

---

ICANN70 | Virtual Community Forum - ccNSO Members Meeting: ccTLDs and the Future (1 of 2)  
Wednesday, March 24, 2021 – 14:30 to 16:00 EST

KIMBERLY CARLSON: Hi, all. And welcome to today’s session on ccTLDs and the Future. My name is Kim Carlson and I will be today’s remote participation manager, along with assistance from Susie Johnson and Devan Reed. Please note that this session is being recorded and follows the ICANN Expected Standards of Behavior.

During the session, questions or comments submitted in chat will only be read aloud if put in the proper form. And we’ll put that in the chat as well. We will read and the question and comment aloud during the time set by the chair or the moderator of the session. If you would like to ask your question verbally, kindly please raise your hand and when called upon, kindly unmute your microphone and take the floor. Please state your name for the record and speak clearly and at a reasonable pace. Mute your microphone when you are not speaking.

And this session includes automated real-time transcription. Please note that this transcript is not official or authoritative. To view the real-time transcript, click on the “closed captioning” button on the toolbar in Zoom. And with that, I will hand the floor over to our session moderator, Sean Copeland.

SEAN COPELAND: Thank you so much, Kimberly. Good afternoon, evening, and morning to everyone on the call today. Before we begin today’s session, I would

---

***Note: The following is the output resulting from transcribing an audio file into a word/text document. Although the transcription is largely accurate, in some cases may be incomplete or inaccurate due to inaudible passages and grammatical corrections. It is posted as an aid to the original audio file, but should not be treated as an authoritative record.***

---

like to acknowledge that I am coming to you from the territorial traditional lands of the Tsawwassen and Musqueam First Nations here in Canada. My name is Sean Copeland. I'm the technical liaison for the Nic.vi. I am also chair of today's discussion on ccTLDs and the future. The moderator today is Biyi Oladipo, a board member of NiRA.ng, Nigeria, and one of our councilors here at the ccNSO.

Today's session is broken into two segments. In the first segment, we'll have panelists discuss their thoughts. Between each speaker will be a few minutes to ask questions for clarification. If you have heavier questions than that, we would like you to put them at the second session, please.

There's a thread of social responsibility in the presentations today that I would really like for you guys to pay attention to. I believe, as things progress, we, as ccTLDs will be more impacted by this than we perhaps know.

Today, we have four presenters joining us. Our speakers are Anil Kumar Jain, who was appointed last year as the CEO of NIXI, the operator for India. NIXI is spearheading a drive for every person in India to have a domain name, which is kind of cool. I find it amazing that he has 740 million active internet users in India and about 280 million of those are coming from rural areas. That's impressive. As a small TLD, I'm very interested in Anil's approach to managing such impressive growth in such a diverse country and how he sees things moving forward.

Roelof Meijer is from .nl, the Netherlands. Since 2005, he's been the CEO at SIDN, which is the Netherlands Foundation for Internet Domain

Names. And just last week, he joined the board at CENTR, which is the Council of European National Top-Level Domain Registries. From these perspectives, Roelof provides insight into trends, threats, and opportunities going forward. On a personal note, Roelof is the only person I know, outside of my wife, who's been to Burkina Faso. And for me, that's kind of cool. It's sort of on my bucket list.

Rounding out today's session is Frederico Neves, the CTO from NIC.br Brazil, another significant and emergent economy where the internet plays a pivotal role. BR does more than provide DNS services. BR adds new angles as an internet infrastructure provider. How this is evolving is intriguing and it's something to listen to.

Our keynote speaker is Olaf Kolkman. Olaf has a very cool title, a Principal - Internet Technology, Policy, and Advocacy at the Internet Society. Olaf has had a very distinguished career in the internet world and has partook in many of his milestones. For me, I think the most interesting thing about Olaf has been his involvement way back at ASTRON, which is the Netherlands Institute for Radio Astronomy and as the resident cartoonist at the Slide Rule Times. Having met astronomers who are looking for livable exoplanets and seeing their knowledge and intuitiveness tells me that we will be into a treat today.

Olaf recently posted an article reviewing a paper on encryption. "Dense" was the word that he used to express the writing. And then, he went on to express the concepts in the paper in a very easy-to-understand way. I, for one, appreciate that skill and talent involved. It's little wonder, then, to find ISOC's documentation on the Internet Way

---

of Networking very easy grasp. And really, it should be part of any policy review and assessment. For those with interest in policies related to the internet, consider it our own chasm to cross.

We, as a community, have gained, as Olaf took his own advice and stopped looking at the stars, instead came to help us write. So let's have a warm virtual welcome for Olaf, who will take us on a journey to the future. Thank you.

OLAF KOLKMAN: There we go, I believe.

SEAN COPELAND: Yes.

OLAF KOLKMAN: Yeah. Good. So let's start with going into the future. It's now one decade later. It's 2031. We're here. ICANN is still going strong. We're still meeting virtual, for whatever reasons. People have stopped flying or something like that. And we're connecting we're still connecting. Isn't it amazing?

The Internet still exists, except that, oh. Wait. Oh. Yes. That's right. I forgot to charge the roaming fee for today so I will have to get a European device. Give me a sec. I need to get a European device to pay this. Let's do that. And there we go. Yeah. Okay. So this happened because there is from somebody from outside Europe on this call and

---

then I have to pay a roaming fee, which is a natural thing to do nowadays.

So, let's continue. A decade into the future and here we are, still talking about the internet and still ... Oh. Right. Yeah. Somebody from Prumtonia just joined us. This is a new state. I don't know when this happened but I have to accept this certificate, which will then be included. Okay. I will trust this ... And continue.

