
ICANN80 | PF - At-Large AFRALO: Enhancing Internet Infrastruct in Africa for an inclusive Internet
Monday, June 10, 2024 - 9:00 to 10:15 KGL

YESIM SAGLAM:

Hello and welcome to At-Large AFRALO roundtable: Enhancing Internet infrastructure in Africa. My name is Yesim Saglam and I'm the remote participation manager for this session. Please note that this session is being recorded and is governed by the ICANN expected standards of behavior.

During this session, questions or comments will only be read aloud if submitted within the Q&A pod. If you would like to speak during this session, please raise your hand in Zoom. When called upon, please unmute your line to speak. On-site participants will use a physical microphone to speak.

Interpretation for this session will include English, French, and Arabic. Please state your name for the record and the language you will speak if speaking a language other than English, please remember to speak at a reasonable pace.

With that, I will hand the floor over to Hadia Elminiawi, AFRALO Chair. Thank you very much.

HADIA ELMINIAWI:

Thank you so much, Yesim. Welcome all to the AFRALO sessions at ICANN 80 here in Kigali. We are delighted that this policy meeting, along with the high-level meeting, is hosted in Africa, and we extend our

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gratitude to the government of Kigali for their excellent organization and support provided to the ICANN community.

The theme of AFRALO's sessions during ICANN 80 is bridging digital divide, connecting cultures for Africa's digital empowerment. Today we have two insightful roundtable discussions. The first focuses on the DNS infrastructure in Africa and the second addresses the goal of achieving a multilingual Internet. On Wednesday, we have the Africa Space and the AFRALO African statement, which will incorporate recommendations developed from today's session. In addition to these key discussions, we also have AFRALO networking events lined up providing opportunities for meaningful connections and collaborations.

Now we will begin our first roundtable discussion, enhancing Internet infrastructure in Africa for an inclusive Internet. We are honored to be joined today by Dr. Nii. Dr. Nii Quaynor is Ghanaian scientist and engineer who has played an important role in the introduction and development of the Internet throughout Africa. Mr. Audace Niyonkuru, CEO of Digital Umuganda, a Mag and UN IGF member, Mr. Gabriel Karsan, member of the African Parliamentary Network on Internet Governance from Tanzania, Honorable Lydia Akanvariva member of the African Parliamentary Network on Internet Governance from Ghana, Dr. Jabera Matogoro, representing AFRALO At-Large Structures, Mr. Pierre Dandjinou, ICANN VP for Global Stakeholder Engagement in Africa, ICANN Board member from Africa, Dr. Catherine Adaya, and ICANN Board member also from Africa, Mr. Allen Barrett, and ICANN Fellows

and NextGen and distinguished attendees who will share their valuable insights and expertise on this important topic.

I am honored to moderate this session along with my colleague Bukola Oronti, [an] AFRALO member. In this session we shall discuss the challenges in DNS infrastructure, successes and impact of initiatives, investment opportunities and provide recommendations to the community that will be incorporated in the AFRALO/AfrICANN statement that will be discussed on Wednesday. Thank you all for being here, whether in person or online, and we look forward to a productive and engaging session.

With that we can move to the panel discussion. And if we can have the slides. So here's our first session. It's: Enhancing Internet infrastructure in Africa for an inclusive Internet.

If we can have the next slide, please. So here we are going to talk about the challenges in DNS infrastructure and my first question goes to Dr. Nii. Dr. Nii, thank you for joining us today. And my question to you, to you today is what are the most pressing cybersecurity threats currently facing Africa's DNS infrastructure and how can they be effectively mitigated?

NII QUAYNOR:

Thank you very much. Perhaps what I'll do is I'll give a perspective from my unique point of view on where we are with DNS and then later on one could elaborate. I was supposed to come to you through a Zoom, but I decided to join here and so I'm very grateful that the organizers have given me a chance to participate.

In such discussions, a person's stake is important. I'm an Internet pioneer and a teacher at the University of Cape Coast but, most important, your first at large director of ICANN. And of course I'm also an operator of an accredited registrar as well as the ccTLD, and I do payments processing in Ghana.

Africa's DNS infrastructure challenges must be addressed in a sustainable way and in the long term. We've been at this quite long already. Now shorter term projects, in my opinion, need to fit in a long-term plan. My interest and focus is of course on DNS infrastructure and less on the Internet at large because we might not be able to address all of those in my opinion.

The source of resources for the DNS industry is from registrants. And how many in the audience, for example, have a dot-Africa domain name? I have a few, and if we don't have any, then there will be no DNS infrastructure enhancement. In other words, somebody is going to have to be requiring names in order for us to build infrastructure. And perhaps in future when people are coming to participate, we need to understand whether they have a stake or not, and if they don't have a domain name, then we should encourage them to get one or maybe forfeit some of the benefits that will come along with it.

On the infrastructure side, there have been some improvements, and I see that there are some new root instances under the root ops control, and the ccTLD operation is now almost managed by local entities, though we have continued tensions around who is to do the job: government, civil society or private sector. The ccTLD operations are now automated with the favorite software, Cocca, and a few others.

ccTLD DNS in Africa are supported by a few known DNS operators: RIPE NCC, PCH, AFRINIC, AFNIC, ITU, and University of Oregon NSRC. 27 ccTLDs have signed DS in the root zone. Now some ccTLDs are signed by PCH. Few ccTLDs have active DNSSEC. There are few generic TLD's and few ICANN-accredited registrars and a bunch of ccTLD registrars. DNS resolver services are led by the big and public DNS resolvers. Africa has less and less DNS outages and technical incidents.

