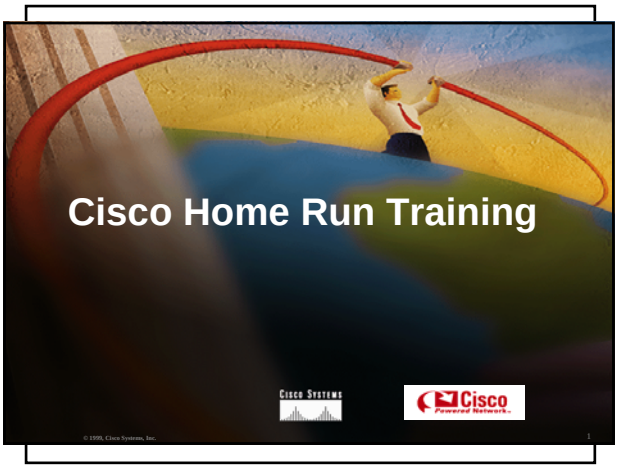
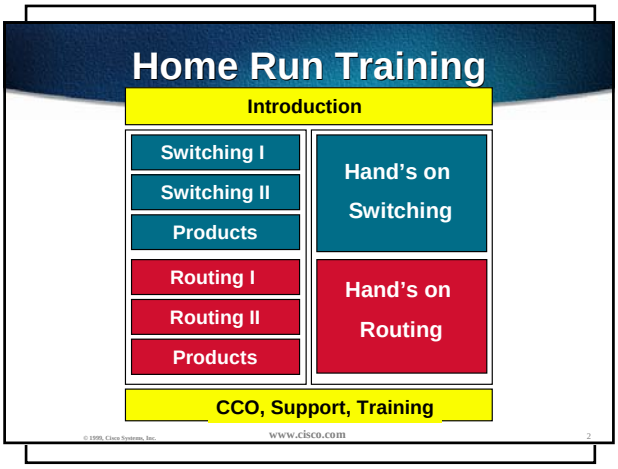
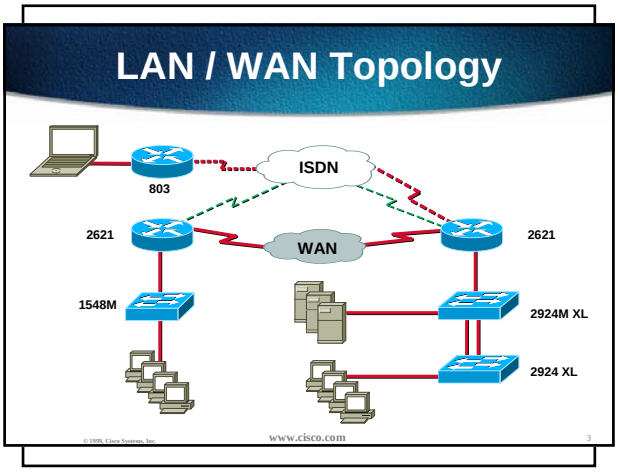

Cisco Home Run Training
Cisco Systems
Cisco
Powered Network


Home Run Training
Introduction
Switching I
Switching II
Products
Routing I
Routing II
Products
Hand's on Switching
Hand's on Routing
CCO, Support, Training
www.cisco.com

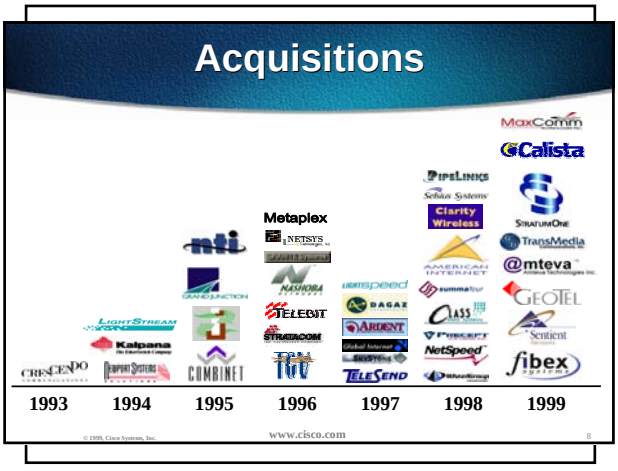

LAN / WAN Topology
ISDN
803
2621
WAN
2621
1548M
2924M XL
2924 XL
www.cisco.com

Cisco Systems
Introduction
Cisco Systems

Cisco Systems Historical
Founded 1984
Named for San Francisco
San Jose, CA is Cisco headquarters
www.cisco.com