And the good thing is that we ended up in a place that is not the internet that we know today. How did we end up here? How come that the internet of March 2031 is so completely different than the internet that we know today, which has no barriers. Which has the endless opportunities, still?

Well, we're carving at it. We're taking things out currently. Every day, when you look at the news, you see new headlines that indicate that we're taking part in regulating or trying to manage these parts of the internet to cope with real problems.

But we're degrading very slowly, by little cuts, the underlying infrastructure. And this makes that, in a dark scenario, we end up in the internet that we were just at. The internet of 2031, done by a thousand papercuts—tiny little cuts, brought to you my regulation, by industry, by all kinds of movements. Lingchi is the word for it and these are Chinese characters that reflect 1000 papercuts.

And of course, the things that we're talking about—the things that governments care about are classical topics like market dominance,

---

privacy, propaganda, fake news. Those are all important societal issues that need to be addressed and that have changed in scale because of the reach and the speed of internet itself. But they're not discussions about the internet. They're discussions about the effects of having companies—large-scale companies—on the internet.

I think this tweet from Keller signifies it really well, “When you write about the internet as if it were Facebook, Google, and Twitter, you help to create that version of the internet.” That is at least not the internet that I usually talk about. So what is that internet that I usually talk about? Well, it's the internet's infrastructure—the basis on which all this stuff is built. We want to focus on that internet, not on the tech clash. Of course, we need to talk about the tech clash. But when we look at the internet, that's the type of thing that we want to preserve—the properties of that internet.

The picture you see here, by the way, is a picture of [Keidar] a couple of years ago. And it shows all the networks that make up the internet. There are many of these pictures around, of course. But that's what I'm talking about—the network of networks that provide end-to-end connectivity—that allow people to build applications that so many people have embraced and have integrated in their day-to-day life. So many people depend on us, we've seen in this global period.

So we ask ourselves, what is the success that makes the internet the internet. What are the critical properties that, if you lose them, you don't have an internet anymore? And if you strive to make them better, so to speak, you get a better internet. And this is something that we call

---

the Internet Way of Networking. So I'm going to talk a little bit about what it is and why it matters.

In this work, we identified five critical properties of the internet. And those critical properties, I will go over. They're the legs of a table. You know every table can stand with three legs but imagine a table that can only stand with five legs. Take one away, the table will tumble. We have more information about them on the website but let me go over them.

First critical property: the internet is a packet switching infrastructure with a common protocol, called IP, and it has a global span. That makes it easy to connect. IP is the only technical requirement. And once you're on the internet, you're part of that internet and you become part of a seamless platform. And by people doing that, Metcalfe's law says you maximize the value of the network.

And clearly, that happened. We have billions of people—not everybody yet but billions of people that are on the internet. And the benefits that this critical property of IP common protocol brings you is unrestricted access and global connectivity, which by itself, encourages the network to grow. And by doing that, the value of the internet itself increases, and therefore the societal values that it creates and societal and economic properties.

Second critical property is that the internet is a simple layered model of technology building blocks and related services. That creates interoperability. We're talking about interoperable building blocks. And they can be deployed across networks and combined to create new services. And that creates almost ubiquitous and rapid innovation.

---

The open standards development process and voluntary adoptions are key to making this happen. And it allows the innovations that I just said on multiple layers—new applications, new security mechanisms that you can just deploy. If I want to use a technical term, I would say TLS 1.3, or QUIC, or DNS over HTTP as a new technology that’s been introduced recently.

The benefit is that you have an open internet with common interoperable services. And you get permissionless innovation everywhere. And the open standards process, with voluntary adoption, means that the good things survive and the things that are not that well-designed or don’t have market value, so to speak, they just disappear.

Third property now. A common open routing protocol, which in the Border Gateway Protocol, BGP, with independent distributed decision making. There are currently almost 70,000 autonomous systems and each of them run the BGP protocol, which allows information with neighbors.

And each of these actors—each of these 70,000 actors—have their own image of how to reach particular destinations on the internet. They build their own map. They do that independently of each other. They exchange some information and that’s it. And it’s highly decentralized. You only have to make a handshake with your neighbors and not with the network, like in another continent, to make sure that your traffic is delivered to the other side of the planet. That type of network delivers



---

you an incredibly resilient and adaptable network, which allows for local optimization, while maintaining a worldwide connectivity.

Fourth critical property: common address space to ensure global reach and a unique name space, specifically the DNS—we're talking among friends here—decoupled from the other space. You need this to be globally addressable. The IP addressing space shared among all the participants of the network, in order to create reachability between computer nodes and a common DNS to have humans interact with the systems in a common way. That delivers you consistent addressability and a coherent view of the network as a whole without fragments and fragmentation.

Fifth critical property: the internet has been designed as a general-purpose network. It was not optimized for a particular thing but it was always good enough to serve the needs of what the people needed. And it's almost ... I would say "almost" but I think it's always evolved to a way that it allows people to do what they need, and if not today, then maybe in two years.

That general nature of the protocol—the common protocol—is essential for permissions innovation, what I talked about earlier. And the benefits are flexibility and a continuous serving of a very diverse and constantly-evolving community of users and applications. You don't need to change the laws to support this dynamic environment. The internet itself remains constant. Everything on top of that changes but the internet remains a constant. Blockchain is something that just got introduced.

---

We think that these five critical properties are of extreme importance and that whenever there is a policy proposal or a regulatory proposal, that you should do an internet impact analysis. This is inspired on having to do environmental impact analysis, to make sure that whenever you impose new regulation, it doesn't eat away—it doesn't introduce papercuts for this critical internet.

