Bricks and the TOGAF TRM

Alan Crosswell, 9 November 2014.

Introduction

On a recent ITANA call, Brick diagrams were presented by Brian Savage as a technique for categorizing and communicating (technical) architecture components. It occurred to me that these concepts are similar to those used in the TOGAF 9.1 Technical Reference Model, so I thought I'd take a closer look.

Bricks

Bricks are NIH's method for documenting current and future technical standards. Each brick has a name, description, comments and lists of products/standards labeled with the following lifecycle designations:

- **Baseline** technologies include current technology and/or process element(s) in use.
- **Tactical** technologies are recommended for use in the near or tactical time frames (next two years). Currently available products needed to meet existing needs are identified here.
- **Strategic** technologies provide strategic advantage and might be used in the future. Usually, marketplace leaders are identified here, as they are likely to provide better benefits and meet the anticipated needs of the business.
- **Retirement** includes technology and/or process elements targeted for de-investment during the architecture planning horizon (five years).
- **Containment** includes technology and/or process elements targeted for limited (maintenance or current commitment) investment.
- **Emerging** technology and/or process elements are to be evaluated for future use based on technology availability and business need. These technologies may not be new to the marketplace, but are simply not yet in use at NIH. In this case, the products may be a fit for emerging needs at NIH.

See this example for a web server brick:

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Web Server Brick

Home > Architecture Library > Technology Architecture > **Web Server Brick**

Description

Web servers are software that serve as engines which run websites. Through a Web listener, they accept HTTP (non-encrypted) and HTTPS (encrypted) connections from Web browsers. The Web server may return HTML based Web pages and other files directly to the browser, or may invoke additional software that performs processes such as database interaction and generates the returned HTML or files.

Tactical (0-2 years)	**Strategic** (2-5 years)
• Apache 2.2 or newer • Microsoft Internet Information Server 7	• Apache Future Versions • Microsoft Internet Information Server Future Versions

Retirement (To be eliminated)	**Containment** (No new development
• Apache 1.X • IIS6	• Neon Shadow • Netscape Enterprise Server

Baseline (Today)	**Emerging** (To track)
• Apache • Microsoft Internet Information Server • Neon Shadow • Netscape Enterprise Server • Free and Open Source (FOSS) products	• Evolving Free and Open Source (FOSS) products

Comments

- Tactical and Strategic products were selected to leverage NIH's investment in products that are a proven fit for NIH's known future needs. Leveraging baseline products in the future will minimize the operations, maintenance, support and training costs for new products.
- Some baseline products have been designated as Containment. These products are either not as widely or successfully deployed at NIH, or they do not provide as much functionality, value, or Total Cost of Ownership as low as the selected Tactical and Strategic products.
- Evolving open source products continue to Emerge as future technologies because open source developers have done a better job of modularizing their software, making it move feasible to combine components in order to produce a desired solution.
- Apache is designated as Tactical / Strategic when used in conjunction with a Tactical or Strategic Server Platform and Server OS Brick.
- .Net frameworks are supported by this standard via IIS standards, Windows core, and ASP.net

Time Table

This architecture definition approved on: **December 14, 2009**

Of some concern when reviewing NIH's bricks catalog is that the bricks are somewhat dated, indicating that the NIH architecture team has perhaps not stuck to using this methodology. It might we worth finding out why.

