COPENHAGEN – Fellowship Program Morning Session
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UNKNOWN SPEAKER: Good morning. March 14th, Fellowship Program Morning Session.

SIRANUSH VARDANYAN: Hello. I'm Siranush.

[SPEAKER OFF MICROPHONE]

Okay. Good morning, ladies and gentlemen. I welcome you for the Fellowship Morning Session. And we have a couple of presenters, several presenters coming here to talk to us. And with great pleasure, I would like to introduce you, our first presenter, the representative of GAC, Governmental Advisory Committee. And Gema, if you can introduce yourself. Tell what country you're representing in that system, and tell us a bit about the structure of GAC, and just for five, 10 minutes.

And then we'll use our 20 minutes to interact with you for question and answers. Thank you very much.

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GEMA CAMPILLOS GONZALEZ: Thank you very much for inviting me to this Fellowship session. My name is Gema Campillos [inaudible]. And I represent the government of Spain in the Governmental Advisory Committee. I'm also the out-going Vice Chair of the Governmental Advisory Committee. This is my last meeting as Vice Chair.

The Governmental Advisory Committee, it's one of the advisory committees to the Board. And after the transition, has also become a participant in the empowered community mechanisms. The GAC has currently 171 members. Members are countries, or territories, as well as the distinct economies.

Under this title, the European Commission, the European Union, represented by the European Commission, and the African Union Commission, are also members of the GAC. And we also have 35 observers. Observers are international or treaty organizations. The GAC has a Chair, and it also has five up. It can have up to five Vice Chairs.

Currently, all of the Vice Chair positions are covered. The ones that will start their term as Vice Chairs, as of the next meeting, are from China, Egypt, Peru, United Kingdom, and I think I missed someone. It will come to my mind, I don't remember it exactly now.

And the GAC has the support of a Secretariat. It follows a hybrid model. ICANN staff lends its support to the GAC, with dedicated personal. And the GAC has also selected and contracted, through ICANN, an independent consultant, which is the Australian Continuous Improvement Group. And they've been in office for two years now.

The GAC considered it important to have an independent Secretariat in order to prepare the meetings and the intersessional work. The issues that the GAC look at in their job, are issues that have public policy ramifications, or public policy interest. Among our areas of interest, I can mention consumer trust and consumer protection. For instance, the GAC issued in 2007, principles for the introduction of new gTLDs, and as of the new gTLD round started, we developed a different pieces of advice, and reflected in our communiques or letters.

GAC also look at law enforcement issues, prosecution of crimes, and kind of offences related to consumer protection. The GAC is also considered about universal access to the internet. And it has focused, for instance, on the introduction of IDNs and multilingual domain names. And it has a dedicated group closely following issues that effect countries in less developed regions.

We also focus on relationships between country top level domains managers, and governments. You know that some ccTLDs are run by governments, but in our countries, they are run by independent entities, but they are a representation of the countries so it has been our understanding [inaudible] for the GAC. The GAC issued principles on the administration and delegation of ccTLDs in 2005. And adapted then to the introduction of ccTLDs made of IDN [inaudible] in 2010.

And among other areas of concern, we look at privacy issues. And in this regard, the GAC agreed on principles about WHOIS in 2007, now we are still using with relation to the introduction a new registry directory system, that we replace WHOIS. And lastly, we also pay attention to the protection of trademarks, copyrights, other identifiers.

For instance, about this area, not the full support of all GAC members. We had worked very hard on the issue of the protection of geographical indications, and geographical, cultural, political names and acronyms. How do we work?

The GAC has its own operating principles, the bylaws recognize the autonomy of the GAC to have its own procedures. So, we have our own operating principles that are under review now, because we have to adjust into the new functions that the GAC

will have to develop in the empowered community, community mechanisms.

It's been a long standing working method in the GAC to try to achieve consensus in the sense of the full agreement of the GAC, to advise that we deliver to the Board. And the only instances in which we vote is when we elect our officials, when we revise our operating principles, although the last revisions that we made were agreed by consensus.

In 2010, the GAC started having high level governmental meetings. The first time it was in Canada. And then it followed a meeting in London. The last one has been in Marrakech, and the next one will take place in 2018. These meetings aim at raising awareness among our high level officials, or Secretary of the State level.

And tried to appraise them on the multistakeholder model, and to have them express their views on ICANN and internet governance in general. The GAC has several working groups. We have working groups on underserved regions, as I mentioned before, on the protection of certain geographic strings as well as on public safety.

This is one of the most active important working groups of the GAC. There is another one on the participation of the GAC in the NomCom. And there is another one on international law and

human rights. And the GAC also participates in cross community working groups, notably the CCWG on accountability on transparency, for the transition of ICANN.

And any other that can be created in the future, and that have an interest for the GAC. We also try to participate in PDPs, that are developed in ccNSO or GNSO. Policy development process, it's the way that ICANN produces norms, and they follow the bottom-up process. They are proposed by the community and the GAC has been asked repeatedly to try to contribute early in that process, instead of coming at the end of the process giving advice to the Board.

So, this is what we are trying to do. And the GAC has also been asked to be more transparent, and this is why we stopped having closed meeting. At the beginning, we had closed meetings, and now all of our meetings are open and anyone can come. Even when we draft our communique. The communique, it's the most possible way GAC has to issue its advice.

It is released at the end of any GAC meeting. GAC meetings meets back to back to ICANN meetings, but it's not the only way that GAC issues advice. It can do so by letters and by the Chair. And any other statement like the ones I mentioned before on the gTLDs or the administration of ccTLDs.

Our advice tends to be of a general level, not commenting to very, a lot of detail, precisely because we have to get consensus. So, if you want to have consensus, sometimes it's impossible to have everyone agree on the details. Then we have travel support funded by ICANN, that allows 35 members to come to GAC meetings, free of charge, and five of service in the same manner.

And finally, if you want to learn more about GAC, you can go to our website. You can find it through the ICANN website, that if you want to go directly to it, you can go to www dot GAC dot ICANN dot org. That's all for me.

GAC. Governmental Advisory Committee. Thank you. I will be happy to try to answer the questions you may have.

SIRANUSH VARDANYAN: Thank you Gema. Thank you. And I think we will have a lot of questions to you, so we'll start without further ado. Please.

UNKNOWN SPEAKER: Good morning. My name is [inaudible]. I'm a first time Fellow. I'm not a newcomer, though. My question is, in your opinion, overall, how influential do you consider the GAC advice?

GEMA CAMPILLOS GONZALEZ: I regard this GAC advice as influential, because we carry the public policy view to ICANN policies, and as I mentioned, although ICANN produces a very technical aspect of the internet, which is domain names and IP addresses. And regulates that through contracts. There are some aspects in which their regulations impact on public policy interests, like privacy, like the protection of cultural identities.

And the means that flow from law enforcement. Alias have to prosecute crimes, for instance, when trying to find out who is the culprit through WHOIS databases. And I've got to say that our advice carries a lot of weight. And the Board has traditionally paid attention to our advice, because of that weight it has, which doesn't mean in that we agree all of the time with the Board, or saying it properly that the Board takes really into account what we say.

Lately, it's been more difficult for the Board to accept that [GAC advice?], so we are bumping into problems, because of procedural reasons, because we come at the end of the process and the Board finds stuck between conflicting views. The one that comes from the community, GNSO and ccNSO, an the one that comes from the GAC, and it's in a difficult position to reconcile both.

UNKNOWN SPEAKER: The thing is that the policy is not developed by the GAC, right? It's developed by the community. And that it comes to the GAC for the advice part. And so, it's not really, I don't see it as a, there is a conflict between what's developed by the GAC and what's developed by the community, because it's always developed by the community, and then it's GAC's opinion and other advisory committee's opinions on the policy.

So, it could be the other advisory committee's conflict with the GAC advisory committee conflict.

GEMA CAMPILLOS GONZALEZ: Yeah, maybe that. We advise on different matters, but usually it's not the GAC's view, sorry. It usually is not… There is not a conflict of views between advisory committees, because as SSAC, for instance, advice is very, very technical issues, and we tend to respect what they say because they are the experts on technical matters.

And very often, we also have very aligned views with ALAC, for instance. Conflict arises more on the other…

SIRANUSH VARDANYAN: Gema, ALAC is At-Large Advisory Committee. If I could request you avoid any abbreviations, because these are the team of newcomers, so they have no idea what you are talking about. So

please, avoid, as much as possible, the abbreviations as possible.

I didn't keep the turn, but please. [Inaudible]…

SIMON: Hi, Simon from Bangladesh. Good morning, ma'am. Nice presentation. [Inaudible] we didn't understand about GAC, so now we understand what is GAC. I'm pretty disappointed, I just searched within the website and found that nobody from my country is representing in GAC. So, if my government is not interested, do you think, do you allow anyone else from that country to be a member of GAC? This is my first question.

Second question is that, how can…? What is the message I can take to my government? Because I work in my regulator, once upon a time. So, what the message I can take from you, and I tell them yes, this is why you should be part of the GAC, and come to the next meeting. Thank you.

GEMA CAMPILLOS GONZALEZ: May I ask you, which country you come from?

SIMON: Bangladesh.

GEMA CAMPILLOS GONZALEZ: Okay. Yes, there are a few countries and territories that are not yet members of the GAC. The GAC, in conjunction with ICANN, makes outreach effort in order to invite other countries to become members of the GAC. Maybe you can go to your country and talk to your government, and convenience them or persuade them that they should come here.

Why they should come here, because first of all, there may be issues that affect their people directly. Like policies that can have an impact on dot ccTLD. And because it's also a way to learn about the multistakeholder model, which is a model that, it's the new way in which international relations, and international coordination is going to take place in internet issues.

So, if your government is interested in internet governance, and I guess it's interested in issues like access and equal participation. So, ICANN is a learning experience for the multistakeholder model. So, this is what I can tell you about it. Thank you.

SIRANUSH VARDANYAN: You will come to your turn and do it. We have Andrew and [inaudible].

