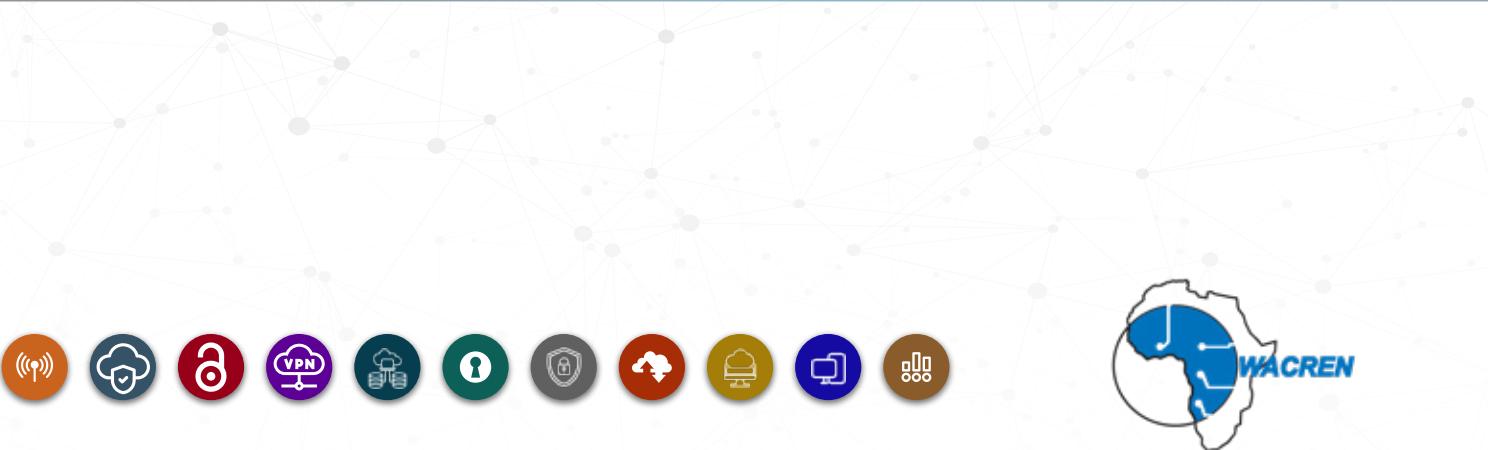


# WACREN MEMBER SUPPORT PORTFOLIO

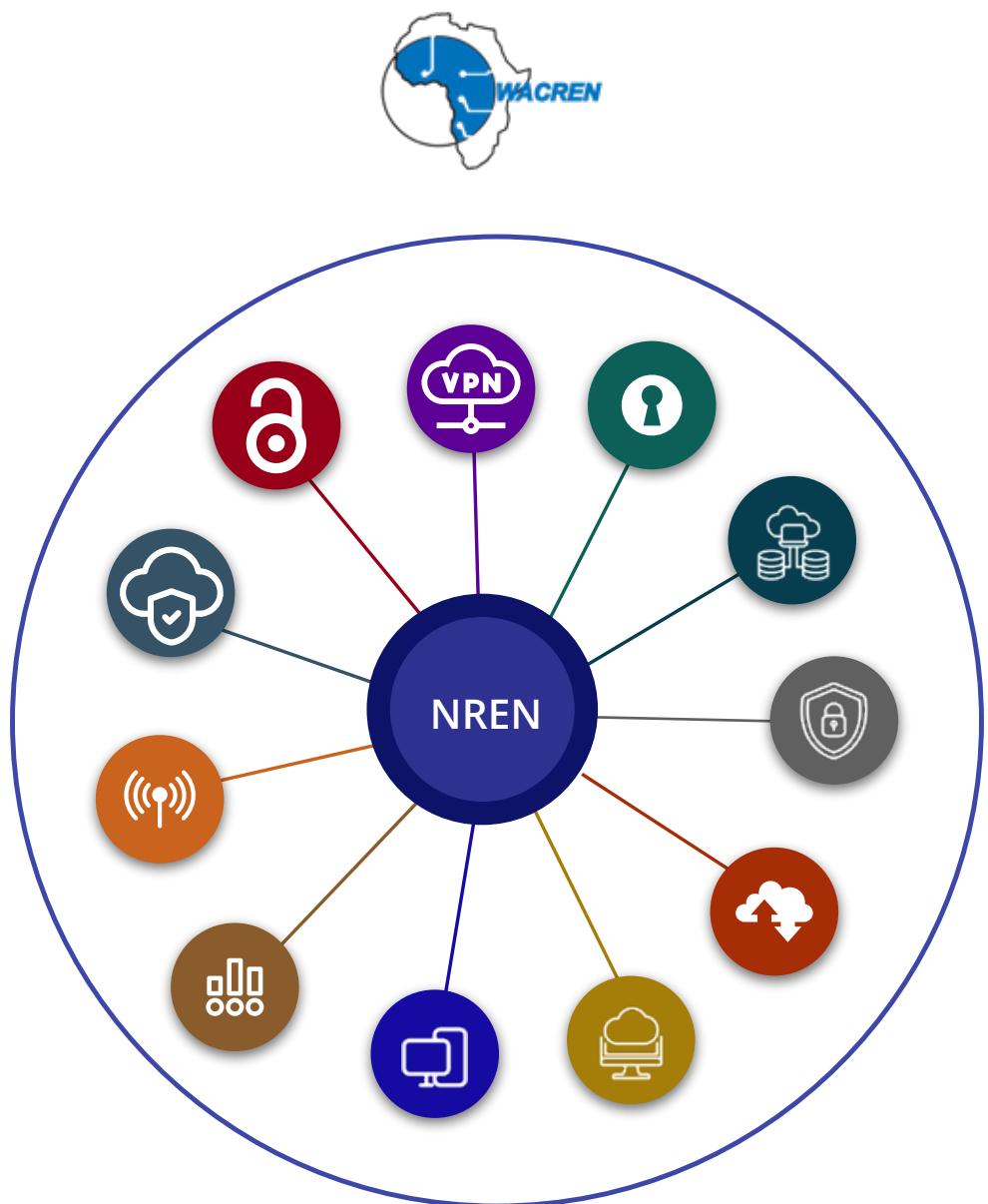


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# MEMBER SUPPORT PORTFOLIO

The offerings in the Member Support Portfolio are available to interested members on a cost-recovery basis, which aligns with our objective of helping build and grow a stronger community of interconnected members. This approach ensures the sustainability of our services while empowering NRENs and their institutions to access a value-laden bouquet of digital infrastructure and resources for the discovery, usage and sharing of knowledge to inform innovation and development in the WACREN region and beyond.





# WACREN CONNECT

WACREN Connect is a unified connectivity offering that provides research and education (R&E) institutions in West and Central Africa with high-speed access to the WACREN regional backbone, reliable global IP Transit, and secure Wi-Fi roaming through eduroam. This offering enables seamless collaboration, efficient access to global research resources, and mobility for students, researchers, and staff across participating institutions worldwide. With WACREN Connect, member NRENs can deliver fast, secure, and cost-effective internet connectivity that strengthens participation in the global research and education ecosystem.

## High-speed access to the WACREN backbone

WACREN provides dedicated high-speed connectivity through its regional backbone, linking member NRENs and their member institutions across our region and beyond. This robust infrastructure ensures low-latency, high-capacity data transmission to support bandwidth-intensive academic and scientific activities. By connecting to the WACREN backbone, institutions gain a reliable platform for regional collaboration, access to global research infrastructures, and participation in pan-African and international education and research initiatives.

## Global IP Transit

WACREN provides global IP Transit support to its member NRENs, offering a cost-effective, high-performance gateway to the broader internet. By aggregating demand and leveraging regional and international partnerships, WACREN provides competitively priced, high-quality internet connectivity that supports teaching, learning, and research at scale. This positions member NRENs to serve their institutions more efficiently while participating fully in the global knowledge economy.

## eduroam®

eduroam (education roaming) is a worldwide service that provides secure access on campus for the research and education community. It allows researchers, students and staff from participating institutions to visit and access networks and the Internet at other participating institutions without needing to request passwords or reconfigure their laptops or other mobile devices.