Perhaps the question here is has Africa outsourced its DNS service or where do we want to substitute to increase inclusivity? In the area of ICANN Org and what we observe from afar such as the CDA ... And we commend the effort. We see routes, instances, exchange points, universal acceptance DNNSEC Road Show, and ccTLD capacity-building in three years projects. And we following a long-term community plan, a DNS community plan, and what will happen after the three years? What are we doing differently this time? Would the root instance project, for example, benefit from supporting deployment of other root infrastructure for diversity? What impact are we having from the DNS forum? Are we committing enough discussion on DNS infrastructure?

Now to the user domain where your question rests, this is where we encounter significant cybersecurity challenges. At the last IGF in Kyoto, I believe Vint Cerf reminded us to pay attention to cryptography. This appreciation of multifactor authentication and zero-trust solutions would allow much safer Internet. The SSAC advisory on registrant protection, best practices for preserving security and stability in the credential management lifecycle is an excellent source of addressing

the cybersecurity matters that you raise. Where are we in implementing the recommendations might be the question.

Continuing on my advocacy for an extended community ecosystem, I point to AF Star, the African Internet Technical Institutions Forum, and its upcoming annual event, AIS 2024 in September 10 to 13 in Mauritius. We shall discuss many topics and it will be even preceded by tutorials from AfNOG. But we will also discuss AFRINIC and ICP-2 as well. This is part of the effort to strengthen the infrastructure, capacity-building, conference for exchanges, and building a community of Internet technocrats.

We invite you all to support and participate in AIS, and I thank you for your attention.

YESIM SAGLAM:

Thank you so much, Dr. Nii, for your answer. And as you mentioned, we need long-term plans, and our short-term plans need to fit into longer term plans. We also look forward to joining AIS and Mauritius.

Now I would like to address the same question to Mr. Alan Barrett. Mr. Alan is a Board member from Africa. And the question again is what are the most pressing cybersecurity threats currently facing Africa's DNS infrastructure? And how can they be effectively mitigated? Mr. Alan, the floor is yours.

ALAN BARRETT:

Okay, thank you, Hadia. It's hard to know what are the most pressing cybersecurity threats, but I think problems arise from a few major

causes. There's human error, mistakes in configuration, there's things just breaking and there's attacks which can cause service to be disabled.

So on the human side, I think we need to invest in training to get more people to become expert in how to configure networks and DNS. It's also useful to document all your procedures. So to reduce the scope for mistakes, make sure all procedures are documented.

Then on things breaking and things being attacked, I think they both have the same mitigation. And that is just: make sure that your infrastructure is very resilient. Long ago it was recommended that every zone should have two nameservers in diverse locations. And it was very common for that to be done kind of informally. Maybe two universities would agree with each other that each one serves as a backup for the other one. But today that's no longer really sufficient. It's not quite enough to have only two nameservers. You should have more than that. And if your zone is popular, then at least one of your nameservers should really be part of an Anycast cloud. And so I would recommend that you should cite nameservers at exchange points and explore the possibility of using Anycast.

Yeah, I think that's enough for now. Thanks.

HADIA ELMINIAWI:

Thank you so much, Dr. Alan. And as you mentioned, capacity building, investing and training is very important. Documenting also procedures is very important. And ensuring that we have a resilient infrastructure is also crucial.

And now I would like to address the same question to Mr. Audace. Welcome, Mr. Audace, and thank you for joining us today. Again, the same question is on the screen. In your opinion, what are the most pressing cybersecurity threats currently facing Africa's DNS infrastructure and how can they be effectively mitigated?

AUDACE NIYONKURU:

Thank you, moderator. When thinking about the most pressing cybersecurity threats on the continent, I think to me, in my opinion, it would be something that affects the digital transformation journeys that countries or economies in Africa are taking. So, for example, when I think about the journey to having a thriving ecommerce sector in Africa, [it could be] being hindered by, for example, spoofing, where Internet traffic is redirected to a malicious website, and this increases mistrust by the users. So, for example, if you want to buy a particular thing online, and your sensitive financial data is stolen, it will make you not come back or use that means anymore. So what you find is the ecommerce, for example, sector adapting to, I would say, a hybrid model of online and offline, where, for example, financial settlements are still done in cash to avoid that particular problem.

So I think that the most pressing cybersecurity threat is increasing mistrust among users and service providers on the Internet. And I think this makes the adoption of Internet as a means of transaction exchanges very, very hard. So there is needs to mitigate that in terms of, one, increasing capacity building among all stakeholders, but also building, I would say, a space for dialogue between different

stakeholders (the policy makers, the service providers) so that these issues can be tackled. Thank you.

HADIA ELMINIAWI:

Thank you so much, Mr. Audace. And as you mentioned, protecting our digital economy is important for both enhancing users' trust and also providers' trust.

And my second question now will go to Dr. Catherine Adaya, and it's about local content. And welcome, Dr. Catherine, and thank you for being with us today. How significant are the lack of local content and language barriers in hindering digital inclusion across Africa? What strategies are being implemented to overcome these challenges?

