Annual
Report
2019

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ABOUT WACREN

Vision
The WACREN's vision is a World-class infrastructure and services for the West and Central African Research and Education community for development.

Mission
The WACREN's mission is to build and operate a world-class network infrastructure, develop state of the art services, promote collaboration among national, regional, international research and education communities and build the capacity of the REN community.

Membership
The membership of WACREN is currently constituted by 15 (fifteen) national research and education networks (NRENs) in West and Central Africa, all duly recognized by their governments:

1. RBER – Bénin

2. RerBenin – Bénin

3. FasoREN – Burkina Faso

4. RIC - Cameroun

5. RITER – Côte d'Ivoire

6. GARNET – Ghana

7. GhREN – Ghana

8. Gn-REN – Guinée

9. LRREN – Liberia

10. MaliREN – Mali

11. Niger-REN – Niger

12. NgREN – Nigeria

13. SLREN – Sierra Leone

14. TchadREN - Tchad

15. TogoRER – Togo

WACREN has two Associate Members: RENATER (France) and Eko-Konnect (Nigeria) and two on-going initiatives: snRER (Senegal) and GabonREN (Gabon)

FOREWORD BY THE BOARD CHAIR

The Board of Directors and I are truly privileged to be leading the outworking of the mission and objectives of the West and Central African Research and Education Network (WACREN). We are, indeed, at the forefront of developing institutional infrastructure that has the potential of significantly impacting education, research, science and innovation in the West and Central Africa region. We consider this a challenge and a responsibility we share.

In 2019, the unique context in our region presented a great challenge to WACREN in meeting its goals for the year – one of which was to expand the reach of our new network. This pursuit faced several issues, including procurement bottlenecks, telecom monopoly, difficulty in getting buy-in and insufficient commitment on the part of some stakeholders. In spite of these, we took some strategic decisions that were game changers; our network expansion drive was very successful and has given WACREN opportunity to differentiate REN services from commodity networks. Our human capital enhancement program yielded results, especially for women in our region.

One prime focus for 2020 will be to consolidate the network expansion and upgrade work done in 2019. We will work towards connecting more countries to the network, increasing the bandwidth and fashioning out advanced e-services and e-infrastructure that foster and catalyse knowledge acquisition, sharing and usage.

We will channel our efforts at driving the establishment and growth of NRENs in our region and continue the expansion of the network. We will address building human capital and deploying advanced digital services to our members. We join hands with our sister regional RENs to promote digitalisation in order to connect African institutions and network users to unlimited possibilities, especially with the support of the upcoming AfricaConnect3 (AC3) project.

The Board thanks all our stakeholders, especially the European Commission (EC) for co-funding AfricaConnect2 (AC2). We also thank governments, ECOWAS, UEMOA, our partners in AC2 and our community for being very supportive in 2019. Lastly, but not the least, we thank all our members for the cooperation and commitment to the expansion and uptake of the network services in 2019. We are laying a strong foundation for research and education in West and Central Africa.

Professor Nii Narku QUAYNOR
Board Chair, WACREN

CEO'S MESSAGE

In 2019, WACREN decided to hasten work on its network expansion programme. Though the journey was not easy, it was quite adventurous and quite successful. Before I proceed further, let me pause to thank our forward-looking Board of Directors, my dedicated colleagues at the WACREN Secretariat, hardworking NREN managers in our region, our AfricaConnect2 project partners – UbuntuNet Alliance, Arab States Research and Education Network (ASREN) and GÉANT. Last but most importantly, we thank the European Commission (EC), particularly, the Directorate-General Development Cooperation (DEVCO) for the unalloyed support towards network connectivity in Africa and the West and Central Africa regions in particular. But also the World Bank and Agence Française de Développement that supported the participation of some of our members to join the AfricaConnect2 project, allowing them to be connected to the WACREN backbone and benefit from unprecedented connectivity and other advanced digital services. The collective support WACREN received from the above-mentioned institutions and several other organisations led to a steady growth of the network in our region, the challenges encountered in the year under review notwithstanding.

In 2019, we began running the last lap of the AfricaConnect2 project. A major part of our plans for the year was to connect as many countries as possible to the WACREN backbone. This, we knew, was the launchpad to a plethora of benefits for the education landscape of these countries. We were able to connect Ghana, Nigeria and Togo to the backbone and the same process is ongoing for Côte d'Ivoire, Burkina Faso, Mali and Bénin.

Though our environment, market needs and global dynamics kept changing, WACREN continued to adapt to the trends without changing its vision -'World-class infrastructure and services for the West and Central African Research and Education community for development' . This is yielding results already and making impact, and will certainly continue to do so, as we progress in deploying our regional infrastructure and interconnecting with our peers worldwide.

Dr. Boubakar BARRY
CEO, WACREN

WACREN BOARD

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Dr. Joshua Attah	**CEO, NgREN**
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WACREN SECRETARIAT

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Alain Adeola Aina	**Chief Technology Officer**
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STRATEGIC DIRECTION AND FOCUS IN 2019

In line with our mission of building a cutting-edge Research and Education Network (REN) infrastructure and services for the research and education (R&E) community in the region, WACREN set out, in 2019, to advance its network infrastructure, delivery and services to enhance interconnection among national RENs, foster collaboration and pave the way for research within the region and beyond.

