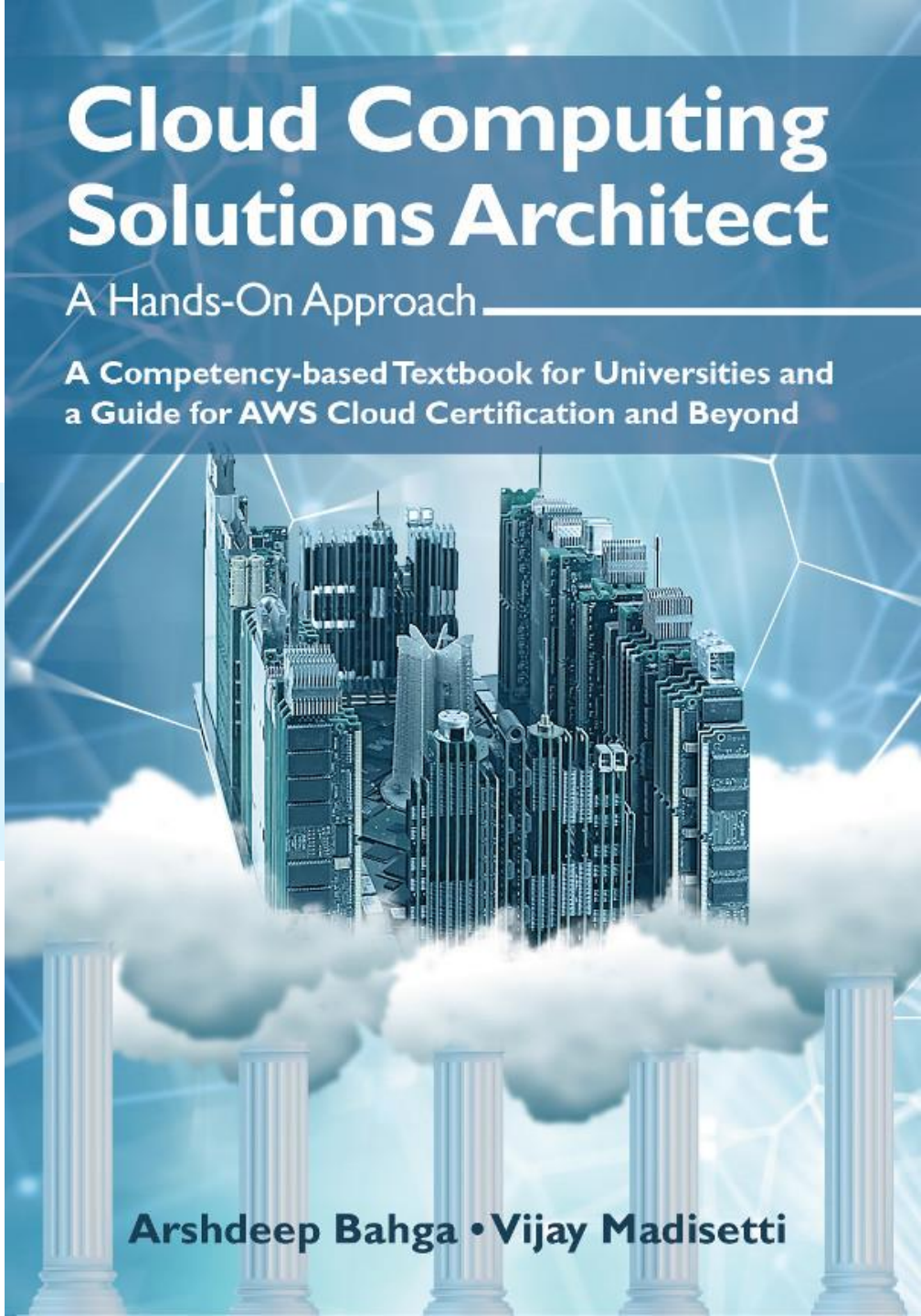
Chapter 15

AWS Well Architected Framework



AWS Well-Architected Framework

- The AWS Well-Architected Framework has been developed by AWS to help cloud solutions architects in designing and operating reliable, secure, efficient, and cost-effective systems in the cloud.
- The Well-Architected Framework is based on the five pillars of:
  - Operational Excellence
  - Security
  - Reliability
  - Performance Efficiency
  - Cost Optimization

