

**WEST AND CENTRAL AFRICAN
RESEARCH AND EDUCATION NETWORK
(WACREN)**

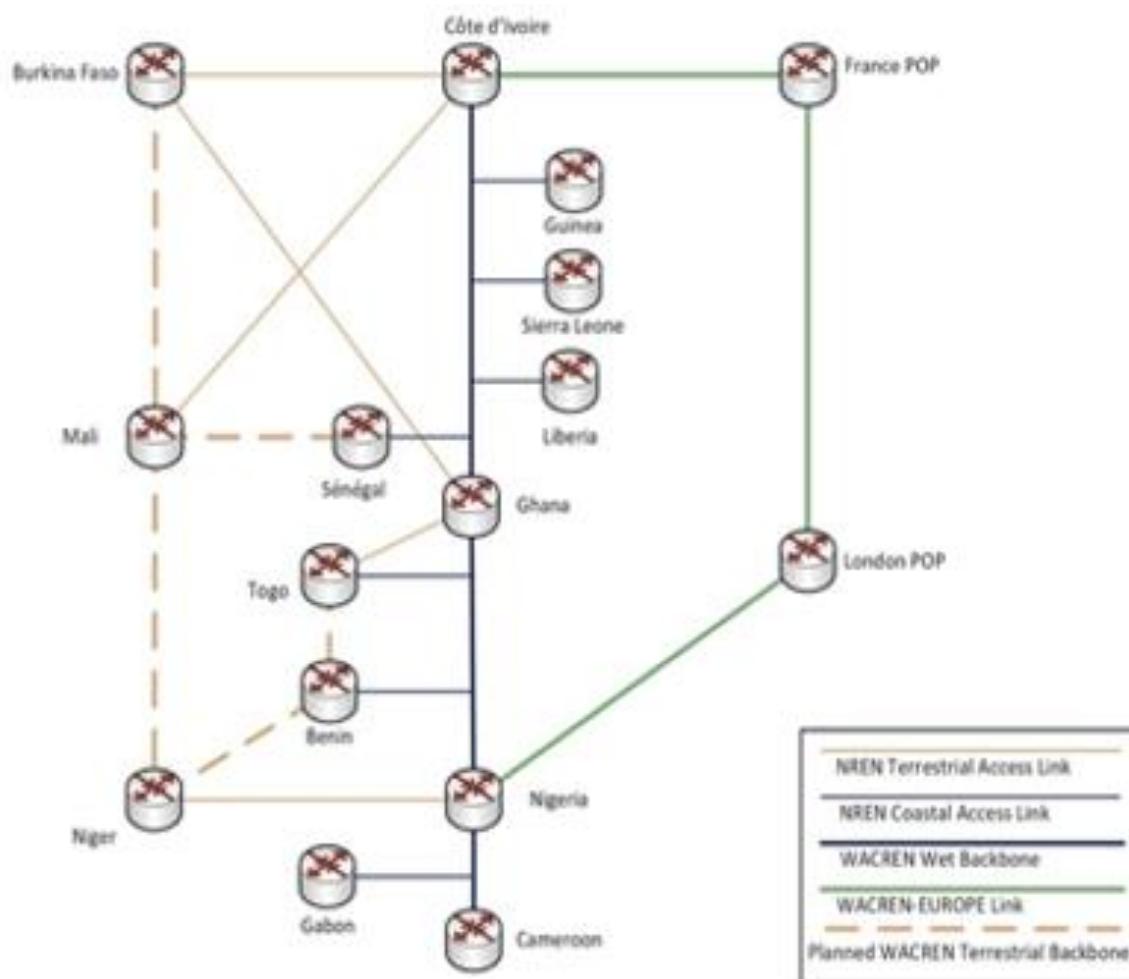
ANNUAL REPORT 2020

1. Projects and Programmes

1.1. WACREN Network Rollout

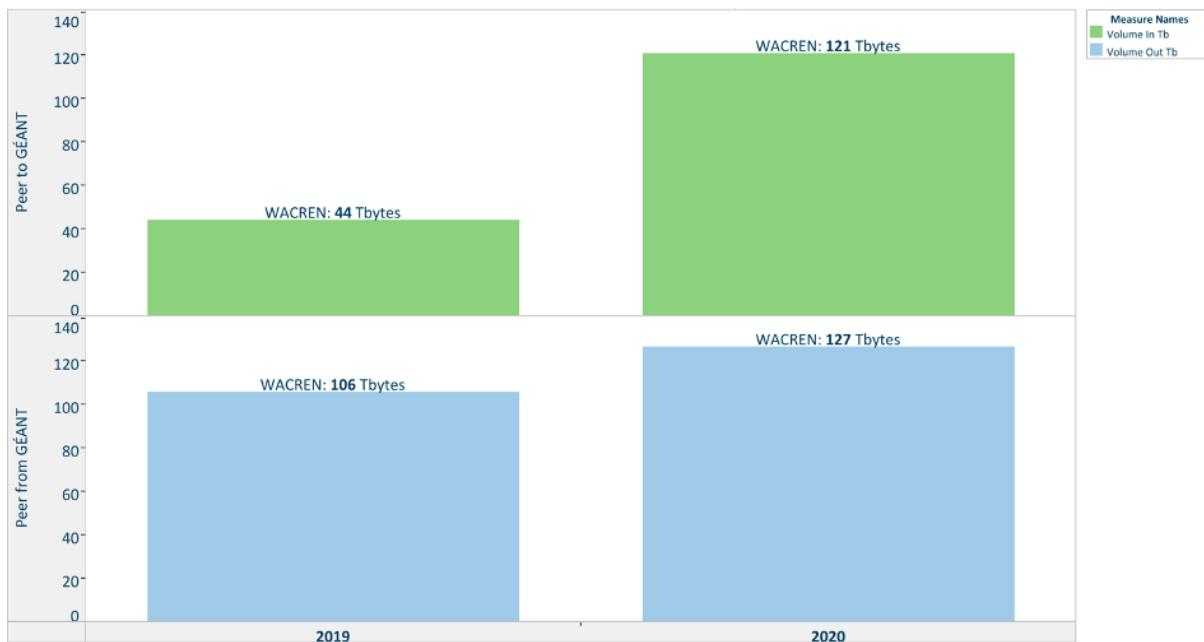
The technical team continues to provide support to connected members and maintain the network remotely due to procurement delays with the installation of the physical NOC. The procurement WACREN started with the support of the AfricaConnect2 project to connect Benin, Côte d'Ivoire, Mali and Burkina Faso to the network backbone was equally affected for most of the year by the knock-on effect of the coronavirus crisis. The routing and switching equipment had been delivered to the WACREN PoPs just before the travel bans in the region stalled further progress. Solutions have been found with the supplier and the operators and it is expected that these four countries will be connected to the WACREN backbone by the end of the first quarter of 2021.

A revision of the WACREN network's topology took place as part of an optimised regional procurement strategy. The significant change was the upgrade of Abidjan PoP to Aggregation PoP in replacement of the Dakar PoP. This new aggregation PoP will connect NREN PoPs in Bamako and Ouagadougou. WACREN will also use it to build an alternate route to Europe (probably France).



Ongoing short to medium term plans include upgrading existing links to NRENs and adding resiliency to the network.

At the GEANT Global Exchange Point in London, a recently established peering with the UbuntuNet Alliance allows traffic to flow directly between the African regional RENs without traversing European networks.



The physical WACREN network operations centre (NOC) that was to be established at the WACREN headquarters in Accra got delayed from the fallout of the pandemic. WACREN was also not able to finalize the tender for NOC equipment due to a counter-funding issue. The tender has been frozen. However, WACREN technical team continued managing the network from the remote NOC¹.

Incident management from suppliers and NRENs are mostly about circuits. The performance review meetings held during the year with the suppliers allowed comparison of data and discussions about how to improve performance by reducing the number of incidents. The Lomé-Accra circuit has been the worst. Throughout the year, the Lomé-Accra circuit shows an uptime of 95.08% compared to 98.438% for the Edge link in Accra and 98.875% for the edge link in Lagos. As a consequence, WACREN services to the TogoRER were below the agreed service level agreement (SLA).