The Regional Research and Education Network (RREN) paid particular attention to connecting member countries to the network, upgrading the network to enhance performance, rolling out relevant e-services to our community and building capacity to maximise the use of the network and its services. This paid off heavily as thousands of students and researchers in the region had access to unlimited opportunities they hitherto did not have, or even when they had, was overly expensive.

Activities

Below are the main activities WACREN focused on in 2019:

- Network Rollout and Expansion
- Network Upgrade, Monitoring and Management
- Identity Access and Management (Authentication)
- Video Conference Service
- LIBSENSE (Library – RENs Collaborations)
- Capacity Building Activities
- Building Strategic User and Advocacy Communities
- Human Resources and Secretariat
- Procurement
- Conferences and Workshops
- Closing AC2, Opening AC3

Network Rollout and Expansion

In 2019, WACREN set out to expand the network and connect more countries to the backbone. Ghana, Nigeria, Ivory Coast and Togo connected to the backbone successfully. The aggregation Points of Presence (PoPs) in Lagos, Accra and London were fully operational by July 2018. The Accra edge PoP was operational in August 2018, with connections to the Ghanaian Academic and Research Network (GARNET) established. GARNET started passing traffic and by the time the curtain was drawn on the year, it carried up to 5 gigabits per second (Gb/s) traffic from thirteen (13) institutions across Ghana, namely:

1. Kwame Nkrumah University of Science and Technology (KNUST)
2. University of Ghana (UG)
3. University of Health and Allied Sciences (UHaS)
4. University of Cape Coast (UCC)
5. University of Mines and Technology (UMaT)
6. University of Education, Winneba (UEW)
7. Garden City University (GCU)
8. Ghana Institute of Management and Public Administration (GIMPA)

9. Methodist University College, Ghana (MUCG)

10. University of Professional Studies, Accra (UPSA)

11. University of Energy and Natural Resources (UENR)

12. University for Development Studies (UDS)

13. Ghanaian Academic and Research Network (GARNET)

The interconnection with the Nigerian NREN (NgREN) was established and tested during the first quarter 2019. At the end of 2019, NgREN AS-SET declared under WACREN AS-SET listed the following eight (8) institutions as passing traffic through WACREN:

1. Usmanu Danfodiyo University, Sokoto (UDUS)

2. Federal University of Technology, Akure (FUTA)

3. Federal University of Agriculture (Abeokuta)

4. Nnamdi Azikiwe University (NAU)

5. Federal University, Birnin Kebbi (FUBK)

6. ConnectFocus Technologies Limited

7. University of Nigeria Nsukka (UNN)

8. University of Jos (Unijos)

Connectivity contract for the connection to Togo was signed in November 2018 leading to rollout to Togo in 2019. PoP was fully operational (collocation, equipment installation and link to the backbone) halfway into 2019. This PoP hosts the Togolese research and education network (TogoRER) PoP in Lome. Interconnection with TogoRER was also established and the Border Gateway Protocol (BGP) session was underway by the close of 2019.
Initial members connected to TogoRER are as below:

1. Université de Lome

2. Université de Kara

3. Institut Africain d'Informatique (IAI-Togo)

4. Ecole Supérieure d'Informatique de Business et d'Administration (ESIBA)

In February 2019, direct peering with Internet2 through the NEAR project was established over our 10Gb/s link to GÉANT Open Exchange Point (OXP). In August the same year, a 10Gb/s peering at Nigerian Internet Exchange Point was established to support WACREN's offer of commodity Internet to its community.