ANDREW: Thank you Gema for the presentation. My name is Andrew, and I'm a Fellow, and I'm from Fiji. And I know Fiji is represented in the GAC. You mentioned something about offences related to consumer protection. Does GAC invite consumer council, protection council from around the world? And if so, how do they manage the differences between the government and consumer council?

GEMA COMPILLOS GONZALEZ: When you mean consumer council, you mean not the part of the government in charge of protection, but the…?

[SPEAKER OFF MICROPHONE]

Yeah. Another word that an international organization dedicated to the protection of consumers, is part of the GAC. But, certainly, some of GAC members come from governmental offices in charge of consumer protection. So, we also cater for the interest of consumers. GAC members come from different areas of government, because it's up to its country to decide which representatives it has, but there are people coming from consumer protection offices.

They are also coming from ministries of technology, ministries of economy. There are people coming from the ministry of foreign affairs. There are also people involved in data protection. So,

we have representation of more or less all of the interests that can affect public.

SIRANUSH VARDANYAN: There was a brief comment given by Albert Daniels, our global stakeholder engagement manager for Caribbean. That there are 12 Caribbean countries in the GAC, and [inaudible] has just requested their membership as well. So, share with you.

DAVID: Thank you very much for your presentation. My name is David [inaudible], I'm also a first-time Fellow. And first-time attendee. Now, you said that you think that the GAC has sort of a, you know, a strong enough perspective that the Board usually takes into account. Now, my question is, and I'm assuming you will answer in your personal capacity, not in your capacity as representing the GAC.

Do you think that the GAC should have a more important role in the structure of ICANN? Or do you think the way it is now is okay. I mean, basically the less charged question would be, what do you think the GAC's role should be within the structure of ICANN? Thank you.

GEMA CAMPILLOS GONZALEZ: I think it's fine that we have an advisory role, since most of the issues ICANN takes care are of a technical, very operational nature. So, don't need to interfere in that field. And in the areas where these policies touch upon public policy interests, an advisory role, it's enough, I think. Where it's important that when it comes, that the various clear public policy interests affected, this would will by all parties of the community, would consider ourselves as part of the community, and engage in constructive dialogue to try to see if an agreement that satisfies or interested in sight.

What is not so okay, from my point of view, my personal point of view, it's the way GAC makes decisions. The fact that we rely on unanimity to issue advice, prevents us sometimes to have a say on issues that lots of the members and observers have a common view. So, we have problems in overcoming the blocking positions of maybe a small number of countries or observers.

And from personal point of view, that prevents the GAC from fulfilling its role, because if we can't agree, we are not issuing advice. So we are depriving ICANN from having an input from the public policy perspective. So, more than asking for a stronger role in ICANN, I could ask for more flexible way of deciding within the GAC. But, this is up to us.

UNKNOWN SPEAKER: Thank you. I'm [inaudible] from Georgia, and I'm a newcomer, so other guys in this room. I have two short question. One is related to this, activities of the GAC in the last year. Can you tell a little bit more about the last, most important, advice of the GAC over the last year? And the next question is related with responsibilities of the observers.

Please, could explain to benefit about the responsibilities? How they're covered the countries, how they covered the local NGOs, [inaudible] inside the countries? Thank you.

GEMA CAMPILLOS GONZALEZ: About the work of the GAC in the last year, this is 2016. I could say that the most important meeting was the one held in Marrakesh, in March last year, because that was when the GAC kind of endorsed, or expressed no objection for the transition, according to the proposal that had been presented by the accountability and transparency cross community working group.

This is… That was a historical moment, when ICANN, sorry, the GAC agreed in giving its green light to the new structure of ICANN. Apart from that, we also issued advice in relation to something that is sensitive to governments, that it's the nature

of the use of two character codes in the second level. The GAC had previously issued advice on that part, and we issued some other pieces of advice in 2016.

And in December, last year, ICANN put an end to this track, and decided… They said they took into account our advice. The whole GAC, well maybe not the whole, but most of members in the GAC they decided against the advice of the GAC in that issue. And regarding the responsibility of end user, I'm not quite clear about your question.

UNKNOWN SPEAKER: I mean, observers of the GAC.

GEMA CAMPILLOS GONZALEZ: Observers. They represent regional interests. For instance, a couple of three organizations in Africa, they are represented in the GAC, also in Asia and in America. Sometimes, they bring the voice of those countries that are not present, for instance, Bangladesh. I think they are useful in conveying interests of wide regions, and in the case of sector organizations, like UNESCO, or International Olympic Committee, Red Cross, or whatever, they can inform the GAC and illustrate and recharge our debates with the perspective of the work they carry out in the fields.

Some of them have been especially affected by the round of new gTLDs. For instance, International Olympic Committee and Red Cross, Red Crescent, and the bank of IDOs because they wanted to have their acronyms, and are names protected on the top level and second level.

So, they've been advocating for the protection of [inaudible]. They definitely have a role to play, and [WIPO] for instance, it's also very active as well. And it can brief the GAC about the state of international law in the field of geographic indications, and trademarks and so on. So, they are [very informative?].

SIRANUSH VARDANYAN: I know that there are a lot of questions to you, but I think our session with our government representative GAC advisory committee representative, is already ended five minutes ago. And we need to invite our next presenter. But I would request my Fellows to send their emails to me, as GAC policy, the support staff, she agreed to collect all of your questions, and we'll come back to, with the responses.

So, please, send them to me, and I'll make sure you'll get answers to your questions, or during this meeting, take time to go to GAC sessions, and try to find more, and ask questions to the representatives also, sitting there and discussing.

With that, I would like to thank Gema. Am I pronouncing your name correctly?

GEMA CAMPILLOS GONZALEZ: Perfectly.

SIRANUSH VARDANYAN: Gema. So, thank you very much for coming. And we'll come back with more questions. With that, I would like to invite our next presenter, Richard Lamb, who is ICANN staff, and who is the greatest person I haven't had the privilege to know on security issues. And he will talk with us about DNS abuse.

And Richard has the full 50 minutes, I think, located today. So, I think Richard will present a bit at the beginning. We'll not go through his whole PowerPoint, it's about more than 100 pages, but we will come up to a lot of questions to Richard. So, yes.

Yeah, I know Richard doesn't like to sit. He wants to walk and talk to you. Richard, welcome.

RICHARD LAMB: Thank you very much. That's a pretty amazing introduction. There is no way I could first follow the GAC's session, which I thought was very interesting. I always learn every time I see that.

Question. Do you have my slides?

Oh, you do, okay, wow. All right. Yeah, just go to the very end. So, I'm just going to go backwards, because most of the time, I was taught a long time ago… I'm an engineer. But for a very short time, I thought, I felt very lucky in life, some of you heard this story already, so I'll make it short.

Very lucky in life, having startups and doing business, and you know, being blessed. Easy rule of law, very startup companies and stuff. But I worked for the government. I worked for the US State Department for a while, and wow. Boy. You know? That was really hard. But what I learned is communication. Well, hopefully I've learned. I'll look around, as soon as I see people falling asleep, I'll know that, you know, I failed that.

And they told me, always right newspaper style, go backwards, right? What's the point? Why do people care? So, I'm here to talk about law enforcement, DNS, ICANN, our relationship with law enforcement. The DNS abuse, so I'm looking around here. You're all relatively technical, you understand the DNS. I'm going to skip all of the basics. All right?

And I'm going to go backwards starting with some of the cases that we've had recently. I'll wait for the slides to show up here. But, so cybersecurity is something on everyone's mind lately.

And it has caused a lot of problems. Remember, who has heard about Avalanche? Okay, good.

Who has heard about the DYN attacks? Wonderful. Okay. So, some of you were in the ccNSO tech day, I hope, because there were two presentations there, I'm just going to cover a little bit of those two things. Those are recent things. Let's… The only thing that matters, what's happened now?

I asked my like 20 year old somethings, they only care about what is going on now. They really don't care about anything else. And so, the DYN attack, you know, people said that's an attack on the internet of things, right? I hate that term, internet of things. It's just even internet thing, they were just cameras, poorly configured cameras.

Point is, that really doesn't matter, okay, that they were poorly configured or what they were. What I think matters and what I think ICANN can help address, or this community can help address is, what that's done is scared people, and it has scared people and therefore it scared governments. It scared politicians, okay?

And I'm only talking about American politicians, but when I worked in government, politicians, they love this. They like to be, they like the press, they like to be in front of the camera, looked like they're doing something, okay, all right? And that

from a very recent conference in San Francisco called RSA, a big one, a number of presenters said, that's the fear.

So, now all of the sudden, there is going to be a desire to regulate too much, right? To kill the ICANN… Sorry, not ICANN. Did I say that? The internet goose that laid the golden egg. I mean, ICANN plays a very small part in all of this. You guys, all know this, right? We have no statutory authority.

We are just the favorite root server that people like using. Anybody can do the root thing, nothing special. So, what I see is one of the most valuable things that we can contribute, is helping, not only governments, and law makers, and politicians, but helping people in general understand how this stuff works.

You guys now have a pretty good understanding of how the DNS works, name, number, how we get information on the DNS, WHOIS. How many people know…? If I say WHOIS, raise your hand. Good, perfect, okay. Is the WHOIS data perfect?

It's very bad, right? And that's something that we actually work on. It sounds very boring, but it's one of the things we work on, in policy at ICANN. And it's something that, yes, many of you probably also already know it has been a battle that's been fought for many, many years, okay?

Law enforcement says, we would like to make, we want to enforce requirements on people to make this information exact. That costs money. So, there is then the counterarguments, you know? You're going to crush our business if you make us go to each person's house and verify this stuff.

Whatever. I'm not going to pick a side. All right? But this argument continues. So, while those discussions are going on, okay, well, ICANN is a waste of time. I'm coming to this thing. We've been fighting these battles for 10 years, we still haven't gotten anywhere, so you know, what are we doing here?

