ICANN86 Seville | PF – How It Works: Internationalized Domain Names
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PITINAN KOOARMORNPATANA Thank you, Ulrich. Hello, everyone. My name is Pitinan Kooarmornpatana. So, I will be the host for the session today. So, this is the How It Works session on the Internationalized Domain Names. It's one of the series of How It Works in ICANN86. So, for the agenda, today we have a few points.

First, we go to process how to enable the Internationalized Domain Names. Most of you may already know this, but for the benefit of the newcomer, this is the technical how to enable the Internationalized Domain Names. And then on my right, I have colleagues from EURid, Regina, to go to the IDN's adoption in Europe. And also on my immediate right, Dejan, for .rs from Serbia, to go to the IDN Universal Acceptance and strategy and case studies. So, with that, I will go to the first section.

The process to enable IDNs is for the local languages and scripts. So, this is the example for Internationalized Domain Names. So, what is the internationalized domain name? This is the domain names that have the special characters or the character which is not the usual 26 A to Z characters like this one, música.café. And on the top form, we call it the U-labels because it stands for the Unicode labels. All these letters with diacritics is encoded through the Unicode consortiums and we call it the Unicode code point.

Behind the scene in the protocol level, all this being communicated using the equivalent ASCII labels and we call it the A-labels or the American Standard Code for Information Interchange, which is the

ASCII when we call it. It will look like in this form, xn -- and followed by the Unicode and that is what the computer to computer can communicate.

So, these mappings is happening due to the standards and we have this series of standards that makes that happen. This is called IDNA or Internationalized Domain Name for Applications. The listed version is 2008 and this is a set of standards developed at the Internet Task Force, IETF. Listed here, some of them they have standard track which is ranging from the definitions, the protocol itself, the Unicode code point in the IDNAs and also how to handle the right-to-left scripts, which is not there in the previous version.

They also have informational tracks on the background of this, explanation and all the mappings on the characters. You can follow the slides on the session page and click the link to these standards, but the essence of this is all the IDNs must comply with the IDNA 2008 to be able to use. So, I'll just show some snippet of one of the standards, the RFC 5892. This one is how to use the Unicode code point in IDNA.

So, each of the code points, which is the hexadecimal behind all the letters, those have some property attached to it and we have four main properties. We call it Protocol Valid or p-valid, which is the dark green on the left. And this one, for example, if you see E with the accent, behind the scene is the U+00E9.

And then we have another property which is valid upon some contextual rules which is required. For example, this middle dot,

the code point behind is 00B7. This one can be confused with the normal dot which is separate the level in the domain names. So, to enable to use this, and this is needed in some languages, especially for Catalan, for Spain, it's normally used between two L. So, to use this, you will have to put some context into it to be the two Ls to be able to use them.

Then we also have the property which is disallowed. This one cannot be used in the IDN names at all, for example, this question mark because it can be confused with some other protocol syntax. Then we also have the unassigned code point which is either some of the scripts, they might not use the full available code page in the Unicode. So, with this form, all the labels that can be used in the IDNA has to be all p-valid, or Protocol Valid, but also, it's a note that in the standard itself, it doesn't imply that all the labels that have all the code points in the p-valid will automatically be used in the DNS. And this is stated in this standard itself.

And why is that? Because in the Unicode labels, there are a lot more scripts and you will need to define variant or the rules around it as well, which are mandatory to be able to use some particular script properly. And that is the rules that have been developed within the ICANN community and that's the thing called Label Generation Rules, or the LGR. And then in the next part, we will show you a little bit of the overview of the LGR and how it has been developed.

So, the Label Generation Rules basically, as directly translated, is the rules how to form or generate a label using a particular script

properly. By the structure, these have four main sections. We have the metadata, which is explaining the version description of it. And the four main parts, technically they are code point repertoire or the list of code point that allow for registrations. We have the variant information so some of the code point may have some other variations which considered as the same by the community and you have to manage the mass variant. And then lastly, you need the rules to make sure that all the labels are well formed and we go through each section together.

The designing principle is, we also have another RFC controlling this, RFC 6912. This one is to identify what other code points can be used in the label in DNS. And it's starting from longevity principles because Unicode updates time to time and they encode new characters more and more in. So, sometimes if the character is newly encoded, other system may not be able to recognize and follow up in time. So, by the recommendations, this Unicode that's going to be used in the domain name should be encoded for a few versions already.

