

아키텍처 설계의 시나리오 기반 접근 방법

2003. 11. 27

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1. Introduction

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The Role of Software Architecture

- Blueprint for system and project**
- Carrier of system qualities - performance, modifiability, security etc.**
 - ◆ Can not achieved without unifying architectural vision
- Vehicle for early analysis to make sure design approach for acceptable system**
- Artifact for key to post-deployment system understanding or mining efforts.**

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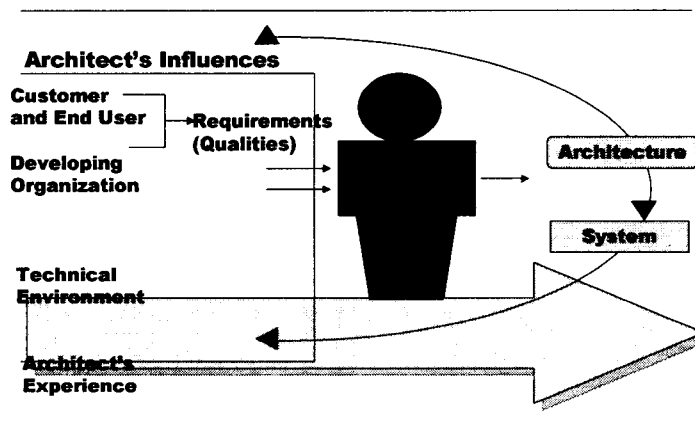
Elements of Architectural Descriptions

- The architectural definition of a *system* identifies its
 - ❖ Components: define the locus of computation
 - ▣ Examples: filters, databases, objects, ADTs
 - ❖ Connectors: mediate interactions of components
 - ▣ Examples: procedure call, pipes, event broadcast
 - ❖ Properties: specify information for construction & analysis
 - ▣ Examples: signatures, pre/post conditions, RT specs, protocols
- An architectural style defines a *family* of architectures including
 - ❖ Component/connector vocabulary (the types of building blocks)
 - ❖ Constraints on how the building blocks can be used, including
 - ▣ topological rules
 - ▣ interface standards
 - ▣ required properties
 - ❖ Analyses (that allow one to reason about critical properties)

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Architecture Development Cycle

- Architectures are influenced by technical and organizational factors
- Architecture affects the factors that influenced it



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Architecture Based Process Steps

- Creating the business case for the system**
- Understanding the requirements**
- Creating or selecting the architecture**
- Documenting and communicating the architecture**
- Analyzing or evaluating the architecture**
- Implementing the system based on the architecture**
- Ensuring that the implementation conforms to the architecture**

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2. Quality Attributes

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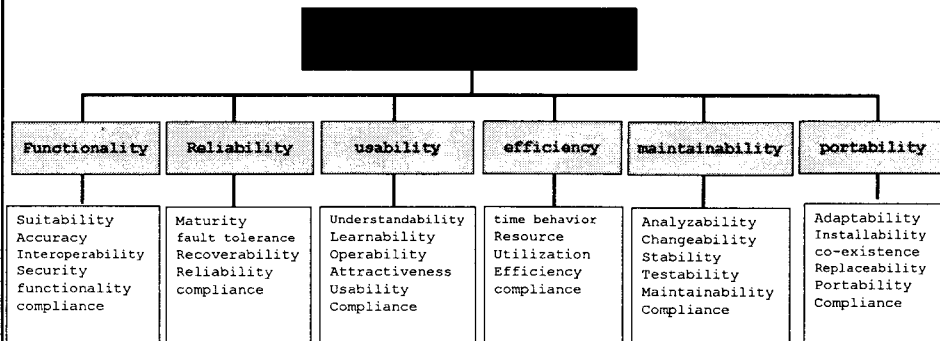
Quality Attributes

