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KOBE – Joint meeting - ICANN Board and TEG  
Wednesday, March 13, 2019 – 17:00 to 18:30 JST  
ICANN64 | Kobe, Japan

HARALD ALVESTRAND: So welcome to the joint meeting of the ICANN Board and the Technical Experts Group. I am not Akinori. Surprise. But he was slightly delayed for this meeting, so he'll be along soon, but in the meantime I'll try to fill his role, which consists of asking Adiel to introduce the agenda.

ADIEL AKPLOGAN: Thank you, Harald. I want to give a little bit of background on the agenda and the review.

As you may recall, for the past two Board and TEG meeting, there has been a lot of discussion on the structure of the meeting and how to make this meeting more effective, and what we can do. So for this meeting, we are trying a new way of, one, building the agenda, and also interacting during the meeting. So what was done specifically was to send to the TLG member a series of questions that we find are interesting, relevant for the Board, and build the agenda on the response we have received from the TLG member.

Five question were sent, and we have received response to three: From the IAB, ETSI, and W3C. One question was sent to the ITU as

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well. They have apologized because they are not here, so they won't be able to provide a response.

So we will hear from those three organizations, who are all member of the TLG, their view on those questions, and we'll have the opportunity for the board member and the community as well to ask question and discuss the topic.

Another comment that we have received as well was to give more opportunity for the Board to interact with the TLG and the TEG, so we have made provision in the agenda for 30-minute interaction between the Board and the TEG on either these topics or other topics.

The structure we want to maintain for this session is in three main sections. The first one, the question from the Board or the organization; the second is the forward-looking aspect of the TLG, any upcoming trend, anything that the Board need to pay attention to, and the last part of the agenda will be dedicated to interaction and discussion.

So we are trying it. This is the first time we are trying this model, and we'll see how it works. And then from here, we will build up on the feedback.

So on that, back to you, Harald.

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HARALD ALVESTRAND: Thank you. And for our first question, the first that came up on the agenda, we'll toss the ball over to the IAB where the question being asked was: What are the most important identifiers being defined by the IETF that are not domain names or IP addresses should ICANN be watching? Or perhaps it shouldn't.

WARREN KUMARI: Do you have a clicker?

HARALD ALVESTRAND: Staff, do you have the clicker?

ADIEL AKPLOGAN: You can just say next and they will move it

TIM WICINSKI: So I'm Tim Wicinski speaking for Warren Kumari this afternoon.

We took this question to the IAB, the Internet Architecture Board, and of course, being a bunch of architects, they came back with a very detailed, rich kind of set of answers that we tried to sort of bring out in a high-level sort of mechanism. We'll sort of move through a lot of these slides but there's a lot there for the technical folks, and then of course just try to hit the high points for the Board. So....

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So of course the question was what are the most important identifiers being defined, and of course we came back -- they came back with a very rich sort of answer. They, of course, defined identifiers as two types, the sort of single-term and then multi-term, single-term being things like IP addresses, things of that nature. They have defined meanings.

Multi-terms, structure values. Think of things like URIs, considered a set of components. We sort of view them as like bits of LEGO. You can stick bits of LEGO together, they're all defined, and you put them together, you make something bigger. Like, you know, everybody knows what a URI is. There's a path there, there's a domain name, there's a path, there's a query. Think of those as just little bits. You put them together and you have a new sort of identifier. Everything is defined. Everything is sort of simple. And they sort of grow in this sort of manner.

And then of course we sort of say identifiers have scope, sort of a local or private scope, for sort of systems that are running on their own, and then the global scope. So local scope are things that are just sort of built inside software that none of us ever see or sort of deal with on a regular basis. But it's the global scope that I think is really what ICANN is sort of looking for. These retain uniqueness across the systems. Necessary. And these are thing that are defined in the protocol parameters that -- in IANA -- that we use IANA to maintain. So these are the things that sort of, if

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you're looking at things, this is what sort of ICANN is going to be looking at.