For both the DYN and the Avalanche and many cases, in the past, the [inaudible], I wish my boss, John Crane was here, but people that are directly involved with some of these big virus takedowns, or [inaudible] takedowns. What has always worked is cooperation. And I know you've heard that over and over and over here again. Be cooperative. Be cooperative.

Most of us spent late hours into the night, doing our job, having discussions with our colleagues to maintain that cooperation, to keep those channels open. And so let's start with Avalanche which is a relatively recent takedown that happened 30th of November. Europol, Interpol, German, started with the German police department. They found this problem that actually chased it, tracked it down.

But it also required the cooperation of, I wish I had the slide here. Actually… At least 20 or 25 different ccTLDs. Different governments and ccTLDs. Companies that we don't necessarily… Just go to the very end, if you can. Companies that governments don't necessarily all have multilateral agreements with. Okay?

So, there is no direct jurisdictional… You have jurisdiction problems. But what can you do? In anything like this, you get to know these people. Everyone wants the same thing, whether it's the Chinese and the Americans, not always eye to eye, right? Whoever it is, we all want the same thing as far as the internet goes.

We want it to be able to go from anyplace to anyplace, to make that connection from one place to another. And lo and behold, a simple ask, a simple discussion, simply knowing somebody in this community, is able to shut down many of the sources of these attacks. The Avalanche… I'm not the expert of this, in anyway, whatsoever.

This was a more than six month effort, with multiple governments, in Interpol, and World Pol working on this stuff. But, that was a system of… How do I say this? It has enabled attackers to essentially go to the web to a store on the web, and say, I would like to deliver these pieces of malware, and this

phishing attack, and these pieces of ransomware. Ransomware? Most people know. Crypto-locker, right?

To this range of people. Click, click, click, order, buy, distribute. Okay? So, this is a pretty good takedown to get rid of these guys.

SIRANUSH VARDANYAN: Richard, your PowerPoint is on, so please let me know which slides [CROSSTALK]… To the end.

RICHARD LAMB: I'm sorry. All the way to the end. And if this is annoying you too much, I can do it too. Sorry. Yeah, I know here a lot, [inaudible]… I have to bow.

All right, keep going. So, this is the full presentation. Okay? So, you guys, the title…

SIRANUSH VARDANYAN: I will share it with you guys, don't worry.

RICHARD LAMB: Keep going to the end, there should be more. Okay, all right. So, these are the two cases I'm talking about. I'm just going backwards, all right? The DYN attack, started around August, but maybe a little bit later is when we really saw a lot of it. It was

detected using DNS. So, on technical, I might go a little bit technical for a minute here, so I apologize for that.

But that was what was interesting here. All right? The humble DNS, this thing that kind of sits in the middle of everything, that we're involved with, you know? Names and numbers, who cares? They were able to get on top of this because they were able to see things happening.

There is an example of something can, it was example dot com, but that first part, strange looking names. What's this? What's going on? Makes people start looking at things. This is typically, as many of you probably know, this is the way command and control machines on botnet talk to each other now.

They create these random looking domain names to communicate with each other. So, there is an example where that worked. And I encourage you, I know it's a bad looking link, I encourage you to go to the ccNSO tech day site, both of these presentations [inaudible] and they're both very good. They're given by the people that understood this stuff, that helped with it. But interesting thing about the DYN thing, it took [inaudible] a big deal.

It got a lot of press. People said it was IOT, the internet of things. It was just, as you know, just bad cameras, with password root, 8888. The default entries. Most of the technical community…

This is not the fault of the internet of things. It doesn't mean we should kill these things. It means that the awareness has to be raised, security standards have to be raised.

This is just me, relaying what I've heard. Maybe, you know, a certain amount of liability of product manufacturers with software should be included. And the discussions we have [inaudible], we don't make those decisions. More and more, people are looking at ICANN, because this is, it's a group of people that understand this stuff, understand the policy aspects of it, said, the government aspects.

They understand the engineering aspects of this. And more and more, they're coming to us, they're asking us our opinion. I'm going, I don't know. You know, I don't do this. I don't think, I don't build these things. But that's not the point. It's not that any one of us know, we have a very good opportunity here, actually that will effect change, and effect the future of some of these things.

Anyway, in the DYN attack, even their competition came to their help, which is really strange thing. You see this on the internet all of the time. You see, two competing companies that will actually come together and say, yeah, okay, well this is a big problem for you, it's going to be a problem for me.

So, let's try to solve this problem now. Other examples, I'm just going to switch here for a minute, and I will keep it time, Siranush, I will try to keep it to time. Other examples is, you know, Gmail, Google email, Yahoo email, probably some of the big Chinese email things. All of these big email providers, they have to communicate with each other.

And they do. I see some experts, real experts in the room, that could talk to this even more. But they have to communicate with each other, they have to make that system something that their customers trust, want to use, and routinely they're similar meetings like this, where they come together, and they agree to have, to either encrypt secure those connections between each other.

It's a forced cooperation. It's one of the things I really like about the internet. All right. So then, then the Avalanche attack. Okay? This was… I encourage you to look at this, because this is again, an example of great cooperation and, I'm harping on that, I'm focusing on the cooperation because as a little geeky engineer, I don't really care about cooperation.

I'm sitting there in my lab, and I'm just writing stuff, and just, you know, trying to come up with my next startup and make some money. But this is one of those example where it actually works. It's the only way it works. Okay? Some

intergovernmental agreement, or even a multilateral government, takes, I'm told it takes months for something like that to get processed.

During that whole month, while you're trying to take down a network like this, this all has to be of course, kept secret. But for relationships in a place like this, particularly with the ccTLDs, people, some of the operators, you just have to say, look, we had this problem. We're seeing these things going on. How can you help us?

So Avalanche was an example of this. Hundreds of millions of dollars, you can read as well as I can. DNS was used as the way for these things to talk to each other. And they had random names like that again, all right? So, how do you shut down something like this? This is where I'm going to… Can you go back one slide?

Okay. And before I talk about how we shut that down, so this is relatively recent, it's only about a year old, but the current problems that we're seeing mostly on the internet as far as cybersecurity issues. Ransomware, but this? This business email compromise. How many people have heard about business email compromise? Okay. It's a term for phishing, right?

This is as old as the internet, actually it's as old as humanity, right? So, people just send these emails to people, and say please pay this invoice. Literally. Literally that stupid. Right? But look at this, there is a B here. There is a B there. I mean, and anyway. So, one of the examples they often provide, and I think it's one I can talk about publicly, but sometimes we're lucky enough to have one of the victims come out and say, okay, go ahead. Tell my story to everyone, because maybe it will help other people avoid things. The difference between now and say, 20 years ago, 10 years ago, when we just had email and phishing is now, we have this social media, LinkedIn, Facebook, that actually, people can do a little research.

This is not from simple phishing. This is not from the spam that you get. Oh no. No, this is very targeted, okay? They look for somebody, they type in the company name, who is the CEO, who is the CFO, what's the domain name? And then they simply send an email, from the CEO, everyone knows here that you can send an email from any email address.

You can go from anything. I'm going to show you how to do it afterwards, if you want. Very easy. No, I mean, it was great. You can say, you know, from White House. From… Who is in there now? Oh yeah, that's right, the guy with the hair, right? So you know, Trump at White House dot gov, right? You can do this.

It is really… And it's very hard to tell where that comes from. Anyway. But for an invoice, you really need to do a few [inaudible]… Anyway, to make this short, they looked up the CFOs name. The send an email from the CEO to the CFO. It wasn't for a lot of money for this company, about $250,000. Pay this invoice for maintenance.

Well, I guess over a certain amount of money, and maybe some of you know more than I do. When there are wires and stuff like this, it actually triggers something inside [inaudible], a group that actually kind of watches wires, international wires. And so, luckily, you know our FBI then contacted these guys, this woman, and said, you know, are you sure?

And of course, she, of course I'm sure. You know, you have the government call you up, right? And you're in a business. What are you going to do? This is kind of, get out of my face. How dare you call me up? And I guess the agent kept pressing, could you just ask? And just ask your CEO, did he send this email?

Eventually convinces here, there was silence on the phone. Some yelling, some noise, right? And she comes back and she goes, oh my. Thank you so much. And all they did was, it was a company with the word fly in it, fly something. This was some jet maintenance company. All right?

The attacker just bought another domain name with two I's in it. Instead of fly, it was fly. So, if you looked at it on your email header, you really would not see what the source email address is. I'm not going to waste more time with this, but I'm just saying this basic old stuff is still very popular, but it's very focused.

It's not the spam you see normally. The stuff looks like it's from someone you know, looks right. And here is areas where we can try to encourage more things like greater security in email. My baby is DNSSEC. I mean, I think there are ways to encrypt or digital sign more emails around the world to make sure someone sends something, sends it from where they say they are.

Although in this case, it may not help that much, right? Fly I, I. Am I going to see that extra I? I have to switch glasses every time… Probably not going to see that, right? So, anyway. And some of the old stuff, of course, is still around.

People always make a big deal about distributed denial of service. It's a nasty attack, okay? The DYN attack was one of those. Well, it really wasn't something as bad as this, but it was similar kind of attacks, where people take up your bandwidth. They keep asking you questions until you can't answer any of the good questions, any of the real questions, right?

But, some of the, but some of the basic old techniques are still really popular. Okay. Can you go back to the beginning? First slide.

So, back one more please. This is all material from my colleague, Dave [inaudible]. I have to say that. If you ever see something from him, you think I'm animated, he's even more animated, okay? And he loves this stuff, so I have to give you that plug. Next slide.

Okay. All right. We all have this picture. We've all done this sitting somewhere in a coffee shop or something. People say, what do you do? And you try it all picture of where you are in this, and so this is just my… You know, of course, ISPs…

The point of this picture is only, it's a big ecosystem. There are a lot of parts to this thing. And IOT is not everywhere in your [inaudible] and all of this stuff. So, next slide. These are all different parts, you know, of making a connection on the internet. You've got the frequency, you've got various addressing all through here.

