



DEVELOPMENT OF THE NgREN FEDERATION



NgREN Journey so far

- ❑ The NgREN has connect 27 Federal Universities, National Universities Commission and Committee of Vice Chancellors (CVC) Secretariat to a high speed 10Gigabit core having access to share internet resources, contents and collaboration.
- ❑ We have also provided high definition video conferencing infrastructure capable of multi-part conferencing between each university.
- ❑ We have setup various Technical Working Groups to provide support to the Network e.g Federation Working Group, Network Operations Working Group e.t.c
- ❑ Plans are ongoing to expand the Network to additional 102 Universities.
- ❑ With all this effort we realized we have only built a Network without a Federation.



The Need for a Federation

Today, research is not confined to a single researcher or location.

- ★ It cut across geographical borders.
- ★ It requires collaboration among researchers that may not necessarily be in a single location.
- ★ It requires access to resources (***e-books, e-journals, research databases, virtual laboratories, local researches and projects, Learning Management Systems, specialised discussion groups, etc***)
- ★ Contents could be within a single university but could also be across many universities.
- ★ Access to the contents requires:
 - ★ Authentication – verifies who you are, (uses: ***username/password; cards, retina scan, voice recognition, fingerprints***).
 - ★ Authorisation – verifies what you are authorized to do or access.
- The major challenges faced by the provider of this resources is identity crisis i.e. the difficulty to verifies who the users are because of multiple usernames and password.



What is a Federation?

- ❑ A Federation is a set of trust domains participating in a confederation to coordinate sharing and exchange of information while each component retain its autonomy.
- ❑ Federation provide the capabilities for faculty, researcher, and students to collaborate with other Universities by allowing them to transparently and securely access external resources with their University IDs.
- ❑ Each trust domain decides what information to be shared, which other domains may participate in the sharing and in which ways.
- ❑ Federated identity, and its management, refers to the policies, processes, and technologies that establish user identities and enforce rules about access to digital resources.



Building the NgREN Federation

- ❑ There is only one Certificate Authority (CA) and Federation per country except in some countries like US.
- ❑ Currently the NgREN “Catch-All” IdP has been deployed and is maintained by Eko-Konnect as part of el4Africa. at <https://idp.ngren.edu.ng>
- ❑ With a database of users, any institution can setup an IdP & SP and participate in the evolution of policies and framework for the NgREN federation.
- ❑ The bedrock for any functional federation is the building of trust among stakeholders i.e. trust to collaborate and share resources.

