LONDON – TLD Universal Acceptance
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FRANCISCO ARIAS: Hello everyone. This is Francisco Arias, Director of Technical Services, Global Domains Division at ICANN. To my right Ed Lewis, also in the Technical Services area.   We're going to talk about a universal acceptance initiative that ICANN is starting. In the Agenda for today we'll cover an introduction to the issue at ICANN, the recent activity. We're going to introduce the roadmap we put up for public comment last week, and finally a call to action for joining us in this initiative.

A little bit of background on universal acceptance. First in the DNS we had a limited number of TLDs. We started around 1985 with only three TLDs. The most commonly known ones, which are .com, .net and .org, and the two-letter ASCII ccTLDs at the time. Of course, over the years, as new countries and territories were formed or dissolved, that was changing at a relatively low pace.

At the time, all the gTLDs were three letters. All except one, .arpa, which is called an infrastructure TLD. It's used for some protocols. This was the only TLD that had four letters. Another thing that was true at the time was that all were plain ASCII. There were no IDNs at the time. Like I said, there were not many changes. Only the adding of ccTLDs from time to time.

Email addresses were all in ASCII also. There were many of these assumptions that were embedded in code in many applications, and even security rules were based on these assumptions. Then things

started to change. We had the first two rounds of new TLDs back in 2000 and 2003. We added a few gTLDs and sponsored TLDs around 2003.

These were the first non-ccTLD changes that were made to the root zone. At that time, there was the first change of having gTLDs that were longer than three characters, and the first issues of universal acceptance were present. Some of you may be familiar with some of the articles written by Ram Mohan, now seated in our Board of Directors.

He worked for one of those new TLDs in the 200 round and had to face the universal acceptance issues, with applications that were not accepted in their TLD. Then in 2010 we started an introduction of IDN ccTLDs. This was the first time when we had non-ASCII TLDs added to the root. Strictly speaking, in the DNS, it's still ASCII, since the names are converted or encoded in ASCII in the DNS.

However, that's a representation that in the applications the [unclear 00:08:57] to be shown in the [native script 00:09:01] that is referred by that encoding. Then we had names that were much longer, in ASCII coding. They added four characters at the beginning that were an overhead, to identify that this was an IDN. We are starting to face new challenges, like having right to left scripts. If you had one label that was in Arabic, and another label that was in ASCII, then you have the mixture of right to left and left to right characters, that face some interesting issues in the user interface.

Finally, we're in another round of expansion of the root. We're introducing now hundreds of new gTLDs. We started delegating, as you

may know, since October last year, and we have already delegated around 300 new TLDs. Again, we have long ASCII names, IDN names. So a new way to change the assumptions that we had before is now the rate at which TLDs are delegated into the root is much faster than it was before. We're adding a few TLDs every week.

One of the key components of the Internet is that most users focus or use applications in web and email. In web there is already some support for internationalized domain names. In email there is another component that needs to be internationalized. It's not just the domain name. The user name in the email, which is to the left of the "@" sign, that is a component. It's not a domain name.

That part has to be internationalized too, in order to enable users of China or in a country using an Arabic script, to be able to use an identifier of one of the most common applications, that email, to use it with their own script. That's another thing. The protocol was standardized in 2012, if I remember correctly, however the adoption of this protocol is still minimal.

This also changed the way that we… We used to think of email being in plain ASCII. Here we have examples of the kinds of things that happen. If we type one of the new TLDs being introduced into a browser, one of the things that happens is that instead of being directed to that page, in some web browsers you will be directed to a search page, instead of that domain name.

Another issue of universal acceptance is if you're using an IDN TLD, the rendering will be in ASCII in some cases, which is probably not very user

friendly. It's the same thing with email. There is still very little support for internationalized email in the most common applications and email services around. What do we do now? What do we need in order to face these issues?

We need applications and services to enable the user of any TLD as they are delegated. We ideally will need to change the way the applications behave in regards to TLDs, so they don't have, for example, a built-in set of TLDs that are considered valid. There needs to be a more dynamic way to check for validity, if any, on the domain names that are being entered in an application.

We also need a way to enable the users to display the domain names and email addresses in their native script that they're using internationalized email or internationalized domain names. At our last ICANN Meeting in Singapore we had a session and one of the things that came up from the discussion is that ICANN should work in developing a high-level plan, a roadmap, that it will implement on this topic. That's what we did, and that's what we put up for public comment last week.

