Design an action plan and a roadmap for strengthening cloud services at NBI.

Consultancy Mode: Regional
Type of Contract: Lumpsum Contract
Mode of Selection: Individual Consultant
Location: Remote
Duration of Contract: 9 man-days within 2-month period

1. Background

- The Nile Basin Initiative (NBI) is a transitional intergovernmental partnership led by 10 Member States: Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, The Sudan, Tanzania, and Uganda. Eritrea participates as an observer. The partnership was established on 22nd February 1999 and is guided by a **Shared Vision Objective: '***To achieve sustainable socio-economic development through equitable utilization of, and benefit from, the common Nile Basin Water resources*. And more specifically
    - ✓ to develop the Nile Basin water resources in a sustainable and equitable way to ensure prosperity, security, and peace for all its peoples.
    - ✓ to ensure efficient water management and the optimal use of the resources
    - ✓ to ensure cooperation and joint action between riparian countries, seeking win-win gains
    - ✓ to target poverty eradication and promote economic integration.
    - ✓ to ensure that the program results in a move from planning to action

- The Nile Basin countries lack adequate evidence-based information for decision-making in addressing water development challenges related to food, energy, water, climate, and environmental insecurity at national and regional levels. National governments and regional organizations use data to manage water resources and make informed decisions based on historical, real-time, and projected information on Basin resources and their uses.

- Enhanced information-based decision-making in a regional cooperative environment enables more effective planning, designing, and managing water resources to respond to water-related challenges in a system's context. Many of countries have water data systems based on older manual technologies. Data collection is typically considered a local manual activity, such as field sampling or installing and using hydrometeorological monitors such as rain gauges and current meters. Digital technologies are increasingly being used to enhance water resources management at the local, national, and transboundary levels.

- NBI is trying to change the traditional way of managing Water Resources Information by leveraging technology, advancement in Earth Observation (EO) and programming as well as data management. A case in point is that the NBI has developed the Integrated knowledge Portal (IKP) and is in the process of building a Data and Analytical Services (DAS) platform. NBI also has other systems and databases that can be used to improve water resources management, water resources governance and decision making.

- It is also important to note that technology changes rapidly in a phenomenon known as "disruption" and the NBI always must be aware of this and be able to adjust its platforms for them to remain relevant & sustainable.

- As technology changes, it is important that NBI remains in tandem with current technology and envision the future so that the services that it provides to the riparian countries remain of value and help to address the challenges in the water sources management and development domain. It is from these premises that the NBI desires to build a cloud infrastructure on which all the data, information and technology services will be leveraged.

2. Purpose

The primary goal of this consultancy will be to design a cloud infrastructure for NBI that is flexible such that our current technology services are transitioned from the numerous propriety systems and on-premises infrastructure to a more scalable and durable cloud system. Secondly, put in place a structure that allows for the quick deployment of systems and services that are being developed and those likely to be developed in future.

- Future proof our IT investment with systems that will meet the test of time in terms of security, upgrades with latest features, patches, and enhancements.
- Gain efficiency and reliability from tried and tested systems while at the same time reducing management overheads.
- Navigate complex ICT environments by leveraging hundreds of tools services spanning Infrastructure as a service (IaaS), Platform as a Service (PaaS) & Software as a Service (SaaS) by only getting what is required at the right time.
- Improve availability, reliability, and access of systems all over the world.

3. Scope of the assignment

In summary the assignment will involve the following key activities

- Strategy definition
- Planning and discovery
- Migration roadmap and action plan
- Design a new cloud architecture.

