Beyond Connectivity: The Road to NREN Maturity Inclusion

Annual Report 2015
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Overview of performance in 2015

2015 was a year of transition for UbuntuNet Alliance. I took over from my predecessor, Eng. Dr Francis Tusubira as CEO of the Alliance in January and the Alliance held its 9th Annual General Meeting of Members which elected a new Board of Trustees of the Alliance in March.

The AfricaConnect project, which rolled out the UbuntuNet regional backbone, came to an end in May after four years of implementation starting from May 2011. Following months of intense preparations and negotiations with the European Commission, the Alliance signed the AfricaConnect 2 agreement with the EC in November 2015. I am pleased to report that the transition of the two projects went on smoothly and that the Alliance has started implementing AfricaConnect2.

Despite these positives, the year 2015 revealed more room for opportunities for the Alliance. Apart from KENET, MoRENet, RENU, TENET, TERNET and ZAMREN, most of the established NRENs such as those of Ethiopia, Madagascar, Namibia, Rwanda, and Sudan were still not taking services with the Alliance. The focus of the Alliance was to visit relevant government officials in these countries to advocate for more autonomy of the NRENs so that they start taking services from the Alliance. It is pleasing to note that such visits have already started bearing positive outcomes as evidenced by the orders MoRENet, the NREN of Mozambique, has made from the Alliance and the same from Ethiopia, Tanzania and Rwanda under AfricaConnect2.

Speaking of AfricaConnect2, The Alliance is happy to report that the Swedish International Cooperation for Development Agency (Sida) has already made the contribution for the Advanced Payment for connectivity on behalf of the NRENs of Rwanda, Uganda and Tanzania. In the same vein, the World Bank has paid for SomaliREN and there are commitments from the Ethiopian and Malawian governments to pay for EthERNET and MAREN respectively. The Alliance is confident that it will raise its 25% contribution of the total 10 Million Euro budget.

On another note, in 2015 UbuntuNet Alliance started to focus beyond connectivity, as portrayed in the UbuntuNet-Connect 2015 theme “Beyond Connectivity: The Road To NREN Maturity.” The Alliance spearheaded the introduction of several additional NREN services such as eduroam and other Identity Federation services leading to joining eduGAIN, Certification Authorities and other services relevant to user communities for its NREN Members. This is a big step for NRENs being more relevant to their research and education communities.

Sustainability is one of the central pillars of the Alliance. Again in 2015, the Alliance was able to cover all its recurrent expenditure from recurrent income, making the Alliance an internally self-sustaining organisation. The recurrent income is projected to grow as new NRENs connect and start taking more services with the Alliance, leaving the Alliance with enough flexibility and sustainability to roll out further links without external support.
In November the Alliance held a successful UbuntuNet-Connect 2015 in Maputo, Mozambique which marked ten years of existence of the Alliance. I would like to extend my gratitude to all our partners and stakeholders that graced the event.

Finally, I would like to extend my appreciation to all NREN Member CEOs, their staff and also to all members of staff at the Secretariat in whom I have all the trust and belief that with their support and commitment, we’ll take the Alliance to the greater heights.

Dr. Pascal Hoba
CEO.
Governance

UbuntuNet Alliance serves the needs of the research and education community in Eastern and Southern Africa by providing affordable and high quality connectivity through their NRENs. The Alliance was initially registered in the Trade Registrar of the Chambers of Commerce in the Netherlands in 2006, and is now registered as a Trust in Malawi, where the Secretariat is based.

UbuntuNet Alliance is headed by the Chairperson and has a three-tier structure comprising the Annual General Meeting of Members (AGMM); the Board of Trustees, and the Secretariat. The Chairperson is appointed for three year term through a process overseen by the Secretary General of the Association of African Universities (AAU). The incumbent, Professor John Ssebuwufu was appointed on 1st November 2013 and his term of office comes to an end in October 2016.

Members

The membership region of UbuntuNet Alliance covers the Eastern and Southern regions of Africa along with the island nations/territories in the west of the Indian. As an alliance of NRENs, UbuntuNet Alliance is membership-based and has four levels of Membership as follows:

- **NREN Member**: suitable for an NREN of a country within the Membership region that has applied for and been granted Membership in accordance with Article 5.
- **Affiliate Member**: suitable for a transnational organisation, or a transnational community of practice that is formally constituted under a registered umbrella organization, and being not-for-profit, that is involved in education and/or research; and that has applied for and has been granted membership in accordance with Article 5.
- **Industry Member**: suitable for a registered transnational company or organisation, being for-profit, that is engaged in the provision of goods and/or services that have direct relevance to the mission and activities of the Alliance and its NREN and/or Affiliate Members; and that has applied for and has been granted membership in accordance with Article 5.
- **Observer Members**: reserved for Representatives from project teams that are in the process of developing an NREN in their country.