It also should be least astonishment, which means whatever code point is used in the domain name shouldn't be as a surprise. Why is this there? It should be kind of familiarly used by the user. Contextual safety, also if there is any rules that need to prevent the malicious way to use them, they should be in place. And conservatism and inclusion come hand in hand.

So, the inclusion principles mean instead of you start from everything that's available on the Unicode, you actually have to start from the empty set and gradually adding one more, more and more code point that is needed to be used into your set of allowed code point. So, these are the principles that are being followed and the way that we have to be conservatism because if you allow any code point to be used, later on it's very hard to take out. So, you have to start from the conservative position.

Now, the first section about the code point repertoire. So, basically, we try to answer what are the code points to be used for that script. The goal of this is just a simple reminder, the domain name is the mnemonic system. So, this is the names that help you remember IP addresses so it has to be, remain secure and stable and shouldn't be confusing to the users. But to note, this is not a requirement to cover all the linguistic requirements. So, it doesn't have to form a formal word, it doesn't have to be correct spelling, and it doesn't have to carry any lexical sense like the meaning. For example, the abbreviation also can be used as a label.

If you look at the usual ASCII domain names, it already has some rules around it by the standard, even though we don't call it the Label Generation Rules. For example, this one, www.cafe-123.com, on the top level, at the .com level, actually this also allows only the letters. The numbers or digits cannot be allowed here just to prevent the confusion between IP addresses and domain names. Then at the second level, additional to letters, digits and hyphen are also allowed as well. And there are some other requirements

like the length cannot be a total of more than 63 characters. So, these are some rules already in place since ASCII.

So, if we see the ASCII table or the printables one, normally what you see on the keyboard, if it's the top-level domains, the green ones will be able to use. And if it's the second-level domain, you add the digits and hyphen, for example. Then for the Unicode standard, so Unicode encoding much more scripts and you can see the full chart, follow the link. But because it's expanding too much, then the subset of the code point which are actually needed, needs to be defined by the script community.

So, to illustrate the size of the topic, the ASCII, we start from one script, which is the subset of Latin and is already shortcut only 63 code points of 127 to be used. Now, the Unicode version 17.0 right now already encoded 172 scripts and this we have about almost 160,000 code points encoded. So, within the ASCII itself, we already have some potential confusion between I and L, O and 0, 1 and I and L, for example. So, it has to be balanced very well between usability and security. And we have to work with the community to shortlist out of these 160,000 characters, how many of them, which of them are actually needed to be used.

This is some example from the Arabic Root Zone LGR proposal. And as you can see here, this is the code chart from Arabic and only the yellow highlighted ones are the ones that used in the Root Zone LGR. Okay. So, building the code point repertoire, you're starting from reviewing the code chart from the Unicode and then you have

to go through all these questions. Each of them, whether they are protocol valid, are they in the scope of the language that you plan to support, and also, is there any suitability to use as an identifier?

Also, all these principles, whether it has been encoded for long enough to be stable and another point is whether it is accessible. For example, you want to use some characters, but it is not even available on the keyboard locally so that nobody can type it, and maybe it is too early to include them. And basically, we need to check back to the principle list earlier. So, that's the code point.

So, once we define what are the limited set of the code point to be used for that script, the next question is, what are variants? And the concept of variants can display in these pictures. So, sorry, go back, by the definition, there are something that consider as the same by the community and the same can be two main motivations. Motivation for security, which is they look the same, like visually is the same. For example, in this blue epic on the left and on the right, it's actually look like epic, but behind the scene this is the Cyrillic scripts. So, to the human eyes, you cannot see the difference, but behind the scene, if you type one of these, it can end up in the different places.

So, in this case, the variant between 0065E and 0435E lookalike will have to be defined as variants by the Latin community together with script communities. And for this motivation, if one version of the names already exist, the other version shouldn't exist in the

DNS system so then you can have only one endpoint to the end users. So, that's the first motivation of variant, security.

The second motivation is the usability. For example, in orange text here in Chinese and Arabic. So, in some scripts, they have the concept of the slightly different code points or letters can be perceived as the same and this is for Chinese, for example. On the top is the simplified Chinese and on the below one is the traditional Chinese. So, to the script user, these two are interchangeably same. It's just that one version using in mainland China and another version using anywhere else.

So, if you are a brand owner from mainland China and you already have the first name and you might want to have a second name available as well so you can reach out to your customer anywhere else in the world, then you have to have two names active at the same time. That is possible, but you have to make sure that this has been allocated to the same owner so it's not reduced the risk of fraud. And that's similar to Arabic. So, this is slightly different at the most left on the screen, but because of the script is right to left, so by the code point, that is the slightly difference. So, all this variant has been defined by the Chinese community and this variant has been defined by the Arabic community.