CATHERINE ADAYA:

Thank you very much for what could be an academic question but something that I think has been discussed for very many years and continues to be a problem. I think even yesterday, for those who may have attended the high-level government session, this also came up. And the term that we are using around it is the issue of widespread digital illiteracy and lack of relevant content in accessible languages. And it's clear, for digital inclusion to happen, that the linguistic issue has to be addressed because most of the content is in English. Well, I think it's well-known that in Africa, I mean, when you look at Africa in a homogeneous way, there are over three 3000 local languages spoken, and maybe those are the ones we know, and even more. And of course, content is important to people in their own language. And it's been well said over time that the majority of the world doesn't speak English.

In terms of some of the strategies (and I'm looking at it from the ICANN side), there's been a lot that's been happening in terms of the universal acceptance and the strategies in universal acceptance days. And I would encourage people, I think, because of time also, to look at some of the initiatives happening here.

But I'll just pick out one other that has really dealt on the issue of local content and language barriers, and that comes from the Africa DNS study, 2023. It's also available, you can download it from the ICANN site. But one of the things that's clearly focused here is even bringing in a lot of empirical research that's showing the correlation of the growth of local content and the network infrastructure, the DNS industry that Dr. Nii and Mr. Alan have spoken about, and tying all this in, in terms of what strategies are needed to ensure that we overcome these challenges. “Overcoming” may be a strong word, because it may not be as easy, but the fact that there's progress towards this through the Coalition for Digital Africa and many other initiatives to create content that is specific and relevant in Africa ... I think maybe that could be a start.

HADIA ELMINIAWI:

Thank you so much, Dr. Catherine. And digital literacy is our keyword, maybe, here. And we will be coming back to you.

And now I would like to handle the part about the feedback from the At-Large Structures to my colleague, Bukola Oronti. So before the last month, we sent out a survey to our At-Large Structures in order to gather their input on the topic. So Bukola, the floor is yours.

BUKOLA ORONTI: Thank you, Hadia. Now I want to give the floor to Dr. Matagoro to do a short presentation on what the [inaudible] response is. So Dr. Matagoro?

JABHERA MATAGORO: Thank you so much. Bukola. Yes, I shared the feedback representing what the At-Large Structures [thought], especially from the AFRALO ALS members.

HADIA ELMINIAWI: Just a second. Dr. Jabhera. Could we share the slides by Dr. Matagoro. Thank you.

JABHERA MATAGORO: Thank you so much. Just for information, especially for the newcomers, AFRALO is the home of the individual Internet user community for the African region and, as we have seen, feedback and inputs on various issues related to the Internet infrastructure in Africa. So we also shared the survey to ALS members in AFRALO and we are happy to share the feedback in this presentation.

Next slide. So we had a question which was asking how significant do people consider the technical challenges facing DNS infrastructure in Africa? So see, the majority pointed out it's important to consider the technical challenges facing the community of the Internet DNS infrastructure as people said. I acknowledge and appreciate Dr. Nii Quaynor for the good input, and [ARIN] and other members. And as the ISO AFRALO members, we also acknowledge and appreciate that it's

important to take into account the technical challenges facing the DNS in Africa. And of course also 18% mentioned it's also significant to consider that.

Next slide. So we also had another question which was asking members to rate the relevance of potential investment opportunities such as technical support within the community that could also address technical deficiencies in the DNS infrastructure. So this is also resonating with what speakers have mentioned. And you can see the members also acknowledge that it's very significant to consider the potential investments on the investment opportunities, as people have mentioned: technical supports, digital retraces and many others.

Next slide. So we also had another question which was asking the feedback on the members' opinions on who are the key stakeholders. As we all know, we are pushing and advocating a kind of a multi stakeholders approach. And like with yesterday on the high-level meeting, you saw most of these comments and feedback also resonating on what people mentioned in the community. So the majority have pointed out the government has a role to do on addressing some of these challenges in the African infrastructure. But the second is also on the DNS industry. So these are also very important stakeholders to address most of these challenges facing the DNS infrastructure in Africa. But you can also see academia has also a role, where almost 63% pointed out that is important also to contribute in addressing these challenges. Also another is on business. They also have a role to play to make sure that the DNS infrastructure in Africa is stable.

Next slide. This is just a call for action. AFRALO has almost 75 At-Large Structures located in 33 countries and territories, as well as 21 individual members and three observers. So just a call for action for all of you is that we are all invited to join AFRALO and actually participate in strengthening the end user participation in the ICANN decision-making structure. Thank you so much.

BUKALO ORONTI:

Thank you very much. Dr. Matogoro. And based on this short presentation, I will say it is safe to agree that there are actually technical challenges that we are facing concerning DNS in Africa, because 100% agree that it is very important that we address this issue. And it's something that we're actually going through. But the part that caught my attention is the key stakeholders in addressing these challenges. So, like, the bulk of it rests on the hands of the government. That's what the service is.

And I don't know if there's anyone that has one or two things to add, as per conversations around this, because apart from the government, what can we as end users do in addressing these challenges? So do we have a queue? Thank you. Or do we have people that want to say something?

Or, Dr. Matogoro, are there suggestions from the people on how we can go about addressing some of these challenges? Are there suggestions?