The illustration below shows the WACREN Network and the interconnected NRENs as of 31st December 2019.
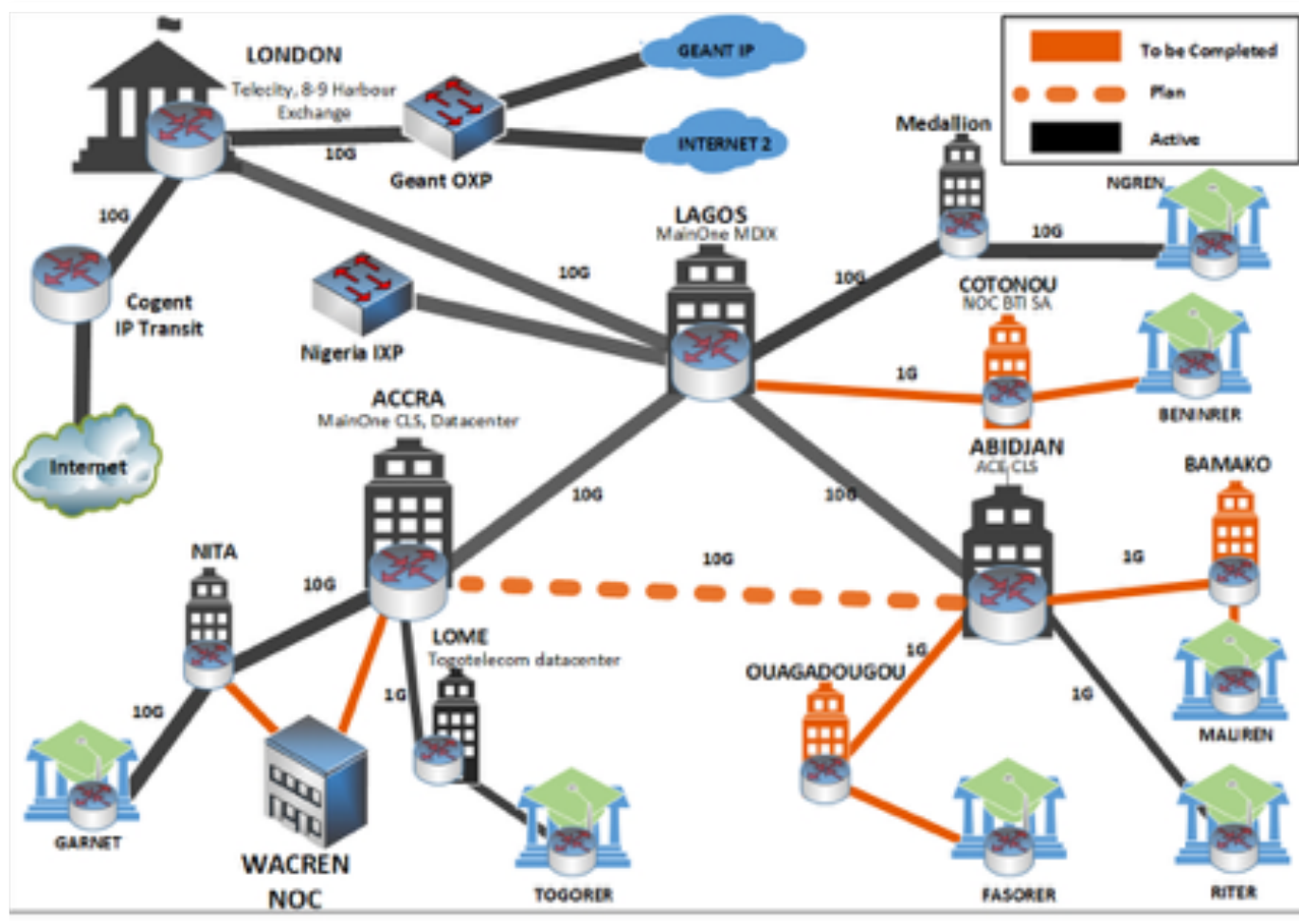
At the end of the year, the collocation services, the link from the Abidjan PoP to RITER PoP (in Ivory Coast) and the link between Abidjan and Lagos were provisioned. Negotiations with providers for the connectivity to Cotonou and Ouagadougou PoPs were finalized. The same year, WACREN commenced discussions for an interim connectivity solution for Bamako (in Mali).

Network Upgrade, Monitoring and Management

In 2019, the WACREN Network Operation Centre (NOC) ensured availability, stability, performance and security of the network through constant monitoring. Our NOC deployed the Network Document – a germane open source tool for network monitoring. Furthermore, a teaming agreement was signed with Team Cymru Incorporated; this granted WACREN access to the Team Cymru Nimbus solution which provides a cloud-based netflow collection, analysis, and reporting platform as well as world-class threat intelligence feeds.

As at the end of 2019, WACREN NOC had not yet started operating from a physical location even though considerable space was designated to it in the WACREN Secretariat in the Vice Chancellors, Ghana (VCG) Office Complex in Accra, Ghana. Plans were outlined for the stocking and operation of the NOC under AfricaConnect3.

To ensure users of our network experienced no downtime, WACREN deployed the PerfSONAR infrastructure to measure, diagnose and assess the performance of the network in near real-time and respond appropriately. The nodes were installed and enabled in London and Lagos.

In 2019, majority of the traffic on the WACREN network was outside the region; statistics showed traffic on both R&E path and commodity Internet. This was not surprising to WACREN because NRENs and their user institutions were still adapting to the use of the network for research. WACREN saw a surge in the use of the R&E especially during the last quarter of the year.

It is worth noting that up to the end of 2019, most traffic was generated by GARNET, as NgREN did not use the WACREN services at the initially anticipated level, and TogoRER was only connected towards the end of the year.

