**Networking**

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# Protocol Reference Model

## The Open Systems Interconnect (OSI) Model

A seven layer reference model used to categorize network components.

Way to remember: All People Seem To Need Data Processing.

Layer 7 – Application layer some kind of network service that allows other services to take advantage of that service.

Layer 6 – Presentation layer we are concerned with how data is represented on the network. ASCII vs EPSIDIC. Encryption.

Layer 5 – Session layer Session Initiation Protocol (SIP) used in a voice over IP (VoIP) networks that helps setup, maintain, and tear down a phone call.

Layer 4 – Transport layer (i.e. TCP/UDP) Transmission Control Protocol (TCP) a reliable protocol. User Datagram Protocol (UDP) an unreliable protocol.

Layer 3 – Network layer (i.e. Router) device that can make forwarding decisions based on logical address like an IP Address.

Layer 2 – Data link layer (i.e. Ethernet switch) device that can make forwarding decisions based on physical address known as a Medica Access Control (MAC) Address which is a 48-bit address burned into a network interface card (NIC).

Layer 1 – Physical layer concerned with getting data onto the wire.

Subnet

Network ACL

Route table

Security group

VPN

VPC flow logs

IPv4, IPv6

# Network Devices and Theory

Network Topologies

Hub and Spoke

Full Mesh

Partial Mesh

Ring

Bus Star

Point-to-Point

Point-to-Multipoint

Hybrid

Client-Server

Peer-to-Peer

LAN

WAN

MAN

WLAN

PAN

SCADA

# Network Services

# WAN Technologies

# Network Cables and Connectors

# Network Design