Mitigation is being discussed with Togocom.

WACREN has also actively supported the NRENs to be connected (RITER, FasoREN, MaliREN, RBER) in designing their core networks, installing their NOCs and even with procurements.

1.2. WACREN Cloud Upgrade

The pilot cloud was successfully migrated to WACREN hosted infrastructure but the procurement of systems for an upgrade has also been delayed by the supply chain disruption. As a result, the deployment of dependent projects and services such as the

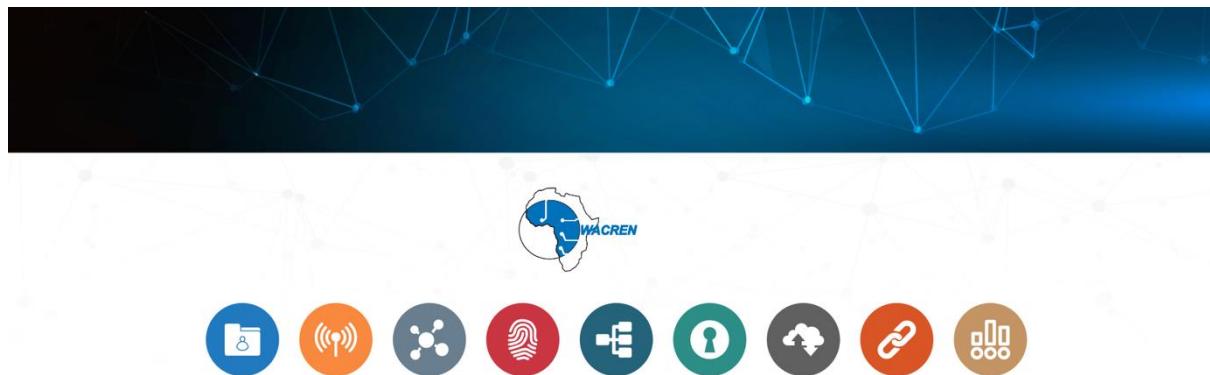
¹ <https://ext-noc.wacren.net>

standards-compliant training infrastructure and platform for hackfests which should have been operational at the end of 2020 could not be implemented.

2. WACREN Services

Although no new services were developed, usage of the edulD platform and WACREN Zoom increased substantially.

A service portfolio brochure has been produced and will be shared with members in Q1 of 2021 after its translation into French.



2.1. Trust and Identity

edulD.africa continues to offer much needed identity services to the community in the region. The goal to establish an African catchall for “homeless” institutions in countries without an Identity Federation did not materialise due to a mismatch in scheduling between the three regional RENs who need to collectively define the governing policies and practice statements. The revised plans include a template for supporting the establishment of new identity federations in Africa and joining them to eduGAIN starting with the ongoing pilots in Ghana and Nigeria.



2.2. Videoconferencing

When COVID-19 struck, higher education and research institutions in WACREN member countries were closed for months, with significant disruptions to learning in the region due to preventive measures put in place by governments. With campuses closed, NREN communities were able to take advantage of WACREN Zoom for meetings and classes.

Usage grew by 6000% within a month of the global lockdowns and enabled some members to remain operational. Trials of mobile lecture capture devices to support hybrid learning developed in the AfricaConnect3 project in collaboration with NORDUnet will start in the new year.

In the interim, WACREN with the support of NORDUNET was able to offer zoom video conferencing services to its members using public meeting connectors. The installation of on-premises connectors did not take-off, as the first connectors were supposed to be deployed on the new upgraded cloud in Lagos.

However, an alternative solution to be implemented with remaining resources under AC2 is being explored and first connectors at least in the WACREN PoPs in Accra, Lagos, Abidjan, Lomé and Cotonou should be deployed by March/April 2021.