So, what are the goals of defining variants? So, we have to make the mnemonic system minimize the user confusion by defining the same as per the script definitions and is both within scripts and also

cross scripts. As we can see, we have the block variants and so the variant for securities we call block variants.

So, one version should be available and we should maximize that type. For the allocatable ones or the ones that define for the usability we can allow it, but it has to be minimized. This has been a work from the community actually for the past 10 years on the different scripts and defining variants is not an easy task. So, some of the generation panels of the scripts spend so many years on them.

So, which script has the variant code point? Basically, these are the 27 scripts we are supporting now and also in the LGR version 6. Almost all of them have variants, either within scripts or cross-script, either block or allocatable. Only for scripts doesn't have any variants as you can see. So, this is quite a common topic or ideas for IDNs.

And this is some examples related to these regions, Cyrillic, Greek, and Latin. This are some examples, you can see on the top row the Cyrillic A, the Greek alpha and the A, they look the same, at least they can be perceived as the same. These are defined as the variant blocked by the LGR. Also, the O, the simple shape, normally it's very commonly used in different scripts so these are defined as variant as well and the P, the row, also the same thing. So, if you read from the top to below, A, O, P, alpha or row, A, O, P, they can look just the same. So, with this definition by the Cyrillic, Greek,

and Latin community, one version of them can be available at one time and that reduces the user confusion.

So, these are a list of questions the working group needs to go through and define the variants. So, this is not being confused by anyone, but even the native knowledge, they're also still being confused. Some of the things may have the interchangeable code point can be used like the Chinese concept or Arabic. And also, you have to go through whether you have the cross-script variant as well. So, each community have to work together before they can finalize their work. So, that's the variant section. And actually, sorry, I forgot to pause. Is there any question in the chat or is there any questions so far? Okay, all right.

Okay, then the last section on the Label Generation Rules, the rules itself. So, each community have to check and decide whether there are any restricted requirements for the script to ensure that the script are secure to be used in the DNS. The goals for defining the rules is actually reducing the possible label space, but not limited the usability of the end users. So, the ones that not being licensed by the script shouldn't be able to use and if anything, cause the security issue or usability issue, it shouldn't be allowed.

Some rules also used to reduce the allocatable variance as well and some rule also apply for sequence. So, this are some examples. This is from Thai scripts and you can see the labels on the left and on the right actually looks the same, but on the left is actually one code point only. This code point render in this valve, which is like

two vertical line and a head. In Thai script we also have another code point 0E40. which is just one vertical line and a head at the end. So, if you type the second one two times, it will just look like the left one. And in this case, in Thai script Label Generation Rules, the community will have a rule to prevent the 0E40 to follow another 0E40. And this is to prevent fetching or fraud using this kind of possibility.

In another case, sometimes the system cannot render properly if you do not follow the script that it should be and this is from Laos script examples. So, in Laos, there is a concept of tone mark, which is changing the tone of the sound of the consonants. So, it is like syncing a note, right? So, by right, you cannot sing two notes at once so you should have only one tone mark on a consonant. And that is how the fonts will understand and how the system will understand.

So, if you start to have two tone marks, like this 0EC9 altogether and try to be on top of the consonant 0EAE, some system will render it on top of another level because the tone mark has to be on top of the previous one. And some system cannot render it because it has to be on top of consonants so it's overflow to the next one. And this is in some cases also cause some issues because there are also some systems that they do not know how to render at all. And they render the second one right on top of the first one so it is the perfect fetching. You cannot see the difference. So, in

this case, in Lao script Label Generation Rules, they include the rules that no tone marks can follow one another.

So, all these rules that I've been talking behind the scenes have been defined in the XML format. It looks intimidating, but we also provide a tool to define all these rules and then can translate it into the HTML format for us to read. These tools are available on the ICANN website. If you have an ICANN account where you register for meetings, when you log in there will be a section for ICANN service and one of the services is the LGR tool. So, when you log into here, you can play around, try to build a Label Generation Rule and also test your labels. The manual available on this page and if you are a technical person, we also open source this tool so you can integrate it into your registry system as well.