Things that ICANN doesn't… Not ICANN, you know, a little bit of ICANN. IP addresses ICANN, [inaudible] numbers ICANN, domain names ICANN, nope, not ICANN. Security stuff, not ICANN, just short. Next slide.

Yeah. That's it. What do we do? We've very humble. We only do a few very simple things here. Names, IP addresses, some policy. Go on, next slide. Okay. So, I said in the beginning, one of the things that we can do is help law enforcement understand this stuff. And I go around the world doing… I teach. And I usually do technical training, but there has been more and more requests for training of law enforcement.

The local police department. All right? Next slide. I'm not going to go through this, you all know the domain name system. Okay? But basically, this is what I present them. Next slide. We all know the domain names, next slide. Top level domains. We understand this. Next slide.

Keep going. This is why we can go through this quickly. Explain what registries are. Next slide. Okay. This is something that sometimes, you know, for example, law enforcement doesn't always understand. That ICANN does not, we can't do anything about these guys. The only thing we can do here is provide a venue like this, three times a year, in various parts of the world, for everyone to go out and have coffee and cocktails, okay?

Right. I mean, you guys are laughing, but you know how valuable that is, sometimes. Not always. Right? So, in fact, we used to have a law enforcement, I think, side event that we

would have, a small one, and one of the requirements was that all go out afterwards and spend time together.

Because, and this is from a gentleman, a friend of mine from the US Department of Justice, wonderful guy. Tony [inaudible], just someone on the front lines, that's going down, taking down the machines, finding the servers and doing this. And he routinely would say, okay.

We could have some multilateral agreement between, or some international agreement with some organization in Geneva, and have some process, legal process across here, which is still needed, of course. And so, once we find an attacker, or someone is attacking us, we report it, it goes up the chain, through our foreign affairs, communications are made to the other parties.

And eventually, then we have permission to either serve them in their country with a court order, or we coordinate a takedown. Is the original tacker still there anymore by then? He's long gone. This is now taking weeks. All right?

But his main point was, okay. My boss or somebody in the government calls me on a Friday night at 10:00 and I'm with my kids, and I'm relaxing. Am I going to pick up that phone? No. I'm off. I'm at home. I'm not working.

But if it was my friend Joe, from Estonia, that I spent some time with having beers, you know, at some conference. I'm going to pick it up and say yeah, sure. What's up? Joe says, you know, we've got these weird… This is a real case for him. We're seeing some sort of scans, or attacks, something that looks odd, coming from your servers here in the US. What do you know?

We're from another country. Tony is actually from Trinidad, but anyway. So, from somewhere else. And it won't let me see. And you call up your friend, you find out what's going on, and right away, you can put an end to that, or at least get the evidence for it, at minimum, collect the evidence for it, at minimum, right away.

So, his whole point is this bottom up, got to say it, I work for ICANN, bottom up multistakeholder process, is what is really, really valuable, because that is a classic example of a bottom up multistakeholder process. Yes, sir.

UNKNOWN SPEAKER: Yes, good morning. My name is [inaudible]. And I'm a first-time Fellow here. Just a question. You did mention that by the time we followed this mechanism in order to find certain comment and control center, it might take a long time and so on. But if I look at the commercial sector, and some of the security vendors out there, one of them is a five, for example.

They offer a service to their customers, a paid service, that if they detect a phishing, for their customer's website, they have legal agreements with tier one's, tier two's. So, the people who route the actual IP traffic on their backbones, and they can take down these websites within three, four hours.

Well, they say if it's based in China, eight hours. So, why is it so hard…? I'm not saying for ICANN, but maybe for like a global organization, or even governmental organization to implement such a thing, where maybe we do not target the people behind the comment and control center right away, but we can stop the traffic going around there, the phishing or the scan traffic, by hitting the backbone. Hitting it in the backbone. So, stopping the traffic, going towards them.

Instead of shutting it down itself. Thank you.

RICHARD LAMB: Very good point. You had a couple of really good points there. The first point, what you're referring to is, what a lot of people call block lists. There are a lot of companies that voluntary, like spam house, there are a number of these things that have voluntary, these lists that are created voluntary by people who are created submitting some problems, or maybe equipment, automatically submitting stuff to this list.

Saying this is bad. So now, the systems that are listening to that list, or making use of that, either [inaudible] products, or whoever's products, are listening to this, will automatically say, I see this coming from this IP address, I know this is bad, block. Right?

Botnets don't work that way, right? Botnets continue to change. If you keep blocking, the botnets is just going to keep moving. That's what some of this changing domain name stuff is. So, it is a short-term solution, I agree, okay? But it's not a long-term solution. You want to actually get the attacker.

Now, go ahead.

UNKNOWN SPEAKER: True, I do agree. This is why I said, by the time we find the attacker, what we can do is block the traffic going towards that. So, that would be the first step. Of course, the solution would be to find the people behind it, and take it down, but you do know that like 80% of the cases, this does not happen, because the attackers and the hackers sometimes are quite smart.

RICHARD LAMB: He's absolutely right. No, this is a very high problem, and there is no one solution for this. The idea, and maybe you have a different opinion, okay? The idea in the community is that once

you involve, once you describe would be great if it could be implemented, where you had a trusted, governmental entity, that would collect the information from all of these different groups, and then would immediately act on this stuff.

Question is, who decides how they act? This becomes kind of a diplomacy thing…

UNKNOWN SPEAKER: That was my question.

RICHARD LAMB: Yeah. So, it becomes very hard to do. So, I'm not against it, okay? Although you will hear a lot of my colleagues, you know, there is a bottom up versus top down argument, literally here, right? So you're talking about a little bit kind of top down. Although the information is coming bottom up. So, I like this guy. He's going to cause a little trouble here. This is exactly the argument we have, but there are so many examples where this just hasn't worked, where we tried to coordinate with governments.

Passports, for example. They all have this chip in them. Now, initially the idea is okay. Well, pick a country, Germany, I don't care, let's have one country own the top key of this chain, this is something called a public key infrastructure. Anyway, that's

how the chips are… How the keys are encoded and proof that the key, and proof of signatures, proof that the data is correct.

There was no way they could decide. No country is going to be beholden to anyone else, although I think the server is now in Singapore. So, anyway… Well, you know, Singapore is kind of like the Swiss in the Asian area. So, but it becomes impossible actually, to come up with this. And there is an effort. I'm not going to say anything more about it, but there is an effort by the IQ called impact, to try and collect all of this information in a single place, to do this.

But, for now, what do we do today to solve these problems? And one of the concepts I want to… You know this stuff. One of the concepts I wanted to press forward here is that helping law enforcement is not necessarily a bad thing, and I think looking at this crowd, maybe that's not so much a hard sell.

It's a hard sell when I'm looking at a bunch of engineers, because they always think it's us against them, right? They always think, you know, government… You know, law enforcement… Even, bad guys. Yes, sir?

UNKNOWN SPEAKER: [Inaudible] about the countries which new democracy.

RICHARD LAMB: Countries with new democracies….

UNKNOWN SPEAKER: Yeah, and about law enforcement, about that in these countries.

RICHARD LAMB: It's actually been very promising. He's asked about law enforcement and cyber security in new countries. Well, I think you asked that question on purpose, right? So, Estonia is a shining example that everyone looks to right now, as an example of a government that was not encumbered by a lot of recent history to slow it down. So, they're able to just say, fine, national ID's, like it or not, you know, secure systems, and started completely fresh.

And so, they're a great example, and I have a lot of hope for [inaudible]. I did a training in Katmandu last year around this time, and what I was really impressed at, at some of the ministers there, that came to this technical conference, it was funny. They said, look, we're taking a wait and see attitude about what to regulate and what not to regulate.

In fact, he said the biggest problem he has is when a large, say, mobile operator would come into their country and they said, can we have permission to operate here? And he said, don't ask me this question. If you ask me, I have to say no. Just do it.

But that's a very new democracy, you know, that's clearly very, very fresh, right? But that was the right attitude, he says, I want to learn. I want to see how this works, you know, before we come up with international regulations. And I think, you know, you guys can be way ahead, right? Way ahead on the US on this thing, and it has been demonstrated many times before.

South Korea has got way faster internet connectivity than the US. All right, let's keep going here because I don't want to waste too much time here. We know what that is. We've seen that before. Okay, this is the various players in this picture. Hopefully you understand that, right? Registry, VeriSign, ICANN dot, you know, Google, well they have a registrar that they use to protect that.

Next slide. All right. So, we're talking about domain names. We're at ICANN. Right? So, one of the problems with domain names here, that you know, possible uses of the domain names, various things here. Not only can you attack systems with denial of service attacks by asking, using the DNS as an attack vector…

Everyone know what DDOS is in here? Pretty much, right, right? So, I mean, so if I wanted to attack you, what would I do? I'd pretend to be you. Although I can never… I never had that kind of hair, right? You know, I can try. But I can pretend to be you,

but maybe a picture and start asking everyone, everyone in this room for a question, right? A small question.

Yeah, in front of you, right? Instead of asking everyone a question, and you guys are all going to answer him at once. He's just going to be completely inundated, right? It costs me nothing, you know? And it completely destroys his operation, right? That's DDOS, right? I just want to make sure you guys know what DDOS is. But it's that simple. And DNSSEC makes it worse, by the way, because it makes the answer bigger. I shouldn't say that. I'm supposed to say DNSSEC is good.

All right. So, here are the various things you can do. Thank you. Keep going. These are the various different ways the DNS gets compromised, this hijack for example, if you try to go to your bank's website, and you think you're at your bank's website, this is a control point. Okay? Good and bad, but it's a control point, all right?

Keep going. All right, just like traditional law enforcement, and again, remember, these are exactly the slides that I used to present to policemen and law enforcement in countries, so I'm trying to resonate with them. These are the type of things, no one thing is an indicator if something is bad. Okay?

WHOIS data, for example. I type in, WHOIS, one of my domain names, ZX dot com. You type that in, you get my home address,

my home phone number, you get everything. My wife also runs a small business, okay? When you do WHOIS on hers, she doesn't provide all of that information. Okay? Here is one of those examples of how do we get the policy right?