Just giving you an example because this happens all the time. Recently, September 2020, WeChat and TikTok were prohibited—or at least transactions related to TikTok were prohibited. And they were very specific about networks. Any provision of internet hosting service enabling the function or optimizing of the mobile application in the US. Any provision or content delivery networks, services enabling the functioning or optimization of the mobile application in the US. Any provision directly contracted or arranged internet transit or peering services enabling the function or optimization of the mobile application within the US, etc.

If you look at this through the lens of the critical properties, this is immediately eating away a critical property number three, decentralized management and the distributed routing system. Now, there is a centralized entity that says, “In this country, you have to route this way.” So this a picture of the network with all these networks here. And what happens is the US basically says, “You block off these networks.” Now, that's a papercut. And it might not have an immediate impact. Well, it does, of course, for TikTok.

---

But what if this becomes common practice. And what if more networks are doing this? Then, we just set a precedent that might lead to fragmentation of the internet, where in order to reach one network or the other, you have to go through a network that is forbidden—that a regulator just said, “You cannot pass that traffic through this network.” And then, the internet lost its resiliency and it lost, frankly, the ability to talk to somebody else. And you might find yourself with a pop-up saying, “You have to pee for your transit—you have to pay for your transit,” not, “pee for your transit.” That was a small error there.

Talking about beverages, the Internet Way of Networking Toolkit is something that’s been published last year but we’re still looking at it because we believe that we have the fundamentals. We have the basics. The IWM provides the basics of internet working. It’s like having grape juice. But grapes do not make wine. We need more than only the critical properties to assess the impact of measures. The impact on critical properties will make us lose the internet.

But some measures will prevent us to make the internet better. So we’re looking at, “What is it that we have to do to get to a better internet?” And that’s something that we’re currently working on and we hope to provide a little bit more news in the summer. I think that’s important because people are still building the internet. They are using the properties of the internet—the decentralized management, the open building blocks—to build their own versions of the internet.

And while they are doing that, we have to make sure that the internet is not broken by 1,000 cuts. But hope that the idea of these critical

---

properties and the toolkit will help you to assess the next proposals.  
Thank you very much.

SEAN COPELAND:

Thank you very much, Olaf. That was very, very energizing. Does anyone have any questions that they want to ask—quick questions for clarification?

JAVIER RÚA-JOVET:

I just put something in the chat. Thanks for that, Olaf. Super enlightening. Yeah. You referenced environmental impact statements and maybe a similar approach for when a government will affect the internet somehow.

So we are in a climate crisis and all the actions that brought forth the climate crisis, or many of them, maybe have environmental impact statements that had a discussion but the action took place anyways. So these actions are important because they open up a discussion about a certain, probably deleterious action. But they are not substantive stops.

So I just wanted to put that out there. How do we think about some sort of mechanism that is more substantive, that will be more protective? Because evidently, just having statements about things is just a procedural step that a state that has probably already decided about something will check on a checkboard.

---

OLAF KOLKMAN: That's a good question. I propose that we park this for the panel discussion because I think that other panelists might also have an opinion on how to best influence decision makers because I think that is the underlying point of your question.

SEAN COPELAND: I'll agree with that. Does anyone else have any other comments, questions? No? Okay. Thank you very much, Olaf. Anil, you are next up.

ANIL KUMAR JAIN: Yeah. Good afternoon, good evening to all participants. Kim, can you shift to the next slide? Next slide, please. Next slide, please. So the first portion of my presentation is market and economic landscape in India. Next slide, please.

India, being a diverse country, has grown very fast in internet. You must have seen that we are number-one in the digital identity program, called Aadhaar. We have already more the 1.2 billion and enrollments in that. We can also say that we have a payment mechanism, which is an integrated payment. And in September 2020, we had 1.8 billion transactions in one month. And now, it is already 2.2 billion transactions per month. In the local languages the user used online, it is 234 million. And the data consumption in India is the biggest in world today. Next slide, Kim.

Coming to shifting the economic landscape, let us see that from the website, the alternatives like Facebook, Twitter, and Instagram has

---

come up, which are giving challenges to the websites and new opportunities.

Coming to the market consolidation, recently we have seen that Neustar has been taken over by GoDaddy. Afilias is taken over by Donuts. So basically, what is the impact of this market consolidation on ccTLDs, registrars, and registrants? Of course, the consolidation will bring better efficiencies. And whenever the changes are there, then implementation of the changes are very fast. However, from our own side, we can see that because of consolidation, it will reduce the competition. So still, we have to see impact of this market consolidation—how it is going to impact the ccTLD market share.

Coming to the new gTLD, we have seen that more than 1,500 gTLDs are on the way to get discussed and maybe approved in the coming few years in the world. These are going to be a new competition for the ccTLDs. But at the same time, they also provide the opportunities to build up a measure of gTLDs of ccTLDs that are discussed in the last] slide.

And I think what it happening now, the worry is the availability. Now, people are finding difficulty in selecting their own domain name because of the congestion within ccTLDs. I hope that the new gTLDs and new Geo TLDs will make the changes in that. Next slide, Kim.

Here, I want to say that most number of the ccTLDs are from Asia and the growth is also happening from Asia. But ccTLDs numbers are more or less stable, at 158.9 million. And we can see that notable growing

---

ccTLDs are .IN, .VN, .ID. And here, I want to inform you that .IN in India growing by 15.9% over time. Next slide, Kim.

This is an interesting slide, where we can see that in pre-COVID period, the growth of domains, quite, quite less. But during COVID time the domain has gone up quite well, as well as it has given growth to the adoption of broadband in India. You must have seen that there is a tremendous growth in both. Specifically, if you see the January '20 and January '21 figures, there was a growth of 161% in the new creates in ccTLDs. So although there was a depression in economics, I think that the digital economy has gone up very, very well and everybody has adopted that digital way of working. Next slide, please.

