
ICANN85 Mumbai | CF – Get to Know the ICANN Community: Non-commercial SG and RSSAC
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SIRANUSH VARDANYAN

Hello and welcome to the session where we'll be learning about the Non-Commercial Stakeholder Group and RSSAC, the Root Server System. My name is Siranush Vardanyan and I am the participation manager for this session. Please note that this session is being recorded and is governed by the ICANN Community Participants Code of Conduct, ICANN Expected Standards of Behavior, and the ICANN Community Anti-Harassment Policy.

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from Non-Commercial Stakeholder Group who will tell us what they are doing and what other groups are within this Non-Commercial Stakeholder Group, how it works, and how we can be part of it.

And with that, I would like to introduce the Chair of Non-Commercial Stakeholder Group, Rafik Dammak, and then the Chair of Non-Commercial Users Constituency, Wisdom, which is a very good friend of mine and ICANN follow, and the Chair of Non-For-Profit Organizations, NPOC, Juan. It's very confusing, but I hope that after the session it will become much clear for you. So, Rafik, without further ado, the floor is yours.

RAFIK DAMMAK

Okay. Thanks, Siranush, and thanks everyone for being here today and to invite us for this opportunity to present about the Non-Commercial Stakeholder Group and constituency. Yes, we have too many acronyms in ICANN, and we do like creating a new one every time. So, we'll try to clarify, make it more easier to understand why we are here, what we are doing, how you can join, and why you should join us in the first place. So, let's go with the first slide.

Okay. So, we are the Non-Commercial Stakeholder Group, we are part of GNSO, and we have two constituencies under this stakeholder group. So, let's go maybe further in details and go to the next slide. First, and I hope that you had more or less a better idea how we are organized in ICANN to implement or to have that

multi-stakeholder model by having different supporting organization and advisory committee. One of those supporting organization, which is GNSO, which is the policy making body responsible for generic top-level domain like .com and so on.

So, it's all about policy for those top-level domains. In the GNSO we have two sides. We have the Contracted Party House and the Non-Contracted Party House. As you can see flashing, I hope nobody gets seizure from that, it's the Non-Contracted Party House to where the NCSG belongs. While we are talking about contracted and non-contracted party house, it's important to have in mind, the Contracted Party House, as the name says, is those who have a contractor relation to ICANN, like the registrar and registry.

On the other side, the non-contracted, it's for those who have interest in the top-level domain in terms of policy because they are using it. So, they have interest, but they don't have any contractual relation to ICANN. So, under the Non-Contracted Party House, we have two sides, the Commercial Stakeholder Group, as the name says, they have a commercial interest in domain name because they are using it for their business, like in the Business Constituency, that's for any business, for any company.

And then you have the Intellectual Property Interest Constituency, that's clearly for those who have trademark or intellectual property interest. And then you have the ISP and Connectivity Provider Constituency. I believe they will present later or they had done that before, so you probably have better understanding what they do.

But they are commercial, they do business, they use domain for their business.

And the other side, we have the Non-Commercial Stakeholder Group. It means the rest, those who need domain name, they are using domain name, but they don't use it for any commercial purpose, they are not doing any profit or generating any revenue from it. So, the Non-Commercial Stakeholder Group, it's there in GNSO, and it represents the civil society, it represents the users, those who have non-commercial interest or purpose when we are talking about a domain name.

So, we got direct members like individuals and organization, and they can select to join one or two constituency that they are under the NCSG. So, we have the Non-Commercial User Constituency where we can find civil society, but individuals and organization, and then you have NPOC. NPOC, it's for the non-profit organization, so they have maybe their own interest or their own needs to be there. In terms of membership, as I said, we have individuals and organization, and that's just the type of membership.

The most important is the diversity and the representation, because that's something important for the legitimacy of ICANN, is to have that geographical diversity. And what we will see here is that we have members in all the ICANN region and representation from those who tend to be underrepresented. So, as you can see, we have a representation in Africa, Latin America, and in APAC. And

you can see even that if you compare us to other, maybe, constituency or other groups, we tend to have good representation from Africa, from APAC, from also Latin America relatively.

That helps us to channel or to present needs or interests or positions that's not necessarily or they tend to not be heard a lot. So, that's one thing that's important and we care a lot about this. Okay, next. More than representation or the names or where we are, it's what we stand for, why we are here, what kind of topic we are advocating. So, one of them is about the human rights on domain names. So, we take that human rights dimension or viewpoint, and to see the implication of any ICANN work on policy from that standpoint.

So, that's why we care about freedom of expression, about privacy, in particular privacy when we talk about data protection for the domain name registration data. Also, about access to knowledge, here because as I shared or presented before, there is like intellectual property interest. So, we are on the other side to try here to create the balance between those two points. Also, we care about development, we advocate for development, and here because with our diversity of representation, we care about the applicant support for the new round, for the new gTLD, that we want registries coming from the developing countries, it should not be only registries from Europe or North America.

Also, about IDN, that's Internationalized Domain Name, because of the diversity in terms of culture, of language. But other than that,

we care about due process transparency and accountability. Even that sounds quite, let's say, procedural, process-oriented, but it's quite critical, because it's the way to ensure that we have a proper process, that we get all point of view heard, and that we can participate to influence the outcome, which means here the development of policy recommendation that will regulate or will manage the domain name. So, that's why we care about that.

Since we talked about process, here is just about the representation of NCSG and what does it mean. Since we are a member of GNSO, it means we are representing the GNSO Council with six representatives. And internally, we have our membership, but we also have a different committee. First, we have the executive committee and the policy committee. So, executive committee, it's more about the management of the membership and so on. While the policy committee, as its name says, it's really about managing policy position within NCSG.

So, that's how we are organizing mostly our work. We do a lot of our discussion in the mailing list. We have also our monthly calls. All members can join and can participate. And then we have those committees to help to manage that and to ensure that we are participating in all the process where we need input from civil society. Okay, I think we covered most of the points.

Maybe later we will see how you can join or how you can participate. So, we'll find more practical information later, how you can apply as individual or if you want to join as organization.

And the most important, feel free to contact me anytime. But we'll cover more later on. And with that, we can move to NCUC and then NPOC. Wisdom, over to you.

WISDOM DONKOR

Thank you very much, Rafik. I'll be very brief because Rafik has made my work easy for me. I think he has explained everything and I hope it's clear to all of you. So, I will just be brief with NCUC. So, I will just say who we are. The NCUC stands for Non-Commercial Users Constituency, and then within NCUC, we have individual users of the internet. So, everyone in this room, as a user, can become a member of NCUC. And also, if you are civil society, academia, if whatever activity that you do falls within non-profit, you can as well become a member of NCUC.

So your grandmothers, your grandfathers, the retired who have gone through professional and then has now retired and doesn't have anything to do, can as well become a member of NCUC. So, most of the things that we stand for basically are human rights. We look at the human rights aspect of the internet and then we voice the issues out. We look at privacy issues. We also look at access issues. We know the access of the internet has become a problem in many developing countries and all of that.

