Introduction to Enterprise Architectures
Software architecture vs Enterprise Architecture

Enterprise Architecture includes Software Architectures
Architecture is...

• Simplistic
  – A description of a systems gross structure
  – With sufficient detail to
    • appraise the completeness and accuracy
    • Conduct high-level analysis
  – Kruchen- “A Rational View”, 1996
Architectures have multiple views

• Logical view
  – Objects, classes categories

• Process view
  – Processes and threads

• Implementation view

• Modules and subsystems

• Deployment view
  – Processors, interconnections and threads

• Use case view
  – Complete overview system description from viewpoint of external actors
Architectural roles

- Understanding
- Reuse
- Construction
- Evolution
- Analysis
- Management
ADLs

• Domain specific
• Need appropriate “R-forms”
  – R-form is the depiction, representation
• Standards for sharing
  – A language like XML
Challenges to address

• Build-vs-buy
• Network-centric computing
  – Publish-and-subscribe
• Standards
• Pervasive computing
Architecture Business Cycle

• Relationship of
  – Architecture to Organization?

• Business Triangle

• The Cycle
  – Building the business case
  – Understanding the requirements
  – Create or select the architecture
  – Document and communicate the architecture
  – Analyze and evaluate the architecture
  – Implement the system base on the architecture
  – Ensure (audit) that the system conforms to the architecture
The corners are interlocking. Change one and all must adjust.

Business Strategy

Manager in the coordinating role

Information Strategy

IS Strategy is affected by the other strategies a firm uses. Changes in IS strategy must be accompanied by changes in the other two.

Organizational Strategy

Includes the whole concept of organizational design

IS strategy has (sometimes unintentional) consequences on the business and organizational strategies.
A ‘Good ‘ Architecture

- Created by whom?
- Functional requirements (whose?)
- Documentation
- Stakeholders ?\Measures?
- Implementation means?
- Reducible?
A ‘Poor’ Architecture

- Obtuse
- Nonspecific or too detailed
- Elements unclear
- Connections uncertain
- Loaded with acronyms and undefined terms
Extended definition

• “...is the structure or structures of the system, which comprise software elements, the externally visible properties of those elements, and the relationships among them.” Bass, Clements, Kazman text pg 21
Caveats

• First
  – Defines software elements
  – An abstraction
  – Contains Public details; not private details

• Second
  – Highlights more than one structure
  – There may be several architectures

• There exist multiple views and elements

• All elements can be seen from the viewpoint of different views
Design Complexity and Architectures

• Do we design for complexity?