WACREN operates a regional proxy for the African eduroam confederation, provides hosting for country-level components of the service, and an application for NRENs to operate the service and facilitate the management and monitoring of participating institutions. With benefits for users and their campus IT departments, eduroam saves time and facilitates active and enduring collaboration between countries and institutions.



# WACREN CLOUD

WACREN Cloud is designed to support the growing digital needs of the research and education community in West and Central Africa. It brings together ongoing pilots and emerging offerings under a unified platform, anchored by an open directory system. The cloud currently delivers four core offerings for our Members: edulD-as-a-Solution (edulDaaS) for identity and access management, hybrid learning with integrated video conferencing, research data portals and management tools, and platforms for scholarly communication. WACREN Cloud lays the foundation for open science by enabling secure collaboration, resource sharing, and digital transformation across higher education and research institutions.

## **edulD-as-a-Solution (edulDaaS)**

The edulDaaS offering enables NRENs and their communities to provide education identity for their users in an easy-to-deploy and manage manner. By removing geographical and technical barriers to sharing information, this offering allows NRENs to offer a single sign-on, making it simple and secure to access remote education or scholarly resources, tools and systems as if they were in a user's home institution. In addition, the solution enables the integration of the resulting Identity providers into federations worldwide to foster resource sharing.

## **Integrated Learning Solution**

WACREN offers member NRENs with video infrastructure, tools and training to leverage the power of audiovisual for research collaboration, teaching and learning. This solution is at the core of WACREN's digital education infrastructure strategy. The tools include:

### **WACREN Zoom**

For video meetings, chats, and mobile collaboration within the research and education community. Access is managed via the edulD trust and identity framework. This tool can be integrated with learning management systems (LMS) and has robust collaboration tools such as video breakout rooms, multi-sharing, polling, and digital whiteboards with high-quality HD video and audio. All media data sits within the local network.

### **WACREN Video**

Is a cloud-based video management tool that allows course instructors to upload, edit, post, and share course video content with learners. This tool extends teaching and learning beyond the four walls of the classroom.

### **WACREN Drive**

Is a storage and collaborative tool for the research and education community. Think of it as WACREN's R&E version of Google Drive, Box, and Dropbox. The tool allows secure file storage, sharing, and collaboration on documents in real time.

### **WACREN Learning**

Is an online learning platform built on Moodle and tailored specifically for NRENs and their member institutions. Designed to support teaching, training, and capacity building, WACREN Learning offers a flexible, scalable, and secure environment for delivering digital education. This platform is optimised for performance, has rich learning tools and is designed to grow with institutional needs.



# OPEN SCIENCE

## LIBSENSE Capacity Building

The **LIBSENSE National Open Science Roadmaps** is designed to guide African countries in advancing open science practices at the national level. The roadmaps provide a structured approach for governments, research institutions, and stakeholders to foster open science policies, improve research collaboration, and enhance access to scientific knowledge. By aligning national policies with UNESCO Recommendations on Open Science, LIBSENSE strengthens the open science ecosystem, promotes transparency, and supports sustainable development goals across the continent.

## Open Access Infrastructure for Scholarly Communication

### Regional Catchall Repository - BAOBAB

WACREN has developed **BAOBAB** to meet the needs of countries that lack the requisite resources to operate a national repository. BAOBAB is a regional catchall repository designed to manage, preserve, and share research data, publications, and other digital assets at scale. Tailored to handle large volumes of data, BAOBAB offers institutions a reliable solution for building and maintaining robust, long-term digital archives. Every record on BAOBAB automatically has a persistent identifier assigned to it.

### National Multi-Tenanted Shared Platform for NRENs

WACREN's national shared repository empowers multiple institutions across our region to host their repositories on a centralised, cost-effective infrastructure. By pooling resources, the platform reduces operational costs and promotes seamless collaboration among member institutions.

With its highly customisable architecture, institutions can tailor their repository interfaces, metadata standards, and workflows to align with both institutional priorities and regional needs. This shared solution ensures that each institution retains control over its repository set-up while benefiting from the reliability, scalability, and efficiency of WACREN's unified platform.

### Scholarly Publication Platforms

WACREN provides a suite of platforms, including journals, preprints, and peer review platforms, that enable an efficient workflow for quality peer review and scholarly publishing.