JABHERA MATAGORO: Of course, as you have seen, Bukola, apart from the government, AFRALO also thinks that end users has also a role to play. So you see, it's a multistakeholder kind of approach, and we cannot stay and wait only for the government to make sure Internet infrastructure is secure or stable or resilient. So, as I also gave out a call for action, it's clear that Internet infrastructure in Africa requires an effort of all of us. Being an academia, business, DNS, industry, end user, government, registrants, technical community, we all have a role to play to make unique identif[ers in] Africa stable, secure and resilient. Thank you so much.

BUKOLA ORONTI: Thank you very much. So do we have any questions in the room? If there are none, are there questions online that we should do? We have questions online?

UNIDENTIFIED MALE: Thank you. I think that there's one question from Gabriel. He says that Dr. Nii says that he recommends to take attention on the cryptocurrency. Is that positive or negative for us? For Africa? Okay, so do I give the floor to? Dr. Nii? Okay, so who is getting that question? And maybe staff can also help us.

UNIDENTIFIED MALE: It's Gabriel. Gabriel asks a question also, but in French. Another question also.

BUKOLA ORONTI: So, Dr. Nii, please, can you help address it? Thank you.

NII QUAYNOR: Okay, I was looking at encryption, cryptography, those things, and that's used by DNSSE, it's used by individuals, and it happens to be used by cryptocurrency as well. But I did not dwell in that direction.

On the other hand, if you are interested, there is some useful work being done by Verisign, which has less to do with the currency, but more to do with the blockchain itself, meaning the storage that is used in an immutable way. And the objective there is to help expand the utility of domain names, because in the cryptocurrency world, the addresses are kind of long and gibberish. And so there's been one successful project in the Ethereum world, dot-eth, which attempts to put a name on top of that gibberish, so that if you have a smart contract and you want to call it, you don't call it the gibberish address, but you can call it with a meaningful name, dot-eth.

Now, the Verisign effort is attempting to expand that namespace to include other domain names, and if that is successful, then it means that we may get longevity in domain names, which should be very good for us. So you may want to monitor that work as well. Thank you.

BUKOLA ORONTI: Thank you very much, Dr. Nii. So I have two people in the room—first of all, Raihanath, and after Raihanath, Claire. So over to you, Raihanath.

RAIIHANATH GBADAMASSI: Hello. Good morning, everyone. My name is Raihanath Gbadamassi. I will speak in French. My question is the following, regarding the development of the DNS infrastructure in Africa. In order to develop this DNS infrastructure in Africa, in order to have a better Internet, shouldn't we think about the implementation in our various countries? There are important institutions that are involved in the project, but I don't see all the stakeholders being involved. We really have an issue with infrastructures. So the multistakeholder approach—wouldn't it be able to help us resolve these issues? So I am asking this question to all of the speakers, if they have an answer to this question. Thank you.

BUKOLA ORONTI: So next I have Claire.

CLAIRE CRAIG: Hello. Good day. My name is Claire Craig and I just wanted to thank the AFRALO for this really very interesting panel discussion. I think it was quite informative. And I wanted to ask the question on the survey that was conducted. I think this is something that we probably can use in some of the other regions, and particularly, speaking on my own behalf, I would think that is something that we may want to use in Latin America and the Caribbean. The question I want to ask, though, is concerning the responses to the survey. I noticed that there were, like, 27 responses, and I was wondering how many surveys were sent out to get those 27 responses. And the other question is whether you were willing to share the survey so that it can be used, used by some of the other regions. Thank you.

BUKOLA ORONTI: Thank you very much. Dr. Matagoro, do you want to respond to Claire's question? Because the queue is closed after her.

JABHERA MATAGORO: Thank you so much. The survey was separated to the members mailing list. And we know, maybe because of Internet challenges [at the] time that they were given out, that out of 75 ALSes, 27 were able to give out their response. So this was almost a good starting point. And the feedback is representative.

In terms of willing to share, I think the AFRALO Chair could give an update on that. Thank you.

BUKOLA ORONTI: So thank you very much for those questions and thank you for the response. So Claire, is your hand up or is that an old one.

CLAIRE CRAIG: Yes, just for Hadia to say whether she would be able to share the surveys. Thank you. I guess that could come up in the cross-RALO meeting.

BUKOLA ORONTI: Okay, so thank you very much. I'm sure Hadia will respond to that: if the surveys, the questions, are open for other RALOs to use.

And with that, I hand the floor back to Hadia to continue the session.

HADIA ELMINIAWI: I think we have one more question in the chat.

BUKOLA ORONTI: Okay, can staff please read out the question to us?

YESIM SAGLAM: Yes, sure. The question is from [Paul Hiju]. Paul is asking: is the DNS survey which is being referenced the work done by Mark Elkins and William Stucke. Thank you.

BUKOLA ORONTI: Thank you. Hadia.

HADIA ELMINIAWIL Is there anyone who would like to respond?

UNIDENTIFIED MALE: Yeah, I think that there's one question online, in French, if I can read that. Is that possible? Online participation.

HADIA ELMINIAWI: Yeah, that's what—

[JABHERA MATAGORO]: Maybe I can respond on the question that was given. I think they are mixing up the DNS survey that was done by Mark and the short survey

that we shared to ALS members. These are two different surveys. So thank you so much.