In more detail the scope is elaborated in the table below

No	Key Action Point	Description of Work	Level of Effort (days
1	Strategy Definition	1. Align system development with Organizational aspiration, set ups and possible future disruptions	1
2	Planning & Discovery	1. Discover & Document existing systems. 2. Assess baseline requirements and needs for near future (2-5 years) 3. Create desired business case (s) 4. Prioritize systems & create desired matrix. 5. Optimize based on cost and benefit. 6. Propose a migration roadmap and action plan	2
3	Design a new cloud architecture	1. Design a scalable architecture for NBI, that encompasses existing proprietary cloud resources, on-premises applications, and possible future systems, such as web apps, containerized services, and possible hybrid systems. 2. Design a scalable system such as VMs, Storage, Database, Web apps and other systems in a the most optimum way possible (maximizing performance and minimizing cost of operation) giving special attention to IKP.	6

		3. Design access and management of resources taking into consideration the multi locational and exclusivity nature of NBI centers. 4. Design migration plan for existing proprietary services as well as transitional plan for migration on-premises applications. 5. Plan for implementation of Hybrid Systems 6. Provide effective business continuity solutions such as backup & restoration systems, co-location & load balancing, QOS etc. 7. Management and synergizing Azure infra with existing SaaS such as M365, on-premises SharePoint solutions and on-premises MS Dynamics NAV 8. Scalability Plan 9. Sustainability plan 10. Identify and document training needs for various infrastructure managers, prior to migration, and in the 2–5-year time horizon.	

4. Deliverables

Deliverable	Description	Deadline	% Payment
Inception report	Prepare a report containing a description of the adopted methodology, assessment of existing cloud and in premises IT infrastructure, detailed project plan and methodology on how Microsoft Azure Cloud Services will be implemented.	2 weeks after signing the contract	20%
Draft report	Prepare a report containing detailed functional specification and technical specification and design document and plan for duplicated Microsoft services, software's, systems, and applications, a migration plan based on current or near current workloads. This should include plan for managing services such as existing M365 tenant, a detailed migration plan of users, computers, databases, repositories, APIs, and other devices where necessary, a detailed methodology of testing the solutions before being implemented in the production environment, user training requirements, a detailed Support and Maintenance Plan, estimates and projection of required resources based on suggested use cases.	6 weeks after signing the contract	40%
Final report	Prepare and final report by incorporating the feedback from the client.	7 weeks after signing the contract	40%

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5. Management and supervision

The consultant shall sign a contract with the NBI Secretariat. The contract shall be a lump-sum contract where payment shall be upon submission of acceptable deliverables (see deliverables list and payment schedule above). Nile-SEC shall be responsible for the technical oversight. The Consultant shall work closely with the IT Officer of Nile-SEC under and the Information Systems Specialist who will be overall contract manager. Consultations will also be made with the ICT focal points at NELSAP-CU & ENTRO.

The consultant shall work from his/her home venue and will remotely interact with the relevant staff.

6. Level of Effort

The level of effort is 9 man-days spread over a period of two calendar months.

7. Qualification requirements/specialized knowledge/experience required.

- **Education**: Bachelor's degree in any of the following fields: Computer Sciences, Information Technology, Engineering, or related area.
- **Certification:** Azure Solutions Architect is a must and DevOps Engineer, Azure Security Engineer or Azure Data Engineer are an added advantage
- Should demonstrate relevant work experience and skills designing and maintaining cloud solutions and their associated IaaS or PaaS. With good understanding on the network, security, and cost implications- Should show evidence of directly implementing 3 cloud projects in the last 5 years (two must be in Azure)
- **Modern Authentication:** Good knowledge and use of modern authentication mechanisms such as oAuth2, Kerberos
- Understand the concept of Kubernetes containerization, including migration of applications.
- **APIs:** Good use of RESTful pattern and HTTP Protocol, APIM, Swagger
- **Automated Testing**: Hands on experience on Automated Test tools
- **Monitoring:** Azure Monitoring
- Understand the use of project planning & management tools & communication during implementation.

8. How to Apply:

Interested qualified candidates must be sent to wrmconsult@nilebasin.org not later than 05/06/2024.

Document to be submitted:

- An updated current CV with contact details of at least 3 referees.
- A methodological note, not exceeding one page indicating how this assignment will be conducted.
- Documented evidence of two (2) cloud projects implemented.