Home / OP3N Blog / An Unforgettable Trick to Remember the OSI Model 7 Layers



An Unforgettable Trick to Remember the OSI Model 7 Layers

By: blahmed December 22, 2020



The Open Systems Interconnection (OSI) Model is a conceptual model for describing a networking system's









functions. It was initially developed by the International Organization for Standardization (ISO) in 1984. The OSI does not relate directly to any networking system; instead, it describes network architecture and allows different computer systems from various vendors to communicate and exchange data using standard protocols.

Using the OSI model, the communications between computing systems are done through seven abstraction layers; it's easy to remember the sequence of OSI Model 7 Layers using this simple sentence: "All people seem to need data processing."

All = Application Layer **People** = Presentation Layer **Seem** = Session Layer **To** = Transport Layer **Need** = Network Layer **Data** = Data Link Layer **Processing** = Physical Layer

Let's look at each layer more closely. We'll start with the first three layers: application, presentation, and session, known as the software layer. Then, we'll review the heart of the OSI model, the transport layer. Finally, we'll discuss the last three layers: network, data link, and physical, referred to as the hardware layer.

Application Layer (Data)

The application layer provides an interface between endusers and software applications. It receives data from endusers, and displays received data for them. This layer does not contain the end-user applications; instead, it facilitates communications with the lower layers. Some protocols found within this layer include HTTP, HTTPS, FTP, TFTP, Telnet, SNMP, DNS, Rlogin, SMTP, POP3, IMAP, and LDAP.

Presentation Layer (Data)

This layer facilitates the presentation of Data to the upper layer. Mainly, it provides the encoding scheme and encryption/decryption for secure transmission. For instance, it translates applications format to network format and viceversa. Protocols of this layer: JPEG, BMP, GIF, TIF, PNG, MP3, MIDI, ASCII & ANSI, etc.

Session Layer (Data)

When two computing devices need to communicate, a session must be created, which happens at this layer. Some of this layer's functions are the establishment, management (coordination), and termination of sessions. A good example of how this layer function is a telephone call where you first establish the connection, exchange a message, and finally terminate the session. Some of the protocols of this layer are SIP, NFS, SQL, ASP, and RDBMS.

Transport Layer (Segment)

This layer, often considered the heart of the OSI model, is responsible for controlling data flow between two devices. For example, this layer determines the amount of data needed to send and the location where it should be sent. This layer is also responsible for data flow and error control. For instance, the flow control determines the optimal speed of sending data to avoid flooding the receiver with data if the connection speed is different between the two communicating parties. Simultaneously, error control ensures retransmitting the data again if some packets were lost on the receiver side. This layer's best-known example protocol is the TCP protocol, which resides as part of the TCP/IP protocol suite. Some other protocols on this layer are TCP, UDP, and SPX.

Network Layer (Packet)

The network layer is responsible for data packet forwarding and routing data between routers. It facilitates data transfer between two devices residing in two different networks. For example, if you want to send a message from your computer in New York to a server in San Francisco, there are thousands of routers and –maybe- millions of paths between these two points. However, the routers at this layer help you do this efficiently by automatically selecting the nearest way. The network layer is also responsible for translating the logical addresses into physical addresses and is responsible for data

fragmentation. Hence, it breaks segments of data into smaller units called packets before sending them to other networks.

Data Link Layer (Frame)

This layer provides a connection between two devices residing on the same physical network, for example, between two devices in the same LAN. This layer receives packets from the network layer and breaks them into small units called frames. The data link layer also performs data flow and error control within intranets. It contains two other sublayers: the Media Access Control (MAC) layer and the Logical Link Control (LLC) layer. Most ordinarily, networking switches

Last Chance: 20% Off Cybrary Insider Pro!

Memorial Day Sale extended through May 26th

Physical Layer (Binary)

This layer exists at the bottom of the OSI layer. It represents the OSI model's physical component, including cable type, radio frequencies (when using a Wireless connection), the layout of pins, and voltages. This layer is responsible for delivering the raw data from the sending device's physical layer to the receiving device's physical layer. Popular devices found at this layer include network hubs, cabling, repeaters, and modems.

Discount automatically applied at checkout



Summary

Although created years ago, the OSI model is still the primary model used to represent network architecture. All networking professional certification courses and tests include a section about the OSI layers. The OSI reference model is still the primary guide used by software developers and hardware vendors to create interoperable programs and devices that facilitate digital communications.











Previous

Next



Related Blogs





Security Event Log 101: Using Arcsight To Identify When Logs Are Cleared

By: Owen Dubiel

One of the telltale signs that you might have a nefarious entity lurking around your network could happen without even knowing it. Some Hacker groups tend to cover their tracks after they perform a payload. One way bad actors can clean up after themselves is by clearing the security event ...

BLOG



Cybersecurity Controls Checklist

By: Charlie Crane

Building a robust cybersecurity program often feels like an impossible task. This feeling can be caused by complex enterprise environments, company politics, vendor scaremongering, and jargon-packed marketing material that promises to provide you the silver bullet for the next-gen fileless malware. It doesn't have to be this way. If we boil ...

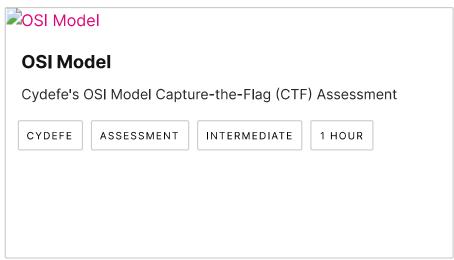
BLOG

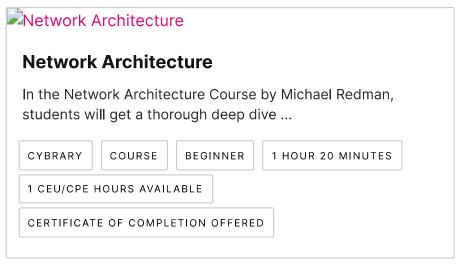
Related Courses

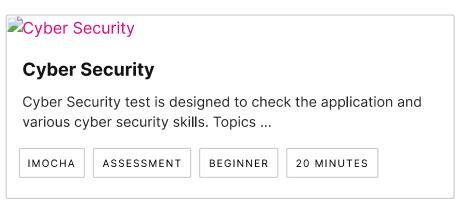
By: Shimon Brathwaite

Security Operation Centers (SOCs) is the central unit that handles all security issues on an organization level. SOCs receive alerts from all the SIEMs and other security monitoring tools that an organization has in place and analyzes those alerts to determine what is going on within the company network. It ...

BLOG







Build your Cybersecurity or IT Career

Accelerate in your role, earn new certifications, and develop cutting-edge skills using the fastest growing catalog in the industry

Start Trial

Create Free Account

Protected by

Signal Sciences

Logo

Solutions	Platform	Company	Resources
For Individuals	Catalog	About	Blog
For Teams	Instructors	Careers !	Help Center
Government	Alliances	Press	Verify Certificate
			Exam Vouchers
			The Cybrary Podcast
			Mobile App
			Report a Vulnerability

Cybrary Text Logo

Server Status

Black SVG

Privacy Policy

in

0

Terms of Service

© 2021 Cybrary