Currently, the Alliance has only registered NREN Members and the door remains open for Affiliate and Industry Members to join.

The Members meet annually at the Annual General Meeting of Members (AGMM), which is the highest policy arm of the Alliance and its main role is to sustain or maintain the need and will for NRENs to collaborate at regional level. Other functions of the AGMM are to elect Members of the Board of Trustees; approve Annual Reports and Audited Financial Statements; and appoint the Auditor of the Alliance. The Alliance has 15 NREN Members as shown in blue in the Map below and continues to engage countries in the membership region that are yet to establish NRENs or join the Alliance.
The 9th Annual General Meeting of Members was held at Crossroads Hotel in Lilongwe, Malawi on 27th March 2015, where new Trustees were elected. The table below shows the list of representatives of Members during 2015.

Table 1: Representative of NREN Members

<table>
<thead>
<tr>
<th>Country</th>
<th>NREN</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Zambia</td>
<td>ZAMREN</td>
<td>Professor Naison Ngoma</td>
</tr>
<tr>
<td>2. Tanzania</td>
<td>TERNET</td>
<td>Professor Faustin Bee</td>
</tr>
<tr>
<td>3. South Africa</td>
<td>TENET</td>
<td>Dr Samuel Bosire</td>
</tr>
<tr>
<td>4. Madagascar</td>
<td>iRENA</td>
<td>Dr Professor Raft Razafindrakoto</td>
</tr>
<tr>
<td>5. Uganda</td>
<td>RENU</td>
<td>Eng. Isaac Kasana</td>
</tr>
<tr>
<td>6. Mozambique</td>
<td>MoRENet</td>
<td>Dr Salvador Adriano</td>
</tr>
<tr>
<td>7. Namibia</td>
<td>Xnet</td>
<td>Mr Wilfred Kuria</td>
</tr>
<tr>
<td>8. Kenya</td>
<td>KENET</td>
<td>Dr Alice Njuguna</td>
</tr>
<tr>
<td>9. Burundi</td>
<td>BERNET</td>
<td>Professor Gregoire Njejimana</td>
</tr>
<tr>
<td>10. Rwanda</td>
<td>RwEdNet</td>
<td>Professor Nelson Ijumba</td>
</tr>
<tr>
<td>11. Sudan</td>
<td>SudREN</td>
<td>Professor Izz Eldin</td>
</tr>
<tr>
<td>12. DRC</td>
<td>Eb@le</td>
<td>Professor Dibungi Kalenda</td>
</tr>
<tr>
<td>13. Somalia</td>
<td>SomaliREN</td>
<td></td>
</tr>
<tr>
<td>14. Ethiopia</td>
<td>EthERNet</td>
<td></td>
</tr>
<tr>
<td>15. Malawi</td>
<td>MAREN</td>
<td></td>
</tr>
</tbody>
</table>
Board of Trustees

The Board of Trustees of UbuntuNet Alliance is composed of 9 people; who include 7 elected Trustees, the Chairperson, and the Chief Executive Officer (as ex officio). Candidates for the Board of Trustees are nominated by NREN Members and are elected at the Annual General Meeting of Members for a 2-year term. The current Board of Trustees was constituted at the 9th Annual General Meeting of Members in Lilongwe, Malawi in March 2015 and their term of office will come to an end at the AGM in 2017. The Trustees are:

- Prof John Prancas Ssebuwufu - Chairperson
- Dr Iman Abuel Maaly Abdelrahman – Vice Chairperson
- Dr. Pascal Hoba - Chief Executive Officer
- Professor Hellicy Ngambi
- Mr. Duncan Greaves
- Professor Dibungi Kalenda
- Professor Meoli Kashorda
- Ms Josephine Nyiranzeyimana
- Professor Raft Nicolas Razafindrakoto

The Board of Trustees has powers to establish sub-committees to deal with certain functions. The Executive Committee acts on behalf of the Board in making quick decisions and operational approvals of the Secretariat that are then ratified by the Board. The Remunerations Committee was established at the 29th Board Meeting in Maputo in November 2015 to handle issues related with compensation of staff.