Then to take a step back, how the users of the LGR, so if the rules is something defined by the community so for example, for the rules on LGR -- Oh, what happened? Okay, let me try again. Okay, thank you. Yeah, so in these pictures, we have the mechanic to be able to digest the rules. And if we have the rules for different scripts, like Ethiopic, Thai, Arabic, and so on, if we have the apply for strings coming in, this tool and the rules can identify whether this is a valid label or not. And if it's valid, it can also generate what are the variant labels of them.

For example, this is based on the Latin script Root Zone LGR. So, if you try to validate the word H-I-I like hii this will say this is okay, all looks good, but if you add some code point which is not included

in the repertoire and this last one look like exclamation mark, but it is actually the Latin Letter Retroflex Click, which is used in some languages in Africa. Because of its look like the mark, and this is not included in the LGR so this will be marked as not valid because they are using the code point which is not allowed.

Another example, and going back to the 00B7, the middle dot in the beginning, so this one is already been caught by the IDNA 2008 already actually, but this rule also included into the Latin LGR as well. And if you use this code point between the two L's, that's okay, this will be valid. But if you use it not between the two L's, then the LGR can produce the error that this is not a good usage.

So, with all this, Label Generation Rules, we actually work with the communities in the past several years, almost 10 plus years. And each of the scripts, we have the panels, we call generation panels, because not a single one can know all the scripts, obviously so we work with each script community. Each script community from the generation panels, which comprise of the script expert, the technical expert, the ones in the registry, registrar DNS system community as well. And then once they have all this proposal of the rules is be submitted to the integration panels to make sure all the rules are not conflicting. And then we integrate it into something called the Root Zone LGR.

So, right now we have Root Zone LGR version 6 covering 27 scripts and that is translate to almost 400 languages. This is 11 years of work. We have 18 generation panels from 45 countries and it's

been more than 10,000 of volunteers' hour work from almost 300 community members. So, this is a great initiative from the communities.

In the Root Zone LGR version 6, right now we have 20 scripts listed here, range from Arabic, Armenians, to Thaana and Thai. And also, that's for the top level. And in this coming round, in the 2026 round, we also support those 27 scripts. Then for the second level, we also have reference LGR for the second level as well and this will be used when the TLDs want to offer scripts or language in the second level.

Normally they have to develop the rules and submit to ICANN to review for the security and stability issues. So, we developed the reference LGR which is adopting from the rules on LGR from the community, add the digits and hyphen in and make it usable for the second level. So, once reference LGR is available, the TLDs will be able to offer those language and script and we review accordingly. Also, these reference LGR are used in the IDN ccTLD space as well so not just this TLDs.

And these are all 60 languages and scripts that we published to date. You can see and if your language or script is not listed here and you would like to develop one to enable your own language or script, please reach out to us. And I think last bit on me, currently we have a public comment ongoing for the additional reference LGR, this one will be closing on 23rd of June.

The major changes we add to new scripts is the Javanese script used in Indonesia and there's a unified Canadian Aboriginal

Syllabic or UCAS script, this one used in Canada. So, please help take a look, review, and provide your feedback. And with the same public comments, we also have updated on the Arabic, Inuktitut, Japanese, and some part of Latin because of integrating with these two new scripts.

With collaboration with ICANN and the community, so all the work about developing the LGR, especially for the reference LGR, as I said, if you don't see your language or script listed there yet and you want to enable them, reach out to us. It's the volunteer work, which from the community, we will request you to provide expertise on how to use the language and the script. What are the core parts of the word list that we can check and rule against and then support from ICANN. We will do all the things technical for you and then we can convert the rules in the human text to be the LGR format. And then we take the LGR to the public comment before finalizing it.

Okay, how to get involved? You can connect to this email address for anything about IDNs and you can visit the icann.org/idn for all the related projects. So, thank you so much and I pause for a bit and see if any question or comment from the floor. Okay. I see, Yudho, please go ahead.

YUDHO GIRI SUCAHYO: Thank you so much, Pitinan. This is Yudho from PANDI .id registry. We would like to say thank you so much to ICANN for always

helping us with the script LGR. We've done with Balinese and currently under public comment for Japanese and Pagan.

Just a wish from me, in the annual report or also on the website of the IDN, you always display the map of countries who already got the IDN successfully released at the top-level domain. So, is it possible for ICANN, if let's say ICANN can also provide or create another map for the second level LGR? So, if let's say we are being asked by the community, Indonesia is not on the map, then we can also refer to the new map that we have done some work with the IDN. Thank you so much.