Our History
1984
A Stanford Start
2 Employees
1986
1st Router Shipped: The AGS
1990
LAN Switching
Remote Access
WAN Switching
Introduced
IPO
Adjusted 12¢ per share
1994
23 Acquisitions Completed
End-to-End Solutions Provider
1998
$12 Billion
34 Completed Acquisitions
Single Network Architecture for Data, Voice and Video
1999
20,000 Employees
*Fiscal Years

Cisco Headquarter
SanJosé, California

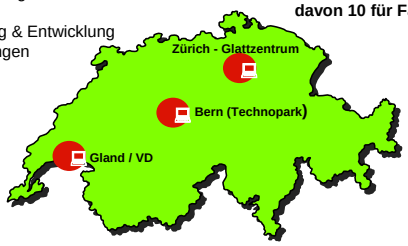

Acquisitions
1993
1994
1995
1996
1997
1998
1999
www.cisco.com

Cisco Systems
Empowering the Internet Generation℠
• 24’000 Mitarbeiter
• $12.15 Milliarden Umsatz FY99
• $1.5 Milliarden für Forschung und Entwicklung
• >90% Umsatz über e-Commerce

Cisco Systems (Schweiz) AG

Kundenbasis:
- Banken
- Versicherungen
- Industrie
- Forschung & Entwicklung
- Verwaltungen
- Handel

- **Schweizer Niederlassung seit Oktober 1992**
- **90+ Mitarbeiter**
  davon 10 für Fachhandel



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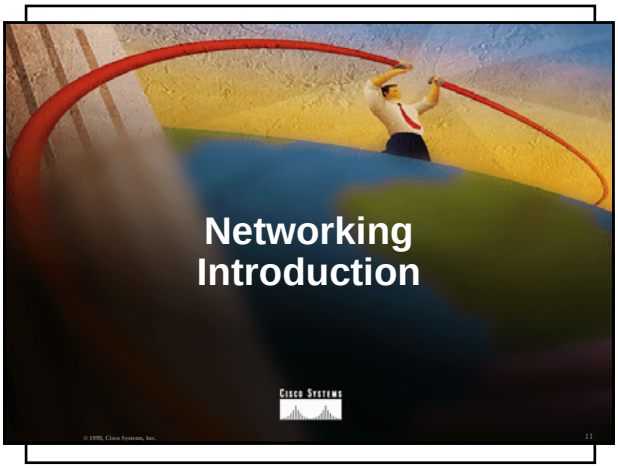

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Some Terms and Acronyms

short form	long form
BRI	Basic Rate Interface
CSMA/CD	Carrier Sense Multiple Access / Collision Detect
DDR	Dial on Demand Routing
DES	Data Encryption Standard
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
IOS	Internetwork Operating System
IEEE	Institut of Electrical and Electronics Engineers
ISDN	Integrated Services Digital Network
ISL	Inter Switch Link (Cisco Standard not 802.1q)
NIC	Network Interface Card
OSI	Open System Interconnection
PRI	Primary Rate Interface (E1)
VLAN	Virtual Local Area Network
VPN	Virtual Private Network

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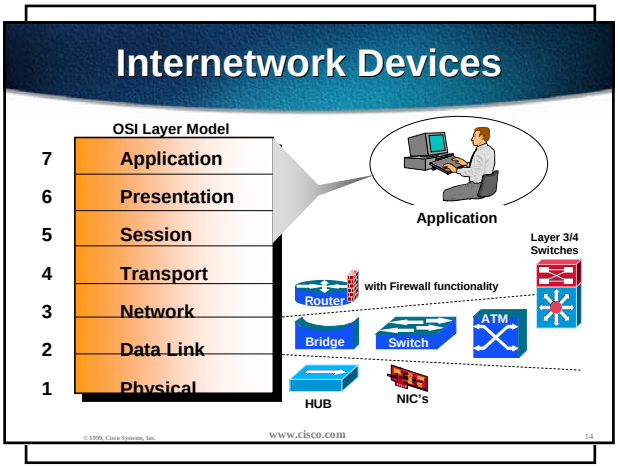
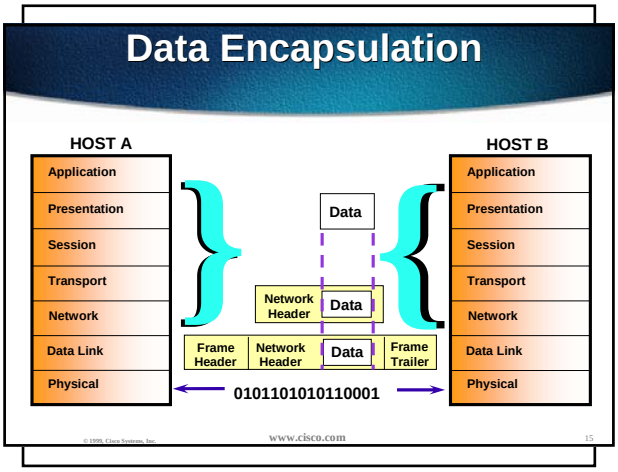
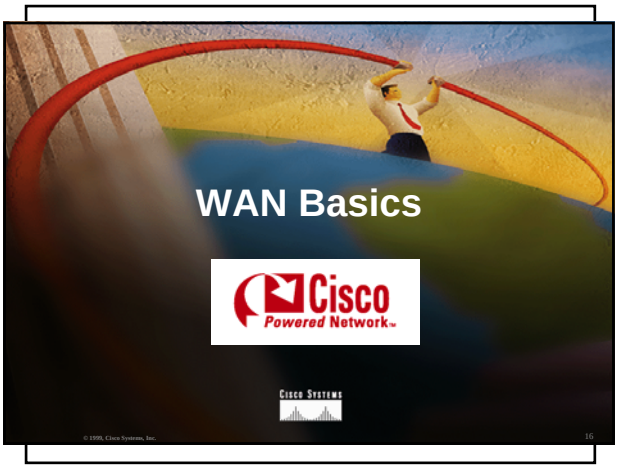
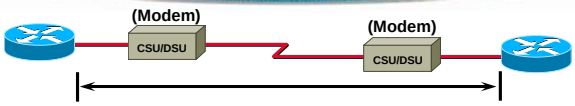
Networking Basics
Cisco
Powered Network
Cisco Systems


