Software Architecture Design and Analysis

Course Outline

Software Architecture Analysis

*Examination of the Quality Attribute Workshop (QAW)*

QAWs provide a method for identifying a system’s architecture-critical quality attributes—such as availability, performance, security, interoperability, and modifiability—that are derived from mission or business goals. The QAW does not assume the existence of a software architecture; instead it aids in making important determinations before a system is built.

Software Architecture Design

*Examination of the Attribute-Driven Design (ADD) Method*

The ADD method is a systematic step-by-step approach for designing the software architecture of a software-reliant system. It is an approach to defining software architectures by basing the design process on the architecture’s quality attribute requirements. It follows a recursive decomposition process where, at each stage in the decomposition, tactics and architectural patterns are chosen to satisfy a set of quality attribute scenarios.

*Examination of the Architecture Tradeoff Analysis Method (ATAM)*

The ATAM is a method for evaluating software architectures relative to quality attribute goals. ATAM evaluations expose architectural risks that potentially inhibit the achievement of an organization’s business goals. The ATAM gets its name because it not only reveals how well an architecture satisfies particular quality goals, but it also provides insight into how those quality goals interact with each other—how they trade off against each other.

Lifecycle View of Architecture