And what we see with new work is basically the sort of multi- -- these multi-term or structure identifiers. Things that exist now, putting them as building blocks. We put the blocks together and make new blocks. And that seems to be the big chunk of work that's happening inside the IETF. It's all very simple.

And then but the big thing for us is IANA. We totally value IANA because they maintain all these protocol parameter registries. And what ICANN feel we can do is ensure that IANA continues to operate at the current excellent level because we need them to help us sort of define these registries and keep things -- everything sort of in sync.

So that's basically -- you know, they came out with this question, and literally the IAB came back with an answer. They didn't really come back with an answer. Their answer was, you know, what do you think is important? And, you know, I sort of looked at what they wrote, and I was like this is very useful but it's not going to be -- you know, it sort of leaves sort of open hanging because there's really -- there's not a lot of play here in terms of what I think really sort of touches ICANN, other than the work you guys do with IANA, which we think is super, super valuable, and we really can't stress that enough.

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So that's basically where we stand on that.

So -- And we had the follow-up questions there, but I figure, though, it sounds like it will be at the end of the session.

HARALD ALVESTRAND: Thank you.

And I was also notified that due to my newbie status on this role I had entirely forgot to ask the panelists to -- or board members and sundry to introduce themselves.

Patrik, you want to start?

PATRIK FALTSTROM: Patrik Faltstrom, SSAC.

TRIPTI SINHA: Tripti Sinha, ICANN Board.

AVRI DORIA: Avri Doria, ICANN Board.

CHERINE CHALABY: Cherine Chalaby, ICANN Board.

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STEVE CROCKER: Steve Crocker, floating around loose.

HOWARD BENN: Howard Benn representing ETSI.

JAY DALEY: Jay Daley, multiple hats.

MERIKE KAE0: Merike Kaeo, SSAC liaison to the Board.

WENDY SELTZER: Wendy Seltzer, W3C.

DANIEL DARDAILLER: Daniel Dardailier, no longer W3C but still representing W3C today.

HARALD ALVESTRAND: Harald Alvestrand, IETF liaison to the ICANN Board.

ADIEL AKPLOGAN: Adiel Akplogan, ICANN Board.

TIM WICINSKI: Tim Wicinski, IETF, IAB liaison.

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WARREN KUMARI: Warren Kumari. I'm here from the IAB.

RON DA SILVA: Ron da Silva, ICANN Board.

LITO IBARRA: Lito Ibarra, ICANN Board.

AMINE MCHAREK: Amine Mcharek, ITU-T.

LARS-JOHAN LIMAN: Lars-Johan Liman, root server operator and RSSAC.

HARALD ALVESTRAND: And can we ask the board members who are part of the audience, wave their hands so we can see they're there?

Thank you.

And with that, I think we should leave the table to ETSI.

HOWARD BENN: Thank you. Can I have the clicker, then?



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Thank you. So ICANN passed our question on to both the ETSI board but also within ETSI we have a group where all our technical body chairmen sit on called the OCG. I passed it to them, too.

I think before I dive into the -- there's only a few slides. It won't take long, but before I start talking to the slides, maybe a little bit of introduction to how important DNS is becoming to the mobile community.

I think Goran kind of got it a little bit wrong when he was talking in his opening presentation on that Monday morning where he was kind of -- I was also at the Mobile World Congress a couple of weeks ago, and he had picked up on the fact that there were several comments at Mobile World Congress about the interaction between the Internet and the mobile industry.

The fact is that our 5G standards are totally orientated to providing Internet services. And what we're also doing is within the networks that are the back-end of all this, they are all being transformed from having -- well, they're not really proprietary standardized but very specialist interfaces between each of the functions. So within a mobile network you have lots of functions, so everything from policy control, authentication. There's a whole raft of them. There's about 25 functions defined. That is

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all moving to a more Internet-based architecture. So each of those, instead of having these very specialist interfaces, they are now moving to HTTPS, and each of those functions of course will need DNS. So DNS security I think is something that's very important for us.