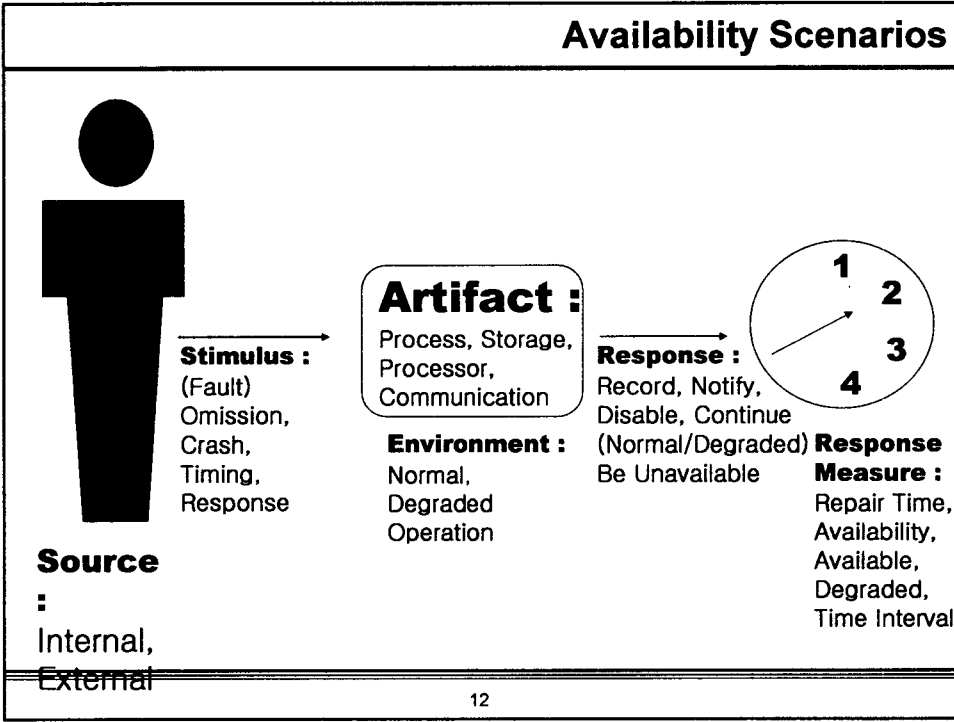
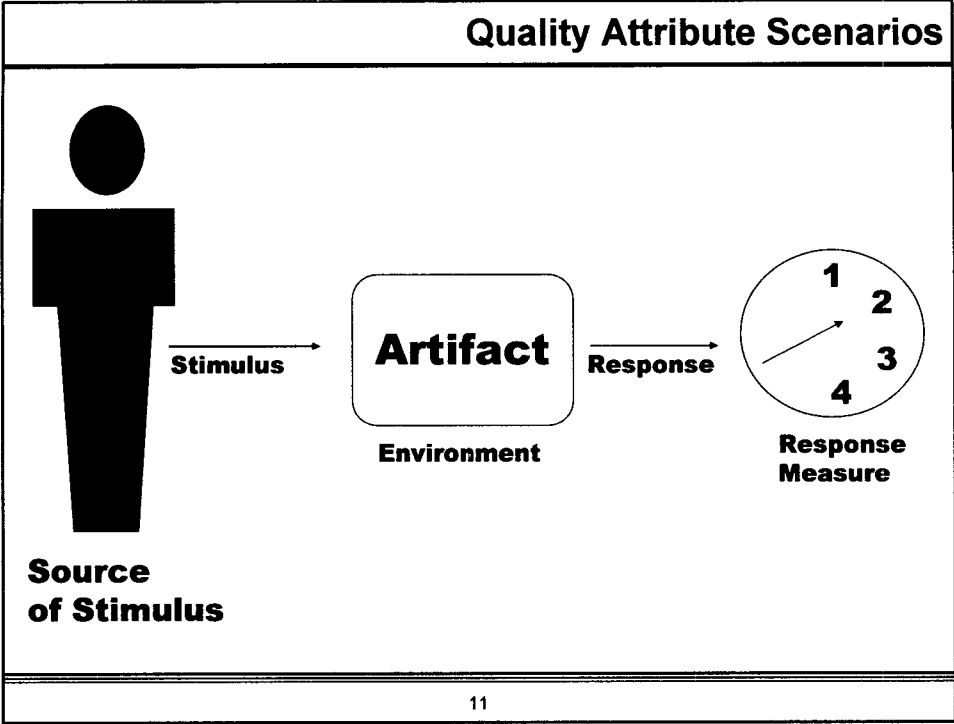
- **Business considerations determines qualities that must be accommodated in a system's architecture**