PITINAN KOOARMORNPATANA: Thank you, Yudho. Yeah, so that's definitely possible to do. As a context, we published the map to visualize where the IDN ccTLDs are and that is based on the top-level domain only. So, yes, there's a good idea to have that map for the second level as well, like what available where and we look into that. Thank you. Any other questions? Yes, please.

SAMWEL KARIUKI: My name is Samwel Kariuki, an ICANN fellow. You have mentioned about blocked variants. I would like you to give us an example of a blocked variant of a domain name. And then my second question is, what determines the pricing of a domain? Is it through auction or which are the best methods of determining the prices of domains? Thank you.

PITINAN KOOARMORNPATANA: Okay, so let's see. I understand your request about explaining the blocked variants. Is that correct? Okay. So, let's go through the first part and then may I request you to repeat the second part?

So, this is the blocked variant example. For example, this first one, the epic, and the second one, epic, so if one version of it already there, the other ones regenerated as a blocked variant. And that means nobody else should have this blocked variant at all even the owner of the first version so then there is no possibility of confusion in a different place. And can you repeat the second part?

UNKNOWN SPEAKER: Sorry, this is in one country or another country .epic? It's blocked in the same country if I want to register .epic?

PITINAN KOOARMORNPATANA: This example is a top level so it's -- Okay. Sorry, I'll come back to you. Okay, sorry. Please continue on the second part.

SAMWEL KARIUKI: Okay. My second question was on the pricing of domains because I've seen maybe like the top-level domains probably are much expensive than maybe other types of domains and I've seen some auction going on. So, what determines the pricing of domains when they are being sold for the first time or maybe through any other methods?

PITINAN KOOARMORNPATANA Okay, so about pricing, so in this round which is ongoing, one of the major things is the variant TLDs are possible, okay? And because the GNSO policy working group also wants to support the IDNs and some IDNs require variants to be able to fully usable. So, they are in the AGB, the application guidebook. If you apply for variants, you actually pay the same base fee of apply for the primary string only, but up to four variants.

So, that's some information on the variant for the top level. Okay? And for the second level is really the business decision of the registry operator. Yeah. Thank you. Sorry, so I think I'll move on to the next section and if you have more questions, we'll come back. Thank you. So, I hand it over to you, Regina.

REGINA FUCHSOVA Thank you very much, Pitinan. Hello, my name is Regina Fuchsova. I'm an industrial relations manager at EURid, the registry for .eu, and also the variants in Cyrillic and Greek scripts, .au and .ею, εu and just trying to figure out how to see to the slides and be still audible. Maybe I will just sit like this. Yes, now I can see both the slides. Okay, or like this. Okay, thank you very much.

So, we are a registry which is present in all countries of the European Union. This is also why we are providing support in all the languages or the official languages of European Union, which involves also the two other scripts to Latin, Greek, and Cyrillic.

Multilingualism, let's say, it's a part of our overall strategy. Besides technical enablement of the registrations of different scripts, we have also concluded partnerships to cooperate on the topics of IDNs and Universal Acceptance, namely with ICANN, UNESCO, but also other organizations.

We are also actively involved in the ccNSO Universal Acceptance Committee and last but not least, we also run together with our partners a research project called idnworldreport.eu. And maybe we can also speak with Pitinan, maybe we could share some information because we have also some kind of map, so maybe we can see how to best share the information and use the resources, both of the groups. Next slide please.

On the time X of our technical implementation of IDNs, I can maybe refer a bit to what Pitinan said before. We started in December 2009 with the implementation of IDNA 2003 and then in 2015 the latest IDNA 2008. Maybe to come back to the question which we just heard, because at that time it was only under .eu where we also enabled Cyrillic and Greek, there was indeed this threat of confusing similarity.

This epic word is a very good example because it looks the same, but it depends if it's written in Latin or Cyrillic script. And that is also why, because it was possible that time to register epicinlatin.eu or also epicingreek.eu so that is why we introduced homoglyph bundling as a prevention of these confusingly similar domain names. And the rule was that you could have only one of

the domain names in the bundle active to prevent exactly what Pitinan was speaking about.

Then later on, we introduced Cyrillic variant on the top level, also the Greek variant and with this, we also introduced the rule of no script mixing, which is also a way how to prevent these confusing domain names. So, since the introduction of Cyrillic and Greek at top level, we stopped allowing registering Greek and script letters under EU in Latin. And because the top level is already good enough not to create confusions, since that it's also not necessary to enforce the homoglyph bundling. So, this no script mixing can filter a lot of possible issues. Next slide, please.