2.3. Cybersecurity

The increase in cyberattacks during the pandemic has made the need for good cooperation in the handling of cyber security threats and incidents more apparent. WACREN has teamed up with the OpenCSIRT Foundation (OCF) in a 3-year cooperation agreement to work closely and constructively on increasing the maturity of the Computer Security and Incident Response Team (CSIRT) community of WACREN and Africa. The capacity building programme covered by the agreement includes training on TRANSITS I, CSIRT maturity, measurements and improvements.

The software and database systems to support trust-building and cooperation amongst CSIRTS is under development. The resulting service will be available in Q1 2021 as "TrustBroker". It will provide a meeting place for CSIRTS active enough to join and a source of regularly maintained African team info for teams worldwide.



2.4. Shared Platforms and Community Clouds

Our aim to provide cloud services based on NREN-hosted hybrid learning and general-purpose open-access repository and journal publishing platforms also saw some progress in 2020. A series of open community calls to analyse needs, gather requirements and propose stewardship principles and represent them in a workflow-driven design as high-level architecture.

Titled 'Co-designing collaborative free and open source open access publishing infrastructures' and co-facilitated with the Electronic Information for Libraries (EIFL) and the Coko Foundation, the participatory design workshops were organised with African journals and books editors and publishers, researchers, librarians and tool builders. These workflows will be employed in selected NREN pilots in 2021.



3. LIBSENSE

The initiative to enable NRENs and HEI librarians to cooperate to deliver state-of-the-art digital services to higher education institutions at scale and reduced costs had the advantage of organic growth.

Building on agenda-setting workshops in 2019, a new suite of LIBSENSE activities concentrating on three areas have emerged - open science policies, governance and leadership; infrastructure - open access journals, repositories for publications and data and open discovery services; and capacity building - communities of practice and training. In addition, region-specific and language-specific discussions take place in French and Arabic

working groups. The ongoing infrastructure support is focused on open access repository and journal development in line with the research agenda emphasis on open science and open access.



Although hampered by the restrictions, activities aimed at tackling the deficiency in librarians digital skill took place remotely. Sessions facilitated by senior library leaders across Africa discussed on-the-job requirements and helped to determine the following set of preferred skills profiles to support ongoing digitalisation in Africa.

4. An African Open Science Framework

We are integrating the needs of libraries and NREN research communities with the strategic development of open infrastructure that supports the curation and generation of new knowledge and provides solutions to local challenges. The work started with partners in LIBSENSE last year has evolved into a framework to guide the development of community-driven open science initiatives. Experience has shown that the most effective approach to implementing open science is to work with NREN members and their stakeholder communities to develop and execute national action plans.

In the new year, WACREN will consolidate ongoing pilots and services in development into platforms for scholarly communication and publishing that can be offered by NRENs and their communities. Advocacy will target shared understanding and acknowledgement of the value of open science at the level of the national government and education administration. Training for librarians and early stage researchers on digital infrastructure will be used to address some of the cultural issues and facilitate the practice of open science.