Also, inclusion, we have to make sure that everybody is included, everyone's voice is being heard, and also a meaningful participation. Everyone needs to be part of the process in making sure that everybody's voice is heard when it comes to the usage of

the internet. So, we basically engage in policy development processes. That means that we submit public comments and also policy statements. So, if there are discussions relating to a particular subject within the ICANN, so we mostly are kind of the watchdog.

We look to make sure that all the human rights issues are being addressed, all the access issues are being addressed, all the privacy, if there are privacy breaches and all of that, that is where we point them out for it to be addressed. And then we also participate in the working groups. Most of our members, when we have a particular issue and then there is a working group that have to discuss and address an issue, we open up to our members, whoever it is that is interested can join that working group and also participate in the process.

So, as Rafik has already spoken about the structure, we fall within the NCSG. So, basically, NCSG is kind of our parents and then we fall under it and then we work together under that structure. So, I'm going to jump this one. Let's see. So, why join the NCUC? Why NCUC matters for fellows? Normally, NCUC is being seen as the entry point for most users. So, if you come within the space, and you find yourself understanding the various terms and all of that. Most people, as individual users, most of them start from what NCUC, they come, we take our time, we take you through the processes, make sure you understand what goes on.

And then if you happen to realize that NCUC is your home or is where you feel like participating, then you register to become an official member. But then when you come through NCUC, then you also feel like you want to join other constituencies, we don't stop anyone, you can equally join. So, as I'm here, I'm a member of NCUC and also a member of AFRALO and other constituencies. So, that is how it works.

And where you feel your strength is or where you feel aligns to the work that you do, then you can equally look through and then you join appropriately. But because everybody uses the internet, people see NCUC as the avenue to enter, to make things more easier for you. So, I won't talk much. I'll maybe reserve time for questions. When you bring out your questions, I will try to address them for you. So, I will end my presentation here. Then Juan will come in with NPOC.

JUAN MANUEL ROJAS

Thank you, Wisdom. Okay, my name is Juan Manuel Rojas, as Siranush said. I am the chair of the Non-for-Profit Organizations Constituency, also known as NPOC. So, we are going to start. Just a brief review of this. Okay, our mission is, as Rafik said, it's to have a space when the non-for-profit organizations can address the concerns about the generic top-level domains through the ICANN policy development process, also referred to as PDP, in the scope of GNSO, so we are talking about global top-level domains, mainly, in NCSG.

Why you should join us? Maybe you are part of a non-for-profit organization or a non-governmental organization. Who can join? You have an organization, it has its own domain, and also want to learn how domain name system under policy, the policy that we are discussing here in ICANN, can affect your work. So, that's the first part.

This is our topics in NPOC. One thing that's important is we are two constituencies here in NCSG, but the NCSG is like an umbrella organization for gathering us, so we work together in some of these topics, Domain Name System Abuse, DNS abuse, and transparency, as Rafik said, privacy, cyber security, and intellectual property abuse, are some of the topics that we are involved.

As Wisdom has said, you are invited to join us to attend. We have sessions all Tuesday. You can join us and be there. You can join, participate, ask questions, and approach all of us from the Non-Commercial Stakeholder Group. We are here in Mumbai. You can identify us, but we have also people here in the room. I think Caleb is over there, I don't know if Pedro, and I don't know who else is over there. Over there, around the world. On the screen, you have one URL.

This website, this link, it's for applying as individual or organization. You can apply to be a member of one of each or all of them. You can be a member of NCSG and NPOC and NCUC at the same time with just one application. So, that, I think, is important

for now. Okay. I think that's all for me, but we also have some quick questions for them.

SIRANUSH VARDANYAN

Of course, of course. I just want to make sure that everybody knows the link to this presentation is posted on our website in the meeting schedule under this session. It's not as an attached PowerPoint, but it's a link to the entire three presentations in one place. So, make sure if you look for this, this is on the session details description. With that, we can open the floor for a couple of questions to our presenters and then move forward. Yes, please, let's go. Let's start with you.

SURYA V S

Hi, my name is Surya and I am a NextGen. So, my question is that you've mentioned about human rights and inclusivity and access to the internet. So, I just had this question that we're all seeing the current geopolitical tensions across the world. So, given these circumstances, I just wanted to ask how does NCUC and NPOC operate in such circumstances where there is a risk of conflict and crisis? Thank you.

RAFIK DAMMAK

Okay. Thanks for the question. Just trying to clarify here. You talk about geopolitical situation, but I mean, what do you mean here exactly? Not sure I got the question, really.

SURYA V S If there's tensions across the world, it could be wars, it could be humanitarian crisis, anything like that.

RAFIK DAMMAK And you mean our perspective here as a group?

SURYA V S No, how does it operate when such circumstances happen?

RAFIK DAMMAK How we operate when this happens? Okay. When there is all those geopolitical situations, it can impact our membership directly and even our elected people to different positions. For example, not saying practical, but something we can see directly, that they can impact their participation to attend the meetings where we have people, we support their travel to camp, to participate in the discussion and so on, so they can be impacted by that.

But in more general, I think there is kind of more sensitivity to this issue and that's why we have members that they really care about this issue and they even advocate for specific topics about sanctions. For someone from Iran or other countries that are impacted by sanctions that even impact the access to service like domain name or others, they know about this issue and so they advocate, they create more awareness about this.

So, trying to get concrete example, like when we talked about the IANA stewardship transition a few years ago, we could bring that topic because we have people who are impacted by that directly. It's not talking from theoretical perspective, they are impacted, they know, and they bring that perspective. We have people from the Middle East, in North Africa, they are familiar with issues like what's happening now, and so they can bring more awareness, and that we need maybe to let people know and ICANN what's the impact.

Again, maybe about the participation in itself, and that also the representation. But in terms of where we are operating, maybe, yeah, we can operate, but again, it's impacting membership, some of the members of this region, and they can bring those issues, and we try to share those perspectives during all the policy discussion. I hope I answered your question.

SIRANUSH VARDANYAN

Thank you, and we will take one question from a remote participant. "How does ICANN support linguistic and cultural diversity on the Internet, especially through internationalized domain names?" Who would like to take this question?

RAFIK DAMMAK

Okay, I mean, it seems it's a question for ICANN as an organization, in the first place.

SIRANUSH VARDANYAN

As a civil society community, constituency, how do you see this approach?

RAFIK DAMMAK

First, I'll maybe try to quickly explain. When we talk about in gTLD, we have that issue maybe for historical reasons, but also economic, and how that program was created, created a lot of barriers to have more diversity of registrars, meaning those who will operate the TLD. And with that, it also, I think, impacted the diversity to have non-Latin script TLD.

There are a lot of work, I do believe, in terms of maybe the policy or technical side to have a non-Latin script TLD. And from our side as civil society, again, because of that diversity, we have also people who care about those issues, so we participate. There are ongoing working groups and those who we discussed previously, so we participate in those working group, bringing people who are impacted directly by those issues.

