Terms of Reference for the Provision of Quality Assurance of the RNDPS v2 Switch

Background

RSwitch Ltd is an entity mandated by the National Bank of Rwanda to establish and operate the Rwanda National Digital Payment System (RNDPS). Its core objective is to provide universal access to financial services for all Rwandans through an open-loop, interoperable digital payment system.

The RNDPS aims to enhance retail payments and improve customer experiences; by fostering an inclusive ecosystem, RSwitch empowers FinTech players to scale their businesses and drive innovation. Through its mandate, RSwitch catalyzes the adoption of inclusive, secure, efficient, and accessible digital payment solutions. It serves as a catalyst for financial empowerment, promoting economic growth and improving the quality of life for all Rwandans through universal access to financial services.

To effectively support the business strategy, RSwitch would need the services of a full quality assurance to evaluate RNDPS v2 switch and review the security, funcationality and performance of the system.

Objective

The Objective of this activity is to ensure that the new payment Switch is reliable, scalable and conforms with standard industry practice for instant payment systems.

The QA is expected to review and test the system with a view of identifying system errors that may impact both functional and non-functional performance.

The QA shall be provided access to RNDPS system and documentation for testing purpose.

Scope of Work:

	Requirement	Description	Expected Out come
1	End to End P2M and P2P Testing	1. Perform use case testing on both Ingress and Egress network endpoints. 2. Identify usecase error through the flow. 3. Review the generated logs for audit and traceability accuracy.	Detailed test plan and test report that includes. 1. End to end Use case testing 2. Transaction traceability 3. Positive and false positive test cases 4. Use case defects.
2	Security Review	1. Review API security and existing vulnerabilities. 2. Review and assess the W3C XML-Signature method and End to End message processing standard. 3. Review the Cryptographic architecture, key management, and cryptography subsystems. 4. Review the logs and identify any restricted data that is logged.	Provide Assessment report that. 1. Identifies bugs and inconsistency in the software. 2. Assess the Software coding methodology and gaps. 3. Assess the software lifecycle strategy. 4. Identifies if the software adheres to data privacy standards.
3	Code and Configuration Review	1. Evaluation of Code and Unit Testing Process.	Detailed test plan and test report on

		2. Perform a static code analysis, focusing on custom code security and dependencies. 3. Review and identify possible software bugs that may impact performance (memory leak, Injection). 4. Review and assess the Timeout Configuration for Partner.	1. System configuration to that demonstrates the principle of zero trust policy. 2. Details test report on user roles and least privilege policy.
4	Penetration Testing and vulnerability scan.	1. Perform pentest on the integration service bus for both Ingress and Egress network endpoints.	1. Detailed test report on Security vulnerabilities and gaps.
5	System Capacity testing	1. Perform Hardware inventory to establish allocated and available resource. 2. Perform system load testing to establish system capacity in processing P2P and P2M usecases. 3. Identify heavily used services within the system and allocated resource.	1. Detailed test report on the System Load Capacity 2. Report showing the level of service usage and bottlenecks

Expected output.

QA Assessment Report:
A report that highlights key findings and improvement area with regards to the Switch implementation. The report shall include.

a. Integration test report
b. Security Assessment report in line with payment industry standards.
c. Stress and Load assessment Report to assess system ability to support current and near-term growth without additional HW.
d. API Security Assessment report.
e. Overall Assessment report on RNDPS platform.

Qualifications

a) Over 7 years' proven experience in software audit services, specifically in providing support and quality assurance services for software development projects including software change management, user acceptance testing and end user training.

b) Previous experience in payment systems integration such as third-party API integration with Core Banking Systems, Mobile Network Operators (MNO) Integration and Quality Assessment.

c) The Candidate must possess the following IT Technical knowledge and skills.

    i. Digital Financial services/systems: Banking systems; Mobile Network Operators Mobile wallet systems; Payment Gateways

    ii. Proficient in JavaScript/TypeScript, ISO 20022 APIs, MySQL/PostgreSQL, Kafka, Kubernetes, Docker, and security standards like OAuth2/TLS

    iii. Deep technical understanding on Cloud Native architecture.

    iv. High level understanding of IT infrastructure set-up including hyper converged infrastructure.

d) Experience in assessing testing and understanding complex technology solutions.

e) Exceptional Stakeholder Engagement and Communications skills

f) Good presentation skills with the ability to convey key reports and messages.

HOW TO APPLY:

Interested candidates should submit their proposals and cover letter by e-mail to: recruitment@rswitch.co.rw and info@africanenda.org no later than **13th December 2024**.

Please note that applications received after the closing date will not be considered. Only short-listed candidates will be contacted.