Secretariat

The Secretariat of UbuntuNet Alliance is headed by the Chief Executive Officer and is responsible for day to day operations. As a regional organisation, UbuntuNet Alliance has a distributed Secretariat with the main office in Lilongwe, Malawi, and the Engineering and Network Operations Department at Makerere University in Kampala, Uganda. UbuntuNet Alliance and the RENU signed a hosting agreement which provides a framework upon which the NREN hosts the Engineering and Network Operations function of the Alliance. Below is a list of officers:

- Dr Pascal Hoba: Chief Executive Officer
- Joseph Kimaili: Technical Manager
- Tiwonge Banda: Head of Finance and Administration
- Chris Rohrer: Projects Coordinator
- Beatrice Ngambi: Accountant
- Hastings Ndebu: Communications Officer
- Lettus Kitha: Office Cleaner/Messenger
UbuntuNet Alliance also has the following outsourced professional functions:

- Procurement: LoudRed Limited (United Kingdom)
- Strategic and Business Issues: Dr Duncan Martin (South Africa)
- Strategic Relations and Partnerships: Eng. Dr Francis Tusubira
- Auditors: KCC Finance Associates (Malawi)
- Internal Audit: Aleksandr Consulting (Malawi)
- Lawyers: William Faulkner (Malawi)
- Network Operations: TENET (South Africa)

**Strategic Direction**

The strategic direction of UbuntuNet Alliance is provided for in the Nairobi Rolling Strategic Plan 2014-2018 and 2015 was the second year of implementation for the strategic plan. This is the third rolling strategic planning cycle of the Alliance, which is focusing on strengthening the position of the Alliance in providing connectivity and other value added services to the research and education community in the region their NRENs. The strategic plan also pays more attention on the engagement with policy makers and regional communities of practice. The Strategic Plan has 8 Strategic Objectives, which the Alliance is pursuing, and these are:

- Sustainable and Operational; NRENs Established in all Countries in the Membership Region
- A broadband backbone network operated UbuntuNet Alliance reaching every NREN of the region redundantly established
- Robust broadband interconnections with other regional RENs operationalised
- Provide Broadband Internet to Member NRENs at a Compelling Charge
- Enhance Institutional Relevance and Business Health
- Effective Communication and Advocacy to reach out to NRENs, Communities of Practice and Policy Makers
- Increased and Effective Support for Regional and Global Communities of Practice
- A fully Interconnected Africa Based on Collaboration between RRENs in the Area

Each year an annual workplan is developed from the Nairobi Strategic Plan to form the basis of activities for that particular year. This Annual Report is presented inline with the Strategic Objectives reporting progress in 2015. As a rolling document, the Strategic Plan is due for review in 2016.
Exit AfricaConnect, enter AfricaConnect2

In May 2015, GEANT and UbuntuNet Alliance successfully completed the 4 year AfricaConnect project and the final review report was released a few month later with recommendations for future actions. In November 2015, UbuntuNet Alliance signed a contract with the European Commission for a 3.5 year AfricaConnect2 with a commencement date of 1st June 2015.

AfricaConnect2 is pan-African project with a budget of 26 Million Euros with the aim of developing high-capacity Internet networks across the entire African continent and connect them to the European GÉANT network, allowing students, researchers and academics in Africa and beyond to collaborate. The project is being implemented in 3 clusters:

- Cluster 1: Covering countries in Eastern and Southern Africa (organised under the UbuntuNet Alliance), and project co-ordinated by UbuntuNet Alliance.
- Cluster 2: Covering newly ready countries in West and Central Africa (organised under WACREN), project coordinated by GEANT.
- Cluster 3: Covering countries in North African (organised under ASREN), project coordinated by GEANT.

As in the first AfricaConnect, the new project is jointly funded with the European Commission’s Directorate-General International Cooperation and Development (DG DEVCO) contributing €20 and the remaining funds (€6.6m) are being provided by the African partners.

For Cluster 1 – Eastern and Southern Africa, the full budget is €10m and the EC is contributing 75%. To collect the remaining 25%, participating NRENs are contributing €280,000 each. The World Bank is supporting SomaliREN and made its entire contribution. The Swedish International Development Cooperation Agency (Sida) is also supporting the participation of RENU, RwEdNet and TERNET in the project and made part contributions on their behalf. By the end of the year the Table 2 shows the status of contributions for the project. SudREN has had its contribution ready since 2014, but due to the embargo placed on Sudan they have not been able to transfer the funds to the Alliance.

Table 2: NREN contributions to AfricaConnect2

<table>
<thead>
<tr>
<th>NREN</th>
<th>Contribution (Euros)</th>
<th>Balance (Euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. RENU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. TERNET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ZAMREN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. RwEdNet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. SomaliREN</td>
<td>280,000</td>
<td></td>
</tr>
</tbody>
</table>

Procurement under AfricaConnect2 already started initially with a redundant link from Kampala to Amsterdam via Kigali and Dar es Salaam. This is the network segment to which Sida facilitated the participation of the three NRENs. By the end of the year an open procurement with all links was almost ready for publication in the European Union Official Journal.
Beyond providing connectivity for the research and education communities, AfricaConnect2 also includes activities around capacity building for NREN Managers, Network Engineers and End users on specific topics. The project will also see the deployment of eduroam, identity federations and a video conferencing platform in the region.