This is a draft of course. It's still subject to public comment. In that we are proposing that ICANN will play the role of facilitator, working with other parties interested in the topic in the community to advance on this issue. With this, I'll turn my microphone over to Ed.

ED LEWIS: Thanks Francisco for giving the background and where we're heading right now. What I'm going to do here is talk about more recently what's been going on in this project, and then going into the plan, and then

some of the call to action that's coming up here. To give you an idea of some of the legwork that's going on behind this; getting prepared for this session today – and the roadmap that you're being asked to comment on is a draft.

We were invited to speak at APTLD's meeting about a month ago. There was a session held there by APTLD, and we participated with our thoughts and actions so far on this topic. It was very apparent that there's a widespread interest in solving this problem. It's becoming a more acute problem every day. A few lessons we learnt there are that vendors are very eager to help solve this.

As much as vendors are being asked to solve things – and with "vendor" I'm using it as a very widespread definition – they're saying it's tough. They're saying they have lots of challenges ahead. One is that they've built a world around the existing assumptions that were in the earlier slides. They have to maintain that, but they have to go forward too. That's not easy.

What also is not easy is knowing how to go forward. The user community, on the other hand, is helping out now by being more clear, every day and every month, every year, on what they want out of the Internet. CENTR the Council of European National TLD Registries in Europe. That was a very technical group I spoke to there.

They have a different set of concerns, but they have a rising interest in that, because even internationalized or non-ASCII domains are actually rising across the board in Europe too, although it's less visible at first glance. There was a lot of good feedback from that session, which I have

listed down there. I won't repeat what's there. In terms of developing a plan, that is what we've been trying to do since the ICANN Meeting in Singapore.

In preparing for that session we spoke to a lot of people who were involved in this, and we got some early indications of what needed to be done. We've been receiving some reports of people saying, "Can you help us fix this?" and we've been trialing our actions according to those, as test cases, to get familiar, and also building the network of communications we're going to need to solve this.

We've discussed this at meetings, as I just mentioned. We eventually drafted a very short plan, that should make it easy to read and help get people want to comment on it. That is currently put out for public comment, and the URL for that will appear later in the slides. Formalizing a statement. First thing to do is put this as an easy to read statement out there. That's tough. It's a very widespread problem.

We have here, and this is coming from the roadmap draft itself, saying, "Domain names, TLDs, must be usable in applications, regardless of the written script that's being used, the length of the TLD name, or the newness of the TLD." We want all these things to work right.

This statement may be a little clumsy, and some people have said that, but it's roughly capturing the definite points that we see as concerns in the community, which is with the non-ASCII TLDs, that's a challenge for some people in many ways. Longer TLD names. That's been a challenge since the early rounds, and the rapid introduction of gTLDs has really made this much more of an urgent issue to many people.

The word "usable" is open to interpretation. It depends on the context to which you're using the Internet. We've also been saying internationalized email is a concern. First, [unclear 00:20:32] that's not a TLD. That's off on the other side. Where does it come from? It's been actually said to us that internationalized email is what some people call a "killer app". It's something that people really want to use, and that's a reason why they would use an internationalized or non-ASCII TLD.

This goes in hand-in-hand, even though it's not a technological building block of that. In the sense of usable, they've defined that people have been defining usable names as being, "Can I use it in my email?" That's where the internationalized email has become a part of our concern.

The next step we've got out there was try to identify those who have stakes and who are involved with this. Mostly to give you an idea of the breadth of this problem space. I'm going to list the laundry list of the groups here. First, the group I'm going to name here is the domain name industry. Anyone who's involved with domain names – ICANN, registries, registrars, DNS hosters, and so on.

The next group is of course the user communities. This is who this is all for, ultimately, for whatever reason the user community has formed – whether it's language specific or whether it's just some societal or cultural desire to use the Internet in some way. Applications, developers, service providers. This is a large group of everybody who does anything on the Internet, whether they provide a service, they provide software that's distributed. They're all over the place. Many organizations that fit in this fit in many roles in here. It's a very wide open category.

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There's a Protocol and Operation Standards Bodies that have been involved and continue to be involved with going forward in this area. System and network operators. These are the people who actually make the Internet work on a day-to-day basis. A lot of times these are overlooked groups, because they aren't part of the… They [unclear 00:22:27] work for enterprises and internal [net] places.