But what's interesting is that when I reviewed all of those, none of those required changes to DNS in any shape or form. Obviously DNS was perfectly designed in the first place, so it's totally applicable to us at the moment.

But I did find one area in one of the ETSI groups called electronic signatures and infrastructures. And again, if you want to find out more about these groups and get the specifications, just go onto etsi.org. They just redesigned the website and it's quite easy to use.

So the area that they've looked at is based around the X.509 certificate that I'm sure most people in the technical community will understand. This is the certificate that's used for -- could be the little lock symbol on your web browser, and it contains certain amounts of information. Obviously the important one is the key, but also at the moment provides you with the URL of the website that you're accessing.

Back in 2014, the European Union decided that they wanted to add some additional information, so there's a mandate on

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electronic identifier and trust services. That requires that the website certificates be considered as qualified. And then what ETSI has done is that we've actually worked on implementing that mandate, providing the specifications. So the qualification bit is the name of the website provider and also an official registration number. And again, if you troll the Internet, you'll find the mandate quite quickly.

So what we have done is we've added some additional fields into the X.509 certificate, and the ETSI standard now supports a number of these. I did actually -- I did realize the standard is -- the number isn't on here. So if anyone is interested, it's EN 319 412. And again, you can download that for free off the ETSI website, and that includes the ability to add the company registration number or VAT tax registration number, global legal entity identifier number or a payment service provider authorization number.

So we're now working with, say, Browser Forum to try and get this implemented to support the European Commission.

That's it. Thank you.

HARALD ALVESTRAND: Thank you, ETSI.

And now last but not least, from the W3C.

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WENDY SELTZER: Thank you, Harald, and I do not need the clicker, because I did not prepare slides here, but the question presented to W3C, maybe this just goes back to the agenda.

Nope.

Was, do we see future potential benefit for the Web architecture from new kinds of data associated with DNS names.

And in looking at that question, we discussed among the W3C team a bit. Of course, domain names have an important part in the Web architecture, and for Web applications, domain names are a core element of the URL by which Web page are accessed, or URI. And they're important in Web security, setting security boundaries through the same origin policy of what active content can execute in a Web application context. They're important to user privacy in setting the boundaries on cookie jars. So the question of could associating additional data in the DNS record help with any of those Web application challenges is intriguing. But then we also looked at, you know, previous efforts to do that sort of augmented data in DNS and saw that there hasn't been much uptake for that from the Web community. So then IETF efforts like DANE and Debound to provide additional domain authority information or association information haven't seen much Web uptake. So why is it that Web application authors

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aren't using the potential of storing authority-related information in the DNS?

Sometimes application authors are concerned about performance issues and the perceived or real latency costs of retrieving information from DNS. Sometimes it's questions of application architecture. They've developed systems of edge caching and -- to speed up their Web applications and so it's easier to store extra information in dot well known files that are served over HTTP associated with Web sites rather than using the DNS channel. Sometimes it's the difficulty, real or perceived, of getting additional information into a domain record, lack of registrar support for -- or standardized support for additional information storage there.

So I think what we see is there's a good case for sort of brainstorming among the communities how might additional DNS data be useful. And that would need to involve, really, some of the systemic and economic considerations of what would it take to get all of the cooperating parties needed to build the components to make it work effectively for Web architecture. What are the hurdles to some of these things that might be interesting? Is DNS a better way to solve those hurdles than using other Web components, for example, to store affiliation information or scope of authority? The question comes up in advertising authentication. So an interesting question and I think

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one that this community could usefully address around thinking not just about the technical issues, but also about the incentives to building systems and potential -- and changing systems that would need to occur to make that an effective change.

HARALD ALVESTRAND: Thank you, Wendy.

So our current agenda point is now open interaction with the board, and which means that people who are present from the board and from the TEG get to ask questions.