The next part of the presentation is about a journey which India has seen in IDN adoption that is called Aadhaar. Next slide, please. Why IDNs? We have seen that 80% of the Indians are non-speaking and in the rural part, which constitutes more than 70% of the country, only 33% of the people have adopted internet. And that is why adoption of internet is very important in the local languages. So we have gone full-fledged in adoption of IDNs, right from 2007, 2008. And let us see the learnings. Next slide, please.

Here, we see that there are learnings on variants, both homophonic variants and homographic variants. I'd like to tell you that this has given a lot of influence to the world. And IDN adoption in various parts of the world have taken cues for the learnings from India. And variant is important in discussions in ICANN and ccNSO, even today. Next slide, please.

---

Another important learning is that when we were having a sunrise period, we have adopted three sunrise periods rather than two. It means that we have also taken the consultation from .IN users—that is, registrants. Result is that in the last 10 years, approximately, we have zero .BHARAT disputes. Another issue, which when we started IDN, was that everybody has to fill out the Unicode, which gets converted into Punycode. And it was very, very difficult. So on the journey, we have got a URL replacing the Unicode, which has made the life very simple for everybody. Next. Next slide, please.

Now here, what we are doing to increase the adoption of IDNs is that are offering a .BHARAT free along with .IN. We are also offering a free email with .BHARAT. We are engaging the communities and we are generating a lot of content by generating a lot of contests and also a lot of challenges for the people. Now here, the lesson is that .BHARAT still is less in uptake and IDN is not yet accepted, mostly by the emails and websites. So this is a hard work which we have to do for the future ahead.

Next slide of the presentation is the local content is generating very heavily in India. And India may become a content factory of the world in future. Government of India has brought a national language promotion mission, which will remove the barriers of language from one part of the country to another part of the country. Maybe this may give a new way to the world, that a Spanish talking to a Hindi man in India will not bother to see the language translation and they should be able to talk to each other without any barrier, without any thinking.



---

Next slide is the change in the security. Next slide, please. Next slide, please. In India, we have developed a DNS health determination tool with a lot of facilities which are mentioned on the right-hand side. Of course, this is not new. But this is definitely ... We are one of the first nations in the developing countries to adopt this. Next. Next slide, please.

We can see the three technologies which are being discussed, which are coming, are DANE technology, DoH and DoT, and Blockchain, which Olaf has also spoken about Blockchain. Although these technologies are providing security on one hand, but at the same time, there are concerns which have been raised by various people, including the lawful interception agencies, how to monitor it and how to take it.

So I think it is very, very important to see that ccTLDs may learn from all of us. India is adopting DANE, which is now under trial in UK and in Canada. And we hope that we should be able to build up a lot of applications on Blockchain also.

My last block of presentation is internet governance. Next slide, Kim, Next slide, please. In the internet governance, India has declared the support for multistakeholders in ICANN 53 and not only we are supporting, but we are following this. At the national level, India conducts multistakeholder in developing the policy not only for internet but for other areas also.

Why a multistakeholder? We feel that it should be access to everybody, all stakeholders. Now, the concern of the data protection and cybersecurity are prominent and I think everybody's talking about this.

---

And the most important is India is going for a digital economy, which is going to be the third largest digital economy of the world, of \$1 trillion but 2024. So it supports the sustained growth of the digital economy. Next. Next slide, please.

Now, this is what has been discussed by Olaf initially, is that various countries are bringing localized policies in their internet. But are they localized and having impact locally? Or they are going to have impact at the international level? I think it is important to understand what these local laws are there? What compulsions are there to bring these local laws? And what is the impact on all these things. Similarly, the impact of various technologies, which have been developed IETF, IEEE, ETSI, ITU has an impact on the overall ecosystems. Next slide, please.

And the last presentation and the last slide—next slide—is the future ready? Now, that is what I want to pick up from Olaf's presentation also, that there is a need for regional collaboration and support. Tomorrow, we want to see an internet where the countries are joined together at the regional level and at the international level. So this will help us to take internet to the next billion people and also to remove all the problems, including the DNS abuse what are there today.

The new gTLDs and Geo TLDs, they provide hyperlocal extensions to ccTLDs. There are opportunities, as I discussed, and there are challenges, also. There may be a majority of ccTLDs and gTLDs in the future and it provides the opportunity for the registrant. Whether ccTLDs are ready for this, I think this is what we have to see for the future.

---

Another important thing for the future is, as I said, the IDNs are not yet fully universally accepted. And even the email address internationalization is yet to be implemented fully. And I personally feel that it is very important to provide internet in local languages for creating the next billion users in the world.

Another thing, and the last thing which I want to discuss is the emerging technology and improving the security and impact of this on ccTLDs. Whether these emerging technologies are a help to ccTLDs or they are a threat to ccTLDs, that is what I think every ccTLD manager has to look into it. At the same time, I personally feel that when technology is developing, at that particular time, intervention by ccTLDs is important because once the technology is developed and implementing, changing those technologies at that particular time becomes difficult.

So, ladies and gentlemen, thank you very much for patient listening. Thank you.

SEAN COPELAND: Thank you so much, Anil. Does anyone have any questions for clarification? None? Okay. Anil, thanks so much.

ANIL KUMAR JAIN: Thank you.

SEAN COPELAND: Moving on, our next presenter is Roelof. Are you ready to go?