But we have people who are experts and so on, and that's how we participate, because that's our role. We participate in the policymaking to bring the subject matter experts and to be involved. So, that's how we can influence in a positive way the process and to highlight more about the need of that diversity in terms of the language when you have an IDN.

So, we do that, but again I believe it's for everyone to push, but as civil society, we care about this and we participate in the policy. I

hope I answered the question, but again, it's really not just us, but everyone, they have to work on this.

SIRANUSH VARDANYAN

Juan, you have some questions to the participants. Please go ahead.

JUAN MANUEL ROJAS

Yeah, it's just to engage a little bit with people here in the room. It's just a few questions just to have the question on the screen. It's simple. So, in which part of ICANN does NCSG participate? The GNSO. Easy, right? So, next question. NCSG represents mainly which type of interest within ICANN?

So, it's clear. Thank you. Next. What does NCSG stand for? Easy. Which of the following are part of NCSG? Easy. Why should civil society join NCSG? To sell domains? All right, yeah, but we don't have finance. Who? What? Third one. All right, yeah. And that's it. Thank you very much.

SIRANUSH VARDANYAN

Good job. Is there any last-minute questions? Yes, please go ahead.

PETER JIA WEI CUI

Hello, I'm Jia Wei Cui from Taiwan, and I have two quick questions. First of all, I think NPOCs and NCUCs may overlap a lot because Overfront represents Non-Commercial Stakeholders Groups and

ICANN community. So, I wonder if NPOC and NCUC might diverge on some certain issues. And the second part of the question is this.

Because I'm from an NPO in Taiwan, so I know that NPO in Taiwan is facing the challenges that we have scarce resources, so that it might be hard for us to think about, besides our daily work to supporting our stakeholders and operating the finance, finding financial resources for our organizations, we can still spare some time and spare some effort to participate in NPOC. So, I wonder, do NPOC provide support to NPOs that have scarce resources to support the participation to NPOC and the PDP?

JUAN MANUEL ROJAS

I'm sorry, can you shorten the question to understand it better?

PETER JIA WEI CUI

Okay, I think I will take the second part of my question. So, does NPOC provide support to NPOs that have scarce resources to support the participation of NPOC?

JUAN MANUEL ROJAS

All right, resources. Yeah, we have human resources. It's the only resources that we have. If you are an organization or you belong to an organization, you don't need to pay anything to join. So, we are here voluntarily, but you don't have any payment to be part of, and you have all human resources and ICANN resources to participate in PDP's process, in Policy Development Process, I'm sorry.

SIRANUSH VARDANYAN

I see Caleb has his hand raised, probably has something to add.

CALEB OGUNDELE

Yeah, just to add to what Juan is saying. Your question was based on, one, basically what's the difference between NCUC and NPOC and all of that stuff, right? Now, it has its origin, NCUC has its origin, and then NPOC has its origin. And the reason why NPOC was brought up was simply because they wanted to focus more on the organizational members.

So, you used to have a lot of individual members, the academia, and a couple of other folks in NCUC, but they needed to focus more on organizational members, and that's the reason why NPOC was founded and that's the reason why the focus is basically on members who are organizational members. And even when you get to NCSG, when conversations are being had, probably during elections and all of that, you notice that organizational members tend to have more weighted votes than the individual members.

So, just to give you a highlight of how that really works. So, the focus is organizational members. Now, based on resources that you were mentioning, how can organizational members be resourced, or how can they have resources that can help support what they do? If they have interest in domain names and some of the stuff that has been discussed earlier on, one of the things that we also try to do within the organization is that we do a lot of

outreach and engagement with you, and there are a lot of mentors that can help to support the growth of how you continue to engage in the PDP, the public comment and stuffs like that.

More importantly, if an ICANN meeting is also holding in your own region, take for example it is holding in Asia-Pacific, one of the things that we did before this meeting was that we did advertise what we call CROP.

It's like an outreach engagement travel opportunity or grant that is given to organizational members maybe who are interested in what we are doing and they really want to participate and engage in this meeting, and we could perhaps have like one travel slot for them. And so, that's a way we use in resourcing our members to still engage and actively participate in this. Yeah, that's a quick summary. Thanks.

SIRANUSH VARDANYAN

Thank you, Caleb. And we'll take the last question. Cliff, please go ahead.

MUTEGEKI CLIFF

Thank you. My name is Cliff and I'm from Uganda and I'm an ICANN85 fellow. And one thing I've noticed is that civil society plays a key role in protecting public interest. Now, my question is, what are some of the challenges that the Non-Commercial Stakeholder Group faces in ensuring that happens?

RAFIK DAMMAK

So, you are talking about public interest and other issues, what are the challenges faced by civil society in ICANN? I think, and maybe it's related to the question asked previously in terms of resources, because we talk about ICANN, we talk about representation, we talk about multi-stakeholder model, but at the end, not all stakeholders have the same resources.

And you can guess rightly that civil society here talking about NCSG, we don't have that much compared to the other groups. Because, again, how it works here, what you can see here, just the meetings, but the reality, there are a lot of things that happen in working groups where the policy are made.

So, if you have working groups, you need people to participate there, kind of the members, representatives that you send to participate. Like those representing the commercial side or the industry side from the DNS, they have people paid to participate. That's part of their job. For civil society, it's not. It's volunteers. So, even if we participate like individuals, it means that basically from our free time.

The other side, like the question that I linked to before, is the resources for non-for-profit or NGOs and so on, how they can participate. Even if they get funding, they have to cover so many topics, how they can allocate time just to participate in lengthy

processes like the policy making to deliver policy recommendation.

And that's linked to the issue of how as a group that we represent, we talk about maybe public interest or about human rights and so on, to bring that perspective. If we have those challenges in terms of resource, how we can participate effectively to influence. Other than that, I think it's also how we can bring more subject matters, experts, people from academia or other practitioners, they know about those issues to come, to participate in some working groups take years.

So, we can get them to be involved and to bring those kinds of issues. So, this is the kind of typical challenge. And also, for us, how we can keep members active for years, how we can involve them, how we can engage them, how we can get them informed, how we can get them to participate. And all that is done by a small group of volunteers.

You see some of us, so we try to do our best, but it's hard to compare us to the other groups that have much more resources, they have dedicated staff, and so on. So, that's, I think, kind of the main challenge. I hope that clarify what you are asking for. Otherwise, yeah.

SIRANUSH VARDANYAN

Thank you very much, and I would like to thank you guys for coming here and talking to our groups and presenting how we can join,

how we can be part of civil society constituents, and why actually we need to be there. And I'm sure that many of the people here having interest in civil society will come further. And please, can you clarify if you have any specific meetings during the week where people can come and see your work in action?

RAFIK DAMMAK

Yes.

SIRANUSH VARDANYAN

Thank you.