**PublishNow** is a flexible, customisable publishing platform that supports the entire scholarly communication process — from preprints and peer review to curation, production, and final publication. Built on a modern, open infrastructure, it offers adaptable workflows for traditional journals and Publish-Review-Curate (PRC) models, scholar-led publishing, and overlay journals.

PublishNow complements BAOBAB, our preprint repository, creating a connected ecosystem that strengthens African research visibility, trust, and community-driven publishing. Together, they provide the foundation for sustainable, scalable, and inclusive scholarly communication across the continent.

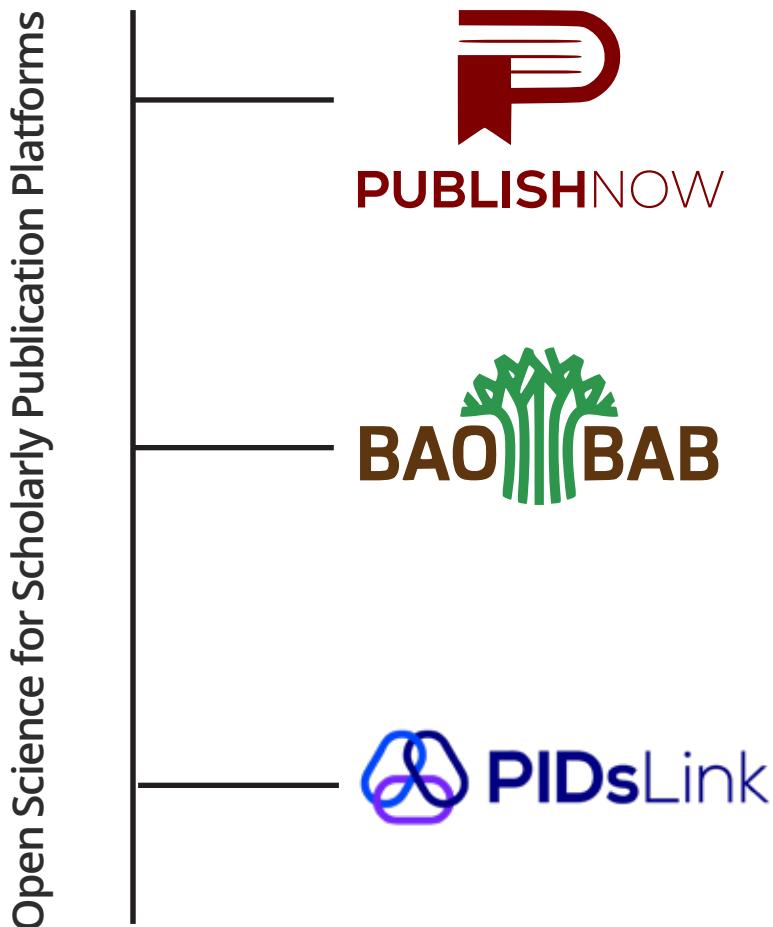
## Research Data Management Platforms

WACREN supports research data management (RDM) across its network by providing tools and platforms that help researchers plan, store, share, and preserve research data in accordance with open science best practices. Delivered via the WACREN Cloud, researchers can access RDM tools tailored to the African research context.

## Persistent Identifiers

**PIDsLink** is a homegrown persistent identifier (PID) platform built by WACREN to put African research on the global map. It assigns Archival Resource Keys (ARKs) to digital and physical knowledge assets, ensuring they stay accessible, citable, and visible for the long haul, no matter how often their locations or URLs change. Designed with and for the African knowledge community, PIDsLink makes it easy for institutions to adopt PIDs and boost the global discoverability of African research outputs - papers, datasets, theses, images, and more.

Built on open-source technology, PIDsLink offers a cost-effective, adaptable solution tailored for African institutions. It integrates seamlessly with platforms like BAOBAB and DSpace, allowing users to assign and manage PIDs effortlessly across repositories and digital infrastructures.





# VIRTUAL PRIVATE NETWORKING (eduVPN)

WACREN provides support for NRENs to participate in eduVPN. eduVPN makes untrusted networks secure by establishing an encrypted connection. This way, students, lecturers and researchers can use the Internet securely everywhere, allowing the NREN or institution to grant access to protected systems on its network securely, even if users are using the Internet connection from home or a public network.