---

ROELOF MEIJER: I'm almost ready to go. You saw this very fancy background that Olaf had, his slides behind him. When we had our trial, he explained to us that this was very difficult to realize. So I took that as a challenge and I hope it works.

OLAF KOLKMAN: You are cheating. You're using Zoom.

ROELOF MEIJER: Since when is using the easy way cheating? Okay. So, I can't see myself but if all is right, you see my slides and you see me somewhere in the corner, right?

UNIDENTIFIED FEMALE: Not yet.

ROELOF MEIJER: Oh. That's strange. So what do you see? Nothing?

BARBARA POVSE: I see you and your slides. So I think it's perfect.

ROELOF MEIJER: Oh. Okay. So let me then just start. I'll just continue. I'll try to stay within 10 minutes because I think we are already running out of a bit of time. Well, maybe I should start by telling you that I'm a long-term optimist

---

and a short-term cynic, which means that I think it can be shitty every now and then, but in the end, all will be okay.

And that's also the kind of balance that I have in my trends, threats, and opportunities. I think it's always risky, in the environment of the internet, to take a very long-term future view. So I think many of the trends, and threats, and opportunities that I mentioned, you will probably recognize them or you'll see some of the things already moving that direction.

So, to start with, the ever-increasing dependency of the internet and the DNS. That's a fact already. I think the most important thing we can do there is to realize that this is not going to get less but it will be more and more.

What we do as a registry is that first of all, we have a very, very strong focus on security, continuity, and stability of our services—physical IT and data security. We research into various areas to make our services even more robust, our infrastructure even more resilient, with things like DNS cloud, Anycast, local Anycast. We're part of anti-DDOS coalition. We promote security measures that our registrars can take through what we call a registrar scorecard, which is an incentive program. So if they apply security measures and modern security standards, they will get a reduced fee for .nl domains.

And I think one of the things that really helps us as registries is if we make sure that our stakeholders and our governments know how serious we take continuity and stability of our services. And I think the only way you can really do that is by continuing the dialog and being

---

very transparent, being open to audits, following security standards, have external audits and make the results of those available for everybody.

So in the end, I think it's also something we do through our SIDN Fund, where we aim for a stronger internet and a stronger internet user. So there are several ways, as a registry, where you can address the fact that the whole world and every individual in it is continuously becoming more dependent on the internet and the domain name system. I think that if there's one thing that this whole COVID crisis proves to us, it's that.

Now, the second trend is ... And you only have had to follow today's and yesterday's sessions during the ICANN meeting and the GAC. There is an increasing pressure for from stakeholders on registries, and especially, I think, on CC registries. But we see more and more that, also, in the GAC-ICANN-gTLD environment.

And if I look at our case, it's from two distinct areas. It's from the government—our government and the European legislature, of course, and regulator. And those concerns and that pressure is about security, stability—the fact that we are a single point of failure for, or considered to be, for many services in the Netherlands.

And the other one is from our registrars. I don't know if you are all aware but our largest registrars are local, national parties—so Dutch companies. And there's quite a consolidation going on. So they're getting bigger and bigger. They want more influence on the strategy. They have a very strong focus on their commercial interest and are not,

---

per se, interested in our investments in security, research, strong users, privacy-friendly digital identities and that kind of stuff.

So we do with the government is that we anticipate what they will be expecting from us. For instance, in the fight of abuse area. And then, we move proactively before there is any pressure on us. And I think that that makes us, sometimes, a bit of a party in the group. And we've experienced that, for instance, in the CENTR environment, that peers look on with questions and think, "Why are you going so far?" But in the end, I think it's served us because our government is very convinced that we do everything that we can to keep .nl safe and as free from abuse as we can but also help to do the same for the Dutch part of the internet, so to speak.

So we collaborate with our government on security—for instance, the National Cybersecurity Center. We actively fight against abuse. So we started with notice and takedown years ago. But now, we use our own research team to develop artificial intelligence—for instance, to hunt down fake web shops within .nl. So that's quite far from, "There's nothing we can do. We are just a technical service provider."

Another thing that we try to do is take a leading position in internet security instead of passive resistance. So we give the message. We feel that we have a certain responsibility—not the whole responsibility but we have a responsibility to do what we can. And there are definitely things that we can do and we do those.

It also means—and I think that is something that might help others as well—what we noticed, the more we do, the more is asked from us, all

---

with good intentions but sometimes a bit overzealous, so to speak. So we now are thinking about forming an external ethical committee that will advise us on what kind of requests we can ethically respond positively to and what kind of requests are disproportional or should look at other solutions first. Because now, we get so many requests that we always have to decide if we react positively and deliver what is asked of us. And I think we think that it's better that we have external experts that advise us on that.

Pressure from our registrars, especially in the commercial area and on the strategy. More and more, we try involve all stakeholders. And we are going to form a strategy advisory group where we try to involve all stakeholders in getting feedback on the strategy that we follow because what we notice is that we have the data, mostly with our registrars, on everything we do and then, per se, always in favor of things that we do for other stakeholders.

Now, the every-increasing security threats, which also leads to a cost increase and some things that we do there and we foresee to increase. I think one of the most important things is making sure that you have the funds to get the experts and to get the expertise. So increasing security costs are one of the drivers in our financial strategy and our pricing strategy.

We collaborate a lot in security research with universities in the Netherlands and outside the Netherlands, even. We have just launched, together with private parties and universities, a center for security research in the Netherlands. Like I said, we've developed a lot of



---

artificial intelligence tools that we feed with our own data and use to signal certain trends and security issues.