HADIA ELMINIAWI:

Okay. Thank you so much, Bukola. And of course the surveys are available for everyone to use. And we found this actually a very useful exercise. So we sent out surveys to ALSes about the two roundtable discussions in order to get their feedback for the purpose of sharing their perspective during our roundtable discussions. So we would like of course to thank all our At-Large Structures who have participated in the survey and encourage others to provide their feedback whenever is possible.

With that, let's move to our next discussion topic about enhancing the DNS infrastructure in Africa. And this is the success and impact of initiatives. And for that, I have a question to Mr. Pierre Dandjinou. I'm not sure if he's with us. If not, then Mr. Yaovi from Global Stakeholder Engagement from Africa will be addressing the question. And the question is about the Coalition for Digital Africa. And it says, how has the Coalition for Digital Africa made a difference since its inception in improving the DNS infrastructure in Africa? Yaovi, thank you for joining us. And the floor is yours.

YAOVI ATOHOUN:

Thank you very much, Hadia. My name is Yaovi Atohoun. I'm director for civil engagement in the GSE team. So I'm stepping in for Pierre Dandjinou and we are glad to be in this session. I want to mention that our was in AFRALO for many years and I'm still in AFRALO in this session

and our team is really ready to continue supporting the activities of AFRALO.

Now, coming back to the question itself, as we don't have too [much time], I want to mention that we have a [boat] outside for the Coalition for Digital Africa. So if you don't know too much about the Coalition for Digital Africa, we have flyers. We'll be there, my colleagues will be there. We can give you more information about the coalition.

But briefly, it is a program between ICANN and many partners—the Coalition for Digital Africa. So it's not just ICANN, but we are working with many partners. So in this program we have many projects. So in the Coalition for Digital Africa as a program we have many projects and then these projects are implemented by ICANN and the partners.

So coming to the DNS infrastructure section, I can mention first, as impact on this DNS infrastructure, one of the projects. We had implemented the ICANN-managed root servers cluster. So when we talk about the root server instances, we have the single instances and then we have the cluster. So when this project started, we implemented, through this program the Coalition for Digital Africa, an ICANN-Managed Root Server, IMRS. So anytime you hear about IMRS, it's an ICANN-managed root server, or we used to say L-root server. So if you go back to the documentation, you see that with the root servers, we have a letter from A to M. So the L is managed by ICANN. So anytime you hear about IMRS, it is the ICANN-managed root server.

So with the cluster implemented through this program, the Coalition for Digital Africa, you can see significant changes because anytime you type

like a web address or an address in your browser, there is a process behind that to bring you to a place where you have the content or the content technically. So the resolution is something we cannot maybe see, but technically there is a measurement you can do. And then since we implemented the cluster in Nairobi, we have changes. We can see the changes. So for many of the requests going out of the continent, now their resolve is going through the cluster of Nairobi. So we are saving time. So it is a concrete, concrete change we can see. And then we had also another implementation in Cairo, in Egypt.

So these are the two technical implementations that we have from the Coalition for Digital Africa on the infrastructure. So the clusters are very impacting on the resolution of the domain name system processes.

In addition to the mentioned, we have also instances in some countries. So one of the projects in this coalition for Digital Africa is to support deployment of new single, ICANN-managed root server instances. So there are devices that any organization can host in the network. So one of the projects is to support organization ready to implement single instances in their infrastructure. So again when you have the single instance implemented, this is something that will significantly improve the domain name resolution.

So through that program also we had some applications and we have organizations who had submitted their interest for hosting the ICANN-managed root server single instances. So currently we are reviewing this application. So for those who didn't have time to read this call for expression of interest, ICANN is going to reimburse successful applicant[s] who is going to get the devices to implement the single

instances in the installation. So you see in infrastructure side or DNS side two concrete projects that really are really impacting.

We also have some organizations within the region already hosting ICANN-managed root servers. So some of these organizations normally need to renew the equipment they have. So when you have an equipment for a root server instances (the L-root, for example), you need to renew it after some years. So we are also supporting this organization and we were in touch with them through this program, the Coalition for Digital Africa. And we want to thank those who have ordered equipment and they want to renew the equipment needed or used for the ICANN-managed root server single instances they are hosting.

So these are the two key projects I want to mention as an impact on the DNS infrastructure in Africa.

Again, I want to mention also briefly one of the projects, which is the exchange point. So we have, in a way, improvement or impact on the DNS when we also talk about Internet exchange in some way. So we are working with the Internet Society also to support the Internet exchange point development or program in the continent.

So I want to stop there. So these are the key projects I want to mention that are really impacting the domain name system infrastructure in Africa. So thank you very much.

BUKOLA ORONTI:

Thank you so much. Yaovi. Wow. Lots of initiatives, and I guess we need to take advantage of all what you're offering.

Now I would like to welcome and welcome honorable Lydia Akanvariva a member of the African Parliamentary Network on Internet governance from Ghana. Thank you for joining us today. And my question to you is, what role have local governments, international organizations, and private sector entities played in supporting DNS infrastructure development? Honorable Lydia, the floor is yours.

LYDIA AKANVARIVA:

Thank you very much for the opportunity. I'm sincerely indebted to the organizers of this program.