We are a middle-sized registry, I would say, not really a small one with 3.8 million registrations and IDNs are a bit less than 1% of our portfolio. This number can seem quite low, but actually it's what we witness among ccTLDs globally. It's maybe 1.5 a bit higher, but also there are quite a few with such a low I'd say level of registrations. Next slide, please.

We also ran quite recently, a few months ago, a crawl over all our IDNs, both Cyrillic, Greek, and Latin variant and we realized that only 30% of them has some user generated content. 70% had either no name server record or were parked. So, this is much lower than in the non-IDN. I think it's more or less like the different proportion between the domains that are in use and are not in use. Next slide, please.

I mentioned that besides the technical enablement, we also started already back in 2012, a research project with UNESCO, but also with regional ccTLD organizations such as center and others. And we aim to bring, maybe next slide please, not only the registration data and examine their trends, but also once a year we circulate a survey about technical readiness and the implementation of technical measures. And also, a short sentiment survey to ask questions such as how the registries support IDNs, how they see awareness, what is the stand of registrars, why maybe they do not pay so much attention.

And this all is updated once a year and we complement it on an ongoing basis with articles and case studies, mainly about ccTLDs and their experience, but we have also some general linguistic related or online languages related articles. We are dependent on the sample or on the TLDs who answer the survey. So, the total number, for example, should be taken as an approximation because it's not a survey over all TLDs. Next slide please.

This year's update, which was published just two weeks ago, reconfirmed the trends which we observed already in the previous years. We grouped them into some three main areas. One is that the market is highly concentrated and is declining more. It's declining for gTLDs, a bit less for ccTLDs, but both marked on average a decline. Just to illustrate the concentration, three quarters of all IDNs are in hands of 10 biggest TLDs.

Technical readiness is improving, but it doesn't really translate into adoption, but mainly the members of the technical community registries, they are improving the acceptance of Internationalized Domain Names, also updating the standards. And awareness is still among the biggest barriers. So, regardless of outreach, what also ICANN is doing with the Universal Acceptance Day registries, registrars are doing, still the awareness among end users that they can use often their own language is quite low. So, we have to still continue the efforts here as well. Next slide please.

Without going into much detail, just a few highlights. I mentioned the declining trend. There was one example among the biggest TLDs, .rf was growing positively. Another interesting thing is maybe that over 17% of IDNs are in the hands of ccTLDs. So, it's quite important to work at the ccNSO level as well on awareness and cooperation and getting inspired among the ccTLD members because as you can see, they can influence a lot alongside with gTLDs of course. Next slide please.

Still, despite the fact that the total amounts are typically not high as I was showing the introduction of the local languages and scripts is very important for the communities. We do have some examples in the IDN World Report on the website. I picked up two examples, .cat, Catalonia and .fo, Faroe Islands, they both were really active and got very positive feedback from the communities then introducing their letters because it's still Latin script.

They however faced some of the challenges which I mentioned including the awareness, but also the fact that the businesses have to keep both variants. It's in general not easy to change a domain name even within the same script because it's connected with online branding of a company, of a product and so on. But still, I will shortly come with some reasons why we believe that it's important to support these efforts. Next slide please.

It's not only a technical issue and there are a lot of tools as Pitinan mentioned, which we can gradually work on. Not only in countries with the majority, let's say, of non-Latin scripts, but even in Europe. There is indigenous peoples in the northern Europe, Sami and they still don't have the language translated. So, it's also, I think some discussion point for the future if we could somehow mediate this because this is what I learned relatively recently that the community might be interested in this.

So, despite the technical work, which is progressing well and offers the opportunities to put many languages online, it's not only a technical issue. The multilingualism I'd say it's also part of the WSIS, WSIS+20 process. It also is linked to sustainable development goals by the United Nations so the principle that internet should be linguistically inclusive, culturally diverse, and accessible to all resonates also at global policy and political level. Next slide please.

Then thinking about the next steps for us as a member of technical community is definitely to look into further cooperations and

synergies among partners. We have started, for example, to speak with ICANN that we could join forces for the survey so that there are not that many surveys circulating and that we get better and more useful data. Also, for us as an organization, it means to work in-house on improvements in Universal Acceptance towards also our registrars to get the registration system improved. And also, further work in the ccTLD community because ccTLDs, gTLDs it's the main gateway for progress for the future.

Next slide please. And we are at the end with my part. Thank you very much.