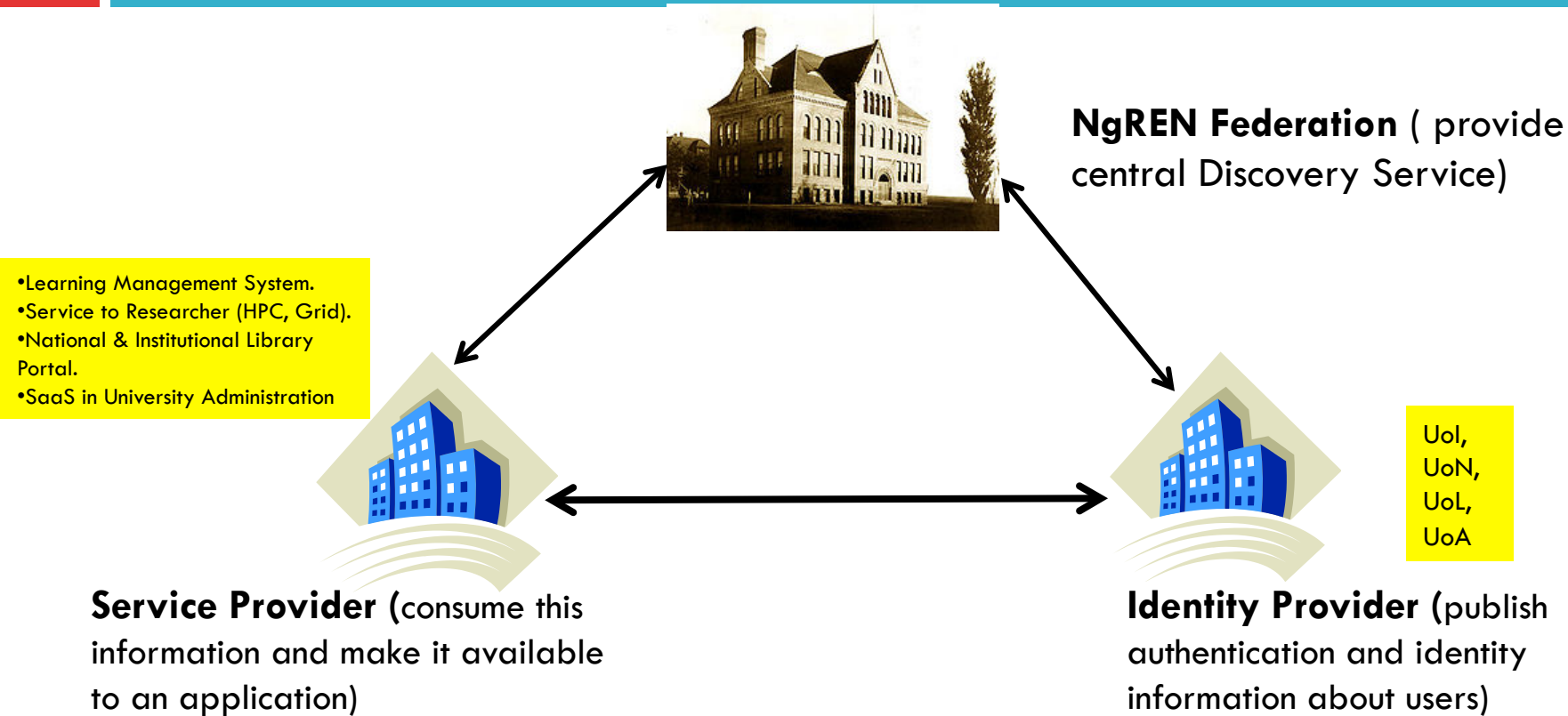


NgREN as an Entity

Apart from provisioning resources centrally, NgREN will maintain the list of all trusted domains (IdPs and SPs) in the federation as well as:

- define agreements, rules, and policies
- provide some user support (documentation, email list, etc.)
- operate a central discovery service and test infrastructure
- provide self-service tools for managing IdP and SP data
- provide application integration support
- develop custom tools for the community

Component of a Federated System



Benefit of Identity Federation

- Enhanced security with fewer data spills.
- Release of only the minimum information necessary to gain access to resources (via attributes).

Safety and
Privacy

- Single sign-on with University ID.
- Improved alliances through interoperability.
Create a standard data schema for Nigerian HEIs

Convenience

- Once implemented, federated access relatively simple to extend.

Scalability

Authorization
and
Authentication

- Campus does the authentication, maintaining control of user information.
- Service provider makes access decisions based on attributes.



Risks of **Not** joining a Federation

- A decision to not federate and specifically to not join the NgREN federation or any other SAML identity federation carries with it the following risks:
 - ▣ Lost or diminish scientific research potential
 - ▣ Unsustainable growth and management of the Identity Management effort
 - ▣ Loss of status and recognition with peers (local and international)
 - ▣ Loss of access to vast global research and learning resources
 - ▣ Unresponsiveness to funding agencies (A number of funding agencies e.g Euro-Africa joint action programmes, the Horizon 2020 and Africa Connect Projects, have signaled strong support for federated identities and the cost savings realized from organizations joining identity federations. Presently, only Ubuntu Net Alliance (in the Eastern and Southern Africa) benefits from these projects in Africa.

Call to Action: the Immediate task

- ❑ Building Trust in the community (Stakeholders) to create a trusted Federation?
- ❑ Develop strategic roadmap to achieve the NgREN Federation.
- ❑ Develop and establish pilot trusted domains (IdPs and SPs) in participating Universities.
 - ❑ Enable participating member to join eduGAIN
 - ❑ Enable participating member to deploy eduroam
- ❑ Develop Rules, Policies and Agreement for the NgREN Federation.
 - ❑ Best Practice for IdP & SP
- ❑ Provision of Technical assistance/capacity building (Shibfest II) on the deployment and maintenance of trusted domains (IdPs and SPs).
- ❑ Aggregation of the available resources in the institutions for purpose of collaboration and sharing.



GRACIAS

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