## Virtual Private Networking (eduVPN)





## CONTENT DELIVERY

The WACREN regional backbone provides connected NRENs with high-speed access to the points of presence of a growing list of content delivery providers in the region, such as Google and Facebook.





# NETWORK PERFORMANCE

Connected WACREN members are provided with network monitoring and management services that provide graphing, optimise performance and permit the prompt identification and resolution of issues across the network.

## perfSONAR Multi-Domain Monitoring

Research collaborations span local, national and international network domains; therefore, end-to-end visibility is necessary to track potential issues and ensure consistent performance. perfSONAR enables NREN engineers to connect to monitoring points across the WACREN network and multiple networks worldwide to take robust and non-intrusive measurements to locate and troubleshoot performance issues. Support for small, inexpensive devices extends this perfSONAR in a way that allows NRENs to include member campuses and support them in monitoring their internal networks.





# CYBERSECURITY SUPPORT

## WACREN CSIRT

**WACREN CSIRT** provides expert guidance and hands-on support in managing, mitigating, and preventing cybersecurity threats. This team functions as a frontline defence against cyberattacks, playing a vital role in safeguarding the integrity and resilience of connected institutions across the WACREN region. WACREN also empowers NRENs to establish and develop their own CSIRT capabilities, enhance threat detection and incident response mechanisms, analyse and mitigate security incidents effectively and improve overall cybersecurity posture and preparedness

## WACREN Sentinel

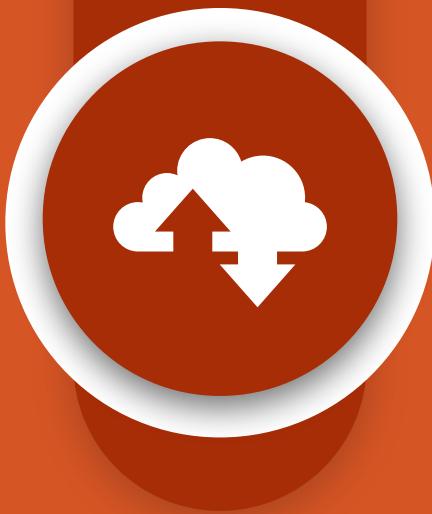
WACREN Sentinel is a threat intelligence platform enabling institutions to operationalise cybersecurity data effectively. Delivered within the WACREN Cloud, Sentinel provides a persistent, secure environment for detecting, analysing, and responding to cyber threats. By leveraging curated threat feeds and integrating open-source tools, WACREN Sentinel empowers institutions to access tailored reports, automate data pipelines, visualise threat trends, and simulate incident response — collaboratively and in real time.

With WACREN Sentinel, regional institutions can strengthen their cybersecurity posture, enhance situational awareness, and respond proactively to emerging threats within a trusted, community-driven platform.

## TBA Registry and Cooperation Platform

**TrustBroker Africa (TBA)** is a trusted clearinghouse for security information, supporting timely intelligence sharing, capacity development, and coordinated incident response. Built on international best practices, the platform enables NRENs and institutional CSIRTs to collaborate effectively, manage threats, and respond to cybersecurity incidents quickly and confidently.

Participating CSIRTs from NRENs and research institutions benefit from actionable threat intelligence, shared situational awareness, and access to a regional network of trusted cybersecurity teams. TrustBroker Africa fosters a collective defence approach, empowering institutions to anticipate, detect, and contain threats before they cause significant disruption. Through this programme, WACREN is advancing a secure, cooperative, and cyber-resilient research and education environment for Africa.



# HOSTING SUPPORT

## DNS Hosting

WACREN offers reliable DNS hosting services to support the digital infrastructure needs of NRENs. This includes the provision of secondary DNS servers, which significantly enhance the reliability and resilience of NREN domain names by providing failover options in the event of primary server outages. In some cases, WACREN can also host the primary domain name server, complemented by a geographically distributed secondary server to ensure continuous domain resolution services.

