
ICANN69 | Prep Week – NextGen Presentations
Tuesday, October 06, 2020 – 18:30 to 19:30 CEST

DEBORAH ESCALERA: I need to read a little verbal announcement. This session will now begin. My name is Deborah Escalera. Interpretation for this session will include all six UN languages and will be conducted using both Zoom and the remote simultaneous interpretation platform operated by Congress Rental Network.

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I would like to highlight that remote participants are not allowed to click on the microphone button and unmute themselves during this meeting. It is only our IT team's ability.

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Okay, so we're going to go ahead and start our session. We're going to start with Vinayak Kejriwal of India presentation. And please forgive me if I butcher your names. So I'm going to start sharing my screen. And please let me know when you're ready for me to advance.

Now, since this is a PDF, I'm going to have to leave it like this. Kejriwal.

VINAYAK KEJRIWAL:

Yes. Hello everyone. This is Vinayak Kejriwal from India. Today, I will be talking about scope and opportunities of Indic language in IDN. So, Next slide, please.

I'd like to begin with why Indic content, why are we talking about this right now. So, since last almost 15 years, we have several debates over the most used languages on the Internet. 2009 UNESCO report monitoring the languages of websites for 12 years, from 1996 to 2008, found a steady year-on-year decline in the percentage of webpages in English, from 75% in 1998 to 45% in 2005.

Internet users are more comfortable in reading or browsing through text in their own language, and it is important to make domain name system available in different regional languages for their convenience as well. Next slide, please.

So, Internet in India. In India, we have around 700 million active Internet users right now, and it is expected to grow up to 974 million by year 2025. But here comes the unexpected part. We have more Internet users in rural areas as compared to urban areas. As you can see in the screen, we have 370 million users in the rural part of India as compared to 330 million in urban areas.

Most of the people in these rural areas are non-English speakers. They have little to no knowledge about English because English is not the primary language of India. We Indians prefer Hindi over English. Next slide, please.

And as far as content consumption is concerned, in urban areas, people use Internet mostly for emailing, social networking or online shopping, but as compared in rural areas, people use Internet more for entertainment which is scrolling through different social media platforms, using different video platforms, or a little bit of e-mail as well.

But urban consumption is growing by 7% year on year. I guess I made a mistake in the second point. It will be rural consumption is growing by 22% year on year. So you can see the difference. Urban consumption is growing only by 7% whereas rural consumption is growing by 22%, which comes to the next point, which is 77% of urban users consume Internet through mobile. So there is a gap, like 92% in rural areas is using Internet through mobile, but in urban areas, people use both their devices, like mobile phones and their laptops and computers as well. Next slide, please.

So, why Indic content? What is the importance of Indic content? The next 200 million Indians who will be coming online, who will be joining Internet as a new user, will be non-English speakers. These people will be more of the people from rural areas or from different cultural reverence who are not familiar with English, or even if they are, they have little knowledge about English.

Which comes to my second point, which is that right now, we have 700 million active Internet users, out of which 520 million Internet users are Hindi speakers and 180 million are English speakers, out of which, in India, we have quite a lot of different regional languages. So we have 260 million native Hindi language speakers, but only 0.0% websites are in Hindi as compared to English language using 54.1% of [all] websites. Next slide, please.

So, potential to reach 520 million, I'm talking about the opportunity here. If someone is creating content in Hindi language, then he will be having a potential to 520 million Hindi speakers, and if he is creating content in any other language apart from Hindi, which is Bengali, Telegu, Marathi, Tamil, Urdu, Gujarati, Kannada, Malayalam, Odia, Punjabi, Assamese, etc., then he will be having a reach of 730 million other Indian-language speakers.

I'm just backing it up with a little bit of data. Hindi search queries have tripled from 2012 to 2015. While the search term samaachar—Hindi for news—has more than doubled between 2013 and 2015, further indicating that the desire for local language content is in fact growing. People are trying to grasp more content in their regional languages as

compared to a universal language, which is English. So in India, people are mostly looking for content to interact through different content or websites, if it's possible for the websites to develop content in their particular regional languages. Next slide, please.

A more current example is YouTube. Whereas English is only the fourth popular language, mostly people in India watch videos in Telegu, Tamil and Hindi, and then fourth is English. And Indic content as compared to English content, because as Indians, we can relate to it more. So that's why Indic content has a much better CTR. For those who don't know, CTR is click through ratio, like if I'm seeing an ad or a video, then my potential of clicking on that particular video is defined as my click through rate.

So Indic content—I'm talking about opportunity here as well—if I have created a website relating to Indic content, like I'm creating content around Hindi, Tamil or Telegu or any of these regional languages, then the writers who write such kind of content in Indian languages charge way less. So it's easy or pretty cheap to hire such kind of writers, which is easy to hire, availability is higher, like there are a lot of regional language speakers, and people can write very good if we want them to write in their region languages. So training them is easy as well. And as everyone knows, Unicode is now widely accepted by the browser mobile phone, because ICANN is working quite a lot in making browsers and mobile phones Unicode-friendly. Next slide, please.

So, what are IDN TLDs? IDNs are internationalized domain names, enable people around the world to use domain names in local

languages and scripts, such as Arabic, Chinese, Devanagari, etc. These are [included] by the Unicode standard and use is allowed by relevant IDN protocols.