RAFIK DAMMAK

Thanks for this reminder. So, two points, yeah, we have, as mentioned previously by Juan, we have the Tuesday, the full day meeting. Usually, it was called the Constituency Day. So, you can join us. We have five meetings during the day. You are welcome to join us. But also, we have other sessions during the week. On Wednesday, we will meet with the Board.

That can be an interesting experience to see how we discuss, we give our time to the Board. We also have other sessions about human rights, one about the town hall, I think that's on Thursday, and we have another session on Wednesday. Please join us. Feel free to attend, and you can ask questions and participate. It's open.

We don't have closed meetings at all. And also, for joining, I think we have the details, you can apply, and feel free to ask anyone

during the meetings, me, Juan, or Wisdom, talk to us. If you have any questions, there is no stupid question, feel free to reach us at any time. And thanks for this again.

SIRANUSH VARDANYAN

Thank you, and I think that also it's important to get to know the regional representative, the executive committee of this stakeholder group who are based in your own region, so it will be easier to connect and follow up. So, thank you very much, and a round of applause to our presenters. Thank you. And with that, we will move to learn about the next community, which is RSSAC, which is Root Server System Advisory Committee, and the Chair of this committee, Jeff Osborn.

It's always a pleasure to listen to Jeff. Jeff's presentation, I always found myself to become a little bit DNS expert every time after his presentation, but I'm sure you will enjoy it. And Jeff, without further ado, the floor is yours and tell me how to help with your presentation since everything is okay there.

JEFF OSBORN

Thank you very much. It's always a pleasure as well. I'm going to note something that I'm sure you've all figured out. For decades, I have been going to the meetings of some of the smartest people in communications on the face of the earth, and the first thing they do is spend 10 minutes messing up the microphone and the slides. So, I'm going to show that I'm actually an expert by making a

complete mess of this for a minute while I get it going. Let's see. Oh my God, that worked. That's incredible. Does it actually go?

I'm obviously a complete failure and a fraud, so go find somebody more experienced if you want to learn something. Anyway, my name's Jeff Osborn. I'm the Chair of the RSSAC, which is the Root Server System Advisory Committee. And basically, we're a part of the DNS. And I suspect all of you having been introduced to ICANN have heard about the DNS, the Domain Name System. But you've probably been around it long enough that you're at that awkward point where you don't quite understand how it works, but it's kind of embarrassing that you haven't figured it out yet, so it's really hard to ask, how does that work?

So, what I'm going to try to do is, even though I know that all of you are experts, I'm going to start a little bit from the beginning and try to explain how the root server system works and how the internet all holds together. Is that reasonable? Okay. The usual audience for this is people in governments who are really smart and they have graduate degrees and they know what they're doing and they understand process and politics and everything else, but they don't understand the technology part of this.

We were sitting in a group when I got this job about three years ago, and I said, it's frustrating that nobody has any idea what it is we do. And I looked around the room and I said, okay, anybody in here have a mother who knows what you do for a living? And there were 20 of us and not one hand went up. So, that's the problem is this

stuff is a little complicated, we're going to try to make it understandable so that when somebody says something about the DNS, you can recognize, oh yeah, I know how that works a little bit.

And hopefully this will be more realistic. It's kind of like the first time you went into the kitchen instead of just having food show up on plates, it made a lot of difference. So, this is going to be looking at the kitchen. Our goal here is to understand the root server system and the root server operators. We're going to do that by explaining the role of DNS and the roles of the two pieces that are really important.

There's the resolver and the authoritative server, okay? And how and when and why a resolver has to ask the root server system what is going on is something we'll address. And there are a couple of common misunderstandings about the root server system, but that's one of those things where you have to know a lot more to be that wrong. So, maybe none of you are that wrong yet, which is a win. So, we're focusing basically on things as if you are all going to be in leadership positions in your companies and your countries at some point.

And so, this is the first step of knowing what leaders need to know. What is the DNS? It's actually really, really simple until you get in the details. Just like what's simple about a car is it takes you from one place to another. Okay, build one. Here's a pile of steel. The DNS takes human names and finds computer addresses. The computers out there have no idea what amazon.com means. They

know what 18.46.37.12 means, they don't know what Amazon means.

Similarly, the humans don't know what the numbers are, because numbers are really hard. So, a human will know a domain name like tata.com. The computer needs to have an address like, you've all seen these numbers, right? 40. 81.95.116, it's a 32-bit series of four octets, but I'm not going to tell you that. It's just a bunch of numbers that are goofy-looking with dots in them. So, DNS is how we know that tata.com is available at that string of numbers. That's it. That's it.

Now you can all get highly paid DNS engineering jobs, and you're all set. So, thank you very much. I'm glad we could have this time together. There are applications at the door. So, what's interesting about this is the numbers can change, but the names remain the same.

So, that's kind of cool. Like if Mumbai has a Tata place around the corner and they had a fire, they could fire up the whole system in Chennai tomorrow, and all they'd have to do is go, yikes, use this different set of numbers, and you'd never know because tata.com always goes to the number they told it to go to, which could be anywhere on earth. And this actually happens more frequently than you'd think.

So, all connected devices, iPhones, laptops, my washing machine, my car, all use the DNS to find other devices. And if you think about it, the fact that you don't have to keep up with, oh no, they changed

their address because the names never change, it's kind of a clever system. A little farther on, we're going to explain just how big this distributed network is, and it's incredible. Billions of moving parts, all controlled by the people who should be responsible for it, and it just kind of works.

So, why DNS? Human-friendly identifiers, that's the main thing. We can use words, it gets numbers. Service portability, that means when the building burns down and you want to put it somewhere else, you just tell DNS, hey, go to the new numbers. It follows you. DNS follows you to where you need to go. And then it is a huge distributed network that very often you have no idea it's out there. And as we're going to see later, you can ask for something and it'll go to four different continents, find the information from the people who update that every single day, come back to you in 10 milliseconds, and you have no idea it happened, but it happened and it worked. It's the world's largest distributed database, and it literally has hundreds of millions of individual databases.

So, if anybody's a computer science guy and has done database management, imagine hundreds of millions of databases accessible in a number of milliseconds, reliably, all controlled by the right people who should be controlling them. It's a remarkable system. So, devices get addresses from resolvers. You're on a laptop, you go, hey, I want to go to amazon.com. There are millions of devices out there called resolvers, and you've probably at some point had to enter DNS in the scary part of the computer where if

you make a mistake it's going to catch fire, that part where it's unnerving and you don't trust your friends who say to go there.

So, two of the big ones in India and in where I live are Cloudflare, which has a really simple address of 1.1.1.1, and then Google, which you may have heard of, it's a big company, has 8.8.8.8, and I'll just plug for friends of mine have a nonprofit called Quad9, and you'll never guess what their address is. It's called Quad9, it's 9.9.9.9.

So, the resolver is the thing out there that when you say on your browser `www.amazon.com`, it goes to the resolver, the resolver reads the phone books from all these authoritative servers, the 340 million places people have decided to keep their numbers, finds them, brings them back to you and says, here you go, here's `amazon.com`. And if you think about it, if they ever messed that up, if you asked for `amazon.com` and it got you to some hacker in some state in the middle of nowhere, the internet kind of becomes pointless.

So, this is not only incredibly complicated and huge and distributed, it's really important that it always work. So, again, the basic question, what is the number for this string of words, `tata.com`? And the number when I looked it up was `40.81.95.116`. And this happens in milliseconds, and here's the other great number, it happens about 500 trillion times a day. So, that's a 5 and 14 zeros. Nothing happens 500 trillion times a day. It is insane how big and spread out and diversified this thing is. And this is the guts of what ICANN does, it's the DNS.

So, the resolvers are the thing you ask, and the resolvers tend to have that information, and they get it in a number of ways we're going to talk about. But they get it from the authoritative servers, because not everybody gets to decide what are all the addresses that go to the left of the dot for .in. It's very important that everybody get that right, and that everybody get right what the addresses are to the left of .com. So, those are called authoritative servers, and they sit there and wait for resolvers to come to them and say, hey, what's amazon.com look like?

I'm .com, I'll tell you what it is, and here's the address. So, in the bottom, we have the four cases of how this works from the most normal to the weird one. In the normal case, how much information does a resolver need? None. In case number one, this thing has been cranking along and a hundred people have looked at Amazon and a thousand people have looked at Tata. So, when you say, here's a string of words, what's the address? It goes, I know that. That's in my memory. I kept it because I thought you'd ask again, and it provides it.

In the second case, you know how sometimes there's a third word to the left. Like Salesforce is an interesting product that has the name of the customer dot salesforce dot com. So, they're not just worried about the top-level domain and their own name. They've got millions and millions of things to worry about way over on the left. So, what we're talking about here in the second case is you

only have to go to the domain name's authoritative server. You just have to go to salesforce.com and let them figure it out.

In the third case, the resolver probably got hit by lightning or somebody tripped over the cord because it doesn't know anything except the top-level domain. It knows how to look up .com and .in, but it doesn't know anything else. The fourth case is you took this thing out of a box and plugged it in, it knows absolutely nothing, and that's where the root server instances come up.

My company in my day job makes and gives away a piece of software called Bind9 which is the most widely used DNS software in the world and has been for 37 years. And it doesn't have any addresses except a list of 12 addresses because these 12 guys know where a zone file is that will tell you where all the top-level domains is, and it's just 12 of them.

And so, when you start this computer, it randomly picks one of them and says, let's start figuring out where things are. Where's .com? Where's .inc? Where's .trainer? Where's .whatever? And so, I'm going to walk you through how all of this works with a fascinating animation. This is the part where you're really going to get the good paying job if you understand the process that we're going to go through here at the four different levels of how this works, okay? The gray box up there is the resolver.

So, this is the device that's going all over the world trying to find information for you, and you get to be the simple person at the very top. I hope you can read that. You most all have younger eyes than

I do. All you really need to know as the human is, I start with a question, and I'll read it because it's small, what is the IP address for `www.example.com`? And I don't care how much magic happens in the box. All I want is an IP address that comes out and says, it's `18.32.12.10` or whatever the heck the number is, okay?

Really simple concept, except the stuff in the box can get harder and harder depending on how little the resolver knows. We're going to walk you through this. So, we start with help, what is the IP address for `example.com`? We ask the resolver, do you know the answer? It has a cache memory right there, and it's been doing this for a long time, so it already knows what the answer is, so yes, I do. So, that was it. You say, find me this name, it gives you this number, and we're done.

Now what's interesting is in the red, this is 90 to 95% of the time, you ask this thing and it just goes, I know this, this is really simple. And at this level, DNS seems like the dumbest thing in the world. It's like, why is this hard? You just have a computer that tells you what the guy 10 minutes asked for, this isn't even difficult. Well, the problem is there are 340 million of these, and some people move them around, and some people change numbers, and some people get new domain names, and some people add things.

So, this is actually remarkably dynamic, and all of these disparate 340 million databases change sometimes really frequently. So, you may not know the accurate number for that particular one. So, we're going to go to a second case. Uh-oh, more stuff. Now we ask

the same question. Do I know where `www.example.com` is? Do I know the answer? And we look in the cache, and it turns out we don't know. Uh-oh. Well, okay, let's get the shorter one. Do we know where `example.com` is? And we decide, I do.

So, I'm going to ask `example.com`, which is an authority for all things involving `example.com`, hey, where's the `www` part? And it goes, I am the authoritative server, here's the number. You put it in cache memory so you'll know it the next time. And you go, now do I know the answer? I do. So, I've not only gotten the answer with just one step further looking away, I've stuck it in my memory so the next time somebody asks for this, I know where it is. Nifty.

But now look in the red part, because this is the interesting thing. I have to say it's interesting or else, why would I do this for a living? It's about 95% or 96% of all of the lookups only have to go this far. Interesting, and when we get to the bottom of this thing, you'll see why I personally think it's so interesting. So, let's start over again. Where is `www.example.com`? Do I know the answer? Nope. Do I know where `example.com` is to look for it? Nope. Oh my God, I'm an idiot. What do I know? I know where `.com` is.

Okay, let's go ask `.com` if it knows where `example.com` is, and it does, and it gives the number, and we put it in memory, and now I go, now do I know the answer? No, because I'm still missing a word to the left. So, now I go, okay, `example.com`, would you tell me where `www.example.com` is? It goes, okay, I know that. Here's the

answer. We put it in the memory. Now do I know the answer? Tada, I know the answer.

This is called recursion by the way, this is the process of going deeper and deeper into a thing. But what you'll notice on the right is that's 2% of the answer, so we're running out of percents. This is like fully 98 or 9, depending on who you ask, of these things all just happens in those layers. Where's the root server system? Glad you asked.

Now, we're going to start with this machine out of the box, the resolver doesn't know anything, nobody's ever asked it a question, it doesn't know anything. I'm going to say, where is `www.example.com`? Do I know the answer? No. Do I know where the authoritative server for `example.com` is? No. Do I know where the authoritative answer for `.com` is? No. I don't know anything.

Ah. So, I take my box that I've just installed this DNS software in, and all it knows is, here are 12 addresses to get you at the very beginning of the whole process. So, it goes, okay, I'm going to go ask for one of those from the root server system. Finally, we got to the root server system. So, I ask it, hey, how do I get to `.com`? And it goes, I know that. Here's the address. Stick it in your memory. Cool. Do I know the answer to `www.example.com`? No, I just know `.com`. Do I know `example.com`? No, I just know `.com`.

Okay, let's ask `.com` where `example` is. You see where this is leading, right? At some point this becomes obvious and around and around, you put it in memory, you ask it again, did I get there

yet? No, we're still missing www. So, I go to the authoritative server who owns example.com and it tells me what the number is and I put it in my memory and I say, do i have the answer yet? And the answer finally is yes. So, you the user just said, how's this word work? And internally a process went, I might remember it.

Oh no, I might have to look one layer down. Oh no, I have to look two layers down. Oh no, I don't know anything. I have these 12 guys out here called root servers who know the very beginning of everything. And then that's what's interesting over on the right is it is about one out of five or ten thousand times you look something up that you have to go all the way down to the root server system.

So, any of you guys' computer science students, took computer science in school? Okay, somebody wrote the textbook a long time ago, and they really made things hard on us root server types, because they said, get the resolver out of the box, turn it on, and then the first thing you have to do is go talk to the root server, and what they don't tell you is, and then you won't have to talk to it for a week. So, what it looks like is, every time you do anything, the root server is standing in your way.

It's slowing you down, it's causing problems, God forbid you pull the plug, the whole internet will come screeching to a halt. And in actual fact, it's so unusual to have to go and use it. So, this is my least favorite slide because it's so ugly, but it has numbers that are really meaningful. There are about 350 million zones. Now, a zone is a list of domain names.

So, if I own example. Oh, let's use Salesforce. If I own a salesforce.com, my zone might be millions and millions of addresses because it's all my customers. If I own .com, VeriSign does that, and I need to know all the things in .com, that's 170 million names. So, these can be really huge. But again, what's so cool is it's maintained by the domain name registrant. And if you don't know that word, that's really important at ICANN.

You don't buy a domain name, you're not a domain name owner because we have lawyers. So, you have to be a registrant. I still don't think it's a real word, but the lawyers get mad at me if I don't say registrant. So, when you buy a domain name, you become the registrant, and you get to control all the stuff that goes to the left of your word. They're going through a new round where they're going to be selling off new top-level domains, but in the meantime, if you operate one of the 1,450 existing top-level domains, you are responsible for the word to the left of the dot.

If you've got .in, you are responsible and have a zone that contains everything to the left of the dot. And it's called a zone because that's kind of what you want. I want to know everything one move above this thing, so I don't have to look each one up, I want to get this whole zone. What's interesting about the root zone is it's tiny. We've just got one zone. It's got 1,450 things in it, and those are the top-level domains. And then here's where the thing breaks. We're not even responsible for it.

The domain name registrant controls everything in his or her domain name. The TLD registry controls everything above the top-level domain. We don't even do that. IANA is a part of ICANN, and the root zone maintainer is a group that puts a lock and key on this thing so that once they hand it to us, we can't edit it or change it or anything. We're just the humble servants of the process who move things out there. There's a lot of misunderstanding that we get to manipulate things or write things or add files to this.

We're a directory service. All we do is tell you, here's how to find the top-level domain. In review, the root server holds the root zone, and that's just the list of the 1,450 TLDs. We'll tell you how to get to .com, which can tell you how to get to its 170 million things. We'll tell you how to get to .in, which has some insane number also, .ai has an insane number, but it's authoritative servers all the way down. There's an authoritative server for the TLD, then there's an authoritative server for the domain name, and they all get to control how this works, yet you, going through a resolver, can find all of this information freely and reliably in milliseconds.

The resolver finds all this information it needs and gives you back a number. So, you started looking for words, and you ended up getting a number, and all is well with the world. And this is the T-shirt slide. In the millisecond world of resolvers, queries to the server system are rare. We are always trying to get the question, how come you slowed down my service?

I can guarantee you we have never slowed down your service. It's one out of 10,000. How did you notice the 10,000th time was milliseconds longer? It's almost impossible to even measure. So, what don't we do? We don't decide what's in the zone. We don't decide any of this information. We transfer this information.

The registrant, new word we've learned, decides what the information is for their domain. The TLD registry decides what's in its domain. And IANA decides what's in the combination of all those and puts it in a root zone file, cryptographically signed by the root zone maintainer, and then we give it to the world. I feel like blaming the newspaper guy for the editorial. We really just hand this stuff out, we don't change the information. I have a couple of other root zone operators here.

They're going to hate that I just said we're just newspaper delivery guys, but it came to me, so I used it. Sorry, guys. So, in summary, root zone system provides information to the TLD, that's it. That is absolutely it. We don't decide what information is there, we don't keep the system away from you, we're not the first thing to delay the system, we're just way down the line when somebody has forgotten everything, we will remind them.

There is no single point of technological failure in this. It hasn't had a failure in 37 years. And there is no single point of institutional failure because there are 12 different companies that do it who are totally unrelated. Everything from government to universities to a non-profit software company to various other kinds of

organizations. And that, in short, is the root server system and a little bit about how DNS works. And thank you for your time.

SIRANUSH VARDANYAN

Thank you, Jeff. Thank you very much. And definitely we have a lot of questions, and we have 20 minutes for us to go with the questions. We will start with you, Abdul Abotaleb.

ABDULRAHMAN ABOTALEB

Thank you so much, Jeff, for your beautiful presentation. My name is Abdulrahman Abotaleb. I am from Yemen, and I am ICANN85 fellow. So, as the number of the TLDs continues to grow, and there are thousands of new gTLDs coming on the way, my question is, are there any expected challenges for the root zone or the root server systems, especially in regards to the scalability or resolving time or mechanism or any other issues related to the resolving? Thank you so much.

JEFF OSBORN

That is an excellent question. And when I was more the age of you folks here, I was involved in the internet longer ago than I care to admit. Here's an interesting thing to keep in mind. This is all text. So, the text file that has all of this information, you know what I'm about to do here, I'm going to take a live picture here that is 2.4 megs. Would you worry about that file being too big?

That's a lot bigger than the root zone file. So, if we doubled, we'd have two pictures to take care of. So, the engineer is going to

answer this question better than me, but I like that answer because it's true. It is so small that the idea of, oh no, we have a 4 meg file, what are we going to do with it?

I guarantee most of the text files you have in Word or something have enough meta markup diacriticals on them that they're bigger than 4 megs. It is a tiny, tiny file. And then my friend Ken is going to make me look like an idiot because I'm the business guy in the group, not the engineer. So go, Ken.

KEN RENARD

Ken Renard, one of the root server operators. The short answer to your question is no, adding 1,000, 2,000 new TLDs really won't affect us at all. We don't really care about the size of the root zone because it's already very small. Double it, triple it, quadruple, ten times, that's very small. What we do care about is the number of queries.

So, how much do those new TLDs bring in queries? We have significant capacity. We have over 2,000 physical locations around the world where there's at least one server. Capacity is there, so the new round of gTLDs really doesn't worry us much. But it's not the size, it's the query count. And we've done it before.

SIRANUSH VARDANYAN

Thank you.

JEFF OSBORN

The thing that's so interesting to keep in mind is when you talk about the volume on the Internet increasing, there's things like video. I mean, holy mackerel. You take a text file and compare a video to it, those are just huge consumers of the bandwidth, but you only had to do one lookup. And from our point of view, you didn't even have to do that.

The resolver that you're using at some point in the prior couple of days had to have looked up that TLD, and then you can deliver video all day long, and there is no additional traffic to us. So, it's kind of remarkable, there is so much logarithmic growth on the Internet, and this is one of the few things that barely grows linearly.

SIRANUSH VARDANYAN

So, I have already the queue. Taruna, we will go with you, and then Cliff, and guys here.

TARUNA KAUR BAMRAH

Taruna Kaur Bamrah, NextGen for the record. So, I have a question. With AI agents and IoT flooding resolvers, I was wondering what novel root metrics or maybe reforms could RSSAC develop or work on to detect amplification attacks disguised as legitimate spikes that we are coming across, like the AI deepfakes and stuff, so that it minimizes the collateral damage to world-enabled regions and ethnicities. Thank you.

JEFF OSBORN

This is one of my favorite answers, but you guys are all smarter than me, the way Anycast handles amplification attacks is really a clever story. Who wants to tell it?

KEN RENARD

I'll kind of answer it a different way. There's things you mentioned, the AI, the bots, things like that, we've addressed all that before. From our perspective, the issues are the same. Who's causing it doesn't matter. We see all kinds of attacks, we know what to look for. Again, the capacity of the system is so great compared to what's used and the things out there that are already attacking us, we just handle. So, nothing new introduced by those specific things.

JEFF OSBORN

Okay, Ken's more right than I am, but I like my story better. The interesting thing, if you know what an amplification DDoS attack is, you basically get people from all over the world and tell them, let's all go to this one place and just pile up. So, if you told them, let's all go to the McDonald's on Main Street in Kennebunk, Maine, and it's a million people, that McDonald's is going to be ruined.

The problem with Anycast is, it just says McDonald's. So, if you get a million people in the world to all go to McDonald's the same day, they're going to go to their local McDonald's. Who's going to notice? There's a million McDonald's. So, it's going to be, ha-ha, there's one more person here. So?

So, Anycast is really a clever way by having the same address in a bunch of places, makes it impossible for you to gang up on one of them, because you just end up going to the closest one. So, it just breaks the whole logic of an amplification attack. Did that help? Okay.

SIRANUSH VARDANYAN

Thank you. Cliff.

MUTEGEKI CLIFF

Thank you. My name is Cliff from Uganda, and I am an ICANN85 fellow. And while we were having our initial times with our mentors, one of the areas I told myself I'm not going to engage in was the root server conversations because I felt they were very, very technical. But after this, I've changed my mind about that.

Jeff, I like how you break down this complex technical issue to something that's really very simple, and I love your level of storytelling. Now, my question is, I understand there are 13 root servers across the world. Correct me if I'm wrong.

JEFF OSBORN

There are about 2,000.

MUTEGEKI CLIFF

Okay. All right. Now, my question is about the key signing ceremony. Could you tell me a bit more about the --

JEFF OSBORN I don't have anything to do with the key signing ceremony. That's a really interesting -- who's here who does the KS -- Liman, have you ever been part of a KSK, the signing ceremony?

LARS-JOHAN LIMAN No.

JEFF OSBORN Oh, hey, wait a minute, we have an expert.

FERNANDA IUNES I am not an expert at all.

SIRANUSH VARDANYAN She's the one who opens the safe.

FERNANDA IUNES I just open one of the safes. That is my expertise in that room.

JEFF OSBORN It's slightly complicated. There are 12 organizations that run root servers, but there are a total of closer to 2,000 total instances out there. They're all over the earth. One of my engineers, it's so good having people smarter than you work for you, I highly recommend you do it, he wrote a thing where from anywhere, like right now I can say, what's the closest root server of every flavor in any

direction from where I am right now? And there are just a ton of them.

It's gotten to the point where I don't think we need any more, but politically, it seemed important that when people want one, because they go, hey, how come I don't have one, we'll give them to anybody. ICANN will do the same thing. I think ICANN's still doing it. But we're a non-profit, but we're not broke. If you wanted a root server in your location, you'd need to have a couple of things, like a rack to put it in, power that's reliable, a connection, and then there's some routing requirements that are a little complicated to describe now, but not that hard.

And literally, we could have you set up in a month. The more important trick is, I hope you got the idea, this is not holding people up from having classes start on time. This is really a backup thing that is, you know, it's important. If it disappeared for three weeks, it might be a big deal. But that's one of the things right there is that the top-level domain name addresses don't change. There are 20-year-old top-level address names. If we hadn't existed for 20 years, you'd still get to the right place. It's just, it's not something that is very actively changed.

So, if you're looking for delays, and if you're looking for a critical fault that's going to mess up the internet if it stops working for an hour, this is the wrong place. But it's still interesting, and if you do want to get one set up and you're associated with either a

university or an internet exchange or something, come on down.
Are you in, what, you said Uganda, Kigali?

MUTEGEKI CLIFF

Uganda.

JEFF OSBORN

I'm sorry. In Kampala? It's Uganda. Are you in Kampala?

MUTEGEKI CLIFF

Kampala.

JEFF OSBORN

Yeah, we have at least one F-Root, my company's ones, in Kampala.
Could set you up with them if you want to go see it. It's kind of cool.
I like data centers.

MUTEGEKI CLIFF

Actually, about a week back, we had a visit with the Uganda DNS
Forum, we had a visit at the IXP, and there's quite a lot of
opportunity there to scale up.

JEFF OSBORN

Well, like I said, I can't remember the last time I said no when
somebody wanted one unless it just turned out they didn't have the
space or the power or the bandwidth. But if you have the interest

in all those things, literally see me afterwards, I'll give you my card.
We do it every month.

SIRANUSH VARDANYAN

Excellent. Thank you very much. Rupam. Yes.

RUPAM BARUI

Hi, my name is Rupam. I'm a master's student studying cybersecurity, and I'm an exchange. Thank you for the presentation. My question is really simple. With the new round of gTLDs, who is responsible for adding the new gTLDs to the root zone? Thank you. With the new rounds of the gTLD, who is responsible for adding those gTLDs to the root zone?

JEFF OSBORN

Yeah, absolutely and immediately, there is a new root zone generated on average. Okay. Oh, Jesus. Liman is going to correct me. Thanks, Liman.

LARS-JOHAN LIMAN

Sorry to interrupt. My name is Lars Liman, I work for Netnode, which is another one of the root server operators. You're answering the wrong question. Who is responsible for adding it to the root zone? The answer is one word, IANA.

JEFF OSBORN

Yeah, IANA. I'm sorry. I missed the word.

SIRANUSH VARDANYAN

Okay, there is a question also from remote participant. “Many participants receive a large number of emails and notifications from different mailing lists. Are there any tools or recommendations to help manage or organize this communication more effectively?”

JEFF OSBORN

That is so far out of our scope that we really have nothing to say. But I literally have some email addresses from the late 80s that get thousands of spams a day. So, if you figure this out, let me know, but it is just completely outside of our remit.

SIRANUSH VARDANYAN

Thank you. Godsway.

GODSWAY KUBI

Hi, so my name is Godsway Kubi, an ICANN fellow. So, I wanted to just ask, there have been discussions around internet fragmentation and resilience lately. So, I wanted to know the role the root server system plays in maintaining a global interoperable internet in these issues.

JEFF OSBORN

The role of maintaining what?

GODSWAY KUBI

Yes, so there have been increasing discussions around internet fragmentations and resilience across the globe. So, I wanted to know the main role or the role the root server systems play in maintaining a global interoperable internet.

KEN RENARD

This is Ken again. So, as far as the root server system and the root server operators are concerned, there is one place for the root zone information, and that's IANA. So, that's where we go, we are committed to, that is the one source. So, if there's an attempt at fragmentation, IANA would have to do that in order for us to be a part of it. So, we are committed to essentially the ICANN, one root, one world, one internet. So, we have the one namespace, and that's how we contribute to keeping it unfragmented.

SIRANUSH VARDANYAN

Thank you.

JEFF OSBORN

You know, if you want it in a very simple way to explain why ICANN is so important, one of the reasons is when you ask for this set of words, you better get the same number. And if you divided it up, that's impossible to imagine. And you wouldn't want a gang of thieves getting your login to your bank. So, keeping those in a single name space that is uniform is really crucial to having the Internet actually be functional at all. But very good question.

DEVANJIT SHARMA

Hi, my name is Devanjit Sharma. I'm an ICANN fellow. So, my question is, is the current design already sufficient enough to handle long-term growth, or we might see a new change? Like Jeff showed us four cases and a new case would be added and what it might look like.

KEN RENARD

I'll try to take that one. Right now, there's several different factors of that. Capacity is very sufficient right now. We're always monitoring that and growing. With Anycast, we can grow. It's not as easily as flipping a switch, but we can add new instances. That's constantly growing. There's another group that is pursuing a governance of the root server system.

That's not us, not the group that we're representing here today. They will be presenting later in the week, the day after tomorrow, on governance. But as far as technology, the root server system has evolved quite a bit over time, adding DNSSEC, adding IPv6, adding Anycast, these new features.

The system evolves with the internet, and we're engineers, we're techies, we love this stuff, so we like to do good stuff. On the flip side of that, we provide a service that needs to be there, it needs to be available, it needs to be correct all the time. So, we have some hesitation. We don't try things on the bleeding edge or the latest and greatest because we have to be consistently available.

DEVANJIT SHARMA

Thank you.

SIRANUSH VARDANYAN

Doreen, please go.

DOREEN NANDUTU NABUZALE

Thank you. I am Doreen Nandutu Nabuzale, ICANN85 fellow. I think I read from the same page with Godsway. However, I would like to still ask my question. I would like to know what would be the danger or effect of, say, data localization? Of course, there are ongoing talks of data localization in some parts of the world, which I think Godsway was talking about as internet fragmentation. What would be the danger on the operation of root servers and maybe the eventual effect on DNS querying? The danger of data localization.

KEN RENARD

Are you talking about technical fragmentation like these different islands of the internet or are you talking about the namespace?

DOREEN NANDUTU NABUZALE

Basically, the access to information.

KEN RENARD

From our perspective, we are just the lookup mechanism, so we don't provide any content. We just point to the top-level domains.

So, we really don't know any political boundaries or anything like that, we just serve these things. Like I said, we serve the IANA root zone. That's what IANA publishes. In some sense, we're just the IT department. We're the nerds in the basement that run the computers. So, we just don't have control over that to really affect that in any way.

JEFF OSBORN

I think if you're interested in where that happens, it's in IANA, but I think there's a pretty long-held belief that not splitting the internet, not splitting the namespace, and not splitting the authority for having one place where everything has to agree, I've never heard anybody who thinks it's a good idea who didn't also want to burn the world down.

But it's an interesting question because there are people who want to burn the world down. But IANA is the organization that puts this together, locks it up with a cryptographic key, and by the time we get it, we can't do a thing with it. All we can do is offer it up to everybody on Earth who is a resolver and needs that information. That's all we can do

SIRANUSH VARDANYAN

Thank you. And we'll take Samira. Please go ahead.

SAMIRA ALI DANBURAM

Thank you very much. My name is Samira from Nigeria, ICANN85 fellow. So, my question goes like this. It's in relation to cyber

security. So, how does the RSSAC try to evaluate or mitigate issues when it comes to DNSSEC? Do you understand what I mean?

KEN RENARD

So, specifically with DNSSEC, because we don't control the contents of the zone, that's all done outside of our remit. So, that's done by not IANA, but the root zone maintainer. So, they manage the cryptographic signing of the day-to-day zones, and our trusted authority over here has... IANA does part of the key management for the root key, the KSK, the Key Signing Key. So, as far as DNSSEC, we're outside of that.

JEFF OSBORN

Liman.

LARS-JOHAN LIMAN

So, Lars Liman again from NetNode. May I add to that that the people who operate the DNS in the world at the root level but also at the next level, at the top-level domain level and further down, it's a tightly knit community of engineers and technical people, and we work a lot together to maintain the security and stability of the system.

So, DNSSEC has evolved over time, engineers are looking at future additions and how to improve the system, and a lot of that work happens in a different organization called the Internet Engineering Task Force, the IETF. So, that's where the technology evolves.

And you will find most, if not all, root server operators have representatives in the IETF who take part in this in order to help constructing a more secure and stable system for the future, but also to make sure that we can evolve our systems so that we can use these new technologies as they evolve and that we're on the same page and that the IETF doesn't construct technologies that we cannot serve in the future when we want to do that.

So, it actually all moves forward in a coordinated fashion with everyone involved, and we look at the future. There's a lot of talk, for instance, right now about post-quantum encryption, where encryption technologies are expected to take a leap forward because of new computer technologies, and we have to make sure that we are in that process so that we can provide good protected systems in the future as well, and we are there.

SAMIRA ALI DANBURAM

Okay, so it means when it comes to curbing cyber security, it's purely IETF?

LARS-JOHAN LIMAN

Not purely, because cyber security is such a vast concept that it's discussed in many places, and IETF is definitely a big one. But ICANN and certain corners of ICANN are involved in that too. And also, other places, we have the regional groups for network operators in the five big regions.

And it's discussed in, there are security-related groups in many nations, and people get together and work around this. There's a lot of work going on, and I couldn't enumerate all the places where this is discussed, but it's a topic that a lot of people care much about.

SIRANUSH VARDANYAN

Thank you very much. Thank you, Jeff. It's always a pleasure having you with us, and I appreciate also the team who came with you. A round of applause for our presenters here. I hope you will have some time to rest during lunch and see you back at 1:15 here. And with that, this meeting is adjourned. Thank you very much.

[END OF TRANSCRIPTION]