The diagram below shows the average annual commodity Internet traffic in 2019
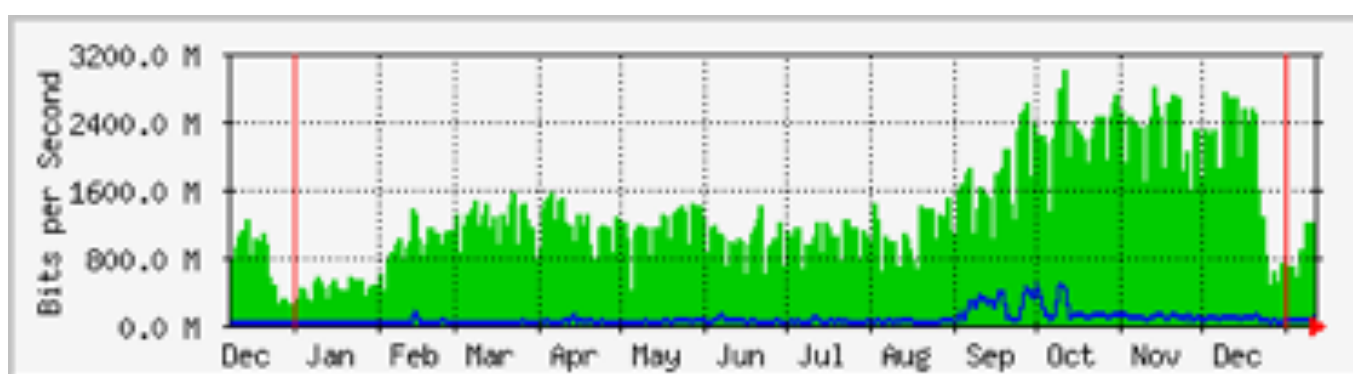
The diagram below shows the average annual research and education traffic through GÉANT OXP in 2019.
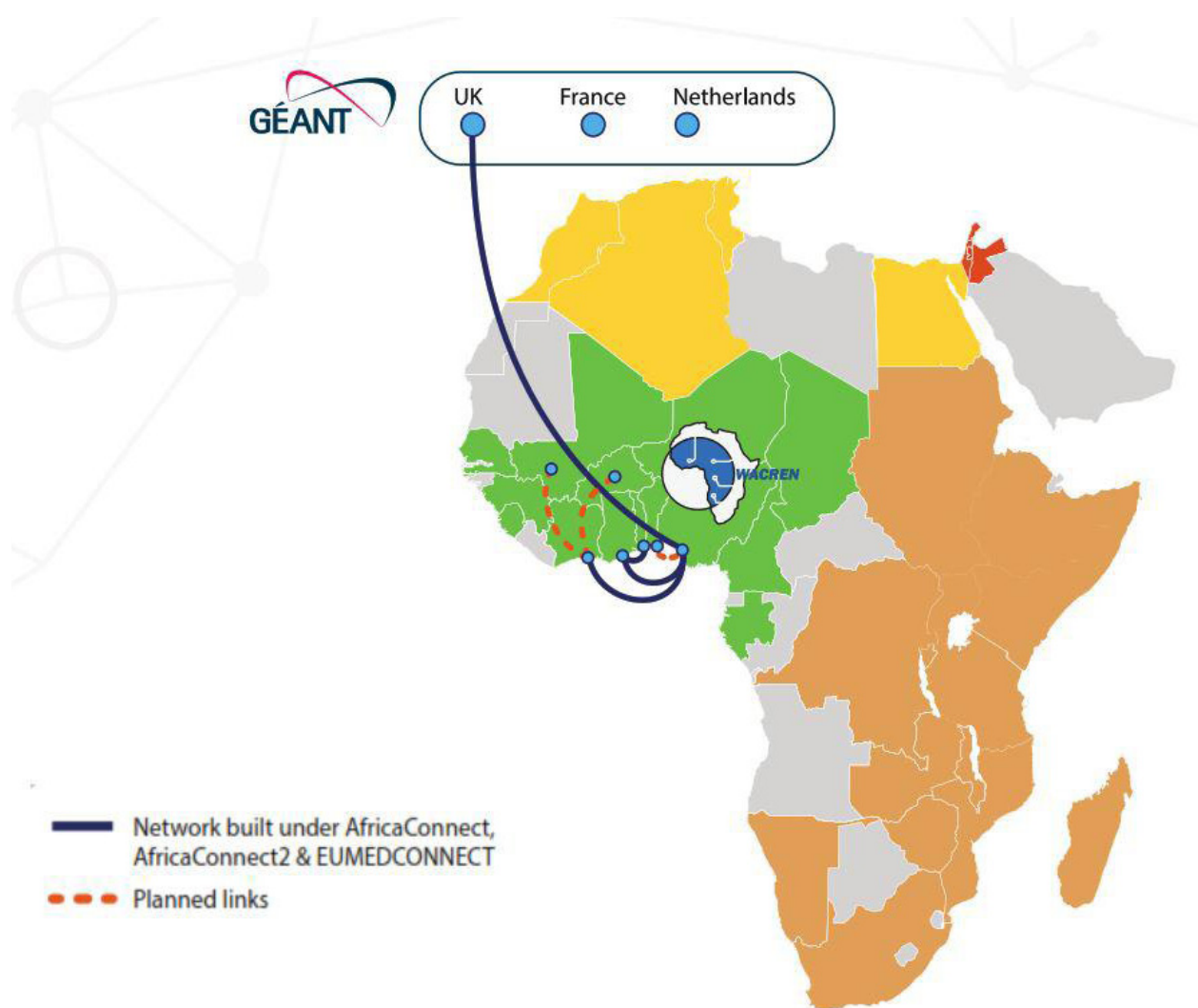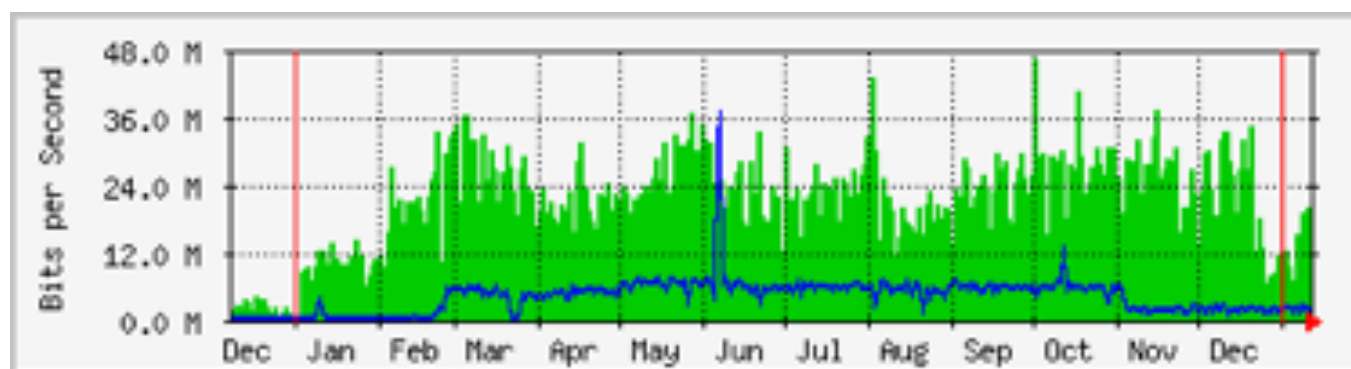
The map above shows the geographic distribution of the source of traffic, showcasing the global reach of the WACREN network.