PITINAN KOOARMORNPATANA: Thank you, Regina. And just quickly before we move on, just check, is there any question for Regina from the floor? Then I hand it over to Dejan. Please, go ahead.

DEJAN ĐUKIĆ: Good afternoon, everyone. I'm Dejan Đukić from Serbian registry. Hope you hear me well because sound here is not quite clear so I hope you hear me. So, next slide, yeah. So, Serbia is a country with rich history and different cultures. So, heritage is well reflected in multiple languages used in Serbia.

According to our constitution and our local law, official language in Serbia is Serbian Cyrillic and minority languages are also used according to law. Language diversity is subject of local law of official use of language and scripts in Serbia. Our language

includes diacritics, so you can write Serbian in Cyrillic and Latin as well, and both scripts had diacritics, you can write in the same way in both scripts, but different scripts, but same words and same diacritics. We learn both scripts in primary school and use it on a regular basis, but according to law official language and communication with the officials and government is Serbian Cyrillic and also languages of minorities. Related to that, we have both IDN in both domains, in .rs as well, and also in SRB in Cyrillic. Next slide.

Since the domain names are technical infrastructure, but they are also market category and they also illustrate pretty well the digital version of linguistic diversity in our country. Our primary domain name when we speak about numbers and time when we started is .rs. It is older domain and it's dominant in our market. It shares most of the market in our country. We have some researching comparing to .com and it is more than half of our local market. But comparing to Serbian IDN .srb it's much bigger zone. I'll have numbers here and I mentioned that as well.

So, our Cyrillic domain is SRB and it has only like number of variants from time to time, but usually we have 2.5 thousands to 3.5 times. So, comparing to URI domains, Bulgarian version, and a Greek version, it's kind of similar. Sometimes we have around 1,000, sometimes more, but numbers are very varied during the years. So, maybe there are some campaigns of registrations and who knows else, but usually when we have a big row at that time, these are not

local users, not local registrations. So, comparing to .rs, it has 160,000 so it's much bigger zone than .srb.

When we were introducing IDNs, we didn't work only with the frame implied by law so we introduced letters in both domains. We had a lot of communication and correspondence and consultation with all minorities in Serbia. And all of them have a formal organization, Minority Councils and they helped us a lot to recognize all the letters, all the script they use, and we could implement them in both domains. So, we have different local languages in both domains. In .srb we have also languages that are used in Cyrillic and in .rs we have other letters that are used in Serbia in Latin script. Next slide please.

With IDNs in place, the question is how to promote it. So, main part of my presentation is mostly communication of our IDN products. So, how we communicate IDN and how we try to force users to register those domains, but it's not an easy job. So, we created content in order to create content. So, we developed kind of couple of projects that are related on a digital usage of Cyrillic in Serbia.

So, there is a kind of opinion in our country that there's not enough Cyrillic fonts that are used in a good way in a digital format. So, we decided to create those fonts and give them as a gift to the local community. We recognize that as a problem and we work on that for like 10 years already. So, Serbian Cyrillic is specific and there are also specific characters in those fonts and if you use, for

example, Bulgarian Cyrillic or Russian Cyrillic, those typical sort of letters are not the same in our language. So, we needed to develop our own font based on rules specific to Serbian language.

So, we established [inaudible - 00:57:11] with the organization typometer in Serbian and most of the members of that organization are professors and master students from faculty of applied arts in Belgrade and there's also linguist in that organization. And it's a big project, they've already worked on that project before, but they were struggling with the budget and our help and our involvement was very useful for them. Next slide.

So, on this slide you can see a couple of fonts that we already developed. We announced it every year when it's kind of birthday for our Cyrillic domains. There are variation in these fonts, some of them are latest in this this slide that you can see and also there are also Latin version in all those fonts. So, we are not developing only Cyrillic fonts because both scripts are really widely used in Serbia, also in digital, so we decided to develop Latin version for all of those fonts. They are available on this website, so anyone can download it and use it. It's totally free. Next slide.

So, what we achieved so far, there's always amazing public interest and media coverage for this event when we're promoting those new fonts. It's always in January every year so at least our Cyrillic domain at that time it's a few minutes of glory. So, we speak at that time during the January almost every day about IDNs, Cyrillic fonts and things related to development and usage of Cyrillic online. But

since we are doing a lot of these projects, numbers of domains are not always related to that. So, we don't have many domains in actual use, but there is more online content after the years. So, people are using these fonts, developing their website, but still, they are not using enough Cyrillic domain. Next slide, please.