- **Functionality and Architecture**

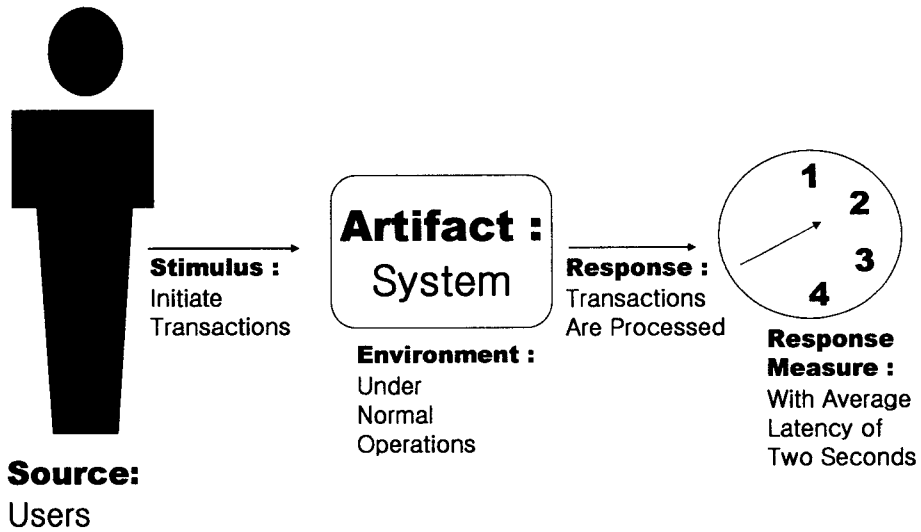
- **Architecture and Quality Attributes**
 - ❖ Quality of the system
 - ❖ Business Quality
 - ❖ Quality of Architecture

Quality Attributes (ISO 9126)





Performance Scenarios



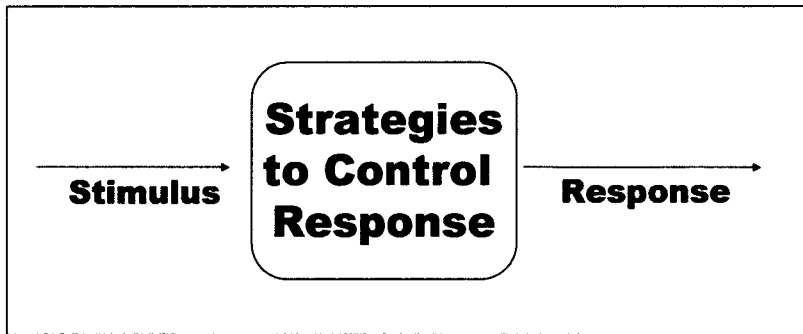
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3. Strategies for Achieving Qualities