Most outages, which affected the PoPs, were from issues with the Lagos/London. With the exception of Togo which had recurrent issues on the Lome/Accra ink, all other PoPs presented about 98% uptime.

Identity, Access and Management Members

The eduid.africa platform which provides hosted Identity Provider (IdP) services for eduID and eduroam was piloted in Nigeria. In a bespoke ATI deployathon hosted by Eko-Konnect and facilitated jointly by WACREN and the UbuntuNet Alliance, seven (7) out of the 10 higher education institutions that participated in the workshop were successfully onboarded to the platform to establish the technical basis of their eduroam and eduID national federations. Fully-fledged operations of these federations and interfederation with eduGAIN were to commence once the university managers convene to define the practice statements and policies to govern these services within their national boundaries.

WACREN aims to exploit this approach which abstracts NRENs from the complex technical operational requirements in other countries in the region in what is now referred to as the "eduroam roadshow". This, however, requires that RENs are committed to hosting these ATI workshops as demonstrated by the unsuccessful attempts afterwards to replicate the Nigerian experience in Ghana and Togo. It is clear that investment in staging these roadshows will be required to drive uptake of eduID in the region.

Video Conference Service

The videoconferencing service continued to see increased usage at the WACREN and some NREN secretariats where it was employed as the primary means of conferencing. In the case of Ghana, the plan to optimize user experience in communities by deploying meeting connectors in NREN PoPs as they get connected to the WACREN backbone was successful.

As at the end of 2019, a concerted effort to exploit this key collaboration service, however, was yet to emerge. This was mainly because it was deployed as a Service Provider (SP) in the WACREN eduID federation and offered to NRENs subscribed to the Global Transit Service (GTS) in which the service was bundled. While this provides a scalable way of delivering the service, these NRENs are yet to move the eduID pilots that provide account management and access into production.

LIBSENSE (Library–RENs Collaborations)

The [LIBSENSE](#) initiative commenced towards the end of 2018, gained momentum and led to the creation of a vibrant community of library and NREN stakeholders across the continent- the first of its kind in Africa. In 2019, the surveys and agenda-setting workshops planned in the WACREN and ASREN regions were successfully executed. For more information. The results in East and Southern Africa are reflected in the surveys of these regions researching the existing skills and expertise for librarians in the areas of open access (OA), open science and repositories. Lack of technical expertise, low levels of staffing, and uneven organizational commitment to repository services were common bottlenecks in all the regions. However, increasing the value of Arabic content and a federated system to take advantage of the common language and geographic location of the countries was a notable difference in the ASREN results.

WACREN's need to ensure that francophone countries benefit equally from LIBSENSE has required a dedicated pilot for French speaking NRENs, with the virtual university in Côte d'Ivoire and the library consortium in Sénégal as central actors. The goal, in its early stages, is to curate and expose resources (in French) in national repositories, while developing the community around WACREN infrastructure and services.

To drive the scholarly communication infrastructure required for this community and provide the services needed, additional relationships with open publishing entities with mutual goals were formed. WACREN reached an agreement with the National Informatics Institute of Japan to offer a cloud-based repository service to NRENs. This was to help address the technological challenge that the universities face in providing institutional repositories that are updated and aligned with international peers. A similar collaboration agreement with a common aim to support the widespread adoption of open access and open science in Africa was reached with the Confederation of Open Access Repositories (COAR). Hitherto, COAR was a partner in organizing the LIBSENSE workshops.

The LIBSENSE initiative emerged as a bonafide representation of a community-driven collaboration for next-generation scholarly communication infrastructure with a distinctly African Open Access identity. The African chapter of SPARC (the Scholarly Publishing and Academic Resources Coalition), a global coalition committed to making open the default for research and education, invited WACREN to join the organising committee and host a LIBSENSE workshop in its biannual Open Access Symposium. Other international infrastructure providers such as the Collaborative Knowledge Foundation (Coko) and the Public Knowledge Project (PKP) also accepted WACREN and its initiative as partners with whom they could realise African aspirations.

Capacity Building Activities

LIBSENSE Workshops 2 and 3

The first workshop was held in November 2018 in Zanzibar, Tanzania at which the overall framework for collaboration between African libraries and NRENs was defined. At the second workshop, participants finalized and endorsed a template for a Terms of Reference (ToRs) for joint activities across the two communities. The template defines four key areas of collaboration: social change, infrastructure, capacity building, and value-added services, and provides examples of specific activities. Participants in the Accra workshop, who were mainly from West and Central African countries, identified priority activities and next steps for implementing the TORs in their countries. These discussions were supplemented by information collected through a survey of open science activities in African libraries.

Following in the steps of the two previous workshops, the aim of the third was to discover opportunities and identify activities to collaborate on across the two communities to support open science in the ASREN region. The workshop provided an opportunity for participants to voice out the challenges related to OA and home-made solutions.

