TOGAF[®] Poster Series #75 Architectural Layers



Layering is a core technique in enterprise architecture. TOGAF does mention layering, but maybe not as much as you might expect. Most discussion of layers is in the information systems domains. Our poster covers the things that TOGAF has to say about layering, bringing them together in one convenient package.

While there is universal use of layering in all enterprise architectures, there is no consistent definition of architecture layers.

For example, the TOGAF documentation points out that "typical "layered" architectures require each layer to be a client of the layer below it and a server to the layer above it".

When this protocol is not followed in the TOGAF documentation, it uses different words – for example the word "tier" instead of "layer".

Note: Software tiers are discussed in Section 35.7.3.2 Key Issues



Technology Architecture

TOGAF further describes layers in the Application and Technology domains in its Reference Models, the **Technical Reference Model (TRM)** and the **Integrated Information Infrastructure Reference Model (III-RM)**.

The III-RM gives a more detailed breakdown of the layers in the TRM:



					QUAI						
	Infr	astruct	ure App	plicatior	ns	Business Applications					
	Application Platform Interface										
QUALITIES	System and Network Management	Software Engineering	Security	Transaction Processing	Location & Directory	International Operations	User Interface	Data Interchange	Data Management	Graphics & Image	QUALITIES
	Operating System Services										
	Network Services										
	Communication Infrastructure Interface										
	Communications Infrastructure										
					QUAI	ITIES					

Figure 43-2 - Detailed Technical Reference Model (Showing Service Categories)

TOGAF refers to the **Open Systems Interconnection (OSI) Reference Model** for data communications in TOGAF. Each layer represents one or more services or protocols (a set of rules governing communications between systems), defining the functional operation of communications between user and network elements.

Each layer(with the exception of the top layer) provides services for the layer above it.

Support and business area applications, as defined in TOGAF, are above the OSI Reference Model protocol stack and use its services via the applications layer.

	Applications and application interfaces for OSI networks. Provides access to lower layer functions and services.
AYER 7	Negotiates syntactic representations and performs data transformations.
olication	e.g., compression and code conversion.
AYER 6	Coordinates connection and interaction between applications.
sentation	Establishes dialogue, manages and synchronizes direction of data flow.
AYER 5	Ensures end-to-end data transfer and integrity across the network.
ession	Assembles packets for routing by Layer 3.
AYER 4	Routes and relays data units across a network of nodes.
insport	Manages flow control and call establishment procedures.
AYER 3	Transfers data units from one network node to another over
etwork	transmission circuit. Ensures data integrity between nodes.
AYER 2	Delimits and encodes the bits onto the physical medium.
ta Link	Defines electrical, mechanical, and procedural formats.
AYER 1 hysical	Figure 43-2

Detailed Technical Reference Model (Showing Service Categories)



Figure 22-2 SOA Reference Architecture TOGAF also refers to a high-level graphic describing layers in the Open Group SOA Reference Architecture -Figure 22-2

For further information click on: http://www.opengroup.org/soa/ source-book/soa_refarch/p5.htm



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