**High-Level Requirements Document**

**1. Purpose of the Document**

To define the **essential business, functional, and non-functional requirements** needed to guide planning and solution design for migrating telco systems (e.g., OSS/BSS, CRM, NEM) to the cloud.

**2. Scope**

* Migration of **on-premise telco systems** to a hybrid/public cloud.
* Systems include:
  + **OSS/BSS platforms**
  + **Customer Relationship Management (CRM)**
  + **Network Element Managers (NEMs)**
  + **Billing & Charging Systems**
* Integration with mobile money APIs (e.g., **M-PESA**)
* Migration must be secure, with minimal downtime, and ensure compliance with **regulatory bodies** (e.g., CAK, GDPR).

**3. Stakeholders**

| **Stakeholder** | **Role** | **Requirement Focus** |
| --- | --- | --- |
| CIO | Project Sponsor | Business impact & ROI |
| Network Team | SMEs | Network integration |
| IT Security | Risk/Governance | Data protection, compliance |
| Product Managers | Business Units | Service continuity, UX |
| Cloud Vendor | Implementation | Infra provisioning |
| Legal | Compliance | Local & global regulation |
| Finance | Budgeting | Cloud cost models |

**4. Business Requirements (What the business needs)**

* Reduce **operational cost** of data centers by 30% in 12 months.
* Improve **network agility** and service rollout speed.
* Enable **real-time monitoring and analytics** across customer touchpoints.
* Comply with **GDPR**, **ISO 27001**, and **CAK guidelines**.
* Improve uptime from **98% to 99.95%**.
* Allow **elastic scaling** during peak traffic (e.g., promotions or disasters).

**5. Functional Requirements (What the system must do)**

* OSS must support:
  + Network inventory management
  + Real-time fault detection and escalation
* BSS must:
  + Enable cloud-based billing and charging
  + Integrate with M-PESA APIs
  + Support prepaid/postpaid provisioning workflows
* CRM should:
  + Handle at least **500 concurrent customer service agents**
  + Offer cloud-based campaign management features
* NEM systems:
  + Must allow centralized monitoring across multiple vendors (e.g., Huawei, Ericsson)
* Cloud Control Panel:
  + Single-pane-of-glass view for infra management
* CI/CD Pipeline:
  + Automated deployment of patches and microservices

**6. Non-Functional Requirements (How the system should perform)**

| **Category** | **Requirement** |
| --- | --- |
| **Performance** | Latency <100ms between core components |
| **Availability** | 99.95% system uptime (HA/DR zones required) |
| **Scalability** | Auto-scale nodes based on usage thresholds |
| **Security** | IAM roles, encryption at rest & transit, MFA |
| **Compliance** | Data residency in Kenya, audit logs stored for 5 years |
| **Disaster Recovery** | RTO ≤ 4 hours, RPO ≤ 1 hour |
| **Maintainability** | System updates should take ≤ 1 hour with rollback |
| **Monitoring** | Integrated with Prometheus/Grafana or equivalent |

**7. Integration Requirements**

* CRM ↔ BSS (customer orders ↔ billing)
* BSS ↔ M-PESA APIs (payment & credit control)
* OSS ↔ NEMs (alarms, metrics)
* IAM with internal AD and Cloud provider IAM
* Logs sent to SIEM tools (e.g., Splunk or ELK)

**8. Security & Compliance Requirements**

* All PII data encrypted using **AES-256**
* Endpoints protected by **Zero Trust** model
* Security scanning (e.g., OWASP ZAP or SonarQube) integrated into CI/CD
* Ensure **Penetration Testing** before go-live
* Must support **multi-tenancy** with strict access controls

**9. Assumptions & Constraints**

**Assumptions:**

* Skilled cloud engineers and vendors will be available.
* All third-party APIs will be accessible via secure protocols.
* Telco services must continue without full shutdown.

**Constraints:**

* Budget capped at $1.2M
* Migration must finish within 8 months.
* Existing legacy systems may have **limited documentation**.

**10. Success Criteria**

* Zero critical outages during migration.
* SLA adherence: 99.9% availability.
* All migrated systems pass **UAT & security audits**.
* Migration completed within budget and timeline.

**11. Approval Sign-off**

| **Name** | **Role** | **Approval** |
| --- | --- | --- |
| CIO | Sponsor | ✅ |
| Project Manager | Mid-level PM | ✅ |
| Cloud Architect | Design Authority | ✅ |
| Legal & Compliance Officer | Risk Owner | ✅ |