

Aula 04 - Modelo OSI

Redes (TI)

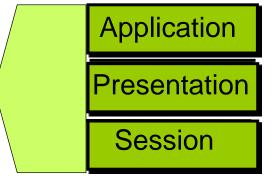
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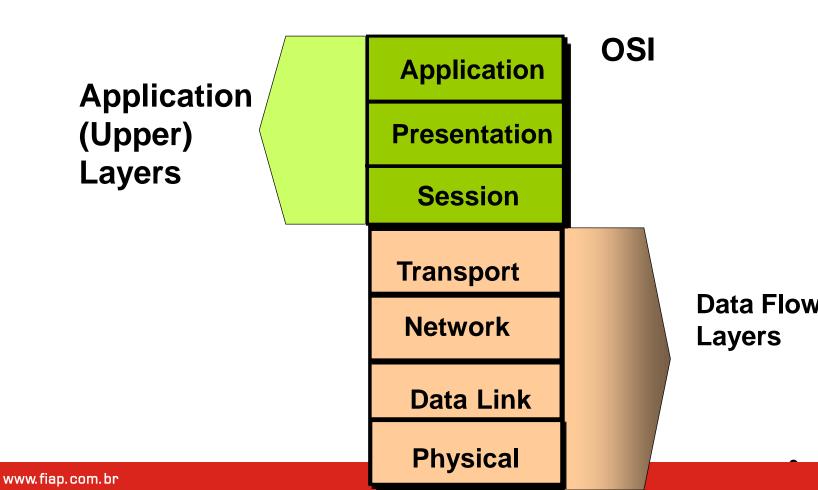


OSI Model

Application (Upper)
Layers

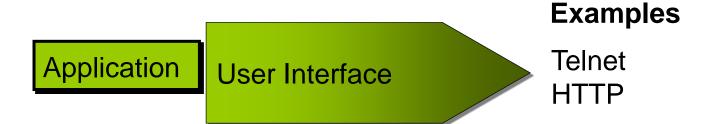








Application Layers





Application Layers

Application

User Interface

Telnet HTTP

How data is presented
• Special processing such as encryption

Examples
Telnet HTTP

ASCII EBCDIC JPEG



Application Layers

Application

User Interface

- Presentation
- as encryption

How data is presented

Special processing such

Session

Keeping different applications' data separate

Examples

Telnet HTTP

ASCII EBCDIC JPEG

Operating System/ Application Access Scheduling



Application Layers

Application	User Interface	Examples
Presentation	 How data is presented Special processing such as encryption	Telnet HTTP
Session	Keeping different applications' data separate	ASCII EBCDIC JPEG
Transport Layer		Operating System/ Application Access
Network Layer		Scheduling
Data Link		
Physical		



Data Flow Layers

Examples

Physical

- Move bits between devices
- Specifies voltage, wire speed and pin-out cables

EIA/TIA-232 V.35



Data Flow Layers

Examples

Data Link

Data Link

- Combines bits into bytes and bytes into frames
- Access to media using MAC address
- Error detection not correction

- Move bits between devices
- Specifies voltage, wire speed and pin-out cables

- Combines bits into bytes and bytes and bytes into frames
- 802.3 / 802.2
- HDLC

- EIA/TIA-232
- V.35



Data Flow Layers

Examples

Network	Provide logical addressing which routers use for path determination IPX
Data Link	 Combines bits into bytes and bytes into frames Access to media using MAC address Error detection not correction
Physical	 Move bits between devices Specifies voltage, wire speed and pin-out cables EIA/TIA-232 V.35