The TOGAF TRM

The TOGAF [technical reference model](#) provides a graphical model and taxonomy that can be used to model entries in the Technology Standards Catalog, one of several artifacts defined in general terms as part of the TOGAF content framework.
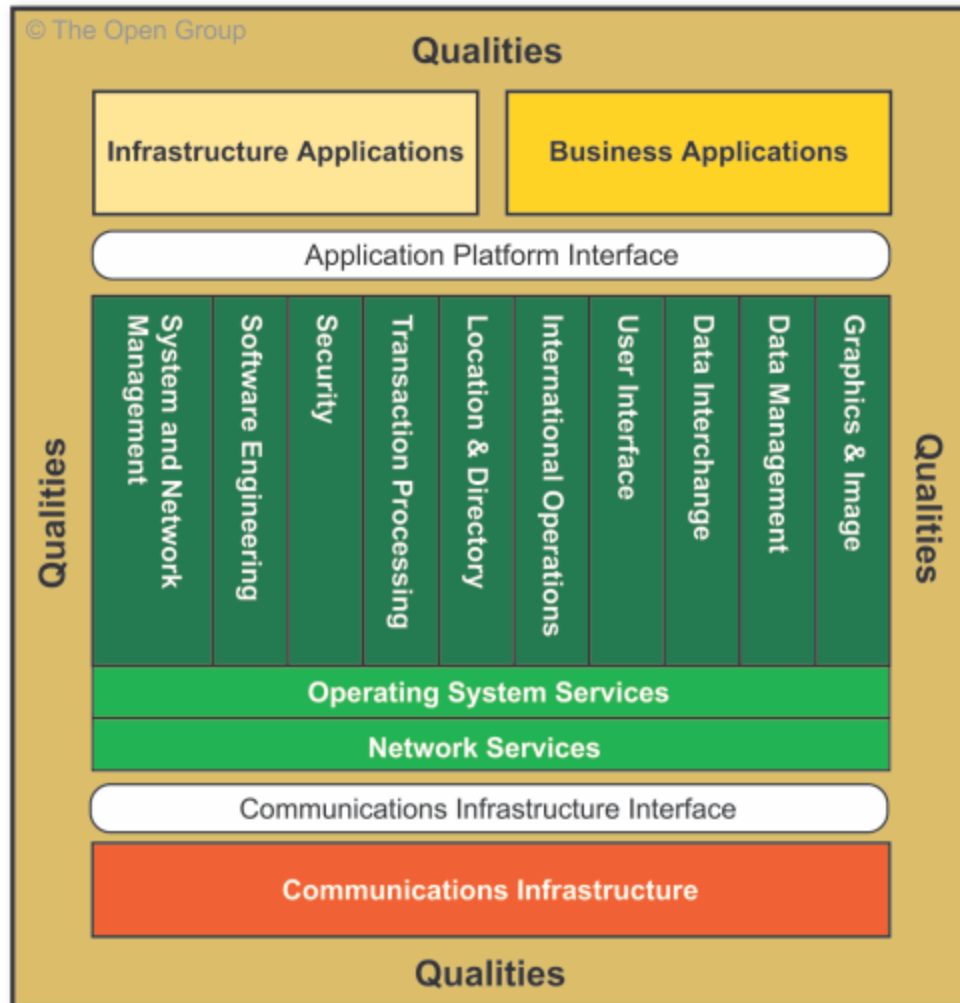
A sample template Technology Standards Catalog is available from the Open Group as an Excel spreadsheet. I started with this and tailored it as a Google [Sheet](#), using a "standards class" from the [TOGAF Standards Information Base](#) lifecycle definitions. These classes map somewhat closely to the intent of the six lifecycle designations used in Bricks:

- **Proposed Standard**: A potential standard has been identified for the organization, but has not yet been evaluated for adoption.
- **Provisional Standard** (also known as a **Trial Standard**): A Provisional Standard has been identified as a potential standard for the organization, but has not been tried and tested to a level where its value is fully understood. Projects wishing to adopt Provisional Standards may do so, but under specific pilot conditions, so that the viability of the standard can be examined in more detail.

- **Standard** (also known as an **Active Standard**): A Standard defines a mainstream solution that should generally be used as the approach of choice.
- **Phasing-Out Standard** (also known as a **Deprecated Standard**): A Phasing-Out Standard is approaching the end of its useful lifecycle. Projects that are re-using existing components can generally continue to make use of Phasing-Out Standards. Deployment of new instances of the Phasing-Out Standard are generally discouraged.
- **Retired Standard** (also known as an **Obsolete Standard**): An Retired Standard is no longer accepted as valid within the landscape. In most cases, remedial action should be taken to remove the Retired Standard from the landscape. Change activity on a Retired Standard should only be accepted as a part of an overall decommissioning plan.[1]

I am considering whether I should further tailor these lifecycle class names (or their definitions) to more explicitly use the concepts of "strategic", "tactical" and "emerging" as given in Bricks.

I tailored the category definitions from the detailed platform taxonomy. This taxonomy is by nature somewhat dated and was missing a few categories which I added (with trepidation as the point of re-using a wheel is to not reinvent it; perhaps the categories already exist and I'm just not using them correctly).