Also, ISPs are another example of this. ISPs generally get the brunt of this, because when something goes wrong they get called first, frankly. Then security practitioners. Security is one of the reasons why people are hesitant to go into areas they don't understand, like a foreign written script, foreign to them. We have a lot of work to do in that area to come up with scripts that… How do you do security when you no longer assume one written language?

The role that ICANN has been seeing in this is that the best role for us is to be a facilitator. To be a go-between and help solve these problems. It's all over the place. Everyone's involved in this. Anyone who's built the Internet has probably got a stake in what's going forward. One place that we can be a facilitator is motivating activity. That starts with listening to what the problems are out there.

What are people concerned about? What are the priorities? What are the most urgent areas to work in? Just trying to get an idea of what people are working on. The second thing is education – and this is what people usually point to. It's trying to be an informant and inform people on what's going on out there.

You want to do that in the correct way, because sometimes people are aware of what they have to do, but they need help in getting there. Sometimes they aren't even aware that they have a problem. Finally, through the listening and education you learn where the gaps are. Some groups will look at a problem and solve it when they realize they're missing some sector of their problem. They haven't gotten to the integration part of it, for example.

That's another area to help in. We'd be helping identify where we see more attention, because nobody's paying attention to that area. Fostering communications is the next thing. It's to talk to people and find out who needs to talk to whom. It's making the connections between groups so they're aware that there's a group that does that.

Providing online collaboration is a more concrete way to be involved, where we have tools put online that will help get rid of the time and space distance between folks who are working on this. It also helps in being more transparent and open in how we go forward in this, and trying to encourage interoperable solutions to all of this. It's also arranging for forum discussions. We may not arrange the forum, but we may point to forums that are appropriate.

Also, we want to support what we called a common context. This is a way of saying by listening to everything that's going out there, and trying to catalogue what people are doing and some of the common stories, we're going to try and help people solve problems in a common way. We really need to have common solutions to these things.

What I've learnt in many cases I've worked before is that if you have a very novel approach to something, and you're in a competitive field, being novel can be bad for you. You don't want to stick your head out and say you're no longer compatible with your competitors. Everyone has to go forward together in a coordinated effort, in the same direction, so that we don't have more tearing at a problem space.

This also goes to encouraging openness and transparency in what we're doing across the board. Now, the areas of attention – there are different places to focus energy – not necessary places to concentrate but to focus energy. The domain name industry is one area that becomes identifiable right away, partly because this is the industry that enables all this. If we don't get names working correctly throughout the registration process, it's going to go nowhere fast.

Secondly, on a more practical note, as an ICANN staff point of view, we have much more familiarity with people in this area, and we can help start building our network of dependencies from this area. We have a much longer history here. There's the broader horizon, which is pretty much everything else. Once you get to everything else, it's hard to subdivide that in any way.

I want to point out that we're aware that there's a lot of places to work here, and we don't want to hinder anything. We want to be part of it, and it's going to be touch and go here to decide where to spend the time. We're listening to where we have to go and be involved, but we don't imagine that we'll be directing the work through the rest of this space. That would be unscaleable.

Also I should point out too that there's progress in that area already. Other people have been working on this and we've seen progress already. Another focus for us too is to develop this reporting mechanism, which is illustrated in this slide here, where people can report to ICANN staff, "We found something that's not working," and through some automated format leave us information about what's not working.

We can then take this information more discretely to the actual source of the problem – because we're not going to try and advertise what works and what doesn't work – and we'll also look for patterns of common misbehavior. Perhaps that means we have to go to the standards body and say, "We'd like to have improvement in this standard body's work," in some way. However that may come up. We've heard different possibilities that that may be a case, but nothing concrete.

This is where we start turning it around and saying, "What's in it for me?" "Me" being the people in the audience or a number of stakeholders that were mentioned earlier. In these slides I'm going to talk about what things we see as needing to be done, and why you should bother to do that. The first slide I have here is the DNI and the associations related to the DNI.

Things that have come up that have been somewhat concrete is when I'm registering a domain name I'm not able to use a name server in any TLD right now. A lot of registries will restrict the name of your name service of being within a certain TLD area. We'd like to see this opened up. There are challenges with that. For contact information, it's very

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important in a registry. The email address is an area we'd like to have internationalized.

We'd love to have it there but it's not there this day. I'm not saying that the registries are behind because they haven't done it, because they'd come back and say, "We don't have the tools for it yet." Unrelated to that version of tools, in general we need to have more tools for debugging the domain names better in different scripts.