BGP Workshop

This Workshop, colocated with WACREN 2019, convened about 20 network and systems administrators from various campuses of higher learning institutions and NRENs. The three-day hands-on training was focused on how to build a resilient NREN with ISIS/BGP routing and peering with WACREN. Participants learnt about the REN architecture (Layer 2 and Layer3), basic IS-IS and BGP routing and best practices for traffic engineering and peering. They also learnt about WACREN routing policy, Network practices and services for a better interconnection and collaboration in building the Regional REN.

Women-in-WACREN Activities

The previous year experience was exploited in restructuring the programme in 2019. The original intent of developing the content introduced in the first workshop into a 10-week online training was achieved and employed as a prerequisite for a subsequent Hackfest. The self-paced online course was run by a collaboration of volunteers from Nigeria and Ghana. Top performers from the course applied knowledge gained in a series of real-life practical challenges in the Hackfest.

The course had a learning path enhanced with moderated discussion forums to amplify the resources and promote sharing of experiences and understanding among the students. This exchange of ideas strengthened the community of women and improved the quality of dialogue, generating new ideas and thoughts. WACREN Zoom was employed to host webinars for orientation and to complement the discussion forums, making the online classes personal and interactive. Sessions were also recorded for student review. Over 300 women from more than 30 countries across Africa participated in the online course demonstrating the broad appeal of the initiative.

Limited funding meant the regional Hackfest planned by WACREN could not take place but an event for participants from Nigeria was hosted by Eko-Konnect. 30 women from 18 institutions in Nigeria were involved in a five-day event of brainstorming, research and coding that ended with the building of prototype data logging weather stations. These Raspberry Pi based devices were used to collect, visualize and analyze temperature, humidity, pressure, wind direction, wind speed, and rain gauge data on a cloud platform.

At the end of the five-day Hackfest, a group of participants applied skills gained to build miniature weather data logging stations. Also, several of the participants gained confidence to continue on the technology path as a career while others began to consider entrepreneurship. Gradually the Women-in-WACREN initiative is gaining momentum in Africa, as other RENs begin to show keen interest in building synergies on it.

Building Strategic User and Advocacy Communities

NREN Internet Governance

The NREN-NRI model defined in the previous year was piloted with the support of Eko-Konnect to establish the Nigerian Youth Internet Governance Forum (NYIGF), launching a community of young people with an interest in Internet Governance primarily made up of students on campus. The pilot was later in the year extended to Ghana, Benin, Burkina Faso and Togo. In a country like Togo, where the NREN was supportive, another community, Forum sur la Gouvernance de l'Internet des Jeunes Togolais (FGIJT) was established.

With students as the anchor group, these communities provide opportunities for collaboration with parties seeking increased participation of young people in initiatives that leverage their unique potential for innovation. For wider appeal, the NREN collaboration model for youth inclusion was also presented at the AFRINIC-31 meeting.

All Varsity News Network (AVNN) Workshop

To reach wider audiences with stories chronicling the successes and envisioning the potential of NRENs to transform the region, this activity was initiated to seek deeper partnerships with the journalism and mass communication departments at WACREN institutions. At the maiden Workshop in Accra, key stakeholders including journalism students, student media advisors, journalism lecturers and NRENs, brainstormed to explore the scope, structure, funding and content of the news network. The Workshop was hosted in collaboration with GARNET with the support of the US Embassy in Ghana and the Fulbright Specialist Programme. Although well-received, this opportunity to shift a large part of the responsibility for communication locally to the member NRENs needs more effort to define and establish working relationships with media practitioners in WACREN institutions. This will encourage collaboration, exchange of ideas, innovation, and interest.

Human Resources and Secretariat

In the first quarter of 2019, WACREN recruited three additional professionals to join its able team. They were the Communication and Marketing Officer, the Network and Systems Engineer and the Finance and Administration Officer. The Office was secured through the facilitation of the former Executive Secretary of Vice Chancellors Ghana (VCG) and GARNET Coordinator.

Two of the new staff work from the new WACREN Secretariat in Accra, Ghana. The Secretariat is made up of a spacious office and a Network Operation Centre (NOC). Refurbishment of the Secretariat with office equipment commenced in 2019.

Procurement

Capacities

WACREN participated in tender processes; from tender documentation, announcement, provider's engagement, technical evaluation of bids, etc. Throughout 2018, offers for Abidjan were still unaffordable. Following discussions with Orange Cote d'Ivoire and Onatel, a new tender was issued in October 2018 to connect FasoREN, MaliREN and RITER to the WACREN backbone.

By January 2019, five initial responses were received. Best and final offers were invited for a variety of route options into and out of Abidjan. In July 2019, a contract was signed with MainOne for the Abidjan-Lagos 10Gb/s link. In September 2019, a contract for the collocation and backhaul 1Gb/s link from the PoP to UFHB was signed with Orange-CI. In August 2019, a new tender was issued for Benin, Burkina Faso and Mali for various capacities from 1STM1 to 1Gb/s. By the end of the year this tender had resulted in contract negotiations with MTN Global Connect for two (2) STM1 to Cotonou from Lagos and one (1) STM1 from Abidjan to Ouagadougou with Orange-CI.

Equipment

Contracts for equipment to establish PoPs in Abidjan, Cotonou, Ouagadougou and Bamako were signed in 2019 under an agreed framework with XON.