**Sustainable and Operational NRENs Established in all Countries in the Membership Region**

Having rolled out the regional network financed under AfricaConnect, the key target for 2015 was to focus on the existing NRENs to be fully operational and connect to the regional network, UbuntuNet, which is critical for the financial sustainability of the Alliance.

**Targeted Establishment of new NRENs**

UbuntuNet Alliance continued in its drive to facilitate the development of new NRENs in those countries where they do not exist or where development has stalled. As shown in Table 1, the region comprises of 26 countries, 15 of which have NRENs that are members of the Alliance. Of the remaining 11, 2 have named embryonic NRENs (Botswana and Zimbabwe), while the other 9 do not have NREN activity development activities. UbuntuNet Alliance continued to dialogue with those non-member countries to try and get traction towards developing NRENs.

During the 4th quarter of the year the Alliance re-engaged with Zambabwe, when it emerged that for a long time there has been an NREN-like organisation, ZARNET, while the Zimbabwe Vice Chancellors Association has been trying to establish ZIMREN. The Alliance embarked on a contact and dialogue exercise with representatives from the two organisations to determine how best to move forward. The Alliance also re-established contact with Mauritius in efforts to establish an NREN. For Botswana and Lesotho the Alliance is contemplating introducing a special membership category that will make it possible to connect universities for these countries.

**Strengthening Existing NRENs**

Having NREN Members is one step and making them operational is another important step. The focus in 2015 was to increase the number of operational NRENs and get them to connect to the regional network. RENU and ZAMREN have grown to become important NRENs in the region connected to UbuntuNet, while EthERNET, SudREN and iRENALA have operational networks that need to connect to the regional network.

Following high level meetings with line Ministers and other relevant officials in Mozambique, Rwanda, Tanzania and Malawi, NRENs from these countries pledged to connect to the UbuntuNet regional backbone and take services with the Alliance. The political situation in Burundi temporarily stopped the Alliance’s efforts to engage BERNET but the Alliance is still exploring other possible alternatives of engaging the NREN’s management to map the best way of trying to get the NREN connected to
UbuntuNet net backbone. The World Bank is supporting SomaliREN and the NREN is on its way to becoming fully operational and has already paid its AfricaConnect2 contribution.

NREN CEOs met twice during the year, all within the framework of the AfricaConnect Administrative Meetings in Lilongwe (March) and Maputo (November). Relevant training curriculum covering areas such as business management, corporate governance and services has been commissioned and is being developed.

Table 3: Status of NREN Development in Eastern and Southern Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>NREN Organisation</th>
<th>Network Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Angola</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>2. Botswana</td>
<td>BotsREN</td>
<td>Embryonic NREN without network</td>
</tr>
<tr>
<td>3. Burundi</td>
<td>BERNET</td>
<td>Operational network, but not connected to UbuntuNet</td>
</tr>
<tr>
<td>4. Comoros Islands</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>5. Djibouti</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>6. DRC</td>
<td>Eb@le</td>
<td>No national network</td>
</tr>
<tr>
<td>7. Eritrea</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>8. Ethiopia</td>
<td>EthERNet</td>
<td>Operational network, but not connected to UbuntuNet</td>
</tr>
<tr>
<td>9. Kenya</td>
<td>KENET</td>
<td>Operational network, connected to UbuntuNet</td>
</tr>
<tr>
<td>10. Lesotho</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>11. Madagascar</td>
<td>iRENALA</td>
<td>Operational network, but not connected to UbuntuNet</td>
</tr>
<tr>
<td>12. Malawi</td>
<td>MAREN</td>
<td>No national network</td>
</tr>
<tr>
<td>13. Mauritius</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>14. Mozambique</td>
<td>MoRENet</td>
<td>Operational network, connected to UbuntuNet</td>
</tr>
<tr>
<td>15. Namibia</td>
<td>Xnet</td>
<td>Operational network, but not connected to UbuntuNet</td>
</tr>
<tr>
<td>16. Rwanda</td>
<td>RwEdNet</td>
<td>No national network</td>
</tr>
<tr>
<td>17. Seychelles</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>18. Somalia</td>
<td>SomaliIREN</td>
<td>No national network</td>
</tr>
<tr>
<td>19. South Africa</td>
<td>TENET</td>
<td>Operational network, connected to UbuntuNet</td>
</tr>
<tr>
<td>20. South Sudan</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>21. Sudan</td>
<td>SudREN</td>
<td>Operational network, but not connected to UbuntuNet</td>
</tr>
<tr>
<td>22. Swaziland</td>
<td>-</td>
<td>No NREN activity</td>
</tr>
<tr>
<td>23. Tanzania</td>
<td>TERNET</td>
<td>Operational network, connected to UbuntuNet</td>
</tr>
<tr>
<td>24. Uganda</td>
<td>RENU</td>
<td>Operational network, connected to UbuntuNet</td>
</tr>
<tr>
<td>25. Zambia</td>
<td>ZAMREN</td>
<td>Operational network, connected to UbuntuNet</td>
</tr>
<tr>
<td>26. Zimbabwe</td>
<td>ZIMREN/ZARNET</td>
<td>Two organisations planning to merge</td>
</tr>
</tbody>
</table>