She, as a woman, doesn't feel comfortable about… And she's an accountant, maybe she's got some customers that are angry with her. I don't know. Right? So, you know, she's an accountant. She doesn't necessarily want people to know exactly where she lives. So, she has a right to a certain level of privacy. Right?

Meanwhile the police are saying, you just made this impossible for us. Now, we need to go through extra hurdles to get this information. So, you know, that's a kind of a thing. There are other things you could see in the DNS, I mean, it's just another perspective into the whole internet ecosystem.

You can look at strange values and responses. Of course, there are many things, of course. You know, Yahoo, Yoo-hoo, whatever people try to, you know, spoof brands. Bunch of errors, strange… These two things here, when you actually look at a domain name, and I don't want to get too technical here, but when you look at a domain name and look it up, it has something called name servers. You can look to see where those name servers are.

And you'll see just like everyone else, the criminals also want to save money. Right? So, they tend to go for the ones that are a good deal, good price. And once they have a set of these name servers, do they use it just for one name? No, they tend to use it for a bunch of them.

And this is one of their Achille's heels. This is one of the easiest ways to find these guys, because you look at one thing that looks strange, and there is a way to actually ask some public data services to find out what's the name server for these things, and how many other people are associated with it.

So, you start looking at the other names associated with those name servers, and you see pharmacy for free, or whatever, you know? Enhancement pills for free. Whatever you see, all these things connected to that. And you immediately go, okay, fine. Okay? Bad guy. All right, next slide. Thank you.

Yeah, this is going into some depth, but criminals do a lot of redirection. They can't stay at one single IP address for a long time. So, why do they use domain names now? Before, when there were attackers, you know, there was an IP address that people would go to. And the attack would come from an IP address.

But then it's really easy. As you said, they just block the IP address. All right? That shuts everything down instantly, by

blocking that IP address. Criminals, well that's no good. I've invested in this network of, you know, botnets, and I want to be able to do something. That's no good to be shut down right away. So, that's why they do this thing with the DNS names, and these funny names continually change, so you can't catch them.

Okay? All right. Next slide, whatever, so. There we go. Okay. And so, these next sets, next slide. Okay. So, chainsaw, scalpel, or laser? Right? So, this is where we try to start to educate law enforcement, at least the law enforcement that is not, by now, you know, understand this really well.

So, now you've got a bad domain name. What do you do? How do you shut this down? Do you turn off everything behind the IP address associated with that domain name? No, because multiple websites tend to be hosted by the same IP address. Okay. Do you take down, do you shut down the whole domain name?

Do you say, anything anybody types domain name? Can't go there. No, you don't do that, because what if it's FB dot com, Facebook dot com? You get some attacker, or some bad site, let's say, FB dot com slash pharmacy, and you find out that it's bad. Do you shut down FB dot com? Obviously not, you shut down all of Facebook. Right?

So, that doesn't work. But this is unfortunately has been what has been happening, you know? Law enforcement does what they can. They're not bad guys. They're trying to help us, you know? I don't have to make the case to you guys in this room as much, but you know, I have to usually make that case to hackers, you know, geeks and hackers.

But so they're trying to help us, we have to help them help us. Okay? Which is the point of this whole slide deck, pretty much. All right? Next slide.

Thank you. All right. Scalpel, do we go to the hosting provider, the guy who is hosting the website? These people tend not to be running a web server in their basement, because they're like us, they want cheap, they want safe. You can get a website now, a machine, a virtual private server, for, you know, $4, $5 a month, I think, even less.

I have a bunch of these. I do this too, right? I have a bunch of these. All right. Or, do you as the gentlemen suggested there from where F5 does, and many other vendors do. You start creating your own list, either from your customers or through public sources. A lot of these lists are public, okay? Free. All right?

Of what's good and what's bad. The advantage of this approach, as opposed to the last few slides, those last slides all

require court orders. And I know certainly things we want them, you want law enforcement to have to follow process, of course, right? We're not trying to give them a way to do a shortcut here.

All right? But they have to go through court orders. They have to go through ADPs, acceptable use policies, you know, agreements that were done, you know, between you the customer, or the attacker and the registry or the registrar, whoever, the hosting provider.

You have to go down this process. But these lists, they're free, they're there. This is the way to go, and this is the way more and more things are already going. If you send email regularly through any of their large email providers, you will find that occasionally things get blocked and stopped, and this is why maybe the spam level in your email inbox is not so high, it's because these people are in the background, continually updating this thing.

Next slide. You know, so things I think you know already. These are the things that makes the whole process difficult, jurisdictional issues, internet is global. No boundaries. Good thing, bad thing, right? Hard to do. Hard to enforce any kind of laws. Is it relevant? Can we go after, are they in breach of anything they've agreed to? Yes, ma'am?

UNKNOWN SPEAKER: My name is [inaudible]. I'm a first-time Fellow. My question is, how do some sites, like for example, Wiki Leaks, remain and exist, though many, I would say, would like to take them down?

RICHARD LAMB: Good question. I really don't know why they're still around, actually. Other than maybe he hasn't violated anything as acceptable use policy, and he is most likely… I don't know. I've got to do this, got to try this. I'm not sure where he is hosted. Where the hosting providers… Hosting providers in a country where it's okay, it's okay. And then, countries, or at least the US, different countries have different policies on blocking content.

We don't block content, even if it's hate speech. Right? So, I know the EU has different policies, right? So, you know, I'm sure he is not hosted in the US. I'm positive he's not hosted in California somewhere. But, I'm sorry, I wish I could answer that. I've never done… It's easy to do. [Inaudible] space dig space…

Anyway, [inaudible] do the command and actually find out where this thing is…

UNKNOWN SPEAKER: It's in Sweden.

RICHARD LAMB: It's in Sweden?

UNKNOWN SPEAKER: Yes.

RICHARD LAMB: Oh, okay who said that?

UNKNOWN SPEAKER: I did.

RICHARD LAMB: Sorry, I just hear this big voice from above.

UNKNOWN SPEAKER: I am not God. [LAUGHTER]

RICHARD LAMB: It's from Sweden, okay. All right. So, Sweden must have some pretty, you know, [inaudible]… I'm sure we've had a discussion with them.

UNKNOWN SPEAKER: Okay, so [inaudible], first-time Fellow. I may have an answer to your question, though I'm not super-technical, but we can talk

afterwards. This has an explanation in the dark net, or what we call the dark net. And they sometimes use Tor or other similar options to log in, and to hide their IP address. And we can talk afterwards about this.

Then again, I'm not super-technical.

RICHARD LAMB: She's right. There is the Tor dark net stuff. But beware, if any of you guys try to use Tor dark net, our FBI as well as many… Just giving you a heads up. A lot of our governments… [CROSSTALK]

They run the exit notes. Who is next?

UNKNOWN SPEAKER: Me. Hi, my name is [inaudible]. I'm from Brazil and a first-time Fellow at ICANN as well. So, I have like this law background, like work for government and stuff. And during the… In Brazil, we have this law, which is called [foreign language], like a civil rights sort of, yeah. And then, at this law, we have this notice take down, sort of like system, yeah.

And my question is, whether you believe this take down should be by court orders or like independently? Because in Brazil, we're having like some really like hard problems regarding that,

because judges don't really understand the law, and the content is like in between.

RICHARD LAMB: Bless you. I'm glad you're in this space, someone that now understands both. We have to help the judges understand. I believe both are reasonable tools. That's the point I'm trying to make here. There are a lot of times, the legal methods don't work, not just because of the stupid judge, but because there is a process involved, court order. They should be, right? But there are other ways, and the majority of, I won't say takedowns, but the majority of problem solving is done without the court order.

It's done simply by contacting, for example, the registry or the registrar, if it's a ccTLD, contacting the registry and saying, you know, here is the evidence we have. These guys are, they have child pornography, let's say, something, right? And so, the registry goes, fine, we're just going to redirect the domain name, that domain name completely to what they call sink holes, completely somewhere else. All right?

Well then law enforcement can continue to collect data, all right? If they want, whatever. And a lot of that is just done because we have common concerns. And I find that [inaudible]… All right? And it doesn't necessarily violate… It's

done very carefully, because you don't want, you still don't want to violate the rights of the person who has bought the product, but if the product has a certain limited liability saying, you pay $10 a month for this, that's it. So what? Yes, ma'am.

GRACE: Hi. My question, I'm Grace [inaudible], I'm from Jamaica. And I'm a Fellow and newcomer. And I have an interesting legal side of things, and I'm glad that you mentioned the, maybe the software developer liability, manufacture liability. Because sometimes we get lost in the criminal jurisdiction, but we forget that people actually lose tons of money, or a large amount of money every time these attacks happen.

How do you think ICANN can play a role in that whole civil liability sphere in terms of creating almost a [inaudible] resolution platform, similar to, or domain name resolution platform? So that people can actually recover sums, especially small manufactures, small enterprises who do lose some amount of time and money.

RICHARD LAMB: Okay. Well, we are limited to… Our scope is very limited. Right? So, it's only going to be domain name space. And for that, well, okay, so go on. I mean, I know what you want, but I think, you

know, we don't want to be accused of mission creep, you know what I mean? Because I think we are often accused of mission creep, because we have people like you involved here, that are knowledgeable, intelligent in this space, want to do the right thing.

And I think in those aspects, we certainly can be used as a bully pulpit, if you will. Right? Somebody that can at least make the points clear, but as far as any, you know, we have a very limited scope here. So, I don't know if that… I'm sorry…

GRACE: I know, on a practical level, do you think it's even possible for us to, not for ICANN, but for internet governance to reach that point.

RICHARD LAMB: Where there is greater liability in software or product development, I think so. Have you followed some of the recent talks that came out of… Like Bruce [inaudible] and some others at RSA? Yeah, I think there is a case, right now, where I think… What's public? Dealing, a producer of access points. I don't know, cheap access points dealing. There is a lawsuit against them, and I'm not saying, you know, that the lawsuit should win, but there is, people are watching that case, because of course,

Dealing sells a product, and along with it, there is a sheet of paper written by attorneys, you know, very carefully written to limit their liability.