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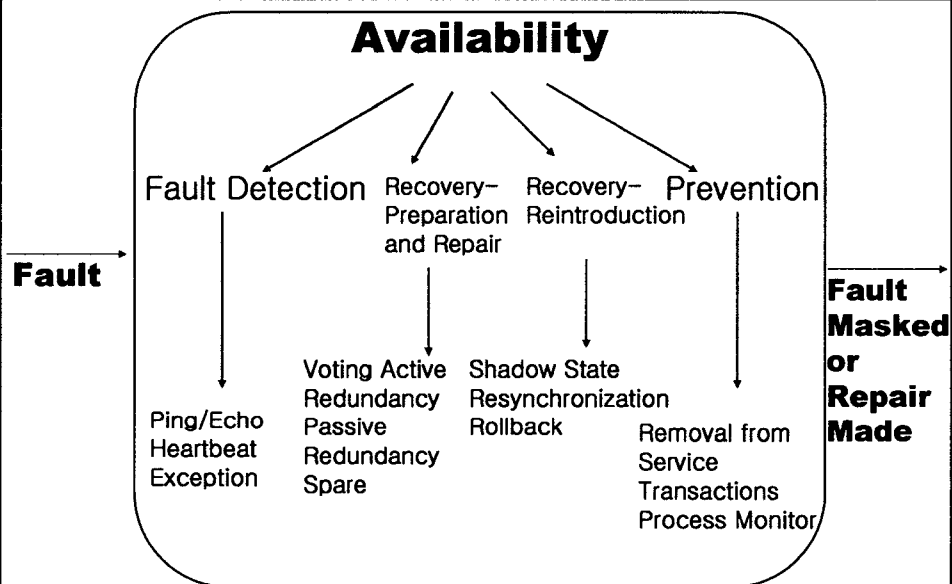
Achieving Qualities

- ❑ The strategies chosen will guide the architectural decisions
- ❑ As architectural pattern or strategy implements a collection of strategies
- ❑ A strategy is a design decision that influences the control of a quality attribute response
- ❑ We call a collection of strategies an architectural strategy

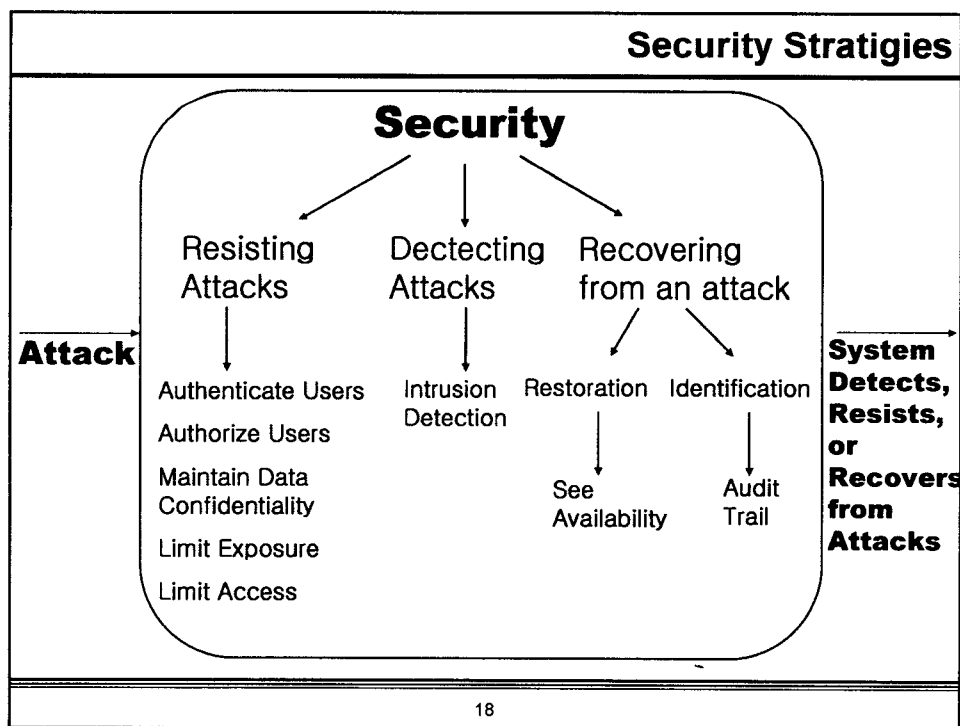
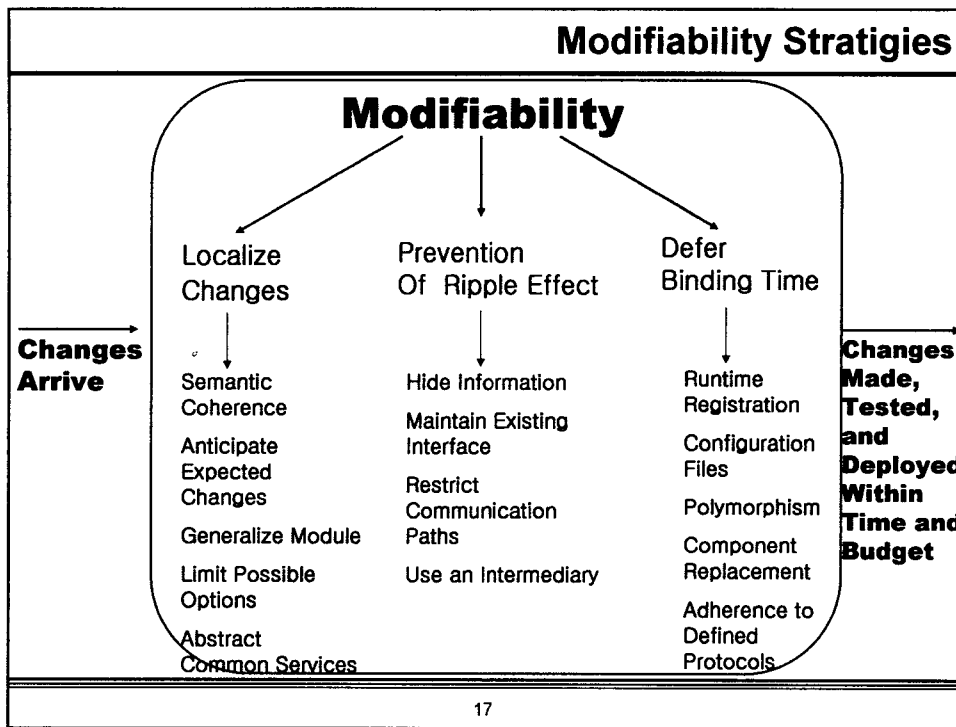