If you go to any NOG in the world and they get a phone call from a customer saying, "This doesn't work," the people at NOG need to be able to understand all of these TLDs. If you've been at a NOG you're not going to be somebody who understands every written script out there. You're going to need tools that will help you relate between the native script that you may see in some places, and the DNS encoded version of that.

There's not always an easy way to translate between the two. The payoff for the domain name industry here of course is first of all we want to help [and choice 00:29:48]. Domain names that are usable are usable across the board. We have more choice. If I can use names from any place anywhere else, I don't have to worry about where I'm logged into.

Building consumer confidence. Consumers will be happier because they can register names in their native language. They know what they're getting. They're dealing with something in their native language. That will be a good thing to have. Competition in this case is I don't have to

have my name servers in the same TLD or a small set of TLDs. I can go anywhere I want and use my same name servers around the world.

The user community. There are some challenges there. The number one thing for users is, "What do you want? Define what it is you want to have on the Internet. Provide anything that's specific to the way you want to communicate on the Internet." I always here more new ways of using names, as we go from being engineers to being people who are part of everyday life. It's good to measure progress.

We're trying to identify what's the way to measure success in this project in going forward. The payoff of course is the more you know what you want, you're going to get what you want. We're going to try and get a better Internet out there. For the application vendors and service providers there are many areas we could pick on.

I don't want to be picking on it, but to give an idea of where it's proven to be is to improve on timeliness and the accuracy in knowing what's a valid TLD. One of the examples earlier was that a brand new TLD hadn't been recognized in some of the browsers because at the time it was shipped it wasn't a legal TLD. It wasn't in their list.

Upgrading user interfaces is a big thing. User interface designs that go back years assume lots of things about written script, and that's been broken quite rapidly now. A big concern is mobile applications being kept up-to-date, because as much as people are used to developing on computers that sit on desks or on laps, lots of the world uses different devices – we're all aware of that because we're using them now – and that's an area that appears to still be a place that needs attention.

The payoff investing in this area means you're going to have a larger audience to reach, as a vendor. Not just a larger population, but also many different ways to reach people. So there's an upside to all of this work. For the protocol and operations folks out there, who've been defining how to do this stuff on the Internet, the common gaps that we see are the lack of transitions.

We are where we are today, we know where we want to be tomorrow, but how we get there is sometimes tough for operators. There's no guidance on the intermediate steps between the two places. Also what comes up too is the lack of testing. Very few people have ever stood up testing suites for many of the services on the Internet. We don't have that. It would be good to have that.

Where that comes from it could be anywhere in this sector, because generally they're the ones that come up with how you do things and what the process is you use – the protocols versus the operations. The payoff here for these areas, which are generally volunteer organizations, by the way… Raising the population means that there's more for people to look at in a problem space. It improves the network but also, with this stuff, we can start enabling further innovation.

I know from experience that a lot of times we want to expand a protocol, but because we'd built an assumption we couldn't go there. If we can get the Internet to be more flexible we can start innovating again in many places. System and network operators. These are the people that generally will be the ones who pick what tools the enterprise customers use. They decide what version of mail, what reader you get.

They decide what kind of firewall is put in place and what kind of router is put in place.

The work there is to make sure that when people in the sector are doing their job, that they are aware that they want things that are universal acceptance-sensitive, that the tool is not restricted to any one area. They're probably used to doing this in other transitions. There are also the ones that are testing and trailing these things. These boxes – do they actually do what the vendor says they do?

The payoff in this area is fewer trouble tickets. Trouble tickets are the things that these folks live off of, and you want to have less of them, but also more productive in troubleshooting. Again, in the NOG situation it's easier to understand the world if you have better tools. Finally, in sense of the last stakeholder groups I have, for the security practitioners, the challenge now is to come up with new protocols that go beyond assuming it's all in ASCII.

I've seen some heuristic rules that depend on how a name is written. How a name is written in the IDN world might actually look suspicious, because that's how we encoded a legitimate name. So we have to change some of the rules in that area. Also, defining what's confusingly similar is going to need more work over time, and it's become more acute a problem as end consumers are more connected to people speaking different scripts and we want to make sure that everyone knows what's going on on the Internet. Confidence has to be built here.

Building better rules and firewalls. I've seen situations where people in code have run into a firewall and things go bad because they didn't

understand the rule itself – there were typo errors all over the place. Ultimately, we want to limit false positive alarms of bad activity, because, "I didn't understood that script, I don't want to go there," may not always be the right thing. The payoff is a safer Internet.