We, as an organization or as an African organization, have been in this infrastructure development and development of people's capacity to understand what DNS is. As policy makers, our role is to take this infrastructure development in Africa to our various governments. We are parliamentarians. We are supposed to tailor in policies, deliberate policies, that will make sure that this infrastructure is well developed in Africa.

Taking Ghana as an example, you look at, we have all the laws that are necessary for the development of the Internet. For instance, we have the cybersecurity law, data protection laws. We have other laws that has to do with infrastructure in Ghana.

But as APNIC, we are an organization that have about 28 people as our founders, and as an international organization, we meet to build our

capacity to be able to influence the policies in our various countries. And because of that, we are going in for deliberate policies in the various countries that will lead to the infrastructure laydown. We cannot, as individual members, do much about it, but we can influence our government, the private sector, and then local government to be able to have policies that will help in the development of DNS infrastructure in our countries.

Again, we are tailoring in deliberate policies that will make the development of individuals or the people of each country as our resources. The private sector will come in with their resources to help us build the infrastructure because government alone cannot have the necessary infrastructure that will be able to tailor in these policies to be able to get the infrastructure in the various countries.

I think for now, let me leave it there and if the question comes up again, then we can see what I can do. I can add on to this one. Thank you very much.

HADIA ELMINIAWI:

Thank you so much, Honorable Lydia, and apologies for miswriting your name. We are grateful that you were able to join us today. And as you mentioned, our people are our resources, and we need the private sector to help governments to build.

And maybe I can just follow up with a quick question. So do you think that a unified African law or rule or policies could work here, or do we need individual policies?

LYDIA AKANVARIVA: Thank you very much for the question. Yes, it's possible in Africa that we can have a unified law or a unified policy that would tailor into the building of this infrastructure. But there is a challenge there because African economies are different, and every country has its own law. But with the help of the EU, I think it is possible that the African government can come together and create a deliberate policy that will tailor in this infrastructure that will help the country, the continent, at large. Thank you.

HADIA ELMINIAWI: Thank you so much again. And I would like to address the same question to Mr. Audace. Mr. Audace, thank you again for joining us. And the question is about the role of local governments, international organizations, or private sector entities in supporting DNS infrastructure development.

AUDACE NIYONKURU: Thank you for the question. I think, coming from the private sector, there's a huge role to play for the private sector in the development of the DNS infrastructure. However, I think that not one stakeholder can achieve anything without the other stakeholders. So I think there's a need for coordination of stakeholders into the development and support of DNS infrastructure, including the first question that we that was raised in terms of cyber threats that are affecting DNS infrastructure. So the sharing, for example, best practices, the sharing

of threat intelligence and other areas that can come from the cooperation of different stakeholders would be key in this support.

So I think in terms of coordination, there's a very huge benefit to reap if all stakeholders work together in countering the threats but also developing infrastructure for the benefit of all stakeholder groups, including the policy makers, private sector and academia. Thank you.

HADIA ELMINIAWI:

Thank you so much for your answer. And I think Mr. Karsan is not ... Yeah, thank you so much. So welcome, Mr. Gabriel Karsan, and thank you so much for joining us. We are grateful. And the same question goes to you as well. What role have local governments, international organizations, and private sector entities played in supporting DNS infrastructure development? Thank you.

GABRIEL KARSAN:

Thank you very much. My name is Gabriel Karsan. I am the coordinator of the African Parliamentary Network on Internet Governance, and I am representing on behalf of Honorable Neema Lugangira, who is our chair.

Well, local governments are the decentralized representation of the masses. I am a representation of a Tanzanian here. Would you work with me in boosting or empowering the Internet, if I ask you? Yes, that's right. So how our local governments are set is there are people who actually know the users. So it's the point of AFRALO, the end user. The councilmen deal with ten houses who actually know the particular

problems of the particular household. So when we talk about the role of local governments, it's about decentralization. And decentralization is a unique feature of the Internet. As the Internet, it was built on openness, decentralization, and end to end. When you remove that abstraction as a tactical thing, it's how our communities are made, because we are open, we talk about our issues, we are decentralized. You feel that element to go seek assistance, and we are end to end. We know how we can operate as individuals.

So if we define the Internet as a universal thing, it's important to know that it has to be applicable in all the areas. The role of APNIC is to strengthen our policy makers, because their role is first to represent what the masses want, depending on the reality of the situation. Then it's passed on legislation, informed legislation, that is people-centered, so that synergy and compatibility is important. It then follows implementation. These are structural mechanisms that can be universal, but when they are understood in terms of ownership, that is important.

So the DNS as a root server first needs to be implemented in terms of ownership. We as Africans need to own our infrastructure, because when it is yours and it is accessible, then you can think about how you can actually localize it. That is why we have deep dialogue and discussions with our parliamentarians, where we get to the basic facts of what we need. And we are thankful to ICANN and the Coalition for Digital Africa, where they have brought us into deep training sessions to actually challenge our psyche on what it means to govern the Internet as Africans, but importantly as universal human beings, because we

know we are building the infrastructure, not for now, but for generations to come. This has already been built, and we are enjoying the benefits. And the role of AFRINIC is to ensure that we build this universal infrastructure that supports really local [lenses], which are people-centered, and also which reflect the masses.

So, thank you. I think for now, those are my inputs.