Another project related to that is also based on using local script in a digital environment. So, we had a couple of hackathons with the students from Serbia and that's an opportunity to communicate with them Universal Acceptance. Most of them were young engineers who were getting to know about IDN and Universal Acceptance in general. From time to time, we have international speakers and guests who can make it closer to them and explain those things related to IDN and Universal Acceptance. Next slide please.

So, this is a particular website that we developed on one of those hackathons. It is totally developed by students and high schoolers and it was developed in a couple of days. So, after that, we are continuing to use that website and main purpose for that website is mostly advice, tools, and things related to using of Cyrillic in online environment. The title of that website you can find it in Cyrillic. There is in Cyrillic so that's the title of the main name and also on that project and the website. And our idea was to have one place where you can find everything related for using Cyrillic online. Next slide, please. So, if you have any questions, feel free to ask.

PITINAN KOOARMORNPATANA Thank you. Please state your name before for the record. Thank you.

OLIVER RISTESKI Thank you. Risteski Oliver, ICANN fellow from Macedonia. I am from Macedonia. We are a neighbor country. Also --

PITINAN KOOARMORNPATANA Can you speak closer to the mic?

OLIVER RISTESKI I would like to know [inaudible - 01:02:18] how is the interest of using Cyrillic letters in order to be more close to the users? Because also we use Cyrillic letters in Macedonian language and I have not experienced that it is well known. We have small interest in my country and also for other scripts as Greek, Arabic, or Thai, how is the interesting percentage if you compare with Latin script?

DEJAN ĐUKIĆ Mostly we are focusing on websites and digital, so digital content and after we started this project with developing fonts there are much more content in Cyrillic than before because before that we had only one font that wasn't that sophisticated like these couple of new ones and it wasn't modern at all. So, people had to use some other fonts like Bulgarian or Russian, but they are not totally acceptable and not totally related to Serbian language. But after

this project, we have more use it and content in Serbian, but it's not big numbers so it's pretty the same like in Macedonia, I guess so.

PITINAN KOOARMORNPATANA Thank you. Yes, please go ahead.

SONGO NORE For the records, my name is Songo Nore. I'm from Papua New Guinea in the Pacific Islands. I was listening to all the presentations being done here, but I am quite curious as whether any work has been done on oral-based languages to be integrated into the Internationalized Domain Name or as part of the Universal Acceptance course.

As a Pacific Islander myself, most of our cultures are all based and I felt excluded in this, the community because we tend to discuss stuff on those countries that have, you know, their own scripts and writing systems. But for us, especially in this part of the world, in the Pacific, we don't have like a proper writing system in place and I just want to know whether any work has been done with oral based cultures they can be integrated into the IDN system and the UA to promote a truly multilingual internet so that we can be like people from a place they can communicate in their own dialect or native languages when using the internet. So, anything done through the ICANN or IGF in regard to promoting a truly multilingual internet by integrating languages that are orally based through the use of IDN and UA. Thank you.

PITINAN KOOARMORNPATANA Okay. So, I understand you asked about the work being done related to local language in Papua New Guinea or the Pacific Islands, was it?

SONGO NORE Yes, any work that has been done, not only in the Pacific Islands, but I believe there are also other cultures around the world, especially in places like Africa or in South America or in Latin America where they don't have a proper writing system. Their history records are being transmitted down through oral, you know, spoken words so they don't have a proper writing system.

So, I just want to ask, is there any work being already done where it can integrate those oral-based languages into the IDN system? So, far, any work being done as yet?

PITINAN KOOARMORNPATANA Sure. So, a couple of things. So, first, the script, we do provide the rules to enable the IDN in the script level. So, for example, if the Latin scripts become available, it also covers the French, Spanish, German, and also it covers multiple languages in Africa, in Pacific Islands, and all those as well.

In the proposal, if I remember correctly, it covers about 200 languages when the working group work on the Latin scripts so that's one part. But another part, when you talk about translate the oral language, which is not even written, we are not working on

	that within ICANN because domain names is on the nomadic system. But I just wanted to point out in this meeting, we also partnership with UNESCO. There's some representative for UNESCO who are looking into all these languages in the broader sense as well. So, we can connect after and we can continue connecting you to that. Thank you.
SONGO NORE	Thank you.
PITINAN KOOARMORNPATANA	Okay. All right, then there is no more question or hand raised in the chat so I think we can wrap up. Thank you so much for attending and please give a round of applause to our presenter. And please stop the recording. Thank you.

[END OF TRANSCRIPTION]