Well then, there's something else. And I think that's something where registries, especially CC registries, can definitely play a strong role. It's a very popular topic, I think, now, especially in Europe. I don't know in other regions but it's probably in the US not such a big issue as it is in Europe. Digital sovereignty. I think a better term is strategic digital autonomy. We are more and more depending on the few very large, mostly American, tech players. And there is a clear push, and necessity, I think, to become more autonomous in strategic digital areas.

And I think CCs are one of the solutions there because we are very local. We are value-based and we can help develop alternative products and services that are more from a regional or from national service providers.

One of the things that we have to do there, but that's also valid in all the regulation and security issues, is to educate politicians and government employees. And I think, with all the changes every now and then in governments, and mostly I think it's valid for almost all countries, it is a never-ending story. And if I look our elections that we have just had, it's kind of an anachronism that we are in an era of hyper-digitalization but our politicians are less and less educated in digital economy aspects, and on internet issues, and those kind of things. So that's definitely a challenge for us.

We use a network there. Like I said, we collaborate with universities. We do a lot of activities in the area of public affairs—for instance a project

---

which is aimed at strategic digital autonomy for Europe, the GAIA-X project. We were also a contributor there.

Something that we've been discussing for years, the subsequent new gTLD round, I think there's a risk to the intrinsic value of domains. I think that was already an effect of the last round. Another round is not going improve there, I think. It is a risk for the security of the DNS and the trust in the DNS. Well, if new gTLDs are successful there is, of course, a risk for competition. But I think that there's also the advantage we will be triggered to even do better than we are already doing.

There's a risk of an unlevel playing field. That's something that we see already now, that countries are regulating or taking initiatives to regulate their CCs. But very often, that regulation doesn't apply to the gTLDs that are also being sold in that country. For instance, if there is regulation on WHOIS data accuracy in your country and you have to identify the registrant and that is not the case for a .com domain, then of course, it's much easier for an internet user—domain name holder—to register a .com domain than your national CC domains. And that is something that I think we have to really pay attention to because there's a lot of regulation and initiatives going on.

On the other hands, I think that CCs have a unique selling point. We are really focused on our local internet community. And very often, we have services that are specifically aimed at that community. And, of course, that is much more difficult to realize for global operating gTLDs. So if there's one thing that we can do there to prevent a lot of pressure from

---

new gTLDs is to maximize our value for our local internet community, be really close to our customers, and be really local.

Rounding up with hyper-digitalization and post-COVID crisis, I'll just say that times are really good now for most of us. We are expecting that there will be a slower growth, end of this year and the coming years, first of all because we are probably going to end up in a recession when we have faced the COVID crisis. But also, if that might be another effect that you reach saturations easier. Now, we get a lot of growth from companies who weren't doing business online and are doing it now. The influx, of course will be reduced as soon as most of the companies that can go online are online.

Finalizing, I think there are far more opportunities for us than there are threats, as long as we focus on creating a strong internet, creating a strong user, trying to maximize the value of the internet and of our CC for our internet community and for society. We try to take the initiative and take the lead in addressing bottlenecks in internet use and safe internet use in the Netherlands.

We strongly support innovation—for instance, with the SIDN Fund. We initiate and participate in a lot of national collaborations on innovation, the use of the internet, educating users, increasing security. There are a lot of societal challenges that we can help to address. For instance, one is sustainability. We have a CENTR project around that. I think also there, CCs can take a leading role. I would like to keep it at that.

---

SEAN COPELAND: Okay. Thank you so very much, Roelof. Does anybody have any questions for clarity, knowing that we'll have time for deeper questions in the next part of the session? None? Okay. Thank you very much, Roelof. We'll move on now to Frederico from Brazil.

FREDERICO NEVES: Can you hear me?

ALEJANDRA REYNOSO: A little faint but we can hear you.

FREDERICO NEVES: Okay. Sorry. Now it's better?

ALEJANDRA REYNOSO: It's much better. Thank you.

FREDERICO NEVES: Okay. So a little bit of the perspectives from .br. I have just two slides so really brief. So from the early beginning, we started as a registry within an academic network. So we were, in the early beginning, inside of the academic network in São Paulo. That's the way we have started. Especially, the domain names at the time were for free.

But with that, we had a lot of participation, especially creating the national network operators group, something that we have been running for almost 25 years now. And this leads us to basically start to

---

have services along the registry for internet exchange points. We became the national internet registry for IP addresses and autonomous systems. And we started to provide a lot of training in the areas of internet. And we became an ICT stats center for those technologies here in the country. And we became, already, the CERT+ resource and started to help the create new CERTs inside of the country.

So with all that history, in the end, today we run a quite sizeable registry. We focus only on the local market. .br domain names are only for people and organizations with a presence in Brazil. We provide internet exchange points in 30 cities in the country. Brazil is a very large country. And some of those IXPs are more than 3,000 kilometers away from the financial center of the country. Some of those IXPs are the largest in the world, even in autonomous system members or even traffic.

One of the areas that we have tried to focus during all these times, in our core services—so trying to be vertical as possible and as efficient as possible. And with that, we take the full advantage of the economy of scale and how we could influence the market, per se, and try to push good market models, especially the ones that create customers in a fair way, not even only with bait marketing campaigns or stuff like that. So this is something that we always had in sight as a how to provide quite good services to our customers. Next slide, please.

So trying to talk a little bit regarding Olaf's keynote in the beginning, if we look historically, we have very well aligned with properties three and four of the Internet way of networking. So in trying to promote

---

these improved networks or new technologies in the network in the 20+ years of NOGs and trainings, we pushed quite hard for the autonomy of those networks here in the country, and not by chance. But anyway, Brazil is probably the second largest country in the world in autonomous system number. And this was basically us trying to push autonomy to those ISPs.