HADIA ELMINIAWI:

Mr. Gabriel, thank you so much. And indeed, we need to own our infrastructure.

And I would like now to turn to Dr. Catherine Adaya. She also wants to comment on the question. Please go ahead.

CATHERINE ADAYA:

Thank you. I was actually going to comment from the perspective of yesterday's high-level government meeting, where the senator representing ... is it the Africa parliamentary group? She gave some very good input on this as well, because one of the things they've been challenged about ... And the challenge is the issue of inadequate policies or misaligned policies. And what they said is sometimes they don't understand how they're supposed to support and how they're supposed to help so that they can appropriate budgets, and that sometimes the tech community or the people who understand are not moving in tandem with them, the legislators. So there's a request for a better government approach, rather than just focusing on ministries of ICT and executive.

And the reason I bring this is because, when you have a question, of “What is the role of all this?” ... And even whatever you do, if you don't involve the legislators closely, then the kind of policies you want you'll continue to say are misaligned.

So I thought just to bring that up, because I don't think they're here, but it aligns very well with what Honorable also discussed right at the beginning. Thank you.

HADIA ELMINIAWI:

Thank you so much, Dr. Catherine. Indeed, involving legislators, this is an extremely important point.

And now I would like to move to our next theme because we are ... Sebastian, unless it's really urgent, because we don't have much time, but you could briefly go. We will open the floor for discussion, but you can briefly go now.

Okay, thank you. You will get the first question for the floor.

If we can go now to the investment opportunities. And Dr. Nii, the question is for you. What are the current and upcoming investment opportunities in the DNS infrastructure in Africa?

NII QUAYNOR:

Thank you very much. I tried to point at a number of aspects of the DNS infrastructure, and each one of them, in my opinion, can benefit from investment. So, for example, if we start from the source of, you might say energy or funding. That's the registrants. So we can invest in

creating registrants, and that would be a good thing to do. On the infrastructure side, you heard that DCA is looking at root serv[ers], clusters, and so on. That area also can benefit from investment, not only in equipment, but also capacity and so on.

We also know that the ccTLDs are doing their best, but it's a difficult area because the names are usually not as large as you would want, and yet they have challenges in terms of equipment needed and so on, the people needed. So that's an area where investments can be very useful. Especially the regulatory regime should be investing in the people and the equipment that are required to run these ccTLDs.

It's also that many times the CC's require some additional technical support, and a lot of it now is obtained from, as I mentioned, large organizations, experienced organizations like RIPE NCC, PCH, AFRINIC, AFNIC, ITU and NSRC. We could be looking to expand that by developing capacities, local or regional, that would be able to do those sort of things.

We can see that even though we are making efforts through the DNSSEC Road Show and many other things, this actual operation of DNSSEC is not rising as we would expect. So presumably that's another area where we will need some investment.

Now, it was also observed that some of the ccTLDs are signed by people PCH. And so in some sense you might say that there's consolidation occurring. And if you believe in diversity, then we will need to be thinking about how to make the appropriate investments so that we can have a few more local PCHs.

We also observe that in the gTLD registry space there are very few in Africa. So we need to look for what is the right investment so that we can have more companies able to operate gTLDs within the region. We've had the same, roughly the same number of registrars (I believe it was 12 or 13 or so) for some time, and all of them will tell you that they don't have a very large number of registrants. So that's also another area in which we will need investment if we are addressing the issue in a holistic way.

We also notice that when it comes to resolution of names, it's being done largely by the big and public DNS resolvers. So we can ask ourselves, what exactly must we do so that we can have some of the African companies doing the resolutions for us? And that's why I asked earlier, have we outsourced our DNS service? And we would like to think that we can do some things to reverse that particular trend. And I think that's okay for now. Thank you.

HADIA ELMINIAWI:

Thank you, Dr. Nii, and I would like to move quickly to Yaovi. And Yaovi, please kindly be so brief. Provide us details about the grant program as well as the new gTLD next round. Thank you.

YAOVI ATOHOUN:

Thank you, Hadia. I'll be very brief and I'll take the first question, and my colleague Bob Ochieng is in the room, I hope, and then I will give us also information about the new gTLD next round.

Again, for those who don't know too much about the grant program, it is funded by the proceeds received from the 2012 new generic top-level domain name program. And the first cycle is closed, and then ICANN posts on the website information about this first cycle, which was closed on 24 May. And the good news is that we had applications from Africa. So there was a total of 247 applications and then 32% are from Africa. So this is also something to note.

And what we have to also to say is that it's just the first cycle. So the total amount available is \$10 million and the minimum will be \$50,000 and the maximum will be \$500,000. And we expect people, or the successful applicant, to be notified by the end of the year or early next year.

So that is the grant program, what I want to say. So it is just a cycle, the first cycle now. So we have another cycle which will also be open. So again, if you did apply, you will be expecting to get information by the end of the year and also if you didn't have time to apply. So once the next cycle is open, we'll also inform the community. Again it's an opportunity to thank the community, because the community has worked closely with ICANN Org on how to use the auction funds. And then the Board approved that. And then again the community also helped us to spread the word about this opportunity. And we hope that this grant will really help the community and also applicants to contribute to ICANN's mission.

