**Deliverable 3: System Architecture Redesign and Integration Blueprint**

**Description:**

This deliverable outlines the redesign of the core system architecture for Safaricom’s mobile money ecosystem. It ensures modularity, high availability, scalability, and secure integration with internal and external services.

**Components:**

* **New Modular Architecture:**
  + Microservices-based architecture using containerization (Docker, Kubernetes)
  + Domain-driven decomposition (e.g., Wallet Service, Transaction Service, Notification Service)
* **Integration Blueprint:**
  + API gateway integration (e.g., Kong or Apigee)
  + Secure external partner APIs (banks, fintechs, government systems)
  + Event-driven communication using Kafka for transaction logs and audit trails
* **Data Flow and Resilience Design:**
  + Multi-region deployment and failover strategy
  + Use of Redis and RabbitMQ for caching and queuing
  + Centralized logging and monitoring via ELK/Prometheus/Grafana

**Techniques and Tools:**

* **Enterprise Architecture (EA) tools** such as ArchiMate for modeling.
* **CI/CD pipelines** with Jenkins and GitLab for automated deployment.
* **Security layer** designed with OAuth 2.0, API keys, and token rotation mechanisms.

**Complexity and Strategic Relevance at Safaricom:**

* Transitioning from **monolithic Huawei-built M-Pesa Core** to containerized services.
* Handling over **50M daily transactions** while maintaining uptime guarantees.
* Securing integrations with CBK, KRA, and fintech partners.
* Design must support **future expansion** to regional markets (Tanzania, Ethiopia).