Internetwork Devices
OSI Layer Model
7 Application
6 Presentation
5 Session
4 Transport
3 Network
2 Data Link
1 Physical
Application
Layer 3/4 Switches
with Firewall functionality
Router
Bridge
Switch
ATM
HUB
NIC's
www.cisco.com


Data Encapsulation
HOST A
HOST B
Application
Presentation
Session
Transport
Network
Data Link
Physical
Data
Network Header
Data
Frame Header
Network Header
Data
Frame Trailer
0101101010110001
www.cisco.com



WAN Protocols



SDLC	Synchronous Data Link Control
HDLC	High-Level Data Link Control
LAPB	Link Access Procedure, Balanced
Frame Relay	Simplified version of HDLC framing
PPP	Point-to-Point Protocol
X.25	Packet level protocol (PLP)
ISDN	Integrated Services Digital Network (data-link signalling)

CSU	Channel Service Unit (LAN/User)
DSU	Data Service Unit (WAN)

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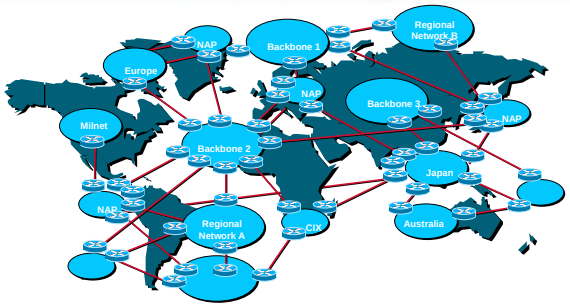
17

Cisco IOS
(88% of the Internet)



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What's Cisco IOS ?

- Originally, a branding for Cisco's router-based software (Internetwork Operating System)
- Now, a series of tightly-linked, internetworking software products:
  - Developed by Cisco
  - Quality engineered (ISO 9001 certified)
  - Anchored in Cisco's industry-leading technology innovation
  - Made to work, no excuses
- Not just for routing anymore!

Cisco IOS LAN Switching Software

Cisco IOS Routing Software

Cisco IOS ATM Software

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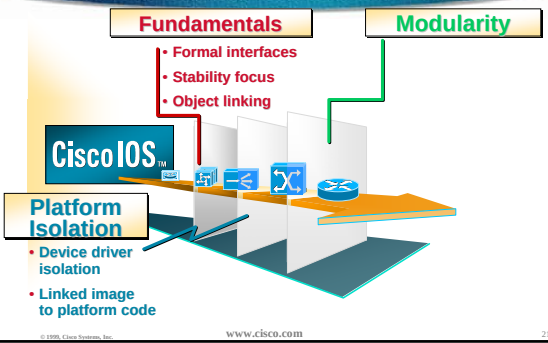
Cisco IOS Evolution



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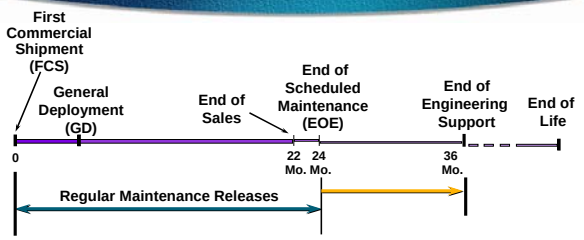
Major Release Life Cycle