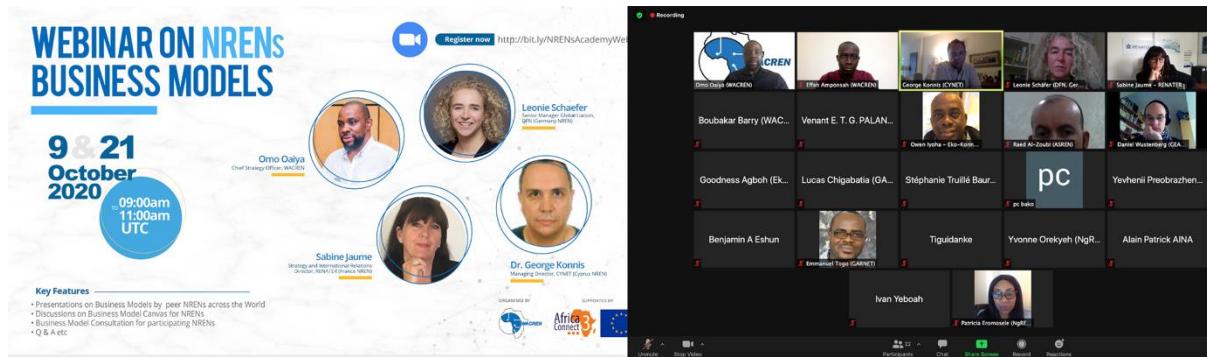
5. Women-in-WACREN

The Women-in-WACREN program curriculum was revised to cater to topics in data science and robotics based on participant feedback from the previous year, and also to accommodate a broader audience across the African regions. The revamp also included providing the courses in French to extend the impact to francophone populations. Although these plans could not be executed by WACREN, members of the women community in Nigeria were able to host a series of online activities based on the curriculum. The program has now been adopted by the AfricaConnect3 project and extended to the other regional network partners.

6. Africa Training Initiative

6.1. NREN Academy

The first NREN Academy training sessions on business model design were held with NREN managers and their key staff. Travel restrictions have meant that plans to reinforce the learning from the business modelling exercises with a face-to-face business pitch had to be deferred.



6.2. NREN Engineers Training

The annual NREN Engineer training on REN architecture, routing and peering could not be held face-to-face as initially planned. It was held over two online sessions with a good participation and a facilitation by resource persons from our community.



6.3. LIBSENSE Train-the-Trainer

Two of the nine LIBSENSE online events held in the year were dedicated to compensating for the annual train the trainer event. In the first, a snapshot of the current national level activities on open science policies, repositories, community building and coordination in 15 countries was taken including Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Ghana and Nigeria from the WACREN region.

The second was facilitated by representatives from organisations responsible for the provision of identifiers for researchers, digital objects and data citation and dedicated to the persistent identifiers (PIPs) required to make data FAIR (Findable, Accessible, Interoperable and Reusable).



7. Staffing

To better serve its community, WACREN has initiated the recruitment of new staff: a NOC Engineer and a Project and Procurement Officer. These positions are funded by the AC3 project.

It is planned that these new staff will take office in Q1 of 2021.

8. Registers

8.1. Membership

MEMBERS	CATEGORY	CONNECTED
TogoRER	NREN Member	Y
GARNET	NREN Member	Y
MaliREN	NREN Member	Q1 2021
Niger-REN	NREN Member	N
NgREN	NREN Member	Y
RITER	NREN Member	Q1 2021
RIC	NREN Member	N
TchadREN	NREN Member	N
GnREN	NREN Member	N
SLREN	NREN Member	N
FasoREN	NREN Member	Q1 2021
GhREN	NREN Member	N
LRREN	NREN Member	N
RBER	NREN Member	Q2 2021
snRER	Ongoing Initiatives	N
GabonREN	Ongoing Initiatives	N
Eko-Konnect	Premium Associate member	Q2 2021
RENATER	Premium Associate member	N

8.2. Training

Activity	Topic	Participants	Male	Female
LIBSENSE Workshop	Open Repositories 2020	40	25	15
LIBSENSE Workshop	Co-Designing Open Access Publishing Infrastructure I	35	29	6
Service Outreach Workshop	Service Outreach Workshop	49	44	5
LIBSENSE Workshop	Co-Designing Open Access Publishing Infrastructure II	21	16	5
LIBSENSE Workshop	Skills Profile Development Workshop	130	67	63
LIBSENSE Workshop	Co-Designing Open Access Publishing Infrastructure III	13	9	4
LIBSENSE Workshop	Persistent Identifiers	70	45	25
NREN CEOs Academy	Business Models I	27	20	7
NREN CEOs Academy	Business Models II	21	17	4
LIBSENSE Workshop	Repository Interoperability & Harvesting	84	57	27
LIBSENSE Workshop	Co-Designing Open Access Publishing Infrastructure IV	24	15	9
LIBSENSE Workshop	Journée Francophone LIBSENSE	51	33	18
LIBSENSE Workshop	Francophone LIBSENSE Webinar on Skills Profile Development	24	17	7
BGP Workshop	Research and Education Network: Architecture, Routing and Peering I	52	48	4
BGP Workshop	Research and Education Network: Architecture, Routing and Peering II	42	38	4
Totals		683	480	203