The next steps from this point now, where we've looked at the roadmap, we've looked at what people would want to… We see work is needed where we'd like to be able to connect people. We have a draft roadmap out for public comment. That's the URL up there. I'm sure you can click it quickly. If not, it will be made available in other ways too. Next step of course is once we get the public comments we'll publish a more final roadmap to say how the staff will help approach this.

That will be based on community feedback to make sure we're doing the right, helpful kind of work. Finally, we'll be following along on the roadmap to fulfill the role that is needed to be played in this initiative. With that, I'm going to go to the slides that shows… The Q&A. That again shows the URL there.

I'd like to add one thing. On the public comment page we have other URLs to more resources, and that's why I only have one here. If you go to that page, you'll see there are some other links. We have a history of presentations of the materials out there. There is a lot of material available on the web, but from now we can start with the public comment link and then go out to that area. Thank you.

FRANCISCO ARIAS: Thank you Ed. With this, I'd like to open the floor for questions.

ANDRE [COLESSNIC]:   Andre [00:37:27] of [.al]. I'll do my same preaching that I do every year, okay? Just a little follow up on the APTLD meeting. One of the good ideas, as we said in Oman, is that the massive user platforms like Google, Microsoft and Apple are basically ready to provide the community with recent updates on the development of their IDN acceptance. It's just hanging in the air, and I think one of ICANN's roles is to gain this report and to provide it to the community.

It's just a job to do. Of course, we're going to make that comment on the public comment page. The second interesting piece of information is, for example, Microsoft last year had sales of more then $1 billion, and about 56% of those sales were to the governmental sector. Oracle, 86% out of a few billion.   HP about $4 billion sales with 65% in the governmental sectors.

One of the ideas, which sounds very tough and not very multistakeholder-ish is to recommend through the GAC, to the governments, to apply certain regulations into the licensing of the foreign products. The companies that are going to sell the product on the local markets, which are not ASCII based, should place certain regulations to accept the IDN to treat IDNs right in their product, in their systems that they provide, at least to the governmental level.

You can do it through the mass market, but you can enforce it through the governmental level, through the regulations. That's another idea. Also, talking about the role of ICANN, I really believe that one of the jobs to do is hire a consulting company, or a group of experts, who's going to

track the recent changes in the development of the IDN acceptance, at least at the core of online market products.

As I said, it's a massive social networks, massive online email platforms. Name a few – Google, Microsoft, etcetera. We all do it. We do it in Russia. We know people do it in China. People do it in the Ukraine. Maybe it's the role of ICANN to organize not just a session at ICANN's Meeting, but to have a practice, a real report, display, of the findings. That should be at least three times a year, and it should be presented at ICANN Meetings.

Everybody who's interested in this may provide the commands or the updates of what they found in recent developments, etcetera. That's it. Thank you.

FRANCISCO ARIAS: Thank you. Thank you for all of the helpful suggestions. I just want to comment briefly on the last one you mentioned about measuring the status of the problem. It's something that we've been investigating options into. One of the difficulties we've encountered is that there doesn't seem to be an easy way to measure this problem. I get what you said about perhaps if we focus on a subset of the most commonly used applications, this may make that measurement easier. Thank you.

ADRIAN KINDERIS: Hi. My name's Adrian Kinderis, talking on behalf of [.chabuka 00:41:45] registry. I thought I'd give you some real world feedback from operating an IDN TLD. I know this conversation today is specifically about IDN TLD

universal acceptance, but we brought up contact data earlier in the presentation.   I just wanted to highlight how important that conversation is, because I think it gets put to the background.

We're worried about how domain names work out there, but we're having issues where people can't even register domain names, because the first thing they do, whilst we're offering them an IDN, the first question we ask them is their name, and their name in ASCII. This is a real world problem. We're not enabling people to get names in an IDN, and creating barriers to them getting them.

Whilst I understand that the work that you're highlighting here is about the activation of those names, and making sure that they're able to be used in the real world, I do believe that conversation should be expedited, and ICANN's role there, especially from a policy perspective…

When the technology is able to handle the contact data being an IDN, I'm going to wait for ICANN to put its hand up and say, "This is a policy issue now because law enforcement need to see all the requests in English please," which is rubbish. So I guess two issues there. One, expedite the work from a technical perspective, and understand its impact to the provisioning of domain names.