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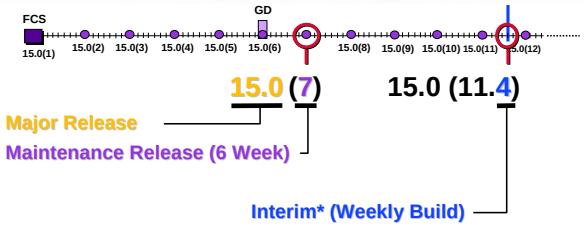
Major Release Numbering Scheme



* If used, replace with next fully tested maintenance release, e.g., 15.0 (12)

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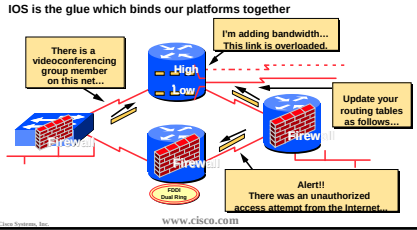
Why is IOS Important ?

- Meeting network objectives: Reliability, security, applications integrity, cost control, etc. Providing uniform services across our platforms
- New applications, changing technology, mean that network requirements are in constant flux
- IOS is key to maintaining current with technology and protecting your network investment
- IOS is the glue which binds our platforms together



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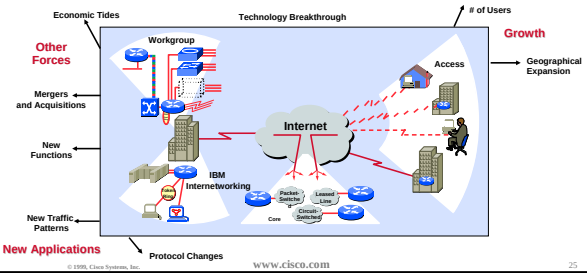
Investment Protection

- Cisco IOS software provides today, the features most customers will need tomorrow
- Cisco IOS software flexibility = business agility



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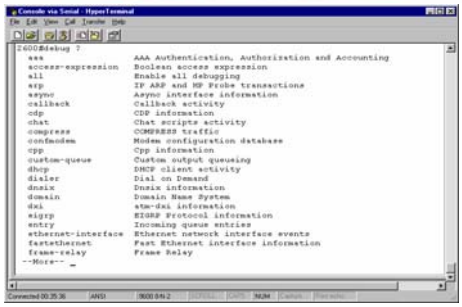
Transparency in Networking



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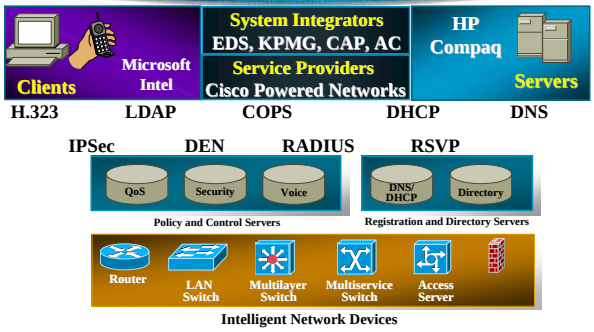
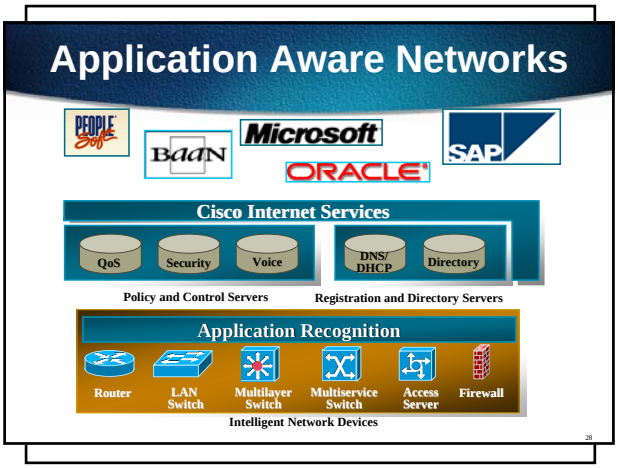
Open Standards, Key Partnerships




Application Aware Networks
PEOPLE Soft
BaaN
Microsoft
ORACLE
SAP
Cisco Internet Services
QoS
Security
Voice
DNS/ DHCP
Directory
Policy and Control Servers
Registration and Directory Servers
Application Recognition
Router
LAN Switch
Multilayer Switch
Multiservice Switch
Access Server
Firewall
Intelligent Network Devices

End-to-End Solutions
Internet
Cisco Powered Network
Service Providers
Remote
Enterprise
Small Office/ Home Office
Consumer
Cisco Connection ONLINE

The Internet Changes Everything
Cisco Systems
Empowering the Internet Generation℠