And I'll kick off a question to ETSI, just random, but kind (indiscernible) than to what Wendy's saying, which is that your presentation seems to be associating more information with domain names than before. It also means that so some of that information might be in conflict or corroborate things that are stored in other places, like WHOIS, or in the dot well-known files that Wendy's organization tends to know.

So how would you say that the different information stores should interact?

HOWARD BENN: It's a really interesting question. And, in fact, it's almost the question that I asked of the chairman of the group, is why this was

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decided to be put in the certificate and not in the WHOIS information.

And it appears that that was somebody in the European Commission who wanted to associate this with the security certificate, and they just did what they were told to do and wrote the standard.

So, to be honest, I really don't understand why that decision was made. That was a political decision, not a technical decision, from my understanding. So who are we to question our political leaders?

It is a really interesting question on the conflict, though. So the authoritative source has to be the certificate in Europe now. So that is the -- it is defined as the authoritative source. So if the information is in conflict with the WHOIS information, then it's the certificate that is taken precedent.

HARALD ALVESTRAND: Steve.

STEVE CROCKER: Thanks.

So, Wendy, I've actually spent a fair amount of time thinking about how you put more information into DNS, use it for various

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purposes. And there's a -- sort of a set of specific challenges. For the most part, DNS is set up so that a DNS administrator puts the information in and does it through -- if it's going up to a TLD, through a registrar. And if it's being administered locally, through the local tools. What's not common, in my experience -- and maybe things have evolved in a more positive way -- is for applications outside of the usual addresses and name server details to be put in for other purposes. So, for example, if you wanted to have a DNS record for every person in your organization and have their email address visible, it would be nice to have that connected to the email management system. I have seen that done on an ad hoc basis. But the tools are not, in my experience, as I say, generally available. So that's one key issue.

And you alluded a bit to the difficulty of putting new information in.

The second hurdle that I've seen over time is that if you want to create a new DNS record, a new RR type, now you've got a painful process, first through the definition and standardization, and that's only the easy part, getting the adoption and implementation. So the pragmatics, the way things get done in the Internet is, you work around those difficulties, and so text records abound and sort of proliferate, which is viewed in some respects as a negative, and in other respects, it's the obvious thing to do. But it kind of subverts the standardization process.



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That's two. I've got another one or two.

A third is that DNS is really well-tuned for lots and lots of small things available everywhere to everybody in a public way. It's not very well-tuned to protect information so that only authorized people can get it. And there's a lot of games that get played with giving different amounts of information to different people geographically or so forth. But the basic -- basic design -- and you know this, and everybody knows this.

And then probably something of less importance is, if you're going to put a data element that is a kilobyte, that's fine. If you're going to put a data element that is a gigabyte, that doesn't work so well, just to emphasize the point.

What's the thinking within W3C, and for that matter, within ETSI, about that class of issues?

WENDY SELTZER:

Thanks, Steve.

So I think within W3C broader community, the thinking is mostly we use DNS for what's there now and we build into Web applications and Web servers the other information components. And I think sort of in response to this question, I was sort of prompted to think more about why that is and why even things that seem structurally as though they'd fit in DNS haven't been

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put there. Another reason that comes to mind is the simple sort of technology versus organizational structure. And often it's a different person who's doing the domain registrations from those managing the Web applications and the scopes of authority that they want to give to those things.

So, frankly, I haven't seen a lot of push from our sort of implementer and Web developer community to get more information into the DNS.

WARREN KUMARI:

So Warren Kumari, representing the -- actually, I guess just my own personal views, to try and answer some of your questions.

So you mentioned ideas like putting email addresses or similar for individual people into the DNS.

There is a document recently -- I can't quite remember the status of it -- which spoke about putting things like people's payment information into the DNS. So, for example, if you would like to send me some money -- and if you'd like to, please do -- how you should send me money? You should send it using something like PayPal or Apple Pay or some other set of payment information, you know, the best way to be able to get small payments to me. And there's discussion of using sort of individual user name-level information stuck in the DNS for that. As I said, I can't remember

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the state of it, but just thought it might be an interesting -- interesting thing to follow.

Also, another quick update. Yes, you're right, there was a lot of discussion about the difficulty in getting an RR type, you know, a new record type, in the DNS. And I can't remember when it was, but not too long ago, that got changed, so instead of requiring a standard, it's simply expert review. And this was changed because it was recognized that uploading text records makes things very difficult to parse, so it's now much easier to get an RR type. It's largely apply for one, and the expert review process happens, and so it's much simpler.

And let me see what my last note was. Oh, yeah.

So, yes, as well, large records in the DNS don't work. I think that that is sort of a by-design architectural decision. It's a large distributed database. And large objects should probably be somewhere else with the DNS pointing at them or providing a means to find them, just sort of the way that the database is designed and organized and large records would have to be cached in other people's resolvers, which might be an architectural –

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STEVE CROCKER: At the risk of pushing this a little further, the -- defining new RR type, even if you make it go quickly through the standards process, the implementation in getting it recognized is really hard to -- I could imagine, if we really wanted to make this go smoothly and deal with the parsing of text records and so forth, that one could develop a scheme for representing what the grammar is and adopting some conventions, and then it would be relatively quick to propagate a new record. It would look like text.

And it's not -- And then you parse that, and you could download the grammar for all that.

It's not unlike trying to push things over HTTP because everything goes through and you don't have to, you know.

WARREN KUMARI: Actually that brings up a very interesting point. There is a document, I can't remember what the status is, maybe Patrik or Suzanne can, which actually set out to specifically design that. It would be a way to represent what an RR type looks like and so allow software to be able to ingest that and then provide a way for it to be understood. One of the obvious use cases for this is, as I think Wendy said, it's often hard to get new DNS information in through something like a registrar interface. A lot of the web interfaces have specific fields. And this new format would allow web provisioning systems to be able to understand this sort of RR

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type has two numbers and then a string. And so make it so people can fill in the information in a reasonable manner.

HARALD ALVESTRAND: I see that OCTO has some input in this area?

DAVID CONRAD: Yeah. Actually we -- ICANN funded John Levine to actually develop software. There is a package out there, I believe it's written in Perl. I don't know if John is around. I guess not. But yeah, there is code out there that actually does exactly what you're describing. And the intent of that was to make it much easier for people to implement new RR types within web provisioning systems. Of course, getting people to actually use that is often a bit challenging, but some work has been done in that area.

DANIEL DARDAILLER: Okay. Daniel Dardailler. Yes, I think beyond the practicality and the performance issue that there may be in using DNS for web data, there's also an issue of people not wanting to extend their dependency on the -- on the -- basically the naming layer. Today it's really a small interface, through -- you know, the web application has to get the address of the host and that's it, and everything else is done with transport. And there is no knowledge

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of what is happening, you know, in the DNS of the layer above. And I think people are -- have a tendency not to sort of use this -- this layer anymore because it would create a dependency on more than just what they needed. So like the minimum, you know, sort of thing that they want.

WARREN KUMARI: Liman.

LARS-JOHAN LIMAN: Lars Liman. Just a quick comment. To be able to also remove a dependency on the -- on the certificate authority.

HARALD ALVESTRAND: Unfortunately removing a dependency on the political authority might not be a possibility. People seem to be quiet. Are we all feeling that we have reached the end of this topic? I think that we have a -- a solution that -- well, new names are intriguing and new information is intriguing, but the most important thing is that we keep the old ones running because that's what we currently depend on, and we want to make sure that dependency continues to work. And also it's been pointed out that many of the issues around which identifiers are used and which things depend on other things are defined -- are determined by other than architectural, technical factors such as implementation

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status of things and develop a familiarity with things and legal constraints. So that was, I think, a most useful session. Akinori, do you want to take it to any other business?

AKINORI MAEMURA: Thank you very much. Apologies for my arrival -- late arrival. I have some offsite engagement for -- overlapping with this.