Two, for ICANN to understand that this work is going to be coming up, and any policy issues get dealt with in advance of that, so it doesn't retard it. These things can be done in parallel and ICANN is famous for doing things in series. Thank you.

FRANCISCO ARIAS: Thank you. I believe there is already work going on in gNSO. There are a couple of Working Groups, one looking at the translation and transliteration issue, and the other working on defining what fields should be enabled to be internationalized. That is something that's going on. As we mentioned in the presentation, we need to enable the very same domain name industry to offer support for universal acceptance. We need to "eat our own foot" as they say in the US. Thank you.

HAN CHUAN: We have two questions from [Lise Muetton 00:44:41] from the Adobe Connect. "If ICANN is not directing the work, can it host a series of technical and user meetings to facilitate faster work?" The second question is, "Is ICANN able to provide [meshed 00:45:00] funding assistance for the work to be sped up?"

FRANCISCO ARIAS: The first question, providing meetings to facilitate further work. What we kept seeing in our initial assessment of the situation is that it's perhaps more useful to go where the developers are, rather than trying to bring them to ICANN or some other new forum. What we're proposing in the roadmap is to go to where they are, to their meetings, wherever they are, to evangelize about the issues, so that they can enable their applications and services to support new TLDs in general, and internationalized email.

The second question, on providing funding to speed up the work, it's something that can be certainly explored. The only thing I would say is

that what we've seen is that it seems that there are a number of parties that will need to update their application. It's quite bit. We're talking about pretty much any application that deals with new TLDs, so that is probably not something that can be completely funded, and it's also not easy to reach out to these people. It's certainly something that can be explored though. Thank you. Mark?

MARK [BLANCHE]:

[Mark Blance 00:46:50]. An important part of this puzzle is related to the fact that some browser vendors are actually using a volunteer-managed list of TLDs and actually rules within TLDs. There are pros and cons to this approach, but the real impact is either we continue with this, or we don't continue with this. The more we wait with this mechanism, the more the industry will take it, because there's nothing else, given their requirements and needs.

The IETF, a few months ago, the [unclear 00:47:42] that discussed about that, the principle volunteer who worked on this list actually said at the end of his presentation that he's open to have another mechanism, if a better mechanism is found and agreed. I think part of this problem… I'm really carrying the fact that if we don't work with the browser vendors, these are really important people in this puzzle.

If we go around and talk to application developers and everybody, that's fine, but if the browser doesn't stick with the thing, then I'm not sure we're solving the problem.

FRANCISCO ARIAS: Thank you Mark. Yes, one of the first contacts we started was with the major browsers vendors.   We already have the contacts, and we discussed topics like this.   Yesterday we had [Derek 00:48:43] from Mozilla talking precisely about this topic with SSAC. I see Rod in the queue.   He was leading that specific session in the SSAC discussion. [Derek] was explaining yesterday about the [unclear 00:49:00] Mozilla started this initiative for a specific need they had, which was not related to identifying the validity of this.

Then other people started using the list, and one of the uses, as you said they're doing now, is to identify those TLDs. Ed here is part of that effort within IETF, as you know, so we're more than happy to be able to help on that. Rod?

[ROD]:   [00:49:36] Thanks.   Thanks for mentioning them.   I'm heading up an SSAC Work Party that's looking at the public suffix list, and looking at various vulnerabilities and security issues, as well as the impact on new TLDs, IDNs, etcetera.   One of the things we want to do out of that is probably inform ICANN and the rest of the community about some of these issues. I just had some comments, and this is a good presentation presenting a lot of the issues and the like.

A few comments and inputs that thread together – one of the things that we've found as a challenge, in doing the work that we're doing within SSAC and elsewhere, is that there's a wide variety of methodologies people are using to figure out what TLDs are in existence. Those go in the software or services or whatever, and become [unclear

00:50:32] in some way. The public suffix list is probably the most well known, because it's used by many different applications in many different protocols – DMARC being an example of a protocol that actually calls in the public suffix list to figure out how to do email authentication.

I think it would be very valuable to have a centralized resource of the information around what operating systems, services, etcetera, use TLDs in what they do, how they do it, how often they update, what the strategies are, etcetera. I would think that ICANN, or something that ICANN helps foster, could serve that purpose. It's almost like a Clearinghouse of information. It's hard to solve problems if you don't know where everything may exist.

Not everybody's got the same application desire. For example, browsers, while they want to be able to provide resolution in a particular script, and overriding principle may be that they want to do that really, really fast, whereas a different application may want to get something done with real-time updates that they could pull from a DNS. You may want to have in one case a hard-coded list, that's loaded in memory, and in another case something that's looked up on the DNS.