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Availability Strategies



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4. Design Process

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Architectural Drivers

- **Architecture shaping requirements**
 - ◆ Collection of functional, quality, business requirements

- **To determine architecture drivers**
 - ◆ Identify the highest priority business goals
 - ◆ Turn these business goals into quality scenarios or use cases using utility trees

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Input and Output

□ Input

- ❖ A set of quality attribute scenarios
- ❖ Employs knowledge about the relation between quality attribute achievement and architecture

□ Output

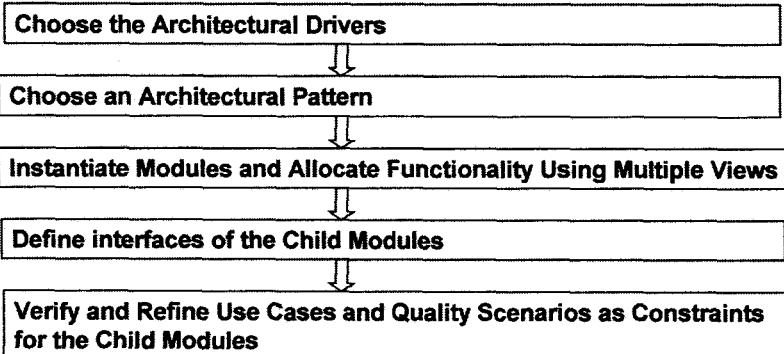
- ❖ First levels of a module decomposition view of an architecture and other views as appropriate
- ❖ The system is described as a set of containers for functionality and the interactions among them
- ❖ This is the first articulation of architecture – coarse grained

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Design Steps

Choose the module to decompose

Refine the module



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5. Conclusion

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Conclusion

- Design is originated from stakeholder's quality requirements
- Requirements are well described by the user's scenarios
- Each requirement is described by the quality attribute and scenario
- Each quality attribute is achieved by the strategy
- Quality attribute scenario is the natural input to the architecture design
- Scenario based design is tightly related to the evaluation process like ATAM

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