Technical Capacity Building

Capacity building at all levels is key to strengthening and operationalising NRENs. The joint Capacity Building Programme, involving UbuntuNet Alliance, the Network Startup Resource Center (NSRC); the International Network for the Availability of Scientific Publications (INASP); and the AfricaConnect project continued to train engineers. An advanced routing workshop for engineers was held ahead of the UbuntuNet-Connect 2015 in Maputo, where 28 engineers from the region participated.

Seven NRENs also held a total of 25 in-country training workshops during the course of the year, training some 462 engineers. The in-country workshops have been in form of hands on training
sessions focusing on specific topics, and direct engineering sessions. The NSRC fund for supporting regional trainers to assist in in-country training in the region proved useful and allowed trainers that participated in Training of Trainer events, to go to other NRENs and assist in trainings.

Table 4: Capacity building activities in numbers

<table>
<thead>
<tr>
<th>NREN</th>
<th>Workshops</th>
<th>Direct Engineering Assistance (DEA)</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZAMREN</td>
<td>4</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>TERNET</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>RENU</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>KENET</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>MoRENet</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>RwEdNet</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>SudREN</td>
<td>5</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>25</td>
<td>7</td>
</tr>
</tbody>
</table>

A broadband backbone network reaching every NREN of the region redundantly established operated by UbuntuNet Alliance

Regional networking is the core of UbuntuNet Alliance. The UbuntuNet backbone network continues to provide connectivity and in the process open up opportunities for Africa’s research, teaching and learning. Through its interconnection to GEANT, the pan-European network, UbuntuNet provides access to other world regions.

Network development and expansion

In April 2015, UbuntuNet Alliance commissioned the last of the data links procured under AfricaConnect1, connecting its point of presence (PoP) in Lusaka to the PoP in London, though its PoP in Cape Town. This provided ZAMREN, the Zambian NREN, with a southbound path to Europe in addition to the previously existing northbound path though Dar es Salaam and Nairobi to Amsterdam. This brought the total number of redundantly connected NRENs to 4, the others being TENET, MoRENet and KENET.

The UbuntuNet backbone network has eight PoPs in Africa (Cape Town, Dar es Salaam, Kampala, Kigali, Lusaka, Maputo, Mtunzini, and Nairobi) and two in Europe (Amsterdam and London), with total international capacity of about 2.5Gbps. KENET, TENET and TERNET utilise the PoPs in Europe, whereas RENU, MoRENet and ZAMREN are utilising UbuntuNet PoPs located in their countries.

UbuntuNet Alliance plans to establish more links to reach unconnected NRENs and to build resilience on the existing backbone though the AfricaConnect 2 project. The procurement of the first links to provide resilience to RENU and RwEdNet, and to connect TERNET to the Alliance backbone under the AfricaConnect2 project is already under way. Figure 2 below shows the existing network and links that will be implemented in 2016.
Figure 2: Existing network and planned links
Public relations targeted at owners of cross-border capacity

UbuntuNet Alliance is also conducting targeted engagement with owners of cross-border capacity. WIOCC, SEACOM and Liquid Telekom have been key partners. In December, the Alliance visited Tanzania Telecommunications Company Limited (TTCL) in Tanzania and held meetings with senior management and government officials. XON, the current equipment supplier, visited the UbuntuNet Alliance Secretariat in August 2015 and following the visit, the Alliance participated in the XON annual event in Johannesburg.

Robust broadband interconnections with other regional RENs operationalised

UbuntuNet Alliance interconnects with GEANT, the pan-European research and education network, and through it has access to other Regional RENs worldwide. UbuntuNet peers with GEANT at 20Gbps, which includes 5Gbps for REN connectivity to other regional RENs.

WACREN and ASREN are still not ready to interconnect. Under the ongoing AfricaConnect2 project it is planned that UbuntuNet will peer with WACREN and ASREN on the African continent. So far, traffic to the Americas and the East is still small but growing.

At organisational level, UbuntuNet Alliance collaborates on various fronts with almost all regional RENs of the world. The MAGIC project is one of those projects bringing together the maximum number of research and education networking participants as all 20 partners are from regional and/or national RENs.

Enhance Institutional Relevance and Business Health

UbuntuNet Alliance strives to remain relevant to members and the wider community by professionally playing its role in providing affordable connectivity and value added services to the research and education communities in Eastern and Southern Africa.

Promote continued relevance of the Alliance

Sustained relevance of the Alliance is critical to the sustainability of the Alliance as an organisation on one part and generally for regional collaboration in research and education networking. NREN Members are gradually getting stronger, offering services to their constituents. This means that UbuntuNet Alliance needs to be a number of years ahead to ensure that it offers not only those services required today, but also those of the future.

Traditionally, UbuntuNet Alliance has been offering connectivity related services and these continue to be on offer. These are:

- Connectivity to the regional UbuntuNet backbone network
- Connectivity to other Regional RENs
- Connectivity to the commodity Internet
To ensure continued relevance of the Alliance to its Members, UbuntuNet Alliance is supplementing value added services to its service portfolio. The focus in 2015 was to plan and pilot Identity Federation and eduroam and thanks to the three Horizon 2020 projects (MAGIC, Sci-GaIA and TANDEM) and AfricaConnect2, these two services are well covered and are in the pipeline. The Alliance has taken advantage its participation in these projects to consolidate its strategy in promoting and rolling out non-traditional services that are beyond connectivity. Towards the end of the year Mr Chris Rohrer joined the Alliance to coordinate these efforts. As a first step, by the close of the year, a training session on Federated Applications was being planned to be held back to back with the 10th Annual General Meeting of Members in April 2016.

Building from the work of the ei4Africa project (2013-2015) that facilitated the deployment of Certification Authorities and Catch-All Identity Providers by the NRENs of Kenya, Tanzania, South Africa and Zambia, the Alliance is developing a new strategy that involves encouraging end user institutions to deploy Identify Providers and Services compliant with eduGAIN. So far South Africa is the only country that has a Federation in the region; Kenya, South Africa and Zambia have deployed eduroam; and by the end of the year KENET was closer to getting its Certification Authority certified by the European Grid Policy Management Authority (EUGridPMA).

**Ensure the business health of the Alliance**

UbuntuNet Alliance begun covering its recurrent expenses from recurrent income in 2013 and this continues to be the case. As a not-for-profit business entity operating in a highly competitive environment, the Alliance continues to monitor the surrounding so as to remain viable and sustainable. Extending the reach of the UbuntuNet network to every NREN in the region remains the primary goal of the Alliance and this will ensure that as volumes increase, prices come down to the benefit of the research and education community, and the Alliance will have a sustained business health. So far, out of 15 NREN Members, 6 are connect to the UbuntuNet network and taking various connectivity services.

In 2015 UbuntuNet Alliance received US$2,168,982 revenue from its service offerings, growing almost 60% from 2014. As more NRENs connect and as capacity increases, this will continue to consolidate the business health of the Alliance. Towards the end of the year it was realised that more effort also needed to be placed on helping NRENs to ensure that they collect service fees in time to be able to pay the Alliance in time as well. This will be part of the focus in 2016.

For long term capital investments however, UbuntuNet Alliance sees cooperation with development partners as key. In the foreseen future support from partners like the EUC, ADB and others will remain necessary in the development of the regional networking infrastructure in Eastern and Southern Africa, and participation in short to medium term research and development projects like those under Horizon 2020 is necessary to keep the Alliance and NREN members abreast with trends and emerging technologies and approaches. It is through these projects that the Alliance pilots and promotes e-Infrastructure applications and services.


Ensure proper business management

Key to ensuring proper business management is the cost and pricing model. UbuntuNet Alliance continued to monitor its Cost and Pricing Model to ensure that the prices for services remain acceptable and competitive. Having reached the necessary volumes to trigger a price reduction, the Board approved new prices which were effected from 1st April 2015. During August 2015 a Cost and Pricing meeting was called where the Cost and Pricing Model was revised.

Since 2008 the Alliance has been monitoring growth of recurrent income versus recurrent expenditure and as noted earlier the Alliance became sustainable in 2013 as shown in Figure 3.

![Figure 3: Growth of recurrent income versus recurrent expenses](image_url)

Ensure new and diverse partnerships

New and diverse partnerships are an essential element of the sustainability of UbuntuNet Alliance. The first focus on this was to drive a campaign of recruiting members under the two membership categories: Affiliate and Industry. A special flier for this purpose was printed and engagement continues to be carried out.

The second focus is on engaging a wider range of partnerships with regional and international economic bodies and development partners. The European Union remains a key development partner in this field and the UbuntuNet Alliance appreciates the support in rolling out the regional network under AfricaConnect and the on-going network consolidation: upgrade and expansion under AfricaConnect2. The Alliance continued to engage other partners such as the World Bank, Sida, NEPAD and African Development Bank.
Effective Communication and Advocacy to reach out to NRENs, Communities of Practice and Policy Makers

The UbuntuNet Alliance Board of Trustees approved a Revised Communication Strategy 2015-2018 in March 2015. The new strategy adopts a web-centric approach to communications, which places the website at the center of all outgoing communications. The new Communication Strategy also includes a revised list of target audiences with integration of social media as a channel of engagement. As a first step the Revised Communication Strategy called for a revamped website and this process started towards the end of the year. It is hoped that the new website will be online in the early months of 2016.

Effective Organisational Communication

As a membership based alliance, effective communication with members is essential to maintain an informed and active community. To achieve this, the Alliance continues to use multiple channels: mailing lists, website, social media and the monthly e-newsletter, NUANCE. Mailing lists continue to be used for communication with NRENs at various levels including managerial, technical staff and the wider NREN stakeholder community. News and opportunities are regularly disseminated.

The UbuntuNet Alliance website as the center of communication is update regularly with news and upcoming events. During 2015 the website recorded 17,200 sessions from 11,000 users from all over the world. Average time spent on the website was 3 minutes. NUANCE, the monthly, bi-lingual e-newsletter continues to be a key communication tool, which carries news from, for and of interest to African NRENs is sent by email to about 3,000 subscribers and the news items are also fed on the website. Two special issues of NUANCE were printed in March and October 2015 and were used for the Annual General Meeting and UbuntuNet-Connect 2015. The October NUANCE was a special feature as it was dedicated to the 10th anniversary of the Alliance. UbuntuNet Alliance also continues to be active on social media platforms Twitter, Facebook and Flickr.

To ensure a comprehensive approach in communications and public relations, NREN Members would need to establish their own communications function to work with the UbuntuNet Alliance Communications Officer. However, NRENs have been slow in this aspect. UbuntuNet Alliance continues to encourage NRENs to at least assign one employee to handle communications and public relations if they can’t afford to recruit dedicated professional staff.

ICT, Education and STI policy advocacy

UbuntuNet Alliance continued to participate in international initiatives aimed at improving and increasing awareness on issues surrounding NRENs. The Global NREN Public Relations Network through AARnet (the Australian NREN) released blog, In the Field, which is an open platform for NRENs from all over the world to showcase how NRENs are impacting research and education in their countries. The blog is available at www.inthefieldstories.net.

The Alliance also continued to contribute to the Case for NRENs Task Force, which at the beginning of the year published a portal, which contains information about how to establish NRENs and how to
explain their role policy makers and other stakeholders. The portal is available at www.casefornrens.org.

In participating in the TANDEM project, the project is observing with keen interest the PODWAG (Policy and Donors West and Central Africa Group). As the title suggests the community is composed of high level people from key government ministries, regulatory bodies, regional economic bodies and development partners. The community has been established to help with awareness raising on the issues surrounding NRENs and currently this has been useful in awareness raising for purposes of raising contributions for the AfricaConnect2 project. Where necessary, a similar approach may be piloted in our region to help in raising the agenda of NRENs at national and regional policy levels.

Increased and Effective Support for Regional and Global Communities of Practice

UbuntuNet Alliance continues to engage communities of practice that are current and potential users of the network and associated services. This engagement received a boost at the beginning of the year when 3 Horizon 2020 proposals that the Alliance partnered in were approved by the European Commission and later kicked off on 1st May 2015. The projects are MAGIC, TANDEM and Sci-GaIA. The general role of the Alliance in these projects is to ensure that their impact trickles down to communities in Eastern and Southern Africa.

MAGIC – Middleware for collaborative Applications and Global virtual Communities: The project is coordinated by RedCLARA, the regional REN for Latin America and the consortium includes 20 REN partners from all world regions. The project seeks to establish a set of agreements for all participating world regions, aiming at consolidating and completing the building blocks of middleware necessary for the establishment of a marketplace of services and real-time applications for international and inter-continental research groups which facilitates mobility and the work of global science communities.

On one hand, MAGIC is promoting training and roll out of real-time applications that facilitate mobility of science communities and on another hand the project is engaging end users in what are called Global Science Communities. The services being promoted for use by global Science communities are platforms for mobility, which include eduroam and eduGAIN; Cloud provisioning and groupware standards; and applications for real-time collaboration.

UbuntuNet Alliance is coordinating the engagement with Global Science Communities in the fields of e-Health, Biodiversity, Environment and Remote Instrumentation (shared laboratories) and some African researchers are participating.

Sci-GaIA – Energising Scientific Endevour through Science Gateways and e-Infrastructures in Africa: The project is coordinated by Brunel University and the consortium includes 9 partners. The purpose of the project is to create a sustainable foundation of educational material and procedures for the development of Science Gateways and e-Infrastructures in Africa and beyond to energise scientific endeavour. The idea is to train and support representatives of NRENs,
communities of practice and universities to develop Science Gateways and e-Infrastructures in Africa. As part of the activities, the project is supporting the uptake of science gateways and e-Infrastructures in Africa and beyond; supporting new and emerging communities of practice; strengthening and expanding science gateways and e-Infrastructure related services; and conducting training, dissemination, and outreach for science gateways and e-Infrastructures.

Sci-GaIA is promoting the Open Science paradigm, and as one of the activities, the project held a pre-conference workshop on Open Science as part of the UbuntuNet-Connect 2015 in Maputo, Mozambique on 18 November 2015. The workshop featured open approaches to science including the need for open access data and document repositories. The workshop was co-hosted by the Centro Nacional de Biotecnologia e Biociencias (CNBB).

TANDEM – Trans-African Network Development: Coordinated by the French Institute for Research and Development (IRD) the project is focused on West and Central Africa with the primary purpose of preparing the region for AfricaConnect2 by engaging in dialogue with all stakeholders, stimulating NREN development, studying potential NREN services and showcasing some already existing NREN services offered by other NRENs.

UbuntuNet Alliance is leader of Work Package 4 – Community, which is focused on developing a Virtual Collaboration Platform, based on Colaboratorio, which is developed and maintained by RedCLARA; develop and animate communities of Focal Points, NREN Managers and End Users in Food Security. By the close of the year the Virtual Collaborative Platform was in place and the Community of Focal Points had been established.

While the project is focused on the WACREN region, the involvement of UbuntuNet Alliance is key in its international collaboration strategy as it strengthens our partnerships on one hand, but also the project is giving the Alliance to benefit first hand with the output of the project especially the piloting of Focal Points Community and the engagement with End Users. The Alliance plans to pilot Focal Points in 2015 going forward to act as hubs between the Alliance, the NREN and End Users.

UbuntuNet Alliance re-established the projects coordination office to consolidate the efforts in engaging communities of practice and also a way of expanding the service portfolio of the Alliance. The value-added service portfolio of the Alliance primarily with a focus on eduroam, identity federation and other cloud services is being looked at. By the close of the year, a Federated Applications Workshop was being planned in partnership with the MAGIC project for April 2016.

Collaboration agreements and Service development with potential COPs

Beyond ongoing EU funded projects, the door remains open for regional Communities of Practice to join UbuntuNet Alliance as Affiliate Members. At the beginning of the year, UbuntuNet Alliance participated in a consultative workshop on Open Access organised by the Network of African Science Academies (NASAC) in Nairobi. And during the course of the year UbuntuNet Alliance paid a visit to the
African Academies of Sciences in Nairobi and a initiated a discussion for a Memorandum of Understanding.

UbuntuNet-Connect 2015 - a platform for regional networking in Eastern and Southern Africa

UbuntuNet-Connect 2015 the premier research and education networking conference in Africa was held in Maputo on 19-20 November 2015 hosted by the Mozambique Ministry of Science and Technology, Higher Education and Vocational Training, the host of MoRENet. The Conference was held under the theme: Beyond Connectivity – The Road to NREN Maturity, and it marked the climax of the 10th anniversary celebrations of UbuntuNet Alliance.

UbuntuNet-Connect 2015 presented an opportunity for a series of pre-conference events to be held back to back. The events included a 4 day hands on Advanced Routing Workshop, the AfricaConnect Coordination Meeting, Administrative Meeting and Technical Meeting; MAGIC Project Meeting; the MoRENet national workshop and the Sci-GaIA pre-Conference Workshop of Open Science.

The main conference was attended by about 150 participants from 33 countries. The conference was officially opened by the Minister of Science and Technology, Higher Education and Vocational Training, Jorge Penicela Nhambiu and was accompanied by senior officials in the ministry. The conference features 30 well selected papers on relevant topics around the conference theme.

As a regional conference, UbuntuNet-Connect continues to attract sponsorship from commercial companies that see value in supporting such events to reach out to their customers and also as part of their corporate social responsibility.