All right. AOB section. Do we have anything from OCTO? No? Okay.

Anything from the -- from the TEG members? Okay.

HARALD ALVESTRAND: Was the session useful?

AKINORI MAEMURA: Is your question? All right.

WARREN KUMARI: Wondering if it's worth asking for if any members of the audience have questions.

AKINORI MAEMURA: Ah. Thank you very much.

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If anyone has any question, this is a very good timing for making the questions to the panelists here from the Board and the TEG members. Thank you.

PAUL HOFFMAN:

This is Paul Hoffman. Not a question as much as an anecdote going back to the ETSI question.

The qualified certificates actually came to the IETF very early, in approximately 1999, and were standardized in 2001 in PKIX working group.

And I bring this up because it was a very early effort for ETSI and the IETF to work together around this. And it was not really about the domain names. It was about -- since the PKIX certificates at that point were very focused in the IETF just on domain names. And, yet, there's all these other fields and it's extensible.

This was one of the times where ETSI came in and said, We don't actually care just about the domain name. We really care about this other qualified information, and the IETF sort of had to stretch.

And then coming back to what Tim had said about how important IANA is, later on -- at that point the registry for extensions, for PKIX certificates, were kept just on a website, not



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as part of IANA. The PKIX working group was sort of keeping their own registry.

And then when that moved to IANA much later, the qualified certificate extension was definitely part of it. So it actually sort of ties both of those together in how we can work together to bring things related to the DNS from outside groups and then have it all work and end up in the IANA registries. Thank you.

AKINORI MAEMURA: Any other?

PATRIK FALTSTROM: Patrik Faltstrom, SSAC.

I think the X.509 certificates work is an excellent example of how IETF and ETSI have been able to work together. If you continue to look at the -- how to tie domain names to certificates, just because there have been so much discussion about internationalized domain names both here at ICANN but also in the IETF at the moment, there is continuous work that was going on in the IETF as well but ended up with in 2011 with RFC 6125, specifically how to score internationalized domain names and how to compare them when they are part of that kind of data within a certificate, which means that sort of the IETF has

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developed things which are then impacting the content of the certificates themselves. Thank you.

AKINORI MAEMURA: Warren.

WARREN KUMARI: Thank you. Warren Kumari. Like I said, very short follow-on from that. I think that also leads nicely into Tim/the IAB's presentation on the fact that we now have a number base sort of identifiers, IP addresses, domain names, et cetera and that a lot of the innovation now and future work involves taking these existing systems and joining them together and plugging them together to make a more sort of larger, usable system.

AKINORI MAEMURA: Thank you very much.

Any other points? Okay.

UNKNOWN SPEAKER: (Off microphone).

AKINORI MAEMURA: Please.

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HOWARD BENN: Since we have a little bit of time, one of the other interesting areas that popped out of current work in ETSI slightly not related to this but maybe slightly it is, we have been looking a lot at quantum computing. And quantum computing is really interesting if they can get it to work because it will break TLS and it will break all the security that we rely on today.

So there is a group within TC CYBER, which is a group that look at cybersecurity, that are trying to design quantum-safe encryption techniques.

And, again, the work is in early days. But if anybody's interested, if you're on the ETSI website, you'll be able to get an update on that work.

And I think it will, in the future, depending on whether quantum computing does actually work at scale, it could actually have quite a radical affect on ICANN in the longer term.

AKINORI MAEMURA: Thank you very much.

TIM WICINSKI: I believe actually there's also a work in the IRTF, in the Internet Research Task Force, on quantum computing as well. So I can

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actually see where both groups will be sort of coalescing along similar lines. So, yes.

AKINORI MAEMURA: So quantum computing will be the -- raise the agenda for the TEG meeting in the future? Pretty much expected.

Any other points? If not, all right. Thank you very much for TEG members and the BTC and the Board members. The ICANN Board and the TEG joint meeting adjourns. Thank you very much.

**[END OF TRANSCRIPT]**