

Internet Access

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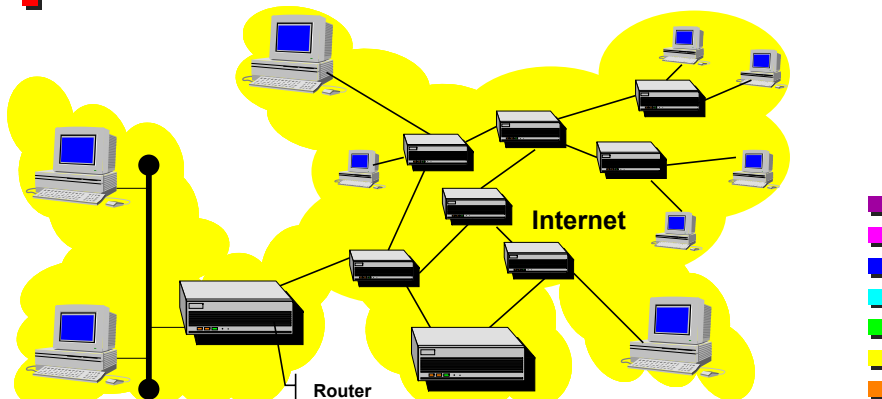
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“To Be Connected” Physical Viewpoint

To have a direct (Layer 2) connection to a router that is part of the Internet, i.e., that is connected



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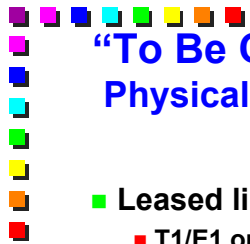
“To Be Connected” Physical Viewpoint

Host

- Dial-up connection
 - POTS (Plain Old Telephone System)
 - ISDN (Integrated Service Digital Network)
- High speed connection
 - x-DSL (Digital Subscriber Line)
 - Cable Modem
- Wireless
 - Cellular
 - Satellite
 - Fixed
- LAN (Local Area Network)
 - Ethernet

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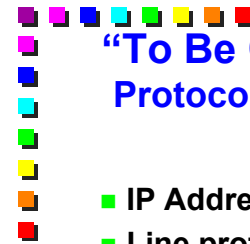
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“To Be Connected” Physical Viewpoint

Network → Router

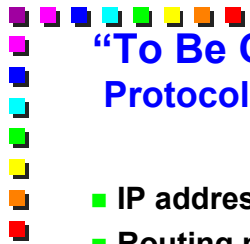
- Leased line
 - T1/E1 or fraction
 - STS-1
 - OC-192
- DSL/Cable Modem
- MAN/WAN (Metropolitan Area Network/Wide Area Network)
 - Frame Relay
 - ATM
 - Ethernet
- LAN (Local Area Network)
 - Ethernet



“To Be Connected” Protocol Viewpoint

Host

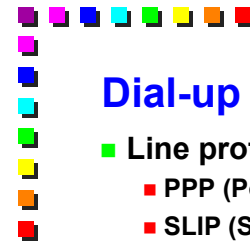
- IP Address
- Line protocol
 - PPP (Point-to-point protocol)
 - SLIP (Serial Line IP)
 - Ethernet



“To Be Connected” Protocol Viewpoint

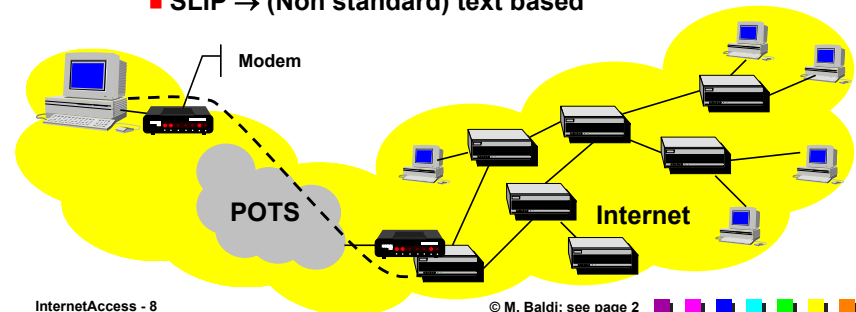
Network

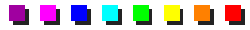
- IP address pool
- Routing protocol
- Line protocol
 - PPP (Point-to-point protocol)
 - HDLC (High-level Data Link Control)
 - Frame Relay
 - ATM
 - Ethernet



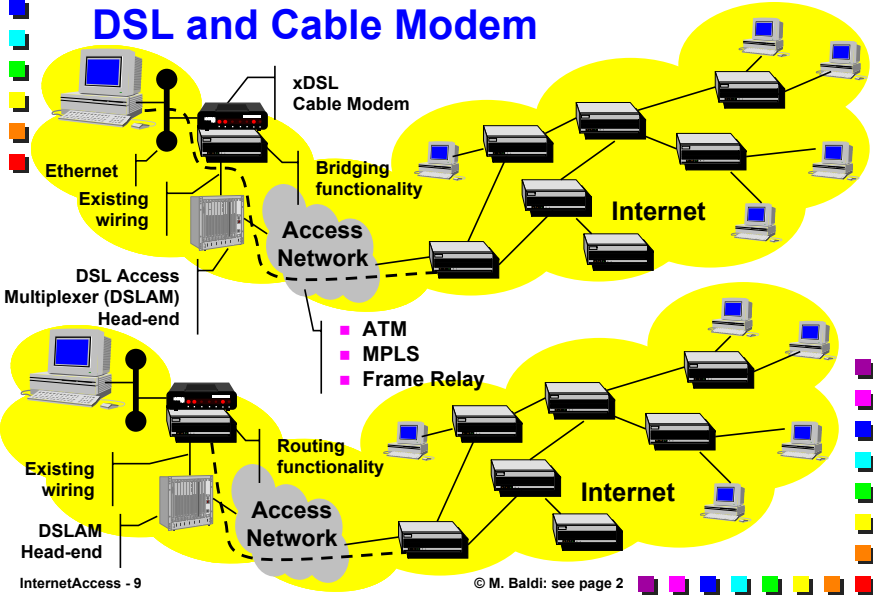
Dial-up Access

- Line protocol
 - PPP (Point-to-point protocol)
 - SLIP (Serial Line IP)
- Address negotiation
 - PPP → IPCP (IP Control Protocol)
 - SLIP → (Non standard) text based





DSL and Cable Modem



Security

Unauthorized access

- Always on connection has higher risk
 - More time for the attacker
- Static addressing has more risk

The "solution": restricted access

- Filtering at access point
- Access router
 - Better programming interface
 - More flexibility
 - Hardware or software
- Dedicated *firewall*