Pillar I: Operational Excellence

- The Operational Excellence pillar includes the ability to run and monitor systems to deliver business value and to improve supporting processes and procedures continually.
- Within the Operational Excellence pillar, there are three best practice areas:
  - Prepare
  - Operate
  - Evolve

Pillar II: Security

- The Security pillar includes the ability to protect information, systems, and assets while delivering business value through risk assessments and mitigation strategies.
- Within the Security pillar, there are five best practice areas:
  - Identity and Access Management
  - Detective Controls
  - Infrastructure Protection
  - Data Protection
  - Incident Response

Pillar III: Reliability

- The Reliability pillar includes the ability of a system to recover from infrastructure or service disruptions, dynamically acquire computing resources to meet demand, and mitigate disruptions such as misconfigurations or transient network issues.
- Within the Reliability pillar, there are three best practice areas:
  - Foundations
  - Change Management and Failure
  - Management

Pillar IV: Performance Efficiency

- The Performance Efficiency pillar includes the ability to use computing resources efficiently to meet system requirements and to maintain that efficiency as demand changes and technologies evolve.
- Within the Performance Efficiency pillar, there are four best practice areas:
  - Selection
  - Review
  - Monitoring
  - Tradeoffs

Pillar V: Cost Optimization

- The Cost Optimization pillar includes the ability to run systems to deliver business value at the lowest price point.
- Within the Cost Optimization pillar, there are four best practice areas:
  - Expenditure Awareness
  - Cost-Effective Resources
  - Matching supply and demand
  - Optimizing Over Time

Photo Gallery Application: Original Architecture

- Figure shows the architecture of the photo gallery application.
- The application is implemented in Python and uses the Flask web framework.
- The Flask application is deployed on an Amazon EC2 instance.
- Photos uploaded to the application are stored in an Amazon S3 bucket.
- The records of photos are maintained in a MySQL database instance on Amazon RDS.

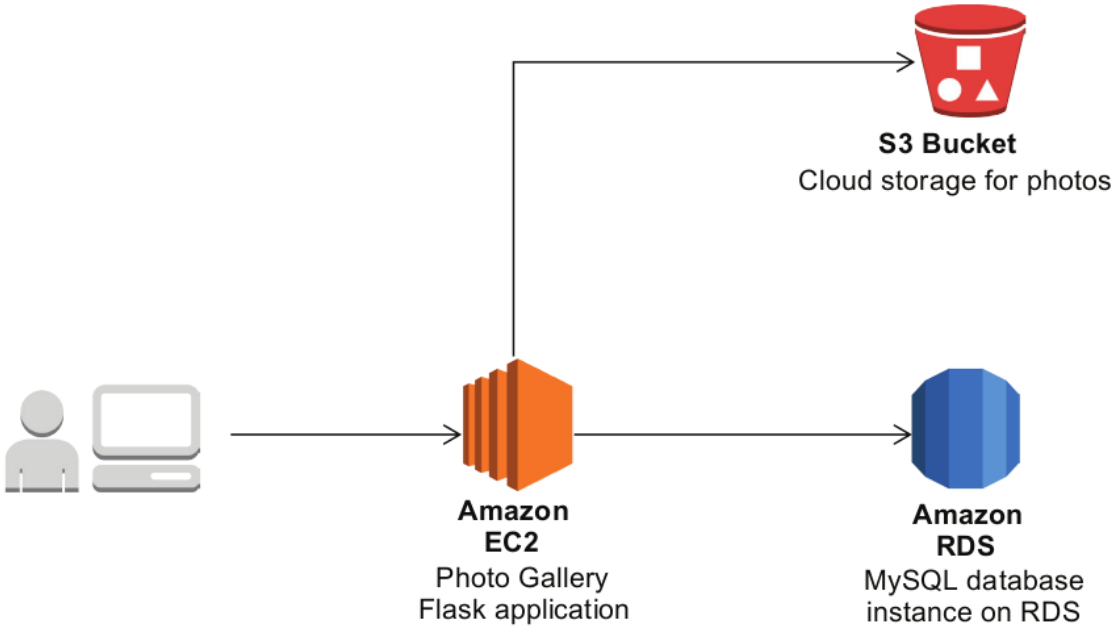


Photo Gallery Application: Improved Architecture

- Figure shows an improved, highly available, fault-tolerant, secure, and reliable architecture of photo gallery application that utilizes the best practices from the AWS Well Architected Framework.