By the way, Brazil still has more than 20,000 ISPs in the country from mid to small sized ones. As I said, it's a quite large country, 5500 cities. So trying to push those ISPs to become autonomous and independent and having their own IP addresses and the capacity to route it, and it's helped a lot with the reliability of the network. And in part of those properties that ISOC's trying to show us that that's the way that the network has grown and those are the properties that we have tried to improve.

And we tried, in that time as well, to give back to the community, helping the deployment of some of those technologies and the way we have been helping organizations around the world, providing free software to some of those new technologies. One of those parts that I think the future of the ccTLDs, and especially of small country ccTLDs need is to try to cooperate with peers on research, but especially on infrastructure exchange. We have to take advantage of the local presence of our fellow ccTLD friends, and we have to take a balance on being along or sharing of those services. We have been doing this for quite a long time, and from our perspective, it sometimes is much easier to buy services from somebody else. But in the long run, it's better to be

---

together with friends and organizations that share the same principles and properties of our operations and have a much better result.

Being part of regional domain name associations are very important as well, like LACTLD here in the Latin American region or CENTR and the others in other parts of the world. And cooperating on those organizations like in projects like the one that we have here in LACTLD that we have operated by the members, Anycast network especially for those small ccTLDs.

Another point that is very important, shiny, as Roelof said, we have to be as participatory and vigilant as possible in security and stability matters. And I mean vigilant because we have to be always paying close attention to the main threats and situations that we are facing, but we have to be participative, especially with our local governments. And as Reolof said, some local regulations could impose because they have a reach to the local organizations and to the local CC, and the way that we provide services in light of those new and possible regulations and local law could impose a very difficult time for us, especially to compete with the gTLDs from out of reach of those legislations or with very difficult enforcement possibilities.

So basically, that was the comments that I would like to add.

SEAN COPELAND:

Thank you so much, Frederico. Does anyone have any questions that they'd like to clarify? Nobody. Here you go, Leonid is asking, Frederico, do you implicitly imply that the key to success is universality?

---

FREDERICO NEVES: If he means universality as a single namespace and global reachability, definitely, yes, and another point is that one of the things that is very difficult to at least today for ccTLDs or main TLDs is try to sell and show what are the benefits from the freedom of having your own identifier and promote this identifier and not be relying on, so to speak, walled garden identifiers, being Facebook, Instagram or others. So it's very cheap and is very reliable to promote and to ... it should be clear to Internet users that the way to be independent and take care of your future, at least on identification and reachability in the future, is at least for today, have a domain name and promote it and not rely exclusively on private identifiers. But I don't know if I answered your question.

SEAN COPELAND: Leonid, do you have a follow-up to that?

LEONID TODOROV: Thanks. Hi Frederico. Thanks very much. Actually, my question was rather about that set of services and duties for the nation that .br is so famous for which helps a ccTLD to retain and promote its unique standard as a kind of indispensable organization. It's not just the key to success but also survival and development. Thank you.

FREDERICO NEVES: Oh yeah, I understand now, Leonid, what you meant. I believe so, but this is definitely not something that we had in mind when we stated to



---

provide those services to the country, and the history of the Internet exchange is it was actually more—as we were the most—at the time the project was taking place, we were the most neutral organization, it became clear that it was best for us to run those, at least this central part of the coordination. And we don't know how this will play in the future but that's the way it went to.

But it's a tricky question in some sense because we are a not-for-profit organization. We have a Board that has some influence from the government, but anyway, when you are inside of a country and you are in the reachability of the law, and even if this law doesn't exist, there is congress who'll pass new legislation anyway. It's a delicate situation. So that's why I said that we have to be always participative and vigilant and so in light of the initial Olof keynote and to try to keep the Internet the way we like it.

SEAN COPELAND: Leonid, does that answer for you?

LEONID TODOROV: Yes. Thank you very much.

SEAN COPELAND: Thank you. Any more clarification questions? Okay, thank you very much, Frederico. I'll turn it over now to Biyi for a couple minutes of actual questions before we start heading into a break.

BIYI OLADIPO:

Thank you, Seun, and I would like to say big thank you to Olaf, Anil, Roelof, Frederico for the great thoughts that you've shared. For me, it's been a very interesting time and I'm sure a lot of people have been a good time to.

So we would have about ten minutes of questions before we go into the break. There's going to be a break at 21:00 and then we will reconvene at 21:30 to continue the discussions. So if you have a question, there are two ways, as Kim had mentioned to us earlier. You can either raise your hand if you would like to speak out your questions, or you can go into the chat room and put on the questions. However, to kick off this section, I'd just like to ask a couple of questions and take it from where Frederico ended in his thoughts. And I would like to ask this to all of the participants, because it's something that came on from the discussions that you all heard. And that's the part of cooperation between ccTLDs and various agencies. So I would like to know what your experiences have been, looking at where we are and going into the future for ccTLDs. So I'd like to go through all the panelists. Let's hear from you, what have your experiences been as far as cooperation between ccTLDs are concerned? Maybe we'll start with Anil, and then we'll go to Roelof, Frederico, and if Olof has any thoughts about this, we can take that too. So Anil, you first.

---

ANIL KUMAR:

Thank you, Biyi. I can divide this question into two parts. One is the cooperation from the local entities and the second one is the cooperation from nearby ccTLDs and other community members. As far as the local participant, which is government or private, or even the prominent gTLDs are concerned, let me inform you that the cooperation which we have received at various instances are extremely good. That is why ccTLD is able to grow very fast. And let me inform you that most of the government departments have already adopted .in ccTLDs and most of the government information, G2C, is being passed through .in domain.

