Extreme Architecture: A Minimalist IT Architecture Framework

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“I Keep Six Honest ...”

I keep six honest serving-men
(They taught me all I knew);
Their names are What and Why and When
And How and Where and Who.

... ... 

Rudyard Kipling

Information governance seeks to answer...

- **What** are the (information management) things that are important to an IT provider?
- **How** does the IT provider service these things?
- **Where** are these things managed and serviced?
- **Who** is involved in governance, management, and provision of the services?
- **When** do things of significance occur for the IT provider?
- **Why** does the provider undertake this work in the chosen manner?

The scope for today’s discussion
What is Architecture? Macquarie

*noun* 1. the art or science of building, including plan, design, construction, and decorative treatment. 2. the style of building. 3. the action or process of building; construction. 4. a building or buildings. 5. the structure or design of something, as a computer, a novel, etc. [Latin]

*--architectural, adjective*

*--architecturally, adverb*

Architecture and Design

• If you can implement a drawing in more than one way, you have *architecture*.

• If you can implement a drawing in only one way, then the drawing contains exact specifications for instantiation, and you have *design*.

* Jim Sinur of Gartner Group
Reims Cathedral: Architecture at a peak.

Jean d’Orbais ... conceived the general plan of the building, a plan which was respected ... by his successors. This is one of the reasons for the extreme coherence and unity of the edifice.

* Brooks quoting the Reims Cathedral Guidebook

It took 8 generations of builders, 200 years, to complete. They all stuck to the design.

Fred Brooks was an early author to make comparisons between building architecture and software.

* Mythical Man-Month (1975)

Does IT have chance to build conceptual integrity with such precision and passion? Should it?
The story of a hut.

This hut was built on time and within cost.
It has shown an excellent return on investment for its owner.
For a hut, it provides all the services the owner requires.
The hut is cleaned and maintained in a timely manner.
The padlock on the door ensures that the hut is secure.

Are the things we build, shanty towns?

With today’s pressures how hard is it for IT to avoid the shanty town?

- IT is frequently asked to do more with less;
- IT lives in constant fear of fires, eviction, mudslides and plague;
- IT needs to build things as quickly and as cheaply as possible;
- IT are shown little respect and are not valued by the community;
- IT are seen as a blight on the landscape; and
- Everyone wishes that IT and their problems would simply disappear.
The extremes of architecture. Which way?

Hierarchy of Systems

- Industry Sector
  - Human Activity Systems
    - Enterprise
    - Business Process
      - Application
      - Component
  - Software Systems
Is the container view of systems correct?

- Common for business processes to be outsourced.
- External stakeholders interact directly with enterprise’s software applications.
- Modern development techniques emphasise reuse of software components.
  * The notion of an application is blurred.
What is the architectural driver here?

Interoperability!

Higher Education Sector

Corporate Services Sector

Spot the difference?
Interoperability for unforeseen events

• What interoperability is required between road transport systems and aviation systems?

Other versions of interoperability (and re-use)
Systems ® Interoperability ® Frameworks

• If we want to ensure interoperability in abstract and seemingly intangible artefacts
  * Read “information systems”

• Then we need a framework to make sure all players understand how to achieve that interoperability.

What is a framework: Macquarie

/noun/ 1. a structure composed of parts fitted and united together. 2. a structure designed to support or enclose something; frame or skeleton. 3. frames collectively. 4. work done in, on, or with a frame.
An Information Technology Architecture Framework is:

Defined in Clinger-Cohen Act;
Legislation passed in 1996 by the United States Congress.

“An integrated framework for evolving or maintaining existing information technology and acquiring new information technology to achieve the agency’s strategic goals and information resource management goals.”
Some enterprise and technical frameworks

Office of Management and Budget (OMB)
Framework Structure

System Types
- Sector
- Enterprise
- Process
- Application
- Component

Sub Architectures
- Activity
- Information
- Software
- Data
- Technology

Current and future states of the Architecture

Assessments (SWOT)
- Risk or Reward

Architecture
- Vision
- Architecture Principles
Why Extreme?

- Pragmatic
  - adopts a 'middle path' between the extremes of chaos and perfection.
- Easy to describe
  - single 6 x 6 matrix
- Minimal work products
  - simple bullet point lists will do!
- Unifies disparate disciplines
  - Business modelling
  - Requirements analysis
  - Software construction
  - IT infrastructure management
- Encourages a shared understanding
Using the framework: What is produced when?

- **Information planning**
- **Requirements definition**
- **Design, build, and test**

Using the framework: Who defines what?

- **Business staff**
- **IT staff**

Collaboration is required here.
Avoiding the Extremes

Privileged  Self Reliant  Disenfranchised
Abundant    Affordable    Impoverished
Ordered     Pragmatic     Chaotic

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Suburban Gripen