eduID as a REN service

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Agenda

- About Eko-Konnect
- BonafID overview
  - Motivation for BonafID
- Changing the Narrative: Towards an African REN support ecosystem
    - Datasphir co-sourcing
      - Collaboration with DAASI International
    - Technical overview
      - Open Source Project - https://gitlab.bonafid.africa/iam/bonafid
- Demo

About Eko-Konnect

- Community-driven Research & Education Network (REN) established in 2009.

  - Deliver affordable connectivity, "above the net" services and provide research infrastructure.

  - Facilitate local collaboration, and with regional & global REN community.

Some History

- Emerged from a 2009 task force to establish WACREN
  - demonstrator of a template for NREN developments in WACREN
- Collaboration between teams of students from the University of Lagos and the KTH Royal Institute of Technology, Sweden
  - Implemented pilot REN connecting 5 institutions and the IX.
  - Used open- source industrial grade routers - optimized Linux OS
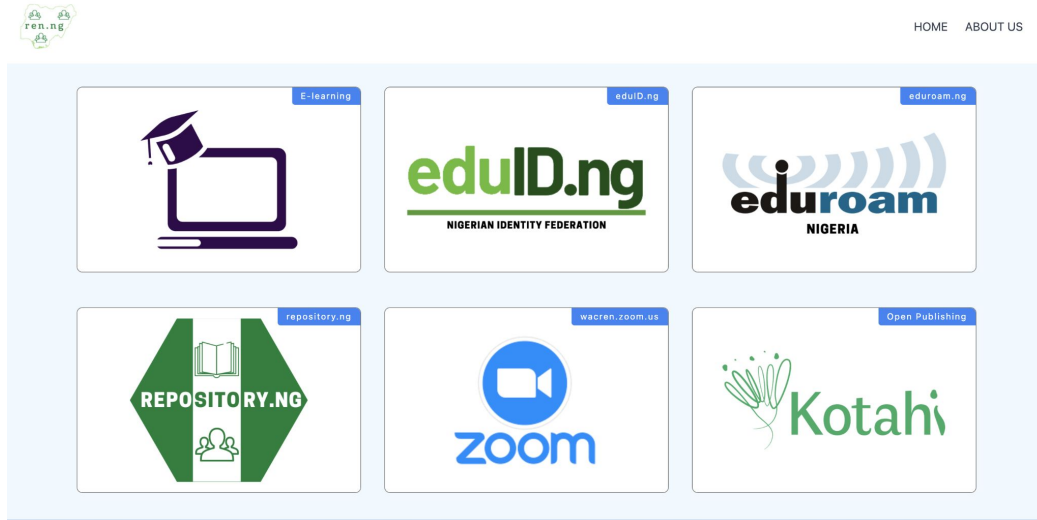
Carenet WACREN CSD summer 2010

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Current Activities

- ○ Federated Identity & Access Management
- ○ Open Access Repositories
- ○ Journal and preprint publishing platforms
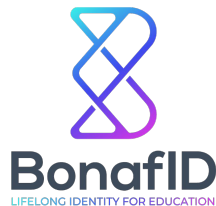- ○ Learning and Collaboration

BonafID

Bona fide

/ˌbəʊnə ˈfʌɪdi,ˌbəʊnə ˈfiːdeɪ/

adjective: **bonafide**
1.   genuine; real.

DEFINITION. a bona fide **person or thing is really what they seem to be or what they claim to be**.

BonafID
LIFELONG IDENTITY FOR EDUCATION

A cloud-based/on-premise open-source identity and access management (IAM) platform for RENs
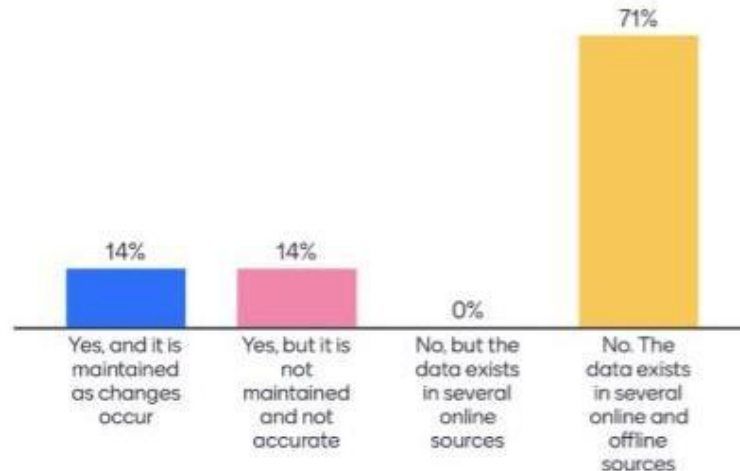
Motivation for BonafID

- Eko-Konnect has been active in WACREN efforts to champion federated identity in the region
  - Partner in ei4Africa, Sci-GAIA and eduID.africa (2013 - date)
- Operator of eduID.ng federation which is waiting for feedback from eduGAIN
- Operations Team for the Nigerian eduroam federation

but a major challenge remains ….