There isn't a universal solution that everybody is incented to use. In the long-term there's not going to be a magic silver bullet to solve the problems. It's really, how do we organize these things? I think it's important to be able to provide that kind of information, so people can move forward and create the solutions they want to, to satisfy all of the needs.

I do note that you have, on GitHub, some code that actually is a sample code, I assume, to be able to pull information and use it for whatever purpose. I think that's the kind of thing that would be really useful to provide, as the SDK approach to some of these things. Obviously, the IETF and other communities might have something to say about that.

Just to finish up here, I think there's another role too, which – as you've already mentioned – is the outreach. It would be nice to know what that outreach looks like, how much is going on, and then if you're taking a look at this from a "where is this a problem?" and "who is this a problem for?" it's largely for the TLDs and the new gTLD operators, to try to get their TLDs accepted.

It's a broader problem than I realize, but there may be ways at taking a look at that and saying, "Where can we get resources to actually marshal a plan together to speed this along and make it far more efficient for people to be able to do things?" Right now, the incentives aren't necessarily lined up. I would encourage you to look at how to get resources internal to ICANN, to help that happen.

I don't know what the funding mechanism is for that, or what have you. It might be something that the new gTLD operators may want to help support as well, as a separate effort, potentially. I'm just brainstorming on that a bit. Anyway, good stuff. I'd like to know, if you can, more on the outreach; what's being done and tasked. That might be something you could share on your website or what have you. I wanted to give you that input. Thanks.

ED LEWIS: I'd just like to say, as far as the outreach question, if you have
                             suggestions of what we should look at, let us know, because it may be
                             that there are some events out there that haven't hit our radar. We do
                             know a lot of them, but there's obviously a lot going on that we haven't
                             even heard about. It's helpful to get that kind of input too.

TONY HARRIS: Hi. My name is Tony Harris. I'm from the Argentina Internet Association
                             and the Latin American Federation of the Internet and Electronic
                             Commerce. I'm also an applicant from my own organization, [unclear
                             00:54:58], for a new gTLD. We are concerned two-fold with this matter
                             of universal acceptance. Basically, we think that you have to start with
                             the ISPs and connectivity providers, as the first step in creating a
                             conscience that this can be a problem.

                             You have to have some sort of presentation or tutorial that can be
                             shown to all these people. We're going to undertake that job in Latin
                             America, because we don't want this to happen from the point of view
                             of an ISP, because we're going to get all the complaints in our help desk.
                             We don't want this to happen on our TLD either.

                             I think some of the communities you might want to get to rather quickly
                             on this would be software developers. You can do that through
                             software associations usually. Events are useful, but not necessarily
                             everybody's there. I think another good place to look at is you know
                             that apps developers cluster in clubs.

                             All the cell phone companies and all the cell phone manufacturers have
                             clubs of developers of apps, and they have events every three or four

months where you get hundreds of these developers, receiving the new tools and everything they give them. This is something I think those people could broadcast very quickly to an awful lot of developers.

I just think we should stress the fact of what's been said before me, which is very important, and that's that we need resources. It doesn't necessarily mean ICANN has to spend a lot of money on events, but yes, we do need tools, such as tutorials. It could be videos, it could be slide presentations, but things that we, as a community, can use – those of us that are interested in solving this – to get to as many people as possible, as quickly as possible.

Launching is already out. It's not something that's going to happen in two years. That would be my two cents for today. Thank you.

FRANCISCO ARIAS: Thank you Tony. Han Chuan?

HAN CHUAN: We have one more question from the Adobe Connect, from [unclear 00:57:25]: "I teach my students the basics of IDN new gTLDs as part of my IT internationalization module. I'm one of the few, maybe even the only one, who teaches this topic. Will ICANN promote IDN new gTLD TLD acceptance in schools, colleges and universities? My personal experience indicates that currently few students have awareness of, in particular, IDNs."

ED LEWIS: I've heard this comment. I've interacted with Andre before, because he sent some mail about this on our mailing list. I think that it's actually an interesting question to ask, and I understand where he's coming from. I've seen a shift in people who wrote software for the internet quite a while ago, and having seen a generational gap between the developers and the code that was of my age, and that's coming out today, it's going to take a change in how people are even thinking about some of this programming.