So, if anything, just the cost of the device. Well no, someone is going after them for much more. So, it will be interesting to see how that court case plays out, because you know, as you know, it's a very delicate balance, right? I love you attorneys, but we don't want to make this to the point where it discourages innovation, right?

If one of you wants to write a piece of software, you should be able to do it, but I think, yeah. You're selling a product, you know. Okay. Yes.

UNKNOWN SPEAKER: I like the point that Brazil made. Some of the countries, for example [inaudible], they don't have a legislation in place, so it's really hard to deal with some of these issues. You could have a hacker sitting in [inaudible] or something, but no one would know what to do, or what sort of jurisdiction to sort of apply.

Anyway, that's the issue for us in all of the countries. I have a question in terms of, does… What does ICANN do in relation to governments who control net neutrality?

RICHARD LAMB: Nothing. That's really not our space. We try to get… People try to drag us into that space, but not touching that with a 10 foot pole. Nope. No, I'm sorry, but it's just one of those things, I understand the question.

UNKNOWN SPEAKER: Because I think there was something about the Trump government trying to control it, but I'm not sure if that's true or not, because the, their ICT specialist was trying to do it, [inaudible] I don't know what his name was, but…

RICHARD LAMB: From Microsoft?

UNKNOWN SPEAKER: Yeah.

RICHARD LAMB: No, it's something we do not get into. Sure, oftentimes we get, I do as well. We get sent to give presentations on ICTs for development. You know, the general thing. And you know, you guys all heard my spiel on Newcomer Day, probably, you know, that is one of the closest, nearest, dearest things to my heart, that I think anyone, in [inaudible] there should be, maybe Facebook should be created in [inaudible].

I mean, anyone should be able to do this, right? And that's… But that's, you know, an access question. How much connectivity can we give, you know, get to people? Not via satellite, but via fiber, rule of law. The biggest problem I see is it's a barrier to ICTT development, it's always rule of law. It's not programming. It's not this.

Okay? It's not even access. It's usually rule of law, local, you know, taxes, encouragement, that kind of thing, investment. And so, yeah. Obviously, I would be interested in net neutrality, but no, I'm not allowed. Right?

UNKNOWN SPEAKER: Good morning. Thank you for your presentation.

Good morning. My name is [inaudible], I am a newcomer. I am a first-time Fellow. I'm coming from Venezuela. And at the beginning of your presentation, you said that you don't really like the term internet of things, but the internet of things is usually adopted to the new IPv6 protocol.

So, my question is, what is the relation of security failures that we have been seeing on DNS in certain cases, and the adoption or non-adoption of that protocol facing the exhaustion of IPv4 address block?

I remember a case of Ebay, and as you were saying, that there is a failure of the configuration of some cameras. I would like to know if you do have any information on DNS security failures in, or rather because of the adoption of the new protocol or the exhaustion of the IPv4 block address?

And finally, how can you relate that to the cases where there are domain names? Because you were saying that we need to pay attention to what we read in an email. So, how can this be associated to generics or to brands? Can the internet of things or the adoption of new protocol allow for the expansion of the DNS? And I also want to note your opinion in connections with the words hacker and cracker, and whether ethical hacking has or doesn't have an impact, so that we can differentiate it from people doing harm and being really close to crime, and now who actually is passionate for technology. Thank you.

RICHARD LAMB: Thank you. I apologize for not speaking Spanish. I should. Hacker is a term that has changed. I'm going to go backwards, okay? Hacker is a term that has changed over time. I probably should not have used the word, because I still think it has a negative connotation, but as an example, I will say there is a conference in Las Vegas that has been happening every year

called Def Con, where hackers show up, and their whole goal is to break things.

They've been doing this for 20 years. I really encourage you to go. It's hot as hell. It's August in Las Vegas, and I hate Las Vegas, but you will see there, they've had 22, 23 of these now, they've grown up. The first one, you walked in with anything electronic, you were screwed. And they would publish all of your passwords, and logins on something called the wall of sheep. Okay?

They've been doing this for years. Now, they have children of their own, so they've grown up. Now, they all work, these hackers work for the good side. In fact, they all work for these companies, or have created these companies, to do penetration testing, and they are the first ones, this shows the first place you will see, problems that manifest themselves in a year afterwards.

So, if you want to see the future, you go there, because they will find problems and products, internet of things, I could go on and on about some of the things they find, though they're grown-up now. So, they don't just then share that with everyone. They first contact the manufacturer, and they say, hey, here is a problem right?

SIRANUSH VARDANYAN: Richard, we'll take the last question and we have our next presenter here, but we have a lot of questions so people may come and talk to you. Please. If you have time, you can stay with us a bit.

RICHARD LAMB: I will. Okay, let me try to finish this. So, anyway, so hacker has changed. The term hacker has changed. These are good hackers. And what they're referred to now are white hats and black hats. Okay? So the white hat hackers that work for us. Now, back to your other two questions. IPv6 domain names, the increase in IOT, you are absolutely right. IPv6, one of the reasons for IPv6, is the internet of things. Okay? And in fact, there is something called a thread group. Industry has embraced IPv6, and you need industry to embrace it.

The people who make the devices. They've embraced this to actually use IPv6 to try to address this internet of things, because we've all heard various numbers. 33 billion, 100 billion, I don't know. Internet… How many of these things are going to be? That impacts security very negatively, just because of the numbers.

Now we have many, many billions more of internet devices there. All cheap, inexpensive, you know, things, by definition, that could be used to attack things. But there are a number of

industry groups, again, not in this space, all right? And the IETF, that tries to develop protocols as well, that are addressing the security aspect of that.

So, I think the IPv6 aspect is not, that is not going to have a negative impact, other than just simply the increase of devices. Okay? Then as far as the DNS goes, a combination, if I've got this right, if I understood right, the combination of that with the DNS. The DNS becomes more important with IPv6, because an IPv6 address is now this long, not this long, all right?

So there will be more use of DNS, and of course, I don't know if you're doing this for my benefit, if you are, thank you, DNSSEC secures the DNS, and once you've secured the DNS, if you heard in my original speech, now you have this global public key infrastructure that you can distribute keys and security, and everything else with, to all of these devices, and have cross-boundaries.

And so, we feel, IPv6 with DNSSEC, those two are usually grouped together because they are both are being adopted slower than we hoped, are keys to improving the security of much of the internet. They're not complete solutions. Anyway, all right? Thank you.

I think Siranush said we're done. Got one more? That's right, I've seen your hand up for a while.

UNKNOWN SPEAKER: That's very kind, thank you. So, my name is [inaudible], I'm a first time Fellow. I'll start with a headline, because you said we should start with a headline. Do you think there is due diligence cybersecurity standard developed or being developed? I'm trying to address the viability discussion that was initiated. It's about the security of cameras, but I'm thinking of something bigger.

I'm thinking of critical infrastructure. What you are saying seems to be a bunch of good advice and good practice that police officers should follow, and I totally emphasize the internet that was said here, with the courts, with the judges, needing to educate the judges whether to use a chainsaw or a laser, whatever.

So, my question is, when there is cybersecurity due diligence standard to speak of, this is something that you will find in the European network and information security directive. There is a reference to good factors. So, the best measures that can be implemented by all of the actors. So, the question is whether ICANN would play a role in developing any sort of due diligence, cybersecurity standard, because everything you said, and thank you for an inspiring presentation, seems to follow a very soft non-legal approach of trying to educate and introduce certain

good practice standards, rather than carve this in law as that seems to be slow and ineffective.

So, I just wanted to throw that due diligence reference into that discussion, and thank you for everything you said.

RICHARD LAMB: Thank you very much for that. No. We're not going to play… The fundamental nature of our bottom up multistakeholder process is one of soft power, okay? Very much so. That being said, we get invited to the table for many of these sort of discussions. And I can only speak to the US because those are the only ones I know about.

I don't know… If it's critical infrastructure, there are certain standards that they're there, that the government uses for its own procurement, that we have applied to various things as well. But as far as I know, unless we were selling something to the government, we had, there is no regulation.

I mean, a private, we're still private sector, all right? I mean, even before, before the IANA transition, we're still considered private sector running critical infrastructure. So, there is a certain expectation to do the right things. But no laws like that yet, and I can, I cannot foresee us every being in a position

where we're in, assisting something where it's going to become a mandate, or a requirement. All right? Thank you.

SIRANUSH VARDANYAN: Thank you very much, Richard.

[Applause]

Thank you very much. I know it's always the case. We have always not enough time for Richard. Last time we had 30 minutes, this time we had one hour, but always it's not enough. Yeah, it's always not enough, but thank you very much, Richard. I know he had also a conflict with another session, but he preferred coming to our Fellowship program, so thank you very much.

And with great pleasure, I would like to introduce you to our next speaker, the member of address supporting organization, ASO. You may know, already hear this abbreviation. And Atfab Siddiqui, and the owner for me to tell me that Atfab, also an ICANN Fellowship alumni. So, please welcome Atfab, and we would like to hear about your address supporting organization, what you are doing. And just five, 10 minutes, and then we'll go for question and answers. Thank you.

ATFAB SIDDIQUI: Hello. Can you hear me? Okay. I can't hear myself so I thought you can't. Anyway, so like Siranush said, Atfab Siddiqui is my name. I'm part of the address supporting organization. I have my colleagues with me here, it's [inaudible] and [inaudible] and probably few will join us, oh, at the back, sorry. Jason [inaudible], Louie Lee are also here, and Jorge [inaudible].

So, we have… [Inaudible] as well. So, we are covering all of the regions, almost. We're still missing somebody from [inaudible]. So, from RIPE region we have [inaudible] who is the RIPE NCC managing director, because every area has a different name. We have [inaudible] and RIPE NCC we have the managing director. So, that's what we are. So, let's start with the presentation, I'll keep it as simple as possible.

