packet sizes



Cisco 3845
2851
2811
1841

- Fully load E1 through T3 WAN links
- AES, 3DES encryption, with & w/o AIM
- broad mix of VOIP, Security, QoS and Content services
- IOS firewall “dragstrip” testing

External Test Reports Available at www.cisco.com/go/isr

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41

Miercom Test Findings – 8/26/04 Cisco 3845 Integrated Services Router

Cisco.com

Verified full T3-rate performance for concurrently running services

“Our tests prove the Cisco 3845 simultaneously sustains full T3 WAN rates for multiple applications. Its embedded crypto processor handles **both 128 bit AES and IPsec VPNs with ease, concurrently delivering firewall, intrusion prevention, QoS, and data routing at maximum WAN-link speeds.** Additionally, an impressive 72 streams of voice traffic, including transcoding, voice mail, auto-attendant, fax, and survivable remote site telephony was handled with no performance degradation in the Cisco 3845.”



Ed Mier
President, Mier Communications Inc.

See www.miercom.com for complete testing of four different models

http://www.cisco.com/application/pdf/en/us/guest/products/ps5855/c1244/cdccont_0900aec80173937.pdf
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Summary

시스코 ISR의 주요 기능 및 장점

Cisco.com

보안 및 음성서비스

- Fast, on-board encryption
- Highest voice services densities
- Integrated DSP slots and POE

향상된 성능 제공

- New ASIC, Bus design and processor boost performance for services
- Double services density
- Double memory defaults

향상된 모듈의 성능

- Increased high speed slots: up to 2.2 Gbps
- High density and larger form factor network modules

안정적 운용 지원 기능 강화

- Redundant power option with online insertion and removal
- Increased environmental thresholds

투자보호 제공

- Leverages existing modules
- Up to 4X memory capacity
- GE, USB, wireless for new media
- Slot to Slot communication

서비스 통합기능

Security
Voice
Content
L2 Switching
Wireless*
Management

Extended Services,
Headroom and
Investment Protection



Integrated
Services
Routers

* future

43

Summary

Cisco.com

- Next generation, best-in-class routing
- Concurrent services at wire-speed
- Leading security solutions
- Leading voice solutions



Cisco.com

Q & A ?
감사합니다!!



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