More than 3 billion people use the worldwide web, and increasingly so in their mother tongue, like we already have more than 3 billion people using Internet but most of the people who use Internet are preferably trying to use Internet in their regional languages. Next slide, please.

So here, I'm depicting it as worldwide web. Every one of us knows what is worldwide web. www is the third level domain name here and Google is the second level domain, but .com is a top-level domain that we are talking about here. We are talking about TLDs. So .com is the TLD, which is a syntax of ASCII TLD, which uniformly, we use letters from A to Z. But on the other hand, I don't know how this presentation got [inaudible], but this is Hindi.bharat. The green highlighted one is Hindi, and this is Hindi.bharat. So Hindi is the second level domain, and bharat is the IDN top-level domain. It is an IDN TLD. Next slide, please.

So because of Indic penetration, script-based identifiers are required, like [cover].cinema. All these things are written in Hindi. Like this is cover.cinema, bharat.[inaudible], [inaudible]. All these things are written in Hindi. So, what I'm trying to convey here is since we are promoting Indic languages, we should be trying to engage or increase the use of script-based identifiers as well, like using those Indic languages in e-mail IDs and increasing the use of these IDNs and picking up domain names as well. Next slide, please.

So this is the website. As you can see, the URL of the website is cover.bharat, like it is completely written in Hindi, and the content available on the website is Hindi as well. And this is a very popular website in India right now, quite a lot of people visit the website, because everything about this website is in Hindi, so people in India, like people who are native Hindi speakers can relate to it more. Next slide, please.

So, I have depicted the use of—like this graph shows the adaptation of Indic content on different applications, like music and video streaming has the most penetration when it comes to Indic languages, and when we go up to the top, then ticket booking and [inaudible] websites have the lowest adaptability to Indic languages. Next slide, please.

And so why Indic languages and how can we monetize them? Like I've been talking about what are the benefits of creating content around Indic languages. If we all know, ad networks like Google AdSense, like Google has their own ad network, and that particular ad network is available for serving ads in Hindi as well, like if you have a Hindi website or any regional language website, then Google AdSense supports it, has that option of running ads in Hindi and making money out of it. And all affiliate platforms, like Amazon and [inaudible] affiliate platforms which promote Hindi content and you can use these platforms to monetize your Hindi content. Same with all these other sponsored content, product selling, service selling and [inaudible] as well. Next slide, please.

So, this is all about it. Thank you so much. I'm Vinayak Kejriwal, everyone, and you can connect to me on all the listed social media platforms. Thank you so much. Questions, please.

DEBORAH ESCALERA:

Thank you, Vinayak. Okay, we're going to go to questions now. Are there questions for Vinayak? It looks like there are. We have a first question from [inaudible]. "What is Indic content? Because in India, not only one language we speak daily, we speak a number of languages with a number of people. But as compared to business work, in India, most working projects are from foreign countries. I agree with you that rural areas have more usage according to urban for entertainment and all, but about work."

VINAYAK KEJRIWAL:

Hi [Deborah.] I'm talking about adopting Indic content. I'm not at all talking about eradicating the use of English content that we have. The English content or websites that we are using for work and our day to day life will be there. But to make it easier for people who don't understand English or who are not familiar with English, I'm talking about adopting Indic content for those people who are using Internet just for their day to day lives just for their entertainment, like people who are using YouTube just to listen to music or watch videos, or who have, like right now if people belong to India and as you know, IPL is going on, if you can access IPL scores in English, you can easily access it, but if you can get the same scores and statistics in Hindi as well, then that will make it easier for people to connect with. That's what I'm

talking about here. I hope I answered your question. Thank you for the question.

DEBORAH ESCALERA:

Okay. Vinayak, I want to remind you to speak a little bit slower because we need to keep in mind that we have interpreters transcribing everything. We have another question from Siddhant Chatterjee. How does the Indian policy framework integrate adaptation of Indic content on e-governance facilities? What can be done with bodies like ICANN in terms of collaboration?

VINAYAK KEJRIWAL:

Hi Siddhant. Thank you for the question. I guess already, UASG, like we talk about Universal Acceptance Steering Group, they're already working on making it easier, working on creating a standardization process of methods which is already like they're working on it, working on how to make it standardized and how can we use all this Indic content options or processes in the e-governance or all the related websites. So they're already working on it. And what I feel is they're a separate, not governed by ICANN, but they are somewhat collaborated with ICANN, like UASG is developed in collaboration with ICANN. This is what I feel. I'm not very sure about this. So thank you, Siddhant .

There is one more question from Naeem. "Can we relate it to languages which are under resourced? Because India a multi-ethnic country with more than 25 languages and Indic languages is a major class. Are there

any efforts to create content in endangered and indigenous languages of India?”

That is a very tricky, difficult question, Naeem. I'm not very sure about what we are doing for endangered and indigenous languages, because right now, we are focusing more on making it available to the end user. So if a certain language, endangered or is already extinct, then it is possible because we don't have much users or much speakers for that particular language, so there is no point in working for that particular language. But I do accept that point you are trying to make here, we should be working on our endangered languages as well so that we can keep that thing alive. [inaudible]. I agree to it. But I'm not sure about it. I don't think right now we're working on any such languages. Thank you for your question, Naeem.

DEBORAH ESCALERA: Okay. Are there any other final questions for Vanayak? Okay, thank you, Vinayak, for your presentation. Very interesