



MEETING REPORT AfrinIC-9

Day One, 25 November 2008

Opening Remarks, Brian Longwe, AfrinIC Board Member

The meeting was opened by the one of the AfrinIC board members, Brian Longwe. Before starting his welcome speech, he made few apologies on behalf of the Chairman, Pierre Dandjinou could not make it to the meeting and also due to due to unforeseen circumstances, we could not be joined with the Minister of IT as stated in the program.

The main focus would be in looking at sharing IPv6 experience and it was also noted that the 3-days IPv6 workshop concluded very well in terms of participation. He also emphasized that AfrinIC is a community and not just an organisation performing a particular kind of function. Community consists of people who share their joy, pain, lessons learnt and experiences. Shortly we shall see how as a community we can let each other grow. He expressed his concern on the fact that our continent tends to receive the end of the stick and general kind of perception that Africa is always in the last place and always following everybody else. He further encouraged others who have the experience to come and share so that we learn that we are not behind of other regions and Africa has a significant contribution on IPv6. He further added that since 2004, Africa year after year has been recorded by ITU as the highest level of mobile growth. The mobile phenomenon will be a key driver in our traditional and rural communities in terms of bringing them into the information age. As we grow we would see IPv6 as a key factor in this development.

He also pointed out that in terms of geographical coverage, Africa can cover USA, India, Europe, Argentina and New Zealand. So, it is not fair to compare as the context is different as well as geographical space along with the issues and various stakeholders, jurisdiction, territories, consumers, governments, operators and policy makers which requires a unique approach. So, we need to identify our own problems and come up with our own solutions.

Finally, he said since we are a community we need to maximise our potential as Africa is good at sharing resources and few days we are here to learn and share with each other.

Welcome Address by Adiel Akplogan, CEO AfrinIC

Adiel Akplogan, CEO of AfrinIC started his welcome address by first thanking Brian Longwe for his speech and he added a small note on the change of venue that it has been an unfortunate situation and we have been able to re-route everything to Mauritius and he used that opportunity to extend a special thanks to all of them who have made it to Mauritius despite the high costs of travelling, buying ticket at last minute due to change of destination and he hoped that they will be able to enjoy the beautiful weather of Mauritius.

Adiel further added that Africa is different in many aspects as things don't always go on a smooth way in our region and that this is the first time something like this has happened in the RIR environment regarding the change of venue and this has not and should not stop us to try hard to do what we need to do for Internet development and good for our community. He presented the overview of the agenda



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for the next 4 days which have various sessions, sub-events, presentations and topics to address. He also highlighted that we will talk much on IPv6 development and sharing of experiences and information from people in your region as well as other regions during the first day and Internet Governance on the second day with a special focus on the IGF 2008 in Hyderabad, India. The last 2 days will be dedicated to policy discussions, update on AfrinIC services and other RIR updates, and reports from other organisations who are heavily involved in IP resource management and related projects.

He also stated that for us at AfrinIC, this IPv6 meeting which is the 3rd African IPv6 conference is an opportunity to assess the progress of our region and to pinpoint issues that need to be addressed to talk about to speed up deployment on IPv6. He also added that recently AfrinIC has joined 6deploy who has similar objectives. He also spoke about the first virtual lab supported by Cisco which is being launched during that week which will be a good platform for IPv6 testing and deployment especially for universities and academic institutions.

He also thanked the AfrinIC-9 partners and sponsors; Cisco, ISOC, Data Communications Limited and Mauritius Telecom. He gave some information on the various social events that will take place as well as details on the streaming and jabber room. A quick presentation of each staff was made so that attendees know whom to contact for any specific information. And attendees were also made aware of the hostmaster consultation happening so that they can meet the faces behind emails.

Lastly, Adiel thanked everyone and once again welcomed them to Mauritius and AfrinIC-9.

Global Perspective on IPv6 deployment, Philippe Duget

IPv6: How is Africa doing? Adiel A. Akplogan, * Presentation available in [PDF](#)

HIGHLIGHTS:

- Trends on transition from IPv4 to IPv6, acceptance, what was planned 10 years ago and what is the situation today
- Some challenges for IPv6 in Africa- IPv6 adoption being an important challenge worldwide but more importantly in our region. These challenges included- perception of lack of demand from the users, perception of huge costs related to transitioning, lack of awareness on real IPv6 deployment cases , lack of transparent capability with IPv4, passiveness regarding IP issues in our community, people are still struggling to properly deploy IPv4 networks, too much extensive usage of NAT in our region
- Killer applications or Killer Constraint- Better to talk about killer constraint
- Africa and IPv6- - Many actions were identified during the AfrinIC 2 meeting in Maputo, to create an environment which favours smooth transition to IPv6 in Africa.
- Achievements- IPv6 training in more than 35 countries, policy proposal to ease IPv6 allocation in our region, end user assignment policy proposed and adopted in 2007.
- How is Africa preparing for IPv6- Very slowly and following the trend of the rest of the world and trying to understand what is at stake. We need to push for more actions from operators, be



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innovative and explore the opportunity of developing application that can directly benefit from IPv6. Education is a critical part of the process.

- Conclusion- IPv6 is an opportunity for Africa

6Deploy a consortium to support IPv6 Deployment, Alain Aina, * Presentation available in [PDF](#)

Highlights:

- Introduction to the project, roles of partners, list of members.
- Objectives of the workshops- To introduce IPv6 concepts and differences from Pv4, to give hands-on experience, to enable to connect get IPv6-connected!
- The expectation from Afrinic in the 6Deploy project- more training, setting up of a virtual lab, raising awareness through policy makers, strengthening support and collaboration.
- The first joint event took place in Nairobi for the Afrinic/KENIC IPv6 workshop, took place in June 2008.
- The conclusion was to bring the 6DEPLOY consortium to another level.

Country Update: IPv6 work at University of Mauritius, Anwar Chutoo, * Presentation available in [PDF](#)

Country Update: Kenya a new IPv6 momentum, Vincent Ngundi, * Presentation available in [PDF](#)

Highlights:

- The Genesis- No Local Benchmarks, low awareness, low technical and policy capacity, Inadequate IPv6 Policy
- The Onus- Dot KE cc TLD Registry , objectives- Manage dot KE ccTLD, Represent country at Internet forums, ICT Awareness Creation, Capacity Building
- Walking the talk-Local test beds, Infrastructure Analysis, Policy Development, Capacity Building, Deployment, More test beds
- National Initiatives-Awareness Initiatives, Capacity Building
- Strategy: National IPv6 Taskforce- Nationwide Transition to IPv6 by 2012, Public private partnership membership model, Governance, Focus areas, working groups, work progress.
- The way forward-awareness, National IPv6 Test bed-ITU, Afrinic, IGF Remote participation Hub, National policy/Regulation formulation, Capacity building, Deployment

Migration to IPv6: Operational Perspective Kakiuchi Masatoshi

Mr. KAKIUCHI MASATOSHI has made a presentation on the MIGRATION TO IPV6 - OPERATIONAL PERPECTIVE.



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He talked about what is needed for migration to IPv6. He has talked about the IPv6 link local address, the IPv6 global address assignment for networks and hosts and the IPv6 routing support. He said that many vendors today support IPv6. Among the products that support this protocol he talked about "quagga" which is an open source routing software.

He has also talked about what to do in case some companies are ready for IPv6 but their upstream networks do not support it. Then he has suggested the use of IPv6 over IPv4 tunnel and the 6to4 to be used by hosts. In his presentation Mr. MASATOSHI talked about the path MTU discovery, the fall back to IPv4 from IPv6, the DNS support on resource record and the application support on servers. He has pointed out that many operation systems support IPv6 now and also many applications support it now.

Killer application for IPv6 deployment in Asia Demonstration of IPv6 multicast experiences, Yoshihiko Kanaumi

YOSHIYIKO KANAUMI gave some reasons why they opt for the use of IPv6 for their project. Some of the reasons were :

- the revision of the broadcasting law in Japan. The Japanese government has allowed the use of Internet for TV broadcasting.
- There was a lot of TV subscribers to IPv6, hence a lot of address spaces is needed. He also said that IPv6 multicast allows content distribution
- too many subscribers at the same time.

When presenting the IPv6 multicast he said that this technology has many advantages for their project. He said that IPv6 multicast is one of the solutions for broadcasting. With this solution the sender can initiate only one stream to reach multiple receivers. The packets will be duplicated by routers and switches. There is a reduction of sender side costs (operations costs, cpu load, network bandwidth). He has listed two types of implementations of multicast routing which are:

- Source Specific Multicast (SSM)
- Any Source Multicast (ASM)

Mr KANAUMI has also presented two DV over IP softwares, one commercial product named "dvcommxp" and one open source software named "dvts". These software applications encapsulate the digital video data into IP packets. He said that dvts supports hd video streaming and multicast subsets (including IGMPv3 and MLDv2). The minimal requirements are 1 camera and 2 pcs and optional dv/hdv deck. The LINUX kernel version required is 2.4.22 or later.

He talked about the Japan Gigabit Network 2 (JGN 2) which is a nationwide layer 2 network and is a data link media and the Japan Gigabit Network (ip) v6 (JGNv6) which is a layer 3 network. These two networks provide infrastructure for the Video streaming over IPv6.

How CISCO is Preparing for IPv6, Philip Smith



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PHIL SMITH started his presentation by explaining what IPv6 is and the basic perspectives. These perspectives are

- the network management perspective. (infrastructure evolution),
- the software developer perspective (IP diagnostic, library calls, naming services)
- the end user perspective (applications and services evolution)

He made a key aspects reminder that is: IPv6 is not a future and the deployment of production infrastructure is under way. Mr. SMITH has also talked about the impacts of the exhaustion of IPv4 address space. He talked about the transition from IPv4 to IPv6. He raised the point that this transition is stalled by the fact that some devices and applications are not yet dual-stack everywhere and there is a need to find ways to enable more IPv4 customers during the transition period.

He has also presented dual nat (v4v4v4), snat (software + nat) and dual-stack lite. He said there is a need for more address spaces due to the explosion of appliances that will require IPv6 addresses. In his presentation Mr. SMITH has covered aspects on Cisco IOS IPv6 structure, Cisco IOS IPv5 features, Cisco IPv6 security and network management and IPv6. He has also presented some Cisco IPv6 solutions and IPv6 enabled CPE routers.

Open MIC

Tutorial Kakiuchi Masatoshi & Yoshihiko Kanaumi

- IPv6 motivation

- * Presentation available in [PDF](#)
- - Operation of IPv6 network for R&D
- * Presentation available in [PDF](#)

Day Two, 26 November 2008

Internet Governance and what does it means for Africa, Ahok B Rhadakissoon: (ABR), * Presentation available in [PDF](#)

ABR talked about the relevance of IG into the establishment of critical internet resources like ccTLDs, IXPs, root servers, etc. He started by introducing the concept of IG, and said his first IGF was in Athens. He said that at the Hyderabad meeting, it would be interesting to relate the discussions to the African perspective - how the process is perceived, what we are doing to participate and how best to get involved in the IG process so as to bridge the digital divide.

ABR said that IG is a critical issue in the following ways:

1) IG is tied to the emergence of a new economy - a knowledge economy aka an information economy. He said that transmission of information is through new technologies and that these are the days of



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convergence, where all services (data, voice, etc) are delivered on the same connection, and that Africa must come to terms with this change, and learn how to harness these changes to make them work for our economies. He stated that there are policy issues to understanding this aspect, and this is what IG is all about.

2) Public policy involvement, in particular, around delivering services (health, etc). IG involves empowering the citizen that needs to know what a PC is and how it is connected to the rest of the internet. ABR stated that many people still use a PC as a typewriter and that some generations are still scared of the PC idea, and so, IG seeks to empower the citizen out of this predicament. ABR stated that IG is for regulators, policy makers and citizens to adapt to.

ABR mentioned a need to put emphasis on policy issues, and mentioned that some countries do not allow direct internet access. He said that ICT governance is a global process and there will be problems if processes differ. If health, education and business services are delivered over the internet, the citizen will be empowered. ABR said that no African country should let this bandwagon past. He mentioned that IG is part of the ICT process and that in some countries, there are disagreements about the legislations regarding ICT issues. If the IG process is to be integrated, there is a need to consider what is happening globally, so that the laws made will encompass whatever is happening both locally and globally. He mentioned that some countries develop legislation that takes care of their special cultural and geographical values.

ABR said that there is a need to take a harmonized approach in order to manage certain aspects of internet access and governance, especially in areas like number and name resource management, cybersecurity, standards, IP rights and support to e-health, e-education and e-governance. He said that this is something that should be advocated for and that Africa is already making headway on this issue.

Regarding regulatory policy, ABR said that there needs to be a regulatory framework such that if investors have issues with their investments, then there are courts of law and other entities to make sure that any such issues are resolved. He said that this is not far off from IG, and that this is reality - to harness the well-being of citizens and ensuring that policies and legislation around ICT are in place, and importantly, that the law be enforceable. He said that this also helps entities like regulators to be able to exercise their powers where necessary.

ABR said that policy makers give the vision of how the internet should be governed, but regulators also have to do their job. He said that in Africa, many regulator are still not 'free', and that there is still much influence peddling by the governments towards regulators. He said that regulators must be independent and transparent.

ABR talked about the aspects of the broader perspective of IG. He said that it is necessary to have a narrow and unilateral perspective and that governmental or regional policy makers need to understand that broader aspects need to be mapped out in the legislation around IG. He said that for example, cybersecurity is a broad aspect in the ICT area, and that allocation of domain names and numbers is more technical and specialized. He said that policy makers need to realize that domain names are a subset of the IG function. He stated that what will be discussed at the IGF in Hyderabad will be put in local policies that impact the citizen.



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He stated that there is a need in Africa to ask if our institutions are ready and if we have the local capacity to handle new technologies emanating as a result of internet penetration and ICT use. Will people use it? The SAFE cable for example, it has been put in place, SEACOM, EASSy and other initiatives are all bringing cables, but there is still a digital divide. He stated that there must be a way to make ICT affordable, by way of making a social mandate attached to these initiatives. He stated that there is a cable SEGANet, to link the Indian Ocean islands - and that there is a social mandate attached to it. Funds are coming in to enable the bandwidth to be cheaper and affordable, which two factors are key to access, else IG is useless, because we shall be governing nothing. He reminded the meeting that the theme for the IGF in Hyderabad is "internet for all".

He stated that the real reason for IG is to make people use the internet and get them out of the digital divide, while making it affordable. The development of the network and upcoming technologies must be in such a way that people can afford it. There must be affordability and accessibility. Other problems like culture, content and developing businesses around the internet come into play only if people have access to it. He stated that in the Dakar meeting, the question was, how best can Africa benefit. He urged all to try to do something about the internet so that we can start claiming certain rights on it.

HE acknowledged that there are issues on the aspect of IG and stated that the question is, what do we do about them? He said that initiatives like running around Africa preaching IPv6 is a good thing. He said this is the way forward and that Africa needs to start information sharing and accept the fact that everything starts from basic to technical and advanced. He said that we must start reflecting on Africa's context drawbacks and specificities, and look at a coordinated approach. He concluded by saying that we need to identify our shortcoming and needs, seek help from experts and specialised bodies like ICANN IANA and ISOC and develop a specialized pedagogy.

VN talked about the local IG initiatives in Africa and the East Africa IGF in particular. He said that the process started with a BoF, with some people discussing the possibility, then some meetings involving stakeholders. It was decided to start with national online list, that would lead to f2f meetings. Two meetings in UG and KE were held, towards a f2f meeting, then later in the four meetings, the EA-IGF charter was then crafted.

He said that a vision statement was established, and objectives set were to raise IG issues among policy makers, and establish which IG issues are relevant, and what issues to raise at the IGF in India. Thematic areas identified were Access, content, management of critical Internet resources, cybersecurity, privacy, trust and e-governance and its level of participation.

He said that a report was made with 5 priorities to be presented at the IGF in India: access to infrastructure, affordable access, content localisation and national and regional IXPs. Capacity skills development was discussed, and the EA forum will setup a remote participation hub for IG and will work on developing local technical expertise by doing workshops. Vn said that legislation is an issue that was also discussed, for legal and harmonized regulation practice issues around IG.



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VN said that on the issue of critical internet infrastructure, the IPv6 transition was discussed. gTLDs and IDNs were mentioned, and the management of internet resources and collaboration and sharing of best practices and procedures was also discussed. Cybercrime and security was also mentioned, and there was a need to protect national and regional infrastructure and protecting personal info and data. The setup of national and regional CERT was mentioned to address cybersecurity of crime.

VN mentioned the following successes so far:

- online forums for discussion
- national forums
- regional forum
- Reports: The East Africa IGF report and the Global IGF report will be presented at IGF Hyderabad. He said that in 2009, TZ will do the next EA IGF.

Efficient Management of ccTLD in Africa What Are the Issues? Boubakar Barry

African Internetworking: Opportunities and Challenges, Michuki Mwangi, * Presentation available in [PDF](#)

Before giving the highlights of his presentation, MM started by clarifying some points on the ccTLD by Boubakar Barry (who was the original presenter), and cited a few countries, like Rwanda & Uganda, in which there are issues. He went on to give a brief on how the ccTLD is viewed by countries, the way it is managed and its impact on the general community. He also added that South Africa is getting the process going.

Next he gave a brief description of what is meant by Inter-Networking and explained the two concepts; Peering & Transit. MM went on to comment on the two models and highlighted the fact that with the Transit model, the cost is high as compared with the Peering model. He further stated that ideally the pipes for peering should be thicker than the Transit one.

MM explained the major challenges, which he said are threefold: Policies Challenges, Infrastructural Challenges and Data Challenges. He went on to describe some of these challenges and included poor mechanisms to develop advanced technological capabilities, lack of significant investment in ICT R & D, absence of legal framework, approval process is slow and costly, inaccurate maps of existing infrastructure locations, lack of trust amongst operators, lack of empirical data on how much traffic exchange exists between African regions.

However, he believes that opportunities also exist and went on to name some; need to build IXPs, only way to reduce costs, reduce dependence on international connections for local traffic, e-government projects, VOIP call clearing houses, hosting services, and implantation of 24-hour economies. He concluded by stating that Inter-Networking will play a key role in providing access.



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AfrinIC Anycast Root Server Program, Alain Aina, * Presentation available in [PDF](#)

After the introduction by the CEO, APA began his presentation by stating that he will not be talking about the technical aspects of the AnyCast Root server but instead about what AfrinIC is doing in the region. He further said that AfrinIC is NOT a Root Server operator, but is to coordinate the increase Root Server Copy in the region. APA gave a brief background of Root Server. He went on to say that there are 13 named root servers from A to M. The main objectives are to improve on the number of root instances in the region, bring the root servers operators together. AfrinIC's role is to have MoU with Root Servers Operators and IXPs, to raise awareness amongst stakeholders and more broadly to facilitate the process.

APA stated that the basic criteria to host an AnyCast copy is to have well established IXPs, be able to work with Root Operators to make their requirements available for all from a single entry point. Very importantly there is need to have dedicated staff at exchange point.

The first step in the program was the workshop that took place in Cairo. There were participants from many stakeholders, IXPs, Root Operators, PCH etc. The main objectives was to discuss AnyCast technologies and also about Root server Copy from Root Operators. The workshop attracted a number of sponsors like ISOC, OIF, the Egyptian Government, PCH etc. APA advised that there is a website where all relevant information can be found.

IGF, 3 Years of Dialogue and Capacity Building, Where do We Stand in Africa? Ashok B. Radhakissoon, * Presentation available in [PDF](#)

AR gave a brief talk on the evolution of the IGF which started in Geneva in 2003 and shaped in Tunis and formalise to run up to 2010 with annual forum in different parts of the world. He stated that the main question was how to make the most of it meaningful for the continent. He gave details of the two main documents; The declaration of Principles and the Action Plan. He highlighted the main purpose of the two documents which is in the first provide the cornerstone of the debate and the second to foster international dialogue among all interested parties.

AR also explained what was the mandate in the WSIS – Tunis and gave a brief definition of the Internet Governance. He went on to say that there is much work to be done and that Africa participation is vital. He also brought the case of the East Africa region that has setup a Regional IGF. He highlighted the purpose of IGF citing exchange of ideas, sharing best practices and learning from one another. AR



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mentioned the upcoming forum in Hyderabad where several items namely, Cyber Security, managing critical internet resources and the way forward. He went on to list the opportunities and constraints.

The CEO then opened the floor for questions & comments:

The first question came from Ray (ARIN) who stated that the ITU and some other quarters believe that the IGF was a waste of time. AR stated that there have been many changes and there is a need to find solution. MM commented that the IGF has not been a waste of time because in Africa, Governments are now paying more attention to ICT more than before and had forced many organizations to evaluate and reposition themselves. The CEO also took this opportunity to clarify what IGF is. He explained that purpose of the IGF was to create an environment for discussion and that there is a need to look at the progress that has been achieved. Although Africa has not been very active the IGF has not been a waste of time. An assessment needs to be made in the next few years to see what could be the next step. A representative from Tanzania went on to highlight the progress made in her country by all stakeholders in recent years.

The CEO then gave his closing remarks and thanked all presenters and reiterated the importance of dialogue and we at AfrinIC create such environment.

ICANN Update on Numbers Resources, Leo Vegoda, ICANN, * Presentation available in [PDF](#)

The most important information from Leo was the request from AfrinIC for a new /8 IPv4 address allocation.

He said that AfrinIC has made that request in October and then a 197/8 has been allocated to AfrinIC. He also said that

in the remaining thirty-six (36) /8 address space, two (02) /8 has been allocated to APNIC. He has presented a recent history of IANNA allocations.

He mentioned the ongoing project on moving registration stuff from plain text to xml. This was first presented at the Rabat meeting and the project goal is to move IP address spaces and AS numbers registry into xml format. This work is continuing and he said that there is a need for collaboration with an IETF working group who will publish a draft on this topic. He also talked about the revision of multicast address spaces and said that IETF is working on an RFC (RFC 3171) who will give more specifications about this process.

Leo VEGODA also said during his presentation that ICANN is working with the NRO to update the AS Numbers registry. He said that there is a global policy for the allocation of AS Numbers to the RIR that was ratified by all the RIR since the Rabat meeting.

Talking about the DNSSEC he said that a signed dns root server was running since one year as a testbed server. This is to ensure that ICANN infrastructure is operationally ready. Following the testbed the US



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DOC has raised the need of a public consultation about dnssec and has asked for comments from the community.

ICANN Update, Anne Rachel Inne, ICANN

Anne Rachel Inne talked about the growth of Internet users in the world, showing a graph of the Africa region being behind the other regions of the world in terms of Internet usage and there is a need to find ways to increase the number of internet users our region.

She has explained the organizational structure of ICANN and the number of ICANN staff members. She said that ICANN has many offices all over the world in order to have a full representation of all the regions of the world.

Anne RACHEL talked about the top level domains. She listed some hot topics in the ICANN activity plan and some of these topics are

- the introduction of internationalized domain names
- the introduction of new tlds
- the cntd
- introduction of new generic domain names (GNSO)
- improve awareness of ICANN
- whois databases and

She talked about the need to have an agreement between ICANN and top level domains managers because there are some policies from ICANN that every party need to respect in other to help the community benefit from the usage of domain names.

She also talked about the strategic plan of ICANN for the 2009-2012 period. She said that security is the main topic for this strategic plan.

Day Three, 27 November 2008

AfriNIC Overview - AA

Adiel Akplogan (AA) gave an Overview of AfriNIC during 2008. He thanked all guests for coming to MU despite the change of venue, and mentioned a brief overview of the 08 activities. He said that a few changes to the company HR structure were introduced at the start 08 with respect to the strategic plan, and that some have been implemented, with results seen.

He presented the budget, staff count, membership status and policy update.

He mentioned some challenges that AfriNIC faced in 2008. He stated that financially, the depreciation of the dollar had a big impact to the budget, as members are billed in dollars, but day to day expenses are in MU rupees. About the collection of invoices, AA said that there was some difficulty in collecting fees



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from our members, mainly with the exchange rate and that many ZA members had a delay due to the dollar rate. He mentioned that there was a need to keep reserves intact and that we will be able to meet goal of having at least a 1 year operating reserve after 3 years of operation as required by the board.

On the staff count, AA said that there are 4 admin, 2 Comms and 5 technical staff.

AA also reported that on the membership, there have been 84 new members in 08 and that membership category changes have also been seen. He stated that last year, entry level membership category fees were reduced, so, we now have more members in that category. He stated that 10-15% of revenue was anticipated to be lost anyway due to this change.

On the Policy, he said that 1 policy was implemented.

AA talked about the AfrinIC office space, he said that we got additional space temporarily at the ground floor of the Cybertower in the Cybercity in Mauritius, and that next year, at end of q2, the entire staff will relocate to new building. He also mentioned a plan to move all staff to MU by 2009.

AA showed the current HR structure said that all three top positions have been filled.

He talked about membership Growth which is as a result of the training and outreach activities. He said that the small team also engages in training and outreach, and therefore makes it difficult and impacts on other activities. He said that we shall build a dedicated training team next year. He said that 15 training events were planned in 2008, 12 have been done and the next one will be in MG. He said that the trend will be kept next year if a dedicated team is put in place as quickly as possible.

He said that AfrinIC still growing, and has been represented at several events like ITU Cairo, ICANN and several other IG meetings. He said that a Programme with regulators has been launched this year for setting up specific events with regulators on IG and IP resource management, with the first event in Dakar and several other events next year. AA said that there is a need to reinforce collaboration and involvement with regulators and policy makers in our activities, as we are heading towards IPv4 address exhaustion, and we need collaboration from different stakeholders in handling this transition without affecting the stability of the internet in the region.

He said that outreach on IPv6 still continues, and that we've joined the 6-Deploy consortium that allow access to more resources for training - and therefore, we are able to use their human resources. He said that a Good achievement is the setup of the first IPv6 virtual lab in MU for IPv6 training, which will allow more people to gain hands-on training, either from us, or otherwise. He said that there will be training materials (developed with the 6-deploy team), open and fully available for anyone interested in IPv6 training.

Finally, AA recognized one AfrinIC staff, Ernest for 5 years of service at AfrinIC. The board also recognized AA similarly.



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BOARD UPDATE, Badru Ntege (BN)

BN gave an update from the AfrinIC Board of Directors. He stated that the core values of AfrinIC in regard to the challenges that AfrinIC faces.

On behalf of the board and the community, BN thanked the entire AfrinIC staff for the quick turn around of the meeting which was originally meant to have been held in Ethiopia, and thanked the sponsors and assured them that AfrinIC will not let them down.

BN said that the board has had 4 teleconferences so far and a f2f meetings. He said there was an election at the Rabat meeting where we had a new board member (Lala), and that Didier re-elected, and that Philemon could not make it.

BN said that the board works through a number of committees: remuneration, finance, audit and nominations/elections committee, all with various chairs. He said that the BoD made 15 resolutions over the last years. He also said that there was a change of board chair - from Pierre Dandjinou to Viv Padayatchy. He said that Board members have represented AfrinIC at various international meetings.

[PDP-MG work update & MDP MG Election](#) Vincent Ngundi, * Presentation available in [PDF](#)

Vincent Ngundi (VN) talked about the new PDP as the interim chair of the AfrinIC PDP moderator group. He went through the MG TOR and other procedures. He said that an author of any proposal can go through the MG or send a proposal straight to the mailing list, which will be discussed for at least 30 days, then at presented at a f2f meeting for discussion. The proposal is then sent to a 15-days last call for comments if there is consensus at the f2f meeting, then to the board for ratification if there is no major objection at this stage.

He said that New PDP was accepted by community during AfrinIC-7 and ratified by board in Feb 2007.

VN also went through the functions of the PDP, and said the chair and co-chair won't be AfrinIC staff members. He said that elections must happen at f2f meetings, and nominees must be AfrinIC members and located within the AfrinIC service area, and can hold position for 1,2 or 3 years and cannot run for more than 2 consecutive terms.

He Presented the election procedure, where there is a call for volunteers, and other procedures. He said that there is a call for nominations 1 week after the announcement of the election committee members and that self nominations are allowed. The Nominations period is usually 2 weeks and that nominations are as simple as sending an email to e-com@afriNIC.net, with details as stated.

VN said that seconding a candidate must be done two weeks after the call for nominations, and that candidate seconded by at least 1 person can run for office. He said that the Elections Committee then announces the nominations within 1 week after closure of nominations and the qualified names are published.



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He said that the Co-Chairs are elected 2 months after the call for nominations and that regarding the voting results, the nominee with largest number of votes is the winner and that if the vote ties, it will be cast again.

RIR Update: APNIC [PDF / PPT](#)

IPv4 address allocation in Africa history in Africa and Exhaustion situation, [PDF / PPT](#) Alain Aina

RIR Update: ARIN

Tunisia PKI Infrastructure , Mounir Ferjani

Tutorial: Internet Measurement principle and tools, Hyunchul Kim

* Presentation 1 in [PDF / PPT](#)

* Presentation 2 in [PDF / PPT](#)

* Presentation 3 in [PDF / PPT](#)

Day Four, 28 November 2008

Policy Presentation & Discussion – by Vincent Ngundi,

VN started by saying that he would give a brief of some policy discussion by other RIRs and what that meant for the Afrinic region. The main one is the issues surrounding the IPv4 exhaustions and other housekeeping policies. He outlined the main aim of the NRO with regards to the exhaustion is to protect the unallocated pool and to protect the bottom up process. He outlined how the other RIRs view the transfer procedures. He also explained the process of recovering unallocated address blocks by some RIRs. There is a proposal on address transfers by APNIC, RIPE, ARIN.

Some proposals have much supports but not consensus. VN then gave an overview of all policies under discussion in the other RIR regions. He listed all the pending policies and the ones that need to be revised and those that have been abandoned.

During the last Afrinic meeting in Morocco, there were two policies; one was the policy development process which is already implemented, and the other one was the global policy regarding the allocation



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of the remaining IPv4 addresses. VN outlined some of the topics which will be opened for discussion within the AfrinIC region; for example if we should open the market for organisations outside the region. VN open the floor to questions/comments. There were none.

Analysis of the impact of IPv4 transfer Policies – by Dawitt Bekele, ISOC, * Presentation available in [PDF](#)

DB started by thanking AfrinIC for the meeting especially after the Addis venue was cancelled. He was hoping to have been able to welcome everyone in Addis Ababa. He will focus of IPv4 transfer policies. He stated that he will talk about the RIR transfer policy discussion and also the ISOC observations.

He mentioned that the unallocated pool is being exhausted and that the projection by IANA is Jan 2011 and by the RIR Feb 2012.

RIR have agreed on the global policy that IANA will transfer the final /8 blocks to RIRs when normal allocations reach the point where there are only enough. He explained what will happen when the RIRs finish their IPv4 addresses. He went further to explain the issues with regards to the migration to IPv6. At the same time there will be unallocated IPv4 blocks and that there will continue to be a demand for IPv4. There are already discussions amongst some RIR regarding the transfer of address blocks between parties. He believes AfrinIC should also start such discussions. He outlined some of the conditions which were set by APNIC, ARIN & RIPE.

DB pointed out that there is no real practical way to limit transfers. There are also instances of addresses being sold on ebay. There are two schools of thought some that oppose to transfer policy and others who support transfers. ISOC believes that it is very important for the addresses to be registered. RIRs will need to acknowledge and register the transfers. He went on to explain the importance of registration. He further explained the roles of RIRs in the transfer process.

To conclude DB said that network operators would deploy in parallel with IPv4.

ASO-AC Update, Alan Barrett, * Presentation available in [PDF](#)

Alan Barrett introduced himself and gave a quick background of the NRO / NRO-NC /ASO /ASO-AC and the different functions of these bodies. He also provided details about the number and criteria of members and their election procedures from different RIR regions for them to be represented in the NRO-NC and ASO-AC.

<http://meeting.afrinic.net/afrinic9/aso-ac.afrinic.200811.pdf> (pdf format)

<http://meeting.afrinic.net/afrinic9/aso-ac.afrinic.200811.ppt> (powerpoint format)



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As there was one candidate for one, position Jean Robert was elected for the NRO-NC election.

Number resources Statistics & AfrinIC Registration Service Update, Ernest Byaruhanga

Ernest presented the Number Resources and Statistics for the AfrinIC region. He started with global Stats which has been compiled by the RIRs under NRO which was dated September 2008 and is available online at <http://www.nro.net/statistics/index.html> and the slides are also available online at the meeting website at <http://meeting.afrinic.net/afrinic9/ERNEST%20-%20jointstats.sept08.pdf> (pdf format) and

<http://meeting.afrinic.net/afrinic9/ERNEST%20-%20jointstats.sept08.ppt> (powerpoint format).

In the second part Ernest moved on with the presentation of the “Resource Services Report” which was more oriented towards AfrinIC activities regarding resources in the region the report provided details about:

IPv4 Address Space / IPv6 Address Space / AS Numbers / Membership Statistics / Request Statistics
<http://meeting.afrinic.net/afrinic9/ERNEST%20-%20RS-Report-v0.pdf> (pdf format)

<http://meeting.afrinic.net/afrinic9/ERNEST%20-%20RS-Report-v0.ppt> (powerpoint format)

NRO-NC Election ASO-ECOM chair

RIR Update: LACNIC

2 Bytes ASN exhaustion, Welcome 4 Bytes ASN, Alain Aina, CTO AfrinIC, * Presentation available in [PDF](#)

Highlights:

- 2-byte ASN exhaustion- The end point is the date where the first RIR has exhausted its available pool of 16-bit AS numbers, and no further numbers are available in the IANA unallocated pool to replenish the RIR's pool -15-May-2011
- In 11/2006, based on IETF recommendations, IANA increases the ASN pool size to 4-byte - RFC4893 From 65535 to 4,294,967,296 , AS23456 reserved for transition
- Changes to BGP to support 4-byte ASN
- Routers use Capabilities Advertisement with BGP-4 to check 4-byte support of peers (RFC3392)
- 4-byte ASNs available in RIRs pool: 5.1- 5.1023 (327680-328703) for AfrinIC.



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- 4-byte ASN policy On 1 January 2007 the registry will process applications that specifically request 4-byte only AS Numbers and allocate such AS Numbers as requested by the applicant. In the absence of any specific request for a 4-byte only AS Number, a 2-byte only AS Number will be allocated by the registry.
- On 1 January 2009 the registry will process applications that specifically request 2-byte only AS Numbers and allocate such AS Numbers as requested by the applicant. In the absence of any specific request for a 2-byte only AS Number, a 4-byte only AS Number will be allocated by the registry.
- On 1 January 2010 the registry will cease to make any distinction between 2-byte only AS Numbers and 4-byte only AS Numbers, and will operate AS Number allocations from an undifferentiated 4-byte AS Number allocation pool.
- Starting from 1st January 2009, Afrinic will implement the second phase of the 4-byte ASN policy

RIR Update: RIPE NCC, Filiz Yilmaz, * Presentation available in [PDF](#)

Highlights:

- Report on RIPE 57, held in Dubai, which had 320 attendees from 50 countries, focus on IPv6, IPv4 Depletion, outreach, Charging scheme 2009 adopted, Draft budget 2009- CA 15M EUR
- The Board has been engaged in strategic planning, and identified areas requiring further attention: Outreach, Reporting, and Number Resource Lifecycle Management
- Planning to deploy a certification process in 2009, a limited test-run to be announced at RIPE 57
- PR and Outreach campaigns on IPv6 Uptake and 4-byte ASNs as well as developing branding for Information Services
- Upcoming meetings: RIPE 58, Amsterdam, 4-8 May 2009, RIPE 59, Lisbon, Portugal, 5-9 October 2009

Communication Area Report Lillian Sharpley

Finance and Administration Area Report, [PDF / PPT](#) Patrick Deesse

Technical Operation Area Report, [PDF / PPT](#) Alain Aina

NRO Report, Adiel Akplogan

Adiel provided the NRO Report by introducing the NRO and its functions and the responsibility rotation in relation with different RIRs. He provided details about the budget contribution to ICANN. In February 2008 different NRO meetings took place mainly to propagate IPv6 usage. He also mentioned about the IGF meeting that was going to take place in Hyderabad next week. Adiel provided details about the NRO booth during the ITU event that took place in Cairo and Bangkok. The NRO worked on different engineering projects, IPv6 transition and adoption.



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Closing remarks and End Pierre Dandjinou / Adiel Akplogan

E. Policy Discussions and Outcomes

there were no policies under discussion in the African region. However, a report was given on policies being discussed in other RIRs. Also, during the meeting, members agreed on the need to develop a policy for managing IPv4 addresses after the exhaustion of the IANA pool (soft landing policy) and agreed that a few amendments were required in the Policy Development process regarding this policy. It was expected that this issue will continue to be discussed on the mailing list then presented at Afrinic-10 for further deliberations.

F. Elections and Outcomes

During the meeting, there were two elections, the Policy Development Process Moderator Group (PDP-MG is responsible for moderating and coordinating the policy development process and discussions) and the ASO/AC. The results of the elections are as follow:

PDP-MG:

Vincent Ngundi (Kenya) for a three (3) year term;
Dr. Paulos Nyirenda (Malawi) for a two (2) year term; and
Hytham El Nakhel (Egypt) for a one (1) year term.

ASO/AC:

Jean-Robert Hountomey was elected to serve in the ASO AC for another 3 year term and was unopposed.

G. Sponsorship: CISCO Systems Inc., Data Communications Limited (DCL), Internet Society (ISOC), Mauritius Telecom, Organisation Internationale De la Francophonie (OIF)

H. Social Events: Cocktail, BBQ Beach Party, Catamaran Cruise

I. List of Fellows: Mana Mint Mohamed Salem Aidara, Senegal; Brice Abba, Cote d'Ivoire; Douglas Uganda; Mounir Ferjani, Tunisia; and, Henry Sempa, Uganda.

J. Feedback from surveys

There was a 25% rate of participation with meeting surveys and 50% of training surveys.



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- **Meeting Survey:** 98% of the respondents felt that the registration, meeting content and venue met their expectations and were very satisfied with the meeting and found the opportunity to meet and network, receive policy updates and to participate in the training workshop to be the most beneficial aspects of the meeting.

Suggestions were given to improve the website, such as making the information more readily accessible, less cluttered, the use of a larger font, overall, the respondents felt that the website contained adequate and pertinent information.

- **Training Survey:** Overall, the respondents were very satisfied with the training instructors and rated them extremely high for having knowledge about LIR and IPv6. They were very satisfied with the logistics and content and stated that they would recommend the training to others and that their knowledge about LIR and IPv6 had increased after the workshops.

However, many of the respondents indicated that they would like to see the training sessions extended and to allow for more practical sessions.