Data Flow Layers

Examples

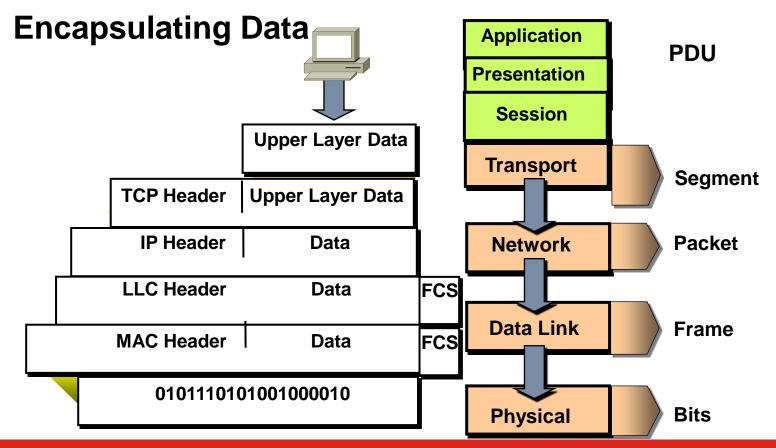
Transport	Reliable or unreliable delivery Error correction before retransmit SPX
Network	Provide logical addressing which routers use for path determination IPX
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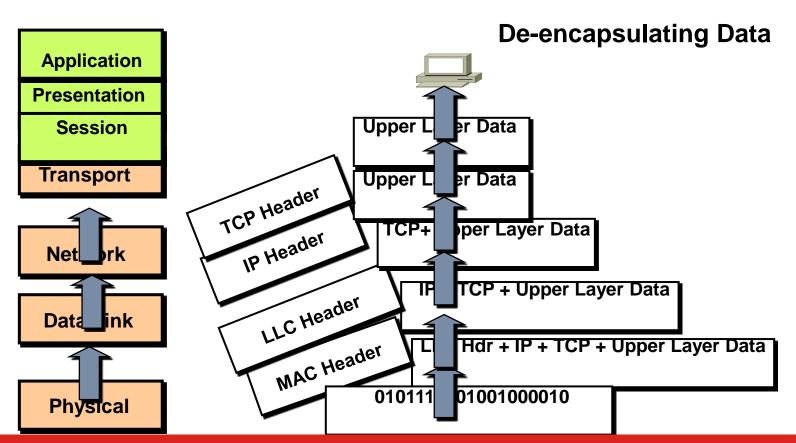
Data Flow Layers

Application		
Presentation		Examples
Session		
Transport	 Reliable or unreliable delivery Error correction before retransmit 	TCP UDP SPX
Network	Provide logical addressing which routers use for path determination	IP IPX
Data Link	 Combines bits into bytes and bytes into frames Access to media using MAC address Error detection not correction 	802.3 / 802.2 HDLC
Physical	 Move bits between devices Specifies voltage, wire speed and pin-out cables 	EIA/TIA-232 V.35







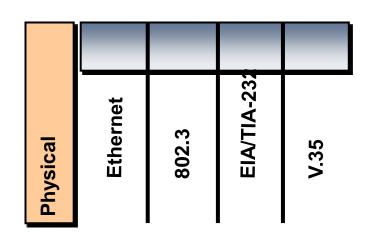




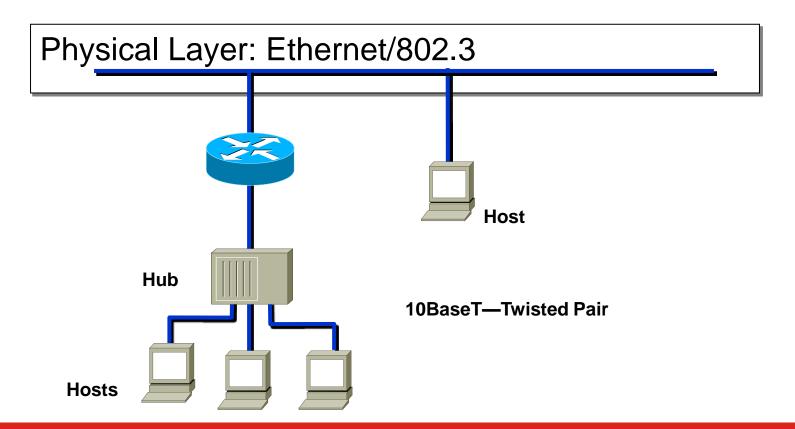
Physical Layer Functions

Defines

- Media type
- Connector type
- Signaling type

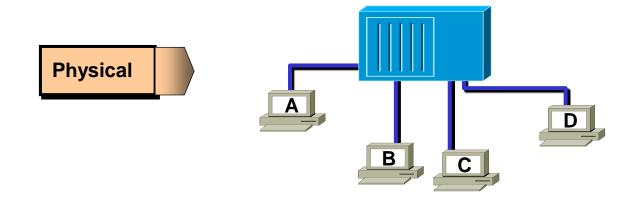








Hubs Operate at Physical Layer



- All devices in the same collision domain
- All devices in the same broadcast domain
- Devices share the same bandwidth

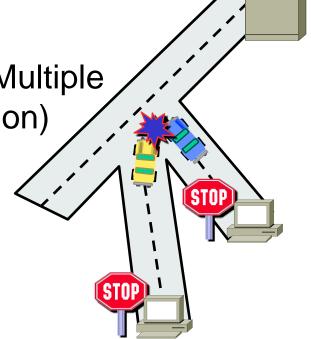


Hubs: One Collision Domain

More end stations means more collisions

CSMA/CD (Carrier-Sense Multiple

Access with Collision Detection)