1	Service	Category	Definition (tailored from TOGAF 9.1 ch 43)	
50	Network	List	Mailing list functions	
51	OS	Kernel	Kernel operations services	TOGAF 43.5.7
52	OS	Command	Command interpreter and utility services	
53	OS	Batch	Batch processing services	
54	OS	File	File and directory synchronization services	
55	OS	Infrastructure	infrastructure (server) hardware	CUIT
56	OS	Hypervisor	virtual infrastructure (server) hardware	CUIT
57	OS	Distro	operating system distribution package	CUIT
58	Software	Lang	Programming language services	TOGAF 43.5.8
59	Software	Link	Object code linking services	

A sample from the TRM categories data validation tab showing tailoring ("CUIT")

The class and category tabs are used as the source of drop-down menus using cell data validation and should help with filtering to find only specific categories comparable to bricks. This approach has the drawback of creating multiple rows for what would be one brick, but perhaps that is OK and certainly makes the relational database designer in me happy.

In our discussions, we also identified many standard technology that nonetheless are not strategic and will require an Architecture Board dispensation before being used. I tailored the sheet with an extra column to indicate this requirement. (Anything not of the Standard class will always require a dispensation.)

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[1] from TOGAF §41.4.3 http://pubs.opengroup.org/architecture/togaf9-doc/arch/chap41.html#tag_41_04

The spreadsheet does seem to provide the basic "ah ha" moments when we see that we have way too many flavors and versions of technology components performing the same function and it appears to be lightweight enough to keep up to date.

	A	B	C	D	E	F	G	H	I
1				**Technology Standards**					
2	**ID**	**Name**	**Description**	**Date**	**Category**	**Source**	**Created/ Amended**	**Standards Class**	**Dispensation Even for Standard Class**
9		HP SL230 Gen8	HP ProLiant Generation 8 1U Intel blade server	11/8/14	OS: Infrastructure		11/8/14	Phasing-Out	
10		HP SL250 Gen8	HP ProLiant Generation 8 2U Intel blade server	11/8/14	OS: Infrastructure		11/8/14	Phasing-Out	
11		VMware ESX 5.1	VMware hypervisor	11/8/14	OS: Hypervisor		11/8/14	Phasing-Out	
12		VMware ESX 5.5	VMware hypervisor	11/8/14	OS: Hypervisor	FlexPod	11/8/14	Standard	
13		VMWare ESX 6.x	VMware hypervisor	11/8/14	OS: Hypervisor	FlexPod	11/8/14	Provisional	
14		AWS EC2	Amazon Web Services Elastic Compute Cloud	11/8/14	OS: Hypervisor	AWS	11/8/14	Proposed	
15		KVM	Linux Kernel Virtual Machine	11/8/14	OS: Hypervisor	http://www.linux-kvm.org/	11/8/14	Proposed	
16		HyperV	Microsoft Hyper-V	11/8/14	OS: Hypervisor		11/8/14	Proposed	
17		RHEL 5	Redhat Enterprise Linux 5.x	11/8/14	OS: Distro		11/8/14	Phasing-Out	
18		RHEL 6.5	Redhat Enterprise Linux 6.5	11/8/14	OS: Distro		11/8/14	Standard	
19		RHEL 7	Redhat Enterprise Linux 7.x	11/8/14	OS: Distro		11/8/14	Provisional	
20		RHEL 8	Redhat Enterprise Linux 8.x	11/8/14	OS: Distro		11/8/14	Proposed	
21		CentOS	CentOS (as replacemet for RHEL)	11/8/14	OS: Distro		11/8/14	Proposed	
22		Amazon Linux	AWS Linux distro (when using AWS EC2)	11/8/14	OS: Distro		11/8/14	Proposed	
23		Windows 2003	Microsoft Windows 2003	11/8/14	OS: Distro		11/8/14	Phasing-Out	
24		Windows 2008 R2	Microsoft Windows 2008 R2	11/8/14	OS: Distro		11/8/14	Standard	
25		Windows 2012	Microsoft Windows 2012	11/8/14	OS: Distro		11/8/14	Provisional	
26		Oracle R9	Oracle RDBMS R9	11/8/14	DataMgmt: DBMS		11/8/14	Retired	
27		Oracle R11.2.04	Oracle RDBMS R11	11/8/14	DataMgmt: DBMS		11/8/14	Standard	
28		Oracle R12.1	Oracle RDBMS R12	11/8/14	DataMgmt: DBMS		11/8/14	Provisional	
29		MySQL 5.1	MySQL 5.1	11/8/14	DataMgmt: DBMS	http://www.mysql.com/	11/8/14	Phasing-Out	
30		MySQL 5.5	MySQL 5.5	11/8/14	DataMgmt: DBMS	http://www.mysql.com/	11/8/14	Standard	**YES**

+ ≡   Technology Standards ▾   🔒 Standards class ▾   🔒 TRM categories ▾

A sample from the technology standards catalog