UML, a formal foundation for TOGAF Architecture Development Method

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TOGAF Daisy Wheel

TOGAF
(The Open Group Architecture Framework)
- Version 9.1
- 2011
TOGAF Daisy Wheel

TOGAF (The Open Group Architecture Framework) - Version 9.1 - 2011

- A cyclic process
  - Based on best practices of US administrations
  - Focused on requirements management
- A generic methodology
  - To adapt to each enterprise context
  - To adapt to each business area
- Use according
  - Value expected for the enterprise
  - Availability of skilled resources
UML (Unified Modeling Language) - Version 2.5 - 2013
• What is UML
  – A way to detect errors, ambiguities and omissions during specification and design phases of the system of interest.
  – A graphical language to describe static aspects (structure diagrams) and dynamic aspects (behavior diagrams) of the system.

• What is not UML
  – A design methodology.
  – A formal language.
Agenda

- Introduction
- Proposal
- Case Study
- Conclusion
TOGAF is successful!

By all measures, the TOGAF® standard for Enterprise Architecture (EA) is successful

• It has been adopted and adapted by thousands of companies worldwide.
• There are more than 60 suppliers of TOGAF 9 accredited training courses.
• There are more than 41,000 TOGAF 9 certified individuals.
• Major EA software tools are TOGAF certified.
Are EA software tools successful?

List the modeling tools and repositories that the tool integrates with and classify the degree of interoperability and nature of interoperation (138/646)

1. The tool supports configurable integration of common resources in file and database formats. Specific examples for applying this approach in case of modeling tools and repositories include but are not limited to ARIS, CentraSite, Oracle Fusion.
2. The list of modeling tools and repositories that the tool integrates with is constantly increasing so please contact the company.
3. The build-in scripting language makes it possible to integrate with almost any other tool.
4. See the list on the company website.
5. The tool is extremely configurable and can integrate with all repositories and tools that we have encountered so far. This is done by the import and export of XML files.
6. Standard integration i.e. with MS Visio. Other modeling tools can be integrated via the standard interfaces.
7. Any XMI capable tool + limited others through additional tools (eg. Telelogic DOORS, Microsoft Visio).
8. Enterprise application modeling and design is natively supported through the product's modeling component.
9. The product supports the integration with a variety of other products and processes.

EA metamodels are not so successful

Currently, the TOGAF® 9.1 and ArchiMate® 2.1 standards are largely compatible and complimentary... Not surprisingly, the TOGAF and ArchiMate metamodels are different.

1. Some entities in ArchiMate can be mapped to more than one entities in TOGAF. For example, the ArchiMate artifact entity can be mapped to a TOGAF physical data component or a physical application component.

2. Similarly, some entities in TOGAF match more than one concept in ArchiMate. For example, physical technology component can be mapped to ArchiMate system software, device and network.

[TOGAF® 9 – ArchiMate® 2.1 Metamodel Harmonization – White Paper – The Open Group]
Organization and Information Systems are complex systems
Organization and Information Systems are complex systems

: Architecture Vision
Modeling Language for EA

Organization and Information Systems are complex systems

Diagram

Structure Diagram
- Class Diagram
  - Composite Structure Diagram
- Component Diagram
- Object Diagram

Behavior Diagram
- Activity Diagram
- Use Case Diagram
- State Machine Diagram

Interaction Diagram
- Sequence Diagram
- Interaction Overview Diagram

Communication Diagram
- Timing Diagram
Organization and Information Systems are complex systems

Diagram

Structure Diagram

Class Diagram
  Composite Structure Diagram
  Component Diagram
  Deployment Diagram
  Object Diagram
  Package Diagram

Behavior Diagram

Activity Diagram
  Interaction Diagram
  Sequence Diagram
  Interaction Overview Diagram

Use Case Diagram

State Machine Diagram
  Communication Diagram
  Timing Diagram

IS & IT Architectures
Modeling Tools for EA

Supports modeling activities and interoperability with other tools and other activities

- AS-IS Architect
- AS-IS Guest
- TO-BE Architect
- TO-BE Guest

Collaborative Edition

Communication

Validation

Synchronisation

Models (UML, EMF, ...)
Documents (HTML, Word, ...)
Source codes (Java, ...)
Databases (SQL, ...)
Messages (XSD, ...)

Serveur
From TOGAF to EASI

TOGAF (The Open Group Architecture Framework)
- Version 9.1
- 2011

EASI (Enterprise Architecture for Seamless Integration)
- Version 1.0
- July 2012
UML can be extended using its profiling capability
Stereotypes in action

Stereotypes in action

Stereotypes in action

Stereotypes in action

Stereotypes in action

To allow the use, by authorised borrowers, of the varying collection of Library items, as fairly and efficiently as possible.

A more tricky example

An Actor can only have Associations to UseCases, Components, and Classes.

[Unified Modeling Language – Version 2.5. OMG 2013]
A more tricky example

TOGAF with UML is successful!

Operability

The TOGAF standard is not successful because it fully meets everybody’s needs, but because it is fit-for-purpose as a mature and stable platform upon which any enterprise can build an EA capability, which meets its specific needs.

[Promoting and Protecting the TOGAF® Ecosystem – White Paper – The Open Group]

Compatibility

The UML standard brings a formal basis that will allow sharing of best practices and inter-change among EA Repositories.