Do you have a single source of user data in your institution for authentication and role-based access to online resources

Mentimeter

14%	14%	0%	71%
Yes, and it is maintained as changes occur	Yes, but it is not maintained and not accurate	No, but the data exists in several online sources	No. The data exists in several online and offline sources

Voting is closed

Changing the narrative

Towards an African REN support ecosystem

Challenges can be Opportunities

- Huge potential for REN provider offering quality services
  - heightened by Covid-19 and renewed drive for digital services
- **African RENs are trusted brands that can play a major role in community-governed open science infrastructure**
  - Growing need for services and cloud infrastructure
  - Frequently with staff expertise mainly in networking; little in-house capacity for software development.
  - Specialised skills required to sustain REN services not readily available
  - Using Ad-hoc community support and infrastructure partners is not reliable
- **A new model required to develop and sustain reliable REN services for digital transformation**
  - Possible with **open technology** partners who have history of supporting community goals; Lessons to learn from the LIBSENSE approach to platforms for scholarly communication
- Eko-Konnect co-sources infrastructure development and technical capacity building to run reliable services
  - Scholarly Communications Platform - Collaboration with Coko Foundation on Kotahi
  - Research Data management Repository - Collaboration with Invenio community on open source project that was initially developed by CERN
  - Cloud infrastructure development and technical capacity building - co-sourced with Datasphir
    - Provide a team of developers who liaise with Eko-Konnect Technical Project Manager.
    - Datasphir partnership with DAASI International has resulted in the BonafID aspiration.
- **Eko-Konnect wants some more …..**.

About Datasphir

- Long-standing open technologies solutions partner.
  - Project owner of the CARENET-WACREN project.
  - Partnered with University of Lagos and IXPN to deliver project
    - Nurtured and sustained project to establish Eko-Konnect; contributed to the development of other clusters in Nigeria
  - Initiator of the Africa Training Initiative - a social model for NREN capacity building.

Other key attributes

- eduERP - Open Source School Management Software System
- Long history of capacity development
  - Online learning
    - nu-learning.com portal as Mindleaders country representatives (2001 -2005)
    - Moodle Providers
      - Peoples-uni, USAID, World Bank, UNESCO, several campuses, etc.
  - Capacity Building
    - Technical R&E communities - Python African Tour, Nigerian Linux Users Group (NgLUG), ICT Forum/NgNOG, Campus Technology Internship Programs(CTIP)
- Campus Network Support & NREN Development
- Datacenter and Cloud
  - Technology partner for the WACREN Cloud pilot

About DAASI International

- Established 2000 as a spin-off of the computing centre of the University Tübingen, Germany
- Areas of work: Identity and Access Management with open source software; Digital Humanities
- Stands for digital sovereignty through:
  - Open source software for flexibility
  - Data protection for informational self determination and digital sovereignty
  - Open standards for interoperability
- Customers in research, administration / public domain and enterprise

DAASI International is heavily involved in Research

- Large customer base in research (e. g. many German universities, a Project for ESA Earth observation data)
- Actively involved in various national and international research projects
  - AARC: Authentication and Authorization for Research. EU-funded project to harmonize AAI between research infrastructures and infrastructure providers.
  - DARIAH: Research community for Humanities. Design and involvement in operations of the AAI based on AARC outcomes.
  - FIM4L: Federated Identity Management for Libraries. Library-led working group to established federated authentication for libraries.
  - FIM4R: Federated Identity Management for Research.

Intro to IAM & Federated IAM

- IAM - Identity & Access Management
  - Identity management (IDM) is vital to manage and merge identity data from different sources efficiently and automatically
  - Access management (AM) securely controls access to resources based on attributes (ABAC) or roles (RBAC) and can offer Single-Sign On (SSO)
  - Increases usability, enhances security and data protection and makes administration easier and less prone to errors
- Federated IAM (FIM)
  - Allow users to access two or more trust domains using the same digital identity.
    - Example: Student from University A can securely access resources from University B without needing an additional account
  - Commonly achieved using the SAML2 protocol and identity & trust federations on a national and international level (eduGAIN)
  - OpenID Connect (OIDC) is gaining traction and there is a draft on federations

Intro to eduID

- eduID as a lifelong identifier throughout a person's educational career
- Can be seen as an addition to federated IAM to allow recognizing a user independently of the current affiliation in order to offer services more efficiently
- Efforts in many countries to establish eduID (e.g. Switzerland, Netherlands, Germany, ...), as well as on an international level for interoperability
- Implementation details vary based on situation in different countries
  - Is there already a established decentral landscape or not? Preferences of participants etc.