I think it's a very good question and I think it's a very important point. Do you want to address about the second part, about going out and reaching out to these…? I don't know that I have an exact plan for doing that. Do you want to address that?

FRANCISCO ARIAS: I just wanted to say that this is an interesting suggestion and we'll take it into account.

HAN CHUAN: Thank you. Okay. There's one more question from the Adobe Connect, from [Lise Meurton 00:59:02]: "What meetings have you identified that you will go to? This issue has been going on for years now and there is no real progress."

ED LEWIS: The meetings… I referred to earlier in the presentation that we're definitely familiar with those in the related domain name industry, so like I say, we've already gone to the Asia Pacific TLD Association Member

Meeting. We've been to the European ccTLD CENTR Meeting. Obviously the first events that we can think of, if you're going to ask us off the top of our head, are the events where either registries, registrar information has been happening, whether it's within ICANN or across the board. The ccTLDs are what I mean by that.

Also any kind of any operative group that's out there. One caution is always that – and events are not always the place we want to go – there are so many events, and that would chew up all our time traveling, and we don't want to do that either. It's a matter of picking and choosing where the more effective places are, that would reach larger groups of people.

In terms of what we foresee, first of all it's the ones we're familiar with, but obviously we need to go to other places, because more discussion is needed across the board.

CHRIS [GOWARD]:   Hi.   Chris [Goward 01:00:23] with [Donuts], also speaking as an application developer.   I previously worked on Microsoft Internet Explorer. I just wanted to express my support for actually going to the events and taking a bottom-up approach, reaching out to individual developers. I think that's the best way to really get the message out there. As far as funding, I'd like to jump back and talk about that.

I think effectively funding some reference libraries and getting source code in both compiled and interpreted scripts, would go a long way in getting more implementation done.   I think the modern software

developer has gotten lazy and is more dependent on contributed libraries from other sources.

FRANCISCO ARIAS: Thank you Chris. We have another remote question?

HAN CHUAN: We have one more question from Adobe Connect. This is from Joseph E. He has a comment and a question. The comment is: "Thanks to ICANN and staff for tackling this hard problem."   His question is: "Knowing there is gathering public comment now, is there any estimate of when ICANN will kick-start this initiative?"

FRANCISCO ARIAS: Thank you. We've already started reaching out to web browsers. That's something that seemed like… Following the 80/20 rule, going to the vendors that have the most impact on the users. We already have relations with the big browsers who are looking at these issues. We've also had interaction with the certificate authorities. We've had reports of users of new domain names that use [any/a new 01:02:29] TLDs, that have had some difficulties obtaining certificates.

Since we had our relations with the [unclear 01:02:37] Browser Forum, given the [international] certificate issue, that we had to deal with it before. We used that to start working with them, and we hope to improve that. Thank you.

SCOTT SULLIVAN: Hi. I'm Scott Sullivan from the Greater Toronto Area Linux Users Group of Canada. We've actually, in our own processes, we host monthly meetings for our users, which is a combination of [unclear 01:03:03] professionals that support the end users. We're an actual registered ALS with ALAC, and NARALO here. We're participating in the At-Large Summit. We've participated on the Technology Taskforce.

We've run sessions on internationalized TLDs. We're trying to make our users aware of those. What I'm hearing today from a lot of you is, "What can ICANN do for me?" "What money can ICANN provide for me?" The fact is that we're here because we have technical understanding and we understand the Internet is our structure.

It's our means of communication and we are involved in it. I really think that everyone here should walk away with some goal of telling someone else that this is important, that they need to use the resources that are available, that these resources need to be collected and disseminated to the users, to the developers – because the users and developers are sometimes the same people –, the family of the developers are the users.

This needs to be done as a cooperative group effort on all parties. Not just commercial but on all levels. [unclear 01:04:19] need to be shared, because we're doing this for each other – for a better world, for better people. This is a matter of respect and not just waiting for ICANN to take the lead. We need to move together. Thank you.

HAN CHUAN: This is from David Cohan" "Did ICANN begin, or does it have a beginning, of a plan on how to solve the keyboard issue for Russia, and possibly other countries with this same problem? The problem being that there is no way to type the ['S' 01:05:03] symbol. Thank you for the opportunity to remotely participate."

FRANCISCO ARIAS: I would say thank you for mentioning this issue. I suppose we could consider this as a [new 01:05:23] issue, and we could take a look into this. Seeing no more questions, I'd like to thank everyone for attending this session. See you next time.

[END OF TRANSCRIPTION]