Cheatography

# OSI Model Cheat Sheet

by bytebar via cheatography.com/218949/cs/48436/

## The 7 Layers

| | |
|---|---|
| **7 — Application** | User-facing services. Protocols: HTTP, FTP, SMTP, DNS, DHCP |
| **6 — Presentation** | Data format, encryption, compression. Protocols: TLS/SSL, JPEG, ASCII |
| **5 — Session** | Connections between apps. Protocols: NetBIOS, RPC, PPTP |
| **4 — Transport** | End-to-end delivery, ports. Protocols: **TCP, UDP**. Devices: Firewall (stateful) |
| **3 — Network** | Routing, logical addressing. Protocols: **IP, ICMP**, OSPF, BGP. Devices: **Router**, L3 switch |
| **2 — Data Link** | Switch-to-switch, MAC addressing. Protocols: Ethernet, ARP, PPP. Devices: **Switch**, bridge, NIC |
| **1 — Physical** | Bits on the wire. Devices: Hub, repeater, cables |

All 7 layers, what lives at each, and the mnemonics that make them stick.

## Mnemonics

| | |
|---|---|
| **Top → bottom** | *All People Seem To Need Data Processing* |
| **Bottom → top** | *Please Do Not Throw Sausage Pizza Away* |

Say them out loud until they stick.

## Data Names per Layer

| | |
|---|---|
| **4 Transport** | **Segment** (TCP) / Datagram (UDP) |
| **3 Network** | **Packet** |
| **2 Data Link** | **Frame** |
| **1 Physical** | **Bits** |

Exam trick: What PDU at Layer 3? → **Packet**. Layer 2 → **Frame**. Layer 4 → **Segment**.

## TCP/IP Model vs OSI

| | |
|---|---|
| **Application** | 7 + 6 + 5 (Application, Presentation, Session) |
| **Transport** | 4 (Transport) |
| **Internet** | 3 (Network) |
| **Network Access** | 2 + 1 (Data Link, Physical) |

The 4-layer model collapses OSI's top three and bottom two.

## Quick Exam Hits

| | |
|---|---|
| **ARP** | Works at Layer 2/3 boundary (resolves IP → MAC) |
| **TLS** | Lives at Layer 6 (Presentation) |
| **Switches vs Routers** | Switches = Layer 2 (MAC addresses) · Routers = Layer 3 (IP addresses) |
| **MTU** | MTU issues and fragmentation → Layer 3 |

If you remember nothing else, remember these four.

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