Collocation

In the year under review, WACREN deemed it necessary to establish network PoPs in most of the countries that had been or were about to be connected. This was a strategy to secure space and power for WACREN for a predetermined period. Direct negotiations with various accommodation providers commenced. Orange-CI was contracted for collocation services at ACE CLS Abidjan for the housing of

WACREN network equipment in Abidjan. Discussions were concluded with Agence de Développement du Numérique (ADN) for WACREN PoP in Benin to be hosted at BTI NOC at Fidjrosse. MaliREN and FasoREN agreed to host WACREN PoP in their countries at the NREN NOC.

Conferences and Workshops

WACREN 2019 Conference

The 5th edition of the annual users and stakeholders Conference was held in Ghana's capital Accra. This was the first WACREN conference in a country connected to the backbone. The Conference featured activities aimed at the utilisation and growth of the infrastructures being piloted. As an example of this development in WACREN, the connectivity provided at the conference was routed through the GARNET PoP and services for eduroam were routed through the regional proxy maintained in the Lagos data centre. NOC tools were deployed to manage and monitor the Network throughout the conference.

Despite some eleventh-hour challenges with the funding arrangements, the highly successful conference was attended by over 150 participants from 28 countries and was themed to reflect the progression from a network deployment focus to that of advanced services and empowering research communities.

Annual General Meeting

The 6th AGM was held in the week of the WACREN Conference. 55 persons, representing different stakeholders of WACREN, attended the AGM.

The CEO's report at the AGM centred on the deployment of the WACREN backbone, procurement processes, advocacy and lobbying efforts, capacity building efforts and other activities under the AfricaConnect2 project. He also highlighted plans and preparation that had begun towards the AfricaConnect3 projects.

At the AGM, members ratified a Board resolution to carry out a process of governance reform to expand the Board and diversify its composition by including more stakeholder groups.

The AGM also approved the setting up of a Governance Reform Committee whose main task was to brainstorm and draft a new governance structure that would reflect a more diverse and inclusive WACREN Board. The draft report is expected to be adopted at the 2020 WACREN AGM. The 2020 AGM is expected to be held in Cotonou, Bénin.

Participation in TNC19

A delegation from WACREN region attended TNC19 – a prestigious REN Conference organised by pan-European network – GÉANT, in Tallin, Estonia. The five-day event (16th to 20th June 2019), is the 35th edition and was hosted by EENet of HITSA, the Estonian Education and Research Network. In attendance from the WACREN region were the CEO of WACREN and NREN representatives from Benin, Ghana and Nigeria.

During the event, the WACREN team participated in the AfricaConnect2 / AfricaConnect3 Coordination meetings, the NEARR meeting, the SIG-Marcomms and Global PR Network meeting as well as the Emerging NRENs Programme. The AC2 / AC3 meetings brought together all clusters; GÉANT, the UbuntuNet alliance, WACREN, ASREN and the European Commission (EC) to coordinate activities in AC2 and prepare for AC3 proposal submission and implementation.

Assessment and WACREN Sustainability Workshops

Agence Francaise de Developpement (AFD), RENATER (NREN for France) and WACREN jointly organized a two-day NRENs Assessment Workshop on the Gorée Island, Senegal. The main objective of the Workshop was to have a broad understanding of the current state of NRENs, their governance and economic models, where support is needed, why and what support is needed, and to guide the NRENs on positioning themselves for support from donors and funding organisations across the world. It was an initial, yet, a major step and part of a broader plan to ensure sustainable WACREN and NRENs.

The workshop converged 25 participants drawn from the NRENs under WACREN, Board Members of WACREN, the AfricaConnect2 Project Manager from GÉANT (European partner), as well as representatives of Institut de Recherche pour le Développement (IRD) and CIRAD.

On the first day of the workshop, various CEOs presented a SWOT analysis of their NRENs and AFD presented its plan for NRENs in the future. On the second day NRENs and WACREN made presentations on key infrastructure and services on offer to their users and communities. This was followed by a discussion on governance and business models of NRENs, as well as their current and future operational cost estimations. The several exchanges at the workshop brought to light the key areas NRENs and WACREN would have to focus on as regards sustainability.

The workshop was followed by a WACREN Sustainability Workshop organized in collaboration with GÉANT. Working in small groups and building on the previous workshop, participants discussed and commented on WACREN's SWOT. Elements of the NREN's SWOTs that have direct impact on WACREN's sustainability plan were identified. The two workshops were funded by AFD through RENATER and by the AfricaConnect2 project.

JRES 2019 in Dijon, France

A 10-member delegation, made up of WACREN staff and NREN CEOs/representatives attended the prestigious JRES 2019 in Dijon, France. JRES is a global conference organised by RENATER to share and exchange knowledge on current issues determining the direction of R&E networking in the world. Topics discussed centered on security, uses and application, network, systems, Devops and agility, digital identity among others. The highly enlightening forums, focus groups and plenary sessions gave participants insight into the current and the future of RENs.

On the side lines of JRES 2019, the AFD-RENATER-WACREN NRENs second leg meeting was held with about 22 participants in attendance. There, results of the survey were discussed, and actions assigned.