Beyond basic DNS, WACREN's support extends to the hosting of both primary and secondary instances of critical infrastructure services such as RADIUS and LDAP. These services are foundational to enabling identity federation and network authentication frameworks, particularly for implementations aligned with eduid and eduroam requirements.

## Web Hosting

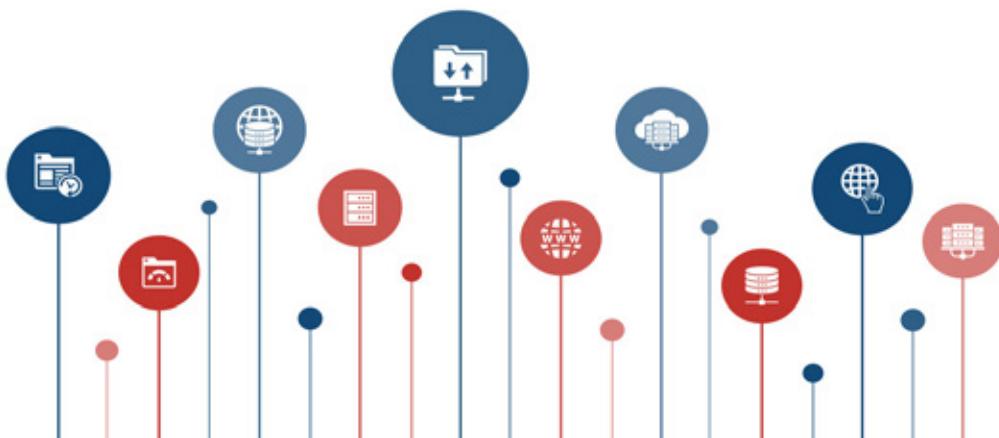
WACREN provides robust web hosting solutions tailored to the needs of NRENs. The hosting environment supports various web server implementations, offering flexibility and adaptability to different technical preferences and requirements. As part of its security-first approach, WACREN integrates a Web Application Firewall (WAF) powered by the OWASP Core Rule Set into its hosting service.

This WAF is designed to protect NREN web applications against common vulnerabilities identified in the OWASP Top 10 threats. The web hosting service also encompasses broader hosting capabilities, including support for authentication servers, as well as software and database mirroring, ensuring high availability and continuity of essential services.

## Kubernetes Infrastructure

For NRENs seeking scalable and resilient infrastructure, WACREN offers a Kubernetes-based hosting environment. This solution allows institutions to deploy and manage their business applications in a containerised, self-healing system that is designed for high availability.

The Kubernetes infrastructure is particularly suited for applications that demand secure, always-on operations, and it provides the flexibility to scale resources dynamically based on demand. With this offering, WACREN empowers NRENs to move beyond traditional hosting models, adopting cloud-native practices that ensure the reliability and robustness of their digital services.





# NETWORK OPERATING CENTRE AS A SUPPORT (NOaaS)

NOC-as-a-Support (NOaaS) is a bespoke offering that provides network infrastructure monitoring and maintenance for NRENs. The infrastructure is supported using secure protocols as a first—or second-line support service in collaboration with the NREN engineers. This way, the NREN remains in charge, but they can join, assist and learn how to do it. This WACREN service is available to Members who are understaffed or lack the technical expertise required to maintain an excellent-quality service.





# BUSINESS SERVICE MONITORING AND OBSERVABILITY

WACREN Business Service Monitoring and Observability offer is a ready-to-use, modern system processes and business applications monitoring solution. The solution enables the System operation or business support team to monitor metrics and gather logging information in real time. It helps to proactively and effectively observe trends in the systems and services usage. With this solution system and business service audit are made easy.





# CAPACITY BUILDING ON DEMAND

Capacity building in WACREN is an iterative social program that engages the NREN and its community. Apart from the publicly scheduled regional workshops that are open to all member countries, a tailored plan is available and offered on demand to NRENs depending on their requests and requirements. It can take several forms, including, but not limited to, management consulting, engineering support for NREN and campus networking, Identity Federations, and other national research infrastructures.



This document is not intended for public distribution, but rather for internal use by NRENs. The prices indicated are for reference only and may vary depending on the specific context and the circumstances of each NREN.

For more info on WACREN please visit  
**[www.wacren.net](http://www.wacren.net)**

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