So, who we are. So what is the abbreviation of ICANN? Internet Cooperation for Assigned Names and Numbers. Right? So, we are the last N. So, we are the numbers people, and it is also called the number, [inaudible] number, I'll explain it why it is [inaudible], why not ASO? So [inaudible] is number, it's an organization as well.

We are the ICANN facing body of who of the numbers committee. So, we face the ICANN on our, and we represent the numbers association, number community of the whole global

representation of the community in terms of how they elect us and how we've been nominated, so I'll explain it further.

ASO is a response for creation of the ICANN. How? I'll explain. [Inaudible] number community predate ICANN. So, RIRs are the Regional Internet Registries, that predates ICANN. They formed first, and ICANN came later. So, to break that gap, the ASO was formed. To connect ICANN to all of the existing and fully functional system of global policy making and numbers, it reflects views of number community back to ICANN.

So, it's how does, how it was formed, through an MOU. The initial MOU was formed in 1999, and the current one is 2004. So, this is how we were established, the ASO, RIRs were there from the very beginning. Probably the first one was established in 1989, probably, that was the RIPE NCC. Yeah, '92, '92.

So, and the ICANN was established in 1998. So, it was established [inaudible]. Next, please. Okay. The scope. Review global policy development process, that's our main one that we have to review the global policies, if there are any, if there is any need for any of the policy.

Defining procedure for the selection of an individual to serve on the other ICANN bodies. So, you must have let a lot of ICANN Board members, right? We select two of them. So, the Board

seat number nine and the Board seat number 10, they are selected by the ASO.

And so, the idea is they represent the numbers community. A structure is 15 members, three from each region, and the regions are… Can you go next? So, there are five RIRs, APNIC for the Asia-Pacific Region, AfriNIC for the African region, RIPE NCC for the Europe, LACNIC for the Latin American, and ARIN for the North American.

So, all five of them makes, it covers the whole world, and these are called RIR, Regional Internet Registry. All five of them select three member each, two are elected by the members of respective RIRs, and those members are the ISPs or enterprise who are just registered to get the resources from the Regional Internet Registries.

So, what kind of resources are we talking about? Can anyone tell me that?

UNKNOWN SPEAKER: The addresses and numbers.

ATFAB SIDDIQUI: So the IP addresses and the numbers, right? So, IP addresses could be v4 and v6, and ASN as well, there are two types of ASN

as well, two byte and four byte. So, that's… So these are the resources we are talking about. You request from the resources from the RIRs and you become a member, and then you, any member can elect two members to the ASO. And one member is appointed by the Board of the respective RIR.

So, two are elected, one is appointed. That makes it three every region, and 15 in total. Get it? So, if you go back a little bit, on the maps, maps. So, this is how the regions are divided. ARIN, LACNIC, AfriNIC, APNIC and RIPE NCC, it gives you a clear picture of which countries are part of which RIR.

So, this is the whole policy lifecycle. This is the whole ecosystem of how we work and how it all works, the ASO. Every RIR has their own policy development process, it's called PDP. Every RIR has their own PDP. So, if you need some changes in the policy, you go to the RIR meeting. Every RIR has two meetings per year.

And it's open for their own members, or you can, if you live in that region, you can just join. And if you have certain, if you want some changes, you propose a policy. If the whole RIR community, all five of them thinks that we need a global policy or something, they can approach the ASO, and then the global policy process starts from there, right?

So the last policy we did, was a couple of years back. And can anyone tell me what was that?

UNKNOWN SPEAKER: [Inaudible]

ATFAB SIDDIQUI: Yeah, that was, because IANA was running out of IP four addresses, and there was a demand for proposing a global policy that how it will work once IANA ran out of v4. So, there was a policy called the last slash eight policy. I'll explain it in the last slide, how it works. So, this is the list of all of the members. I just pointed out a few of them who are here, from every region.

If you find out any of them, including myself, you can just talk to us, how it works, if it is too quick for you to grasp everything here, will be around… The thing is, the best part is, this is our face to face meeting for the ASO AC. So, all of the SO members are here, in this meeting, in this venue. You can reach any of us and talk to us. If you belong to a particular region, talk to the person who is in that region, it will give you more, he will give you more insight, he or she will give you more insight, and then you can discuss it further.

The global policy, as I said, we did the last slash eight policy in order to fulfill the requirement of this policy. And it was adopted by all of the RIRs at the moment. The last one was AfriNIC, am I write? We have from, yes, the last one was from AfriNIC. And

then, everybody else has already implemented policy, so we, IANA doesn't have any IPv4 remaining, from the free location pool.

So, you can only get very small amount of IPs for [inaudible] respective RIRs. The next slide shows you the Board members we have selected for seat nine and seat 10, and their [inaudible] as well. So, on the left side, it's around the [inaudible], you must have seen him as well. And on right side is [inaudible]. So both Board members came from the numbers community.

So, it's a very natural cycle, so they were all involved in the numbers policy. They were all involved in the numbers community, for very long time. And then, they were nominated by the community and then, eventually got selected. So this is the natural cycle for the numbers community, that how you get involved with the community, and then you can get selected and be part of the larger community.

You are in the region first, and then you represent the whole numbers community on the global level. So, that's how it works. So, this is a very brief introduction of ASO. I'm definitely show that it's not enough for you guys to dress address everything in this short time, but if you have any question, you can ask right now. I'll be around until Thursday, so if you have, or all of my members, and then they can answer your questions.

SIRANUSH VARDANYAN: Thanks. We'll start with the questions. Michael?

MICHAEL: Hi, my name is Michael. I'm a first-time Fellow. I'm a newcomer as well. Can you please just explain, and just quickly, again, the relationship between the number resource organization and the address supporting organization? Because I still don't necessarily understand how… I know that they're linked, but I don't understand how.

ATFAB SIDDIQUI: Okay. So, it's tricky, I'll try my best. Okay. So, ASO is a function, the Address Supporting Organization is a function. All the… If you can go back to the slide where it shows all of the… Back, back. Yeah, this one.

So, ASO is a function for ICANN, right? So all of the five RIRs, they select three members from each RIR, and they form a NRO NC. NRO NC is the Number Resource Organization Number Council, NRO NC. And they form, and they perform the ASO AC function for the ICANN.

So, it's…

SIRANUSH VARDANYAN: AC was advisory committee. So.

[SPEAKER OFF MICROPHONE]

UNKNOWN SPEAKER: Hello? Is the NRO AC and ASO ACs the same thing?

ATFAB SIDDIQUI: We have a gentleman at the back, he'll answer you in detail.

KEVIN BLOOMBERG: Kevin Bloomberg of the ASO AC from the ARIN region. A simpler way to look at it is the ASO is the umbrella. There are two groups within the ASO. EC which is the five regions, the chairs or the presidents of each of those regions, are part of the executive council, and they have a number of functions that they do within the ASO.

Then there is the NRO NC, the number council, the ASO AC, those are the same people. So, from each region, three people come from each region. Two are elected. One is appointed. And they sit on different functions within that overall ASO, okay? But the ASO AC and the NRO AC are the same people.

So, really there is just two groups of people that handle different functions, and it's the executive council, and then the elected and appointed positions from the different regions. The NRO

NC, and Aftab, you can correct me if I'm wrong on this, is more geared towards working towards the RIR. Whereas the ASO AC is more geared towards working towards ICANN and IANA, okay?

So, it's just the direction of the flow between the two regions, and I hope that sort of…

ATFAB SIDDIQUI: Exactly. This is what the diagram is trying to convey. I'm the same person, I'm part of the NRO NC, if I'm on the left, that is the RIR, and on my right, it's the ICANN, so I become the ASO AC. And so, I'm the ICANN facing body here, and I am the RIR facing body here. So, it's the same function. But then, Kevin has introduced another thing that is called the AC. Right?

The NRO EC and ASO EC. So, the EC, the executive council is part of the head of every RIR, the five people. So, as [inaudible] is part of the AC. So we are the address council, and on top of us are the executive council. So, this is how it works. Are you still confused?

UNKNOWN SPEAKER: I'll look it up.

ATFAB SIDDIGUI: Okay. You don't have to look up. You have to reach out to us, and we will explain it. So, whoever has ambiguity, I'm happy to explain it on a piece of paper. Yeah. Let's see how it goes.

SIMON: Simon from Bangladesh. You mentioned that last year, you worked with IANA, right? ASO work with the IANA, and then you make the formalization of the policy. Now, IANA is not there, is it not PTA, so how you are related with that one?

ATFAB SIDDIGUI: So, it's PTI now. And nothing has changed except the name, to make it simple as possible. All right? So, there are several changes, just keep it simple, nothing has changed. The name from IANA has transitioned to PTI. We have certain polices too for the, to implement a few things, it's in process but the IANA function is just transformed into PTI, everything stays.

UNKNOWN SPEAKER: Hello. My name is [inaudible] Ford, I'm from Barbados. I am a newcomer. I am a first-time Fellow. Please allow to paraphrase something before I ask my question. The C in LACNIC is not [inaudible], it's for Caribbean. And it's a little strange because most of the English speaking Caribbean countries are actually under ARIN, and not LACNIC. So, I say this to ask you, if I want to

go back to my country and my region, the Caribbean, and encourage people to participate in this space, so that we are not overlooked, what sort of people should I be looking for?

Should I be looking for, should they be working for ISPs? Should they be government officials that experience in telecommunications? Should it be highly technical people? Policy people? What sort of people on the ASO and do this work in ICANN? Thank you.

ATFAB SIDDIQUI: Okay. So, the quick answer would be, anyone can participate in any RIR, as long as you are part of the, you're a member of that RIR. Right? So, you can just participate. And you don't have to be a numbering expert on that. There are multiple roles in every RIR.

In the community, where you can participate, and then you have member from the LACNIC, I would ask [inaudible] to answer that for me as well, if you can, please.