Technical Architecture of BonafID

- We don't want to reinvent the wheel and instead use established open software and open standards and tailor them to specific needs
- For Identity management: didmos suite
  - **D**AASI **ID**entity **M**anagement with **O**pen **S**ource
  - Modular framework for various IAM tasks, e.g. Metadirectory, REST APIs, GUI for self service and administration, synchronization from data sources, provisioning, identity governance
- For FIM and SSO: Shibboleth IDP
  - Widely used SAML2 and OIDC Identity Provider (IDP) implementation
  - Very capable and often deployed in federated IAM
    - Many entities in eduGAIN are based on Shibboleth software
  - We integrated a SWITCH developed Shibboleth Plugin for eduID
- BonafID is designed to work as a multi-tenant, Software as a Service-type solution
  - Thus every higher education institution can manage their own data

Technical Architecture of BonafID
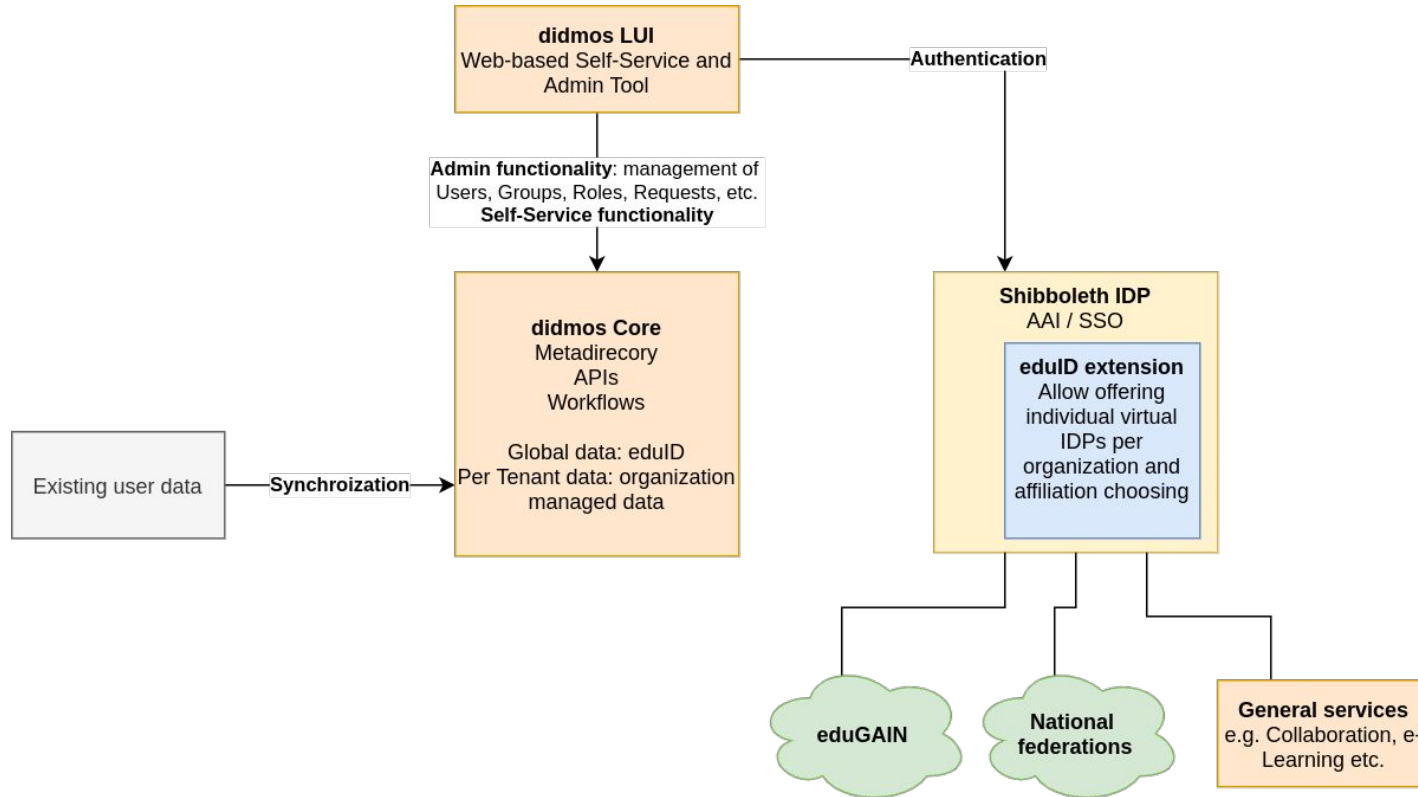
Thank You!

Join Us

e-mail: info@bonafid.africa

https://gitlab.bonafid.africa/iam/bonafid

Demo

- Based on the technical architecture we've implemented a prototype to showcase the vision of BonafID and kickstart further development
- didmos was extended with basic eduID functionality and workflows
- We used parts of SWITCH' edu-ID code to extend the Shibboleth IDP with multi-tenancy and eduID functionality
- Available on https://demo.bonafid.africa