Preparations for WACREN 2020

WACREN began the initial preparation for the 6th Annual Conference slated for March 2020 in Cotonou, Bénin. WACREN signed a Memorandum of Understanding with ADN (a government agency) in Bénin. Towards the latter part of the year, WACREN conducted initial visits to the conference proposed venue – Golden Tulip le Diplomate, Cotonou. WACREN met with ADN and Bénin NREN (RBER) officials for alignment and progress briefing. Marketing and communications had started in earnest; Call for Papers was widely circulated; work begun on Conference website as well as a sponsorship scout. As part of the preparations towards WACREN 2020, the NOC created a VM (snf-169) on the WACREN's cluster at Medallion. On the VM, NOC deployed the LAMP web solution with mod_security2 as well as the latest version of Wordpress CMS to act as WACREN 2020 website.

Closing AfricaConnect2, Opening AfricaConnect3

In the last quarter of 2019, much of the activities undertaken by WACREN was focused on preparing for the closure of AC2. The WACREN Secretariat worked with GÉANT, the Project Management Board (PMB) and the DG-DEVCO Directorate of the European Commission (EC) to prepare documents to close the AC2 project.

Again, much of the last quarter was full of activities on the preparation of AfricaConnect3. WACREN Secretariat in conjunction with GÉANT and other partners prepared documents needed for the consideration, approval and signing of the third phase of the AfricaConnect project. Specifically, project justifications, activities log, and budgets were prepared and submitted through GÉANT (the AC3 Project Coordinator) to the DG-DEVCO EC. In December, WACREN, UbuntuNet Alliance (UA), the Arab States Research and Education Network (ASREN) and representatives of GÉANT joined DG-DEVCO officials in Brussels for the signing of the third phase of the AfricaConnect project.

> " AC3 will focus on enhancing human capital development in Africa. More specifically, it will aim at unlocking the potential of education and research through increased access to digital infrastructures and technologies for African education and research institutions "
>
> **Dr. Boubakar Barry**

AC3 will focus on enhancing human capital development in Africa. More specifically, it will aim at unlocking the potential of education and research through increased access to digital infrastructures and technologies for African education and research institutions. This third phase will strive to enhance access to tertiary education and research institutions by establishing secure, adequate and affordable network infrastructures. Also, AC3 will foster the development of research and education through services, applications and dedicated user support. The project will build adequate human resource capacities and expertise within NRENs and education and research communities and raise the awareness of the role of digital transformation for education and research.

OUTLOOK FOR 2020

In 2020, WACREN foresees much of its activities relating to AC3. The RREN will focus more on expanding the reach of the network, building human capital, enhancing the efforts of NRENs as well as creating and rolling-out relevant digital services and applications delivered through state-of-the-art infrastructure. The ultimate is to create new opportunities for our network users to explore unlimited possibilities. As we drive network reach, we will endeavour to raise the capacity of our community to match requirements of available infrastructure and services.

WACREN intends to get additional staff onboard to beef up the team to deliver optimally. The same year, it will stock the NOC with cutting-edge infrastructure and monitoring tools as well as upgrade the network itself to meet the emerging needs of the community. To enhance the capacity of our engineering team, one member of our NOC will benefit from an exchange programme at GÉANT in Europe. WACREN will in turn provide direct engineering assistance (DEA) to NRENs upon request.

The WACREN Zoom pilot will be fully operationalised with a meeting connector deployed in each PoP for scalability in the region, reduce the latency and guarantee a good experience for NREN communities. This digital conferencing service will be supplemented with the mobile capture kits that enable recording of workshops and archiving for reuse in e-learning. NRENs will be supported to broaden the impact by staging their own hackfests. WACREN will help establish an African identity inter-federation as well as enhance eduID.africa to use popular applications.

WACREN will work with at least one NREN per year and support them as required to deploy the eduroam. A service outreach workshop will be organised in 2020, to bring our community up-to-speed with the bouquet of services available to them and the procedures for deployment. WACREN intends to also use the event and other avenues of feedback to gather data on service needs of the community and beyond. Hopefully, in the coming year, at least one more country will be connected to the eduroam cloud service. WACREN will organise the Identity and Trust roadshow dubbed – eduroam roadshows. This activity will leverage deployment and capacity built in the country to roll out their own institutional eduroam and eduID.

There will be an Alumni Research Network in the coming year. This is a network of beneficiaries of past capacity-building programmes, who will among other things, contribute in testing services rolled out by WACREN. Our women empowerment programme will continue in earnest. We are hoping for collaborations with other RRENs to change the story of lop-sidedness of women's involvement in technology in Africa.

In 2020, advocacy will also be a key part of our activities. CEOs lobbying efforts to get buy-in of governments and international bodies for NRENs will continue. We intend to harness communication and marketing efforts to create awareness for our NRENs and their activities as well as support them to build communication capacity. WACREN will also create synergies with the general advocacy and donor engagement efforts by GÉANT for African RENs. In the medium term, WACREN envisions the formation of NREN Ambassadors Advocacy Group – their main term of reference will be to leverage relationships and networks to create opportunities for advocacy for WACREN and its NRENs.

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WACREN will undergo systems review both internally and externally in the coming year. The objective of the system review will be to assess current WACREN governance and procedures, including financial management, human resources management and other critical policies. Based on the findings and recommendations of the external system review, WACREN will develop and implement a capacity building plan for its staff.

In 2020, WACREN will begin to explore other avenues of income generation. In pursuance of this, the RREN will develop a business plan that will be a reflection of internal discussions and engagements and consultations with key stakeholders in our ecosystem.

Under AC3, training and capacity strengthening will be carried out under the Africa Training Initiative (ATI), a collaboration of the three African Regional RENs to promote a self-sufficient capacity building ecosystem for African professionals.

For more info on WACREN please visit
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