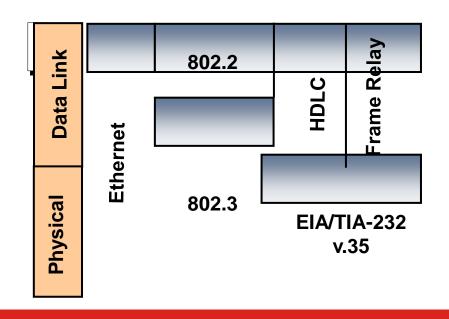




Defines

- Physical source and destination addresses
- Higher layer protocol (Service Access Point) associated with frame
- Network topology
- Frame sequencing
- Flow control
- Connection-oriented or connectionless

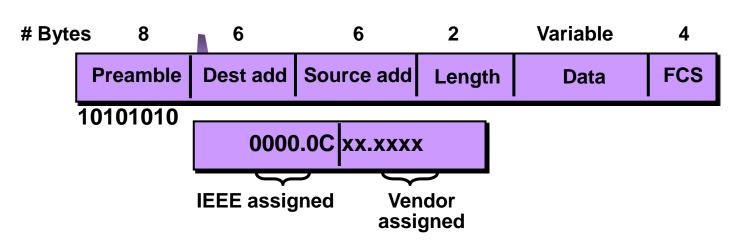
Data Link layer Functions





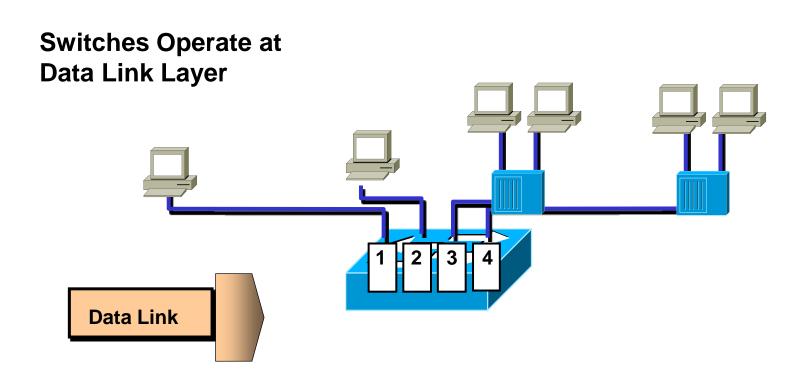
Data Link Layer Functions (cont.)

MAC Layer - 802.3



MAC Address 48 bit's

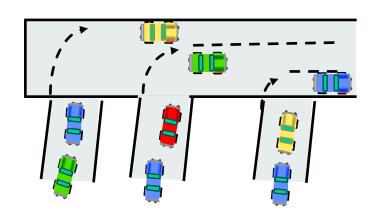




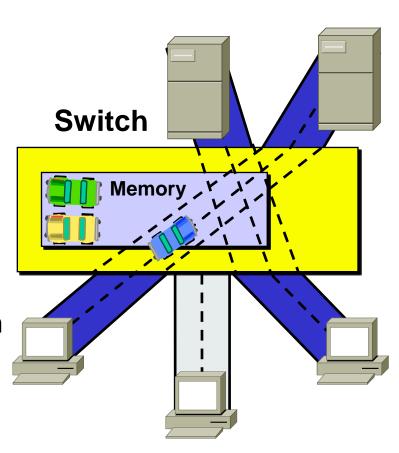
- Each segment has its own collision domain
- All segments are in the same broadcast domain



Switches

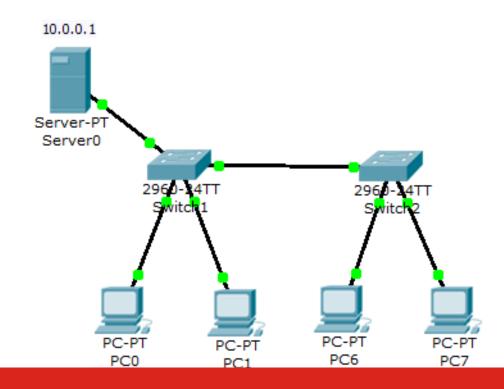


- Each segment has its own collision domain
- Broadcasts are forwarded to all segments





Verificar a tabela MAC





Verificar a tabela MAC

Complete com as informações:

Switch1
Porta mac-address

Switch> enable Switch#show mac-address-table