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MARINE CORPS TRANSFORMATIONAL COMMUNICATIONS ARCHITECTURE (MCTCA) (OSI LAYERS 1-7)

SERVICES | TCP/IP | SAN | UNIX | H.323 | X.25 | MICROSOFT | TELEPHONY | VPN/Security | IBM | VoIP | ISO

Layer 7: Application Layer

- Approved common applications access the underlying network services using defined procedures.
- Defines file transfers, terminal sessions, and message exchanges.
- Unique S/W modules interact directly with the common S/W modules.

Layer 6: Presentation Layer

- Formats information for display or printing.
- Data encryption and the translation of other character sets are handled in this layer.
- Ensures that information sent from Layer 7 of one system is readable by Layer 7 of another system.
- Concerned with syntax and semantics of information transmitted.

Layer 5: Session Layer

- Coordinates the exchange of information between systems.
- Identifies the end and the beginning of data sets.
- Begins, manages and ends communications sessions.

Layer 4: Transport Layer

- Segments data for transport across the network.
- Manages data transmission between devices so that the transmitting device does not send more data than the receiving device can process.
- Virtual circuits are established, maintained and terminated.
- Provides error checking and recovery.

Layer 3: Network Layer

- Defines network addresses in a way that route selection can be determined systematically by comparing the source network address with the destination network address.
- Defines the logical network layout, routers can use this layer to determine how to forward packets.

Layer 2: Data Link Layer

- Provides reliable transit of data across a physical network link.
- Defines network and protocol characteristics, including physical addressing, network topology, error notification, sequencing of frames, and flow control.

Layer 1: Physical Layer

- Defines the electrical, mechanical, procedural and functional specifications for activating, maintaining and deactivating the physical link between communicating network systems.
- Defines characteristics such as voltage levels, timing of voltage changes, physical data rates, maximum transmission distances, and physical connectors.
- Implementation can be categorized as LAN or WAN.

LAN | WAN

CAPABILITIES | ETHERNET | ATM | ISDN | PPP | SMDS | FRAME RELAY

LEGEND

1 - Colors represent related functionality.

2 - Arrows identify information flow.

3 - Colored columns crossing layers identify protocols or groups of protocols functioning over multiple layers.

JTA RELATIONSHIP

This drawing is an ISO depiction of the Marine Corps Network Architecture. This architecture is fully compliant with the JTA, but is based upon the ISO 7 layer model rather than the TRM model reflected in the JTA. As such, not all of the standards listed will be reflected in the JTA.

The Differences have two explanations: either the standard is in an area not covered by the JTA, or the cited standard is "below the radar" of the JTA. The latter case occurs because the JTA is intended as a steering mechanism, and provides granularity to the lowest level of anticipated ambiguity; not necessarily to the bottom of the ISO stack.

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