CONCEPT

Solution Architecture: Quality Attributes, Architecture Decision Records and Trade-offs

5 – 9 April 2027
Dubai - Five-star CBD venue



Solution Architecture: Quality Attributes, Architecture Decision Records and Trade-offs

Ref: 632_18195 **Date:** 5 – 9 April 2027 **Location:** Dubai - Five-star CBD venue **Fees:** 21450 SAR

Introduction:

Delivery teams often commit to a solution design before its quality attributes are agreed, so latency targets, failover behaviour, security controls and running costs surface late as rework, incidents and budget overruns. Solution architecture closes that gap by turning stakeholder drivers into measurable quality attribute scenarios, evaluated options and recorded decisions. This Core Concept course takes senior builders and analysts through the solution architect's decision cycle, from utility trees and C4 views to style, integration, data and sourcing choices. Participants produce a Solution Architecture Document with a log of Architecture Decision Records for a case system.

Course Objectives:

- Translate business drivers and stakeholder concerns into quality attribute scenarios and a prioritised utility tree
- Document a solution in C4 context, container and component views that technical and business stakeholders can read
- Select architectural styles, integration patterns and data stores against scenario-level response measures
- Evaluate build, buy and subscription sourcing options with lifetime cost estimates and exit criteria
- Record architecturally significant decisions in Architecture Decision Records with options, rationale and consequences
- Assemble and defend a Solution Architecture Document before a design review panel

Target Audience:

- Senior software developers who shape component boundaries and technical choices on delivery teams
- Technical leads accountable for the design integrity of a product or service
- Business analysts moving into architecture who translate requirements into solution options
- Integration and API developers responsible for how systems exchange data and events
- Designers of internal platforms and line-of-business systems preparing to take on solution design ownership

CONCEPT

Course Outline:

Day 1: The Solution Architect Role and Architecturally Significant Requirements

- Solution, Enterprise and Technical Architect Responsibility Matrix
- Business Driver and Stakeholder Concern Elicitation Canvas
- Architecturally Significant Requirements Identification Checklist
- ISO/IEC 25010 Quality Characteristics Mapped to Solution Concerns
- Quality Attribute Scenario Writing with Stimulus and Response Measures

Day 2: Architecture Views, Styles and Evaluation Methods

- C4 Model Context, Container and Component Diagrams
- Layered and Modular Monolith Style Trade-offs
- Microservices Service Boundary Decomposition Heuristics
- Event-Driven Style: Publish-Subscribe, Event Streaming and Eventual Consistency
- ATAM Utility Tree Construction and Scenario Prioritisation

Day 3: Integration, Data and Sourcing Decisions

- Synchronous API Design: Resource Modelling and Contract-First Specifications
- Asynchronous Messaging Patterns: Queues, Topics, Retries and Idempotent Consumers
- Data Store Selection Matrix: Relational, Document, Key-Value and Search Stores
- Build, Buy or Subscribe Evaluation Scorecard with Exit and Lock-In Criteria
- Total Cost of Ownership Estimate: Licences, Hosting, Staffing and Run Costs

Day 4: Decision Records, Trade-offs and Architecture Risk

- Architecture Decision Record Templates: Nygard Format, MADR and Y-Statements
- ATAM Sensitivity Points, Trade-off Points, Risks and Non-Risks
- Performance, Load and Failover Test Planning Against Response Measures
- Architecture Fitness Functions and Design Review Gates
- Technical Debt Register and Decision Revisit Triggers

Day 5: Case System Architecture and Design Review Defence

- Case System Briefing: Business Drivers, Constraints and Stakeholder Map
- Utility Tree and C4 View Set Build for the Case System
- Decision Log Drafting with Compared Options and Stated Consequences
- Solution Architecture Document Assembly
- Sponsor Readout and Peer Design Review Challenge

Skills You Will Gain:

- Quality Attribute Scenario Writing
- Utility Tree Prioritisation
- C4 Diagramming
- Architectural Style Selection
- API and Messaging Pattern Design
- Data Store Selection
- Lifetime Cost Estimation
- Trade-off and Risk Analysis

Why Attend This Course:

- Return with a Solution Architecture Document and decision log for a case system, already challenged in a peer design review
- Replace vague non-functional requirements with response measures that testers and operations teams can verify
- Explain to sponsors why one option was chosen over another in cost, risk and delivery terms
- Compare design practice with developers, analysts and technical leads working on finance, logistics, public service and retail systems

Conclusion:

A solution holds up in production when its quality attributes were made explicit, its options compared and its decisions written down while they could still change. The course moves from the solution architect's role and architecturally significant requirements, through C4 views, styles and evaluation methods, to integration, data and sourcing choices, then to decision records, trade-offs, non-functional testing and review gates. The final day applies the full cycle to a case system and produces a Solution Architecture Document with an Architecture Decision Record log that participants can reuse on their next design.