So I want to stop there about this question. If my colleague Bob is the room ... Not sure that Bob is in the room. Again, what I want to mention about the new generic top-level domain name next round is we had a

round in 2012, and now currently we are in the process to open another round of applications. And then we know that in the community, in the region, people didn't have the opportunity to apply. So it's now open—the next round. So it is an opportunity for the community to apply for new extensions. So it is the generic extension. And we are expecting to have it for names not only in ASCII but also in other scripts. We have now many scripts. So in Africa, for example, we have many countries using the Latin script, we have many countries using the Arabic scripts. And especially in Ethiopia, the country is using a specific script in Ethiopia. So during the next round we hope that we have application in ASCII and also in other scripts.

So in this program we have also many projects to support this program. One is the Applicant Support Program. So it is a program through which people will be able to have support to apply for a new generic top-level domain name. So this is for the applicant. And also we have—

HADIA ELMINIAWI: if I may ask you to just wrap up, because—

YAOVI ATOHOUN: Thank you so much. So we are around and we have also sessions on the agenda about the new generic top-level program. So please, we recommend that you attend this session where you have more detailed information. So thank you very much for your attention.

HADIA ELMINIAWI:

Thank you so much, Yaovi. And then I have a final question to Honorable Lydia and Mr. Gabriel, as well as Mr. Alan Barrett and Dr. Catherine. And it's about recommendations to ICANN Org. Can we move to the next slide, please? And the next one? The next one, yeah, if we can move to ... Yeah. So what can ICANN Org and ICANN stakeholders do to help in the development of the DNS infrastructure in Africa? I'll start with Honorable Lydia and then Mr. Gabriel, please take the floor after.

LYDIA AKANVARIVA:

Thank you for giving me the opportunity again, and thank you for the question. ICANN, as a stakeholder, can actually help policymakers and legislators to help develop the infrastructure in Africa by, one, building the capacity of legislators so that they themselves will understand what it is that we need to do in Africa. Again, ICANN can support the development of African infrastructure by getting policies that will help the private sector and governmental and non-governmental organizations to come in to develop the DNS infrastructure if it is possible. And ICANN can support ... because I've just seen that there's a grant system for people who are interested in the development of this infrastructure. If the grant can be made available to a lot of people, or it can be open to any other person who is able to apply for it, then the support should be enough to make sure that the infrastructure can be drawn.

I think with these three points, I will give the opportunity to my other colleagues to see what they have for us. Thank you.

HADIA ELMINIAWI: Thank you so much. Honorable Lydia. And Mr. Gabriel, maybe only two words because we are told we need to close the session right now.

GABRIEL KARSANL Thank you. We live in an age where code and constitution are relatable, so we do need a lot of signages and compatibility in terms of our policy structures, as well as representation of the really decentralized local government and normal people to come and raise awareness, being this part of the dialogue and inclusion in the [GACs] and everything.

And in terms of infrastructure, with what the Coalition for Digital Africa has done, I think it's time to increase the root servers and instances because the next billion will come from Africa and we will be questioned on matters of availability, accessibility, and what it means to be connected. Thank you.

HADIA ELMINIAWI: Thank you so much. Alan and Catherine, do you want to respond briefly or do we ...

CATHERINE ADAYA: I think, because there's no time, I'll just say the Coalition for Digital Africa. You'll find quite a bit there. The Africa DNS study, you'll find quite a bit there. And I'm willing to talk to anybody outside on more of that. Thank you.

HADIA ELMINIAWI: Thank you, Dr. Catherine. Mr. Alan?

ALAN BARRETT: Sure. I won't take up much time. I want to say that DNS infrastructure relies heavily on the underlying Internet infrastructure. And so anything we can do to improve Internet infrastructure will help the DNS. So make more exchange points, put in more links across borders, between countries. And other people have already talked about the other aspects of, of root servers and resolvers. Thanks.

HADIA ELMINIAWI: Thank you so much. And Yaovi is going to tell us that there will be more time to talk about this during the Africa Space.

YAOVI ATOHOUN: Thank you very much. And we really invite you to attend the Africa Space session on the agenda on Wednesday. There are a lot of questions we didn't have time to discuss, so please come to the Africa Space on Wednesday on the agenda. We'll talk about all this in the DNS industry report and then also the infrastructure. You are all welcome invited to the Africa Space session on Wednesday. Thank you so much.

HADIA ELMINIAWI: Thank you. Sebastien, do you want to say one word, a couple of words, and that's it?

SEBASTIEN BACHOLLET: Sorry, it's not feasible. I just want you to say that I am really concerned when we talk about multistakeholder Sorry, Honorable member of Tanzania. But when you say that you are representing the citizen, we are also representing the citizen as AFRALO as the RALOs in the world. If not, there is no multistakeholder.

Just to tell you my story, when I arrived the first time, I—

HADIA ELMINIAWI: Sebastien, there's no time for—

SEBASTIEN BACHOLLET: There is no time to have people here talking? Okay.

HADIA ELMINIAWI: Thank you so much for your intervention. We are definitely representing their citizens in their own right as parliament members, and we are representing Internet and users defending their interests.

And with that, I would like to thank everyone for joining us today. I would like to thank you all for this vibrant discussion and please join us in our next round table discussion in 15 minutes from now. Thank you.

Finally, I would like to invite all panelists for a group photo.

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