RICARDO: Hi. Ricardo [inaudible]. First of all, thanks Atfab for a great presentation. Just two things. The first one, in the Caribbean region, there was a special agreement. Some islands in the Caribbean respond to LACNIC and some other islands respond

to ARIN. So, some of the ISPs in one set of islands go to LACNIC to request IP addresses in ASNs. Others go to ARIN.

In just a small, but important, highlight, anyone can participate in the RIR forums. Not necessarily members. It's open and transparent. And it is important to make this distinction because some of RIRs call their members, those ISPs that receive IP addresses and ASNs.

But in the policy forum, they anyone can participate. We call them technical community. Anyone can go, proposal, or propose something, or vote for any proposal. Thank you.

ATFAB SIDDIQUI: Okay, just to clarify. You pointed out a very right thing, Ricardo. I'm not a member of APNIC region anymore, because I search my employer, right? My employer is not a member of APNIC anymore, but I'm a nominated member of Asia Pacific.

The people who vote should be the member, who nominate you or who select you should be the member, but you can be a community member of that region. You can participate, but those who will select you or nominate you or elect you, should be the member of the RIR. So, yeah, he pointed out, absolutely agree.

Yes.

SIRANUSH VARDANYAN: There is some clarification from Albert Daniels from remote. Please [inaudible], can you read out?

UNKNOWN SPEAKER: The first one has been stated already.

ATFAB SIDDIQUI: That one is what Ricardo has confirmed.

UNKNOWN SPEAKER: Yes, it was there. Yeah. The second one, you want me to read? The second one, the island and territories which are not islands, those are the ones that I think was not covered when it came to explain, and which [inaudible] has now clarified.

ATFAB SIDDIQUI: Islands and territories which are not island [CROSSTALK]…

UNKNOWN SPEAKER: It didn't cover them when he spoke, and it has been clarified now.

KEVIN BLOOMBERG: Kevin Bloomberg. I believe Belize is part of the LACNIC region, but all, everywhere is covered, it's just which region it's under. It's just a little more complicated in the Caribbean, but I just wanted to clarify one important point. Depending on which RIR region, it is not actually the case that you have to be a member to vote for a SO member.

So, in the ARIN region, it is open to the technical community, that we open up to [inaudible] members is an example, so it's a little different in each region. Participation, my understanding is, open to the entire technical community, and procedures within each technical community might be different between them.

ATFAB SIDDIQUI: The election procedures, election procedure per RIR could be different, but participation is open to everyone, and even it is… If you are residing in AfriNIC region, nobody will stop you to participate in ARIN region, and vice versa to any region.

KEVIN BLOOMBERG: In my personal experience over the years is, the other regions really appreciate having members form the other regions attending and contributing.

SIRANUSH VARDANYAN: We'll just take three quick questions, and we'll come to the end. Alexander please, then David [inaudible], and [inaudible]. Okay, [inaudible] is taking out her questions. Good.

UNKNOWN SPEAKER: Sorry Siranush, he is going to ask the question that [inaudible]. May I request you to give like one question from that table? This is my third time I'm waiting in the queue?

SIRANUSH VARDANYAN: I'm sorry. We'll give you the time. That's why I asked, come close to the table. That's why I told you, come close to the table, sit around the table. You'll be in front of me. I can't see everyone.

UNKNOWN SPEAKER: The question. Yesterday, there were a lot of questions about outreach. So, for my point of view, from outside this meeting for sure, it looks like internet is governed by ccTLD guys, and maybe by gTLD guys. But from my technical point of view, I know that actually internet is ruled by numbers. DNS is not required for internet.

So, it's the same question for you. Do you think that your outreach, outreach of this, RIRs together, the number

community, is not enough for public to explain the role of this ones? And maybe to decrease a self-esteem draw of the ccTLDs?

ATFAB SIDDIQUI: I don't know how to respond to that.

UNKNOWN SPEAKER: Okay, to the next meeting please. Be prepared.

ATFAB SIDDIQUI: So, I do appreciate the APTLD meetings. And they are usually in a very small room. So, I don't know ccTLDs governing the internet, but if they are, good for them. That's thumbs up for them as well. But the thing is, we have been trying our level best to outreach to those people who don't understand how we work, but from the technical community's point of view, we are pretty vocal and pretty known to everyone.

And then we try our level best to be as accommodating as possible, that's why we are here. That's why we are in front of you, trying to explain how it works, and what part we play in the ecosystem. I think it's [CROSSTALK]…

UNKNOWN SPEAKER: …not for us, for sure.

ATFAB SIDDIQUI: Exactly. Just the general public, that's what I said. So we are trying our level best. If you think we are lacking somewhere, just let us know how we can bridge this gap, and make it more visible to those people who think we are not part of it. And they are not part of the, of our small, very connected, very well-informed community.

We'll try our best. Please let us know how we can do better. That's how…

UNKNOWN SPEAKER: Okay, thank you. I think also in my region [inaudible] definitely. Thank you.

SIRANUSH VARDANYAN: Thank you, and we have graciously agreed that [inaudible] and David will take out their questions. They'll come and ask you outside of this room. Please, you have the last question opportunity.

UNKNOWN SPEAKER: Thank you, thank you. After third attempt, I could get that in. Actually, I have to take that in. So, yeah, my question to Atfab is, so I'm [inaudible], I'm a Fellow. I'm from Bangladesh. My

question would be, the policies, the global policies impact region, right? So, Asia Pacific is now booming in internet industry and they need more IP addresses. So, the local policies, when each RIR develops their policies, how they reach consensus in their RIR, and then afterwards to ICANN, to raise their voice?

I mean, impact… Those policies that impacts regions, independently, how they reach consensus? Like let's say, for IP address in Asia Pacific, slash 22 is not enough for us, and how we actually agree on that?

ATFAB SIDDIQUI: Okay. So, the PDP, the policy development process of each RIRs is slightly different from one another. And to be very honest with you, in Asia Pacific region, you can still get a slash 22. In ARIN, I'm pretty sure you can't get anything, right?

So, it's good in that way. Yes, the Asia Pacific region is growing, quite rapidly. And as I said it before in multiple meetings in the last, in the Apricot as well, that we were late to the party. So, the v4 is gone, and that's how it is. Whether you like it or not, the maximum you will get is slash 22, but then there is an open market.

You can buy from the open market, and the amount of money you're going to spend on purchasing v4 from the open market is going to cost you a lot rather than implementing IPv6. So, why not do the right thing and implement IPv6? The thing is, yeah, it's painful. If you are starting up your services, ISP or your business, it's painful. You have only 1,000 IPs to work with, but then that was decided long time ago that [inaudible] was more than enough.

Because the thing is, if you are in ARIN, as I said, you don't have that opportunity anymore. So, you're still better than the RIRs. You still get a slash 22, start something. So, that was the whole idea. So yeah, it's difficult.

As I said, the PDP process in every RIR is different. It's on the basis of consensus, not on the basis of vote. So, not on the basis of show of hands. You have to have a community consensus to pass any policy. And then there are multiple stages of that, and then it is implemented.

UNKNOWN SPEAKER: Just a quick follow-up. That's an example, how the inner reach consensus when they raise a proposal by NIR…

ATFAB SIDDIQUI: It has to be accepted by all RIRs.

UNKNOWN SPEAKER: Okay, thank you.

SIRANUSH VARDANYAN: Melissa has a quick follow-up on [inaudible] issue.

UNKNOWN SPEAKER: Good morning. [Inaudible] Richards, George [inaudible], first time Fellow. I just want to make a clarification, as it relates to what Albert says. Ghana, physically or geographically, we're located in South America, but because of the Treaty of [inaudible] in the Caribbean community, that's how we're linked as well to the Caribbean. All right? So, I just want to clarify that with you. Thank you.

ATFAB SIDDIQUI: Okay, so on that point, just a small comment. These geographical boundaries doesn't make any difference in terms of ICANN, because I'm from Pakistan originally, I live in Australia. So, in Pakistan, for ICANN, lies in the Middle East. Pakistan in APNIC in RIR region lies in Asia Pacific. So, where do we go?

So, it doesn't make any difference. It's just how you look at things, how the geography is, they mark the lines in terms of which region and which country belongs to which region. So, if

you want to participate in any activity, it's open. You can participate from the Middle East, you can participate [inaudible], it's just a matter of where you are and how you want to participate.

[Inaudible], do you want to say something on LACNIC?

SIRANUS VARDANYAN; Please.

UNKNOWN SPEAKER: We have this division which country is attended by each RIR. And we acknowledge that there are other organizations that each country try to represent their region. So, there are places where you stand as Caribbean and other places like RIRs, you be part of South America like this.

For LACNIC, it's part of South America attended by LACNIC. But we understand that there are other organizations that might be joining is Caribbean. If you allow me, just two comments I think it's important for the group. We are talking about participation. RIRs also have problems to allow Fellows to come. Each one has process to increase participation, so pay attention to their mailing lists. Anyone can join, and as already said, it's open to anyone.

I forgot the one. Regarding the policy, we're different from the other organizations where policies are discussed in approving [inaudible] ICANN, in case the number community, this is discussed, approved, and implemented in the RIR meetings. The only one case is global policies where after being approved, discuss and improve each RIR, they need to go to IANA, to ICANN, so IANA can perform that policy.

So, just to highlight this. I think it's important. Thank you.

SIRANUSH VARDANYAN: Thank you very much, and I would like also to thank Atfab, and to let everyone know that Atfab is part of Fellowship selection committee, so he is the one that was selecting you. Thank you.

ATFAB SIDDIQUI: Just to comment on that. I came from the same process. Right? I can understand the confusion at times. I can understand the frustration at times. And that's why I said all of us are happy to answer any question in the coming days, just let us know what is bothering you, and we will be happy to help you out.

SIRANUSH VARDANYAN: Thank you, Atfab. But now I would like to thank all of you who came from ASO. Thank you for representing every region and

helping Atfab also to answer questions. So, you know now these people in person. I will share this PowerPoint presentation as well, by the end of today. With that, we are closing our morning session, and we'll meet you at 5 PM for our evening session. Enjoy your day.

[END OF TRANSCRIPTION]