Title:
The OSI Reference Model and TCP/IP architecture

Word Count:
436

Summary:
The OSI Model was developed by the International Organization for
Standardization in order to provide a standard for computer networking. In 1984
the organization accepted the model as an international standard documented in
ISO 7498.

Keywords:
iso, iso/osi, reference model, tcp, IP, udp

Article Body:
The model represents a standard for connecting network systems. The model does
not specify the ways in which the individual systems are connected but serves as
a description of its layers, functions and services.

The OSI Model consists of seven layers, each of which, as was already
stated, receives the services of the layer below and provides services to the
layer above.

1.   Physical layer
2.   Data Link layer
3.   Network layer
4.   Transport layer
5.   Session layer
6.   Presentation layer
7.   Application layer

Description of the individual layers

Physical Layer

The Physical layer comprises the lowest layer of the OSI model. Its
function is to establish, terminate and manage either a point-to-point
connection or a point-to-multipoint connection, to effectively distribute the
communication resources to the users and to convert the digital data into

signals transmitted by the medium.

Data Link Layer

The Data Link layer provides the link between two adjacent network
entities, establishes transmission parameters and signals those errors in the
physical layer that it cannot correct. The Data Link layer arranges bits into
frames and identifies them with MAC addresses. The MAC provides the basis for
the local device(s) connection whereby it creates the domain for unicast and
broadcast transmission.
Bridges and switches operate at this layer.

Network Layer

The Network layer provides functional means of transferring data from a
source to a destination (at variable lengths) via one or more networks while
maintaining the quality of service requested by the Transport layer. The Network
layer performs routing functions using the services of routers that operate
here.
Routers work with a hierarchical addressing scheme. The most widely
known protocol of the network layer is the Internet Protocol (IP).

Transport Layer

The Transport layer provides data transfer between end users. The main transport
layer protocols are TCP and UDP.

TCP
"   a reliable data transfer protocol
"   Flow control protocol regulates receiving of data packets and prevents
the TCP receiver from overflowing
"   Windowing - after certain amount of data packets have been labelled as
received (the amount is given by transmission specifications), the sending end
user may request transfer of additional data

UDP
"   an unreliable data transfer protocol
"   used by network applications that do not require the whole of data
packets to be received by the receiving host (Internet radios, online games,
streaming videos, etc.)

Session layer

The Session layer coordinates data transfer between cooperating session
layers.

Presentation layer

This layer is responsible for formatting of the data for application
entities. Its functions are code and alphabet encrypting, graphic arrangement
modification, etc.

Application Layer

The Application layer provides the application entities with the access
to the communication system and thus enables their cooperation.