Coming from the cooperation from the nearby ccTLDs, let me inform you that we are very fortunate to have a wonderful cooperation from APTLD, from ccNSO and also from [APNIC.] I also want to inform you that we have taken a stand where we would like to have a handholding to those countries which are not yet part of ccNSO and those countries who are not able to implement IDN, because India is the only country which has IDN in 22 languages which are all official languages of the country. So we are now in touch with Cambodia, Bhutan, we are trying to get in touch with Bangladesh and Sri Lanka to help them for implementation of their ccTLDs, IDN, by sharing information, by capacity building, by sharing the expertise, and even if the funding is required, providing them the commercial aspect. Biyi, thank you.

BIYI OLADIPO:

Thank you very much, Anil. Roelof.

ROELOF MEIJER:

Thank you, Biyi. It's a bit of an open door, as with all collaborations. So if interest are aligned, collaborations go well, if interests differ, then it's a difficult thing to really reach mutual goals. But in general, the collaboration with different government institutes on security, abuse, those kinds of things, it goes pretty well. And I think what we understood in an early phase is that as a civilian, I think we expect our governments to take care of us and to protect us against all kinds of things not working and threatening our security and our privacy. But if you're an organization that benefits from the focus of the government, sometimes you've got to feel different because governments have tendency to be over enthusiastic about regulation.

So I think it's important to show your government that you take your job very seriously and that you want to collaborate, that you proactively take your responsibility. And I think that's a very good starting point if you have a reasonable government. And I think in the Netherlands, although we complain of course all the time, who doesn't? But I think we are blessed with a pretty reasonable government.

So yeah, I'm quite happy about that, which doesn't mean that it's always a success and we always are working on the same lines, but in general, it goes well. I think one of the things that is the most—and I think we should understand it from government, key is showing that you feel that you have a responsibility. And for instance, I remember that when I joined this industry 15 years ago or something, most registries were adamant about not being part of critical infrastructure,

---

and we are not critical infrastructure but our services are critical to our country. But if you deny that, then government officials who are fairly educated in our industry think, “These guys don’t realize how important they are, so they must be negligent about the security too.” So yeah, take yourself and your responsibility serious. I think that’s key to a good collaboration with a reasonable government.

BIYI OLADIPO:

Thanks, Roelof. And Annebeth put in the chat box that public/private partnerships are very critical when it comes to things like this, and I quite agree on that. Our experience at .ng is something that has shown that we can have private sector drive things like this and then have the support of government to actually deal with the sovereignty part of it. Thank you so much. Frederico.

FREDERICO NEVES:

Definitely. You have to go hand in hand with your government and probably a lot of the CCs here run the second level for their governments or have relationships with the law enforcement in the country or even the judiciary powers. So you have to take this very seriously. But if you meant in the collaboration in the private sector and with other CCs in your main question as well, I think the operational collaboration with other members, especially in the region, it’s very key for success of our organizations, and we take this as well very seriously and participate as much as we can in those organizations.

---

BIYI OLADIPO: Thank you so much. Olaf, you have any thoughts on this?

OLAF KOLMAN: I don't work for a ccTLD, which means I cannot directly comment. But one thing I found interesting in what Roelof says is the incorporation of an ethical commission in what they do when trying to be proactive. I think that's an important, smart aspect of doing this type of work, because there might be a risk that you're overzealous in what you're trying to accomplish.

And another thing that Roelof said in the Netherlands, we trust our government. Yes, we're a very low context and high trust society, but that's not a global given. So what works for Roelof and his team might not work for other teams around the world.

And obviously, the relationship with government might be different in other localities. And so the tussles and the questions that you have and the pushing away regulation or embracing regulation or being proactive, that makes this completely different in different localities. So I think this is always tailor made.

BIYI OLADIPO: Thank you. And I quite agree with you too. We have a comment from Javier who says ccTLDs are sovereign but governments are more sovereign, and there are quite a number of agreements. And I agree with that, and my comments earlier is the fact that whatever ccTLD you

---

represent, it's the government that gives the legitimacy and the sovereignty to it.

Now, we have a question here from Margarita that says, do we have something to do to improve participation of our governments in the GAC? So that takes from the collaboration with governments [part of it, do we have what we can do?]

Okay, now, the thing is this. We should be at the end of this question and answer session, so I'll hand over back to Sean and then we'll go on the break. When we come back from the break, we'll start with Margarita's question and we'll take the discussions from there. It's already getting very interesting, and I'm looking forward to what the part two will look like. Sean.

SEAN COPELAND:

You and me both. So I do want to thank all the speakers. A quick walk through. Olaf gave us a beautiful if dystopian view of a potential future and walked through the five points to avoid it potentially. He was giving real-world examples and I thought his comments about IDN and e-mail actually were pretty relevant, and then dovetailed into a whole concept of cooperation, funnily enough. And then when Roelof was speaking, he's talking about the issues and concerns, and what struck me was or jumped out at me was the question about the dystopian future, the potential and the community standards on the other side and trying to balance those two. So I'm hoping that we kind of flesh that out going forward. And obviously, Frederico brought up the cooperation point.

---

The other thing that I was thinking about that was interesting in all of this, if you're interested in what Olaf was saying, I'm going to plug it, we have this IGCL working group. This is an area where we talk about some of these issues in breadth and depth, and if you have a lot of interest, thinking about joining, it'll be good. Otherwise, we're running a little bit ahead of schedule. We've got about a half-hour break, hour break, so we'll be back at 21:30 UTC, and I'm looking forward to seeing how the next round goes, and I'm hoping you guys have some pretty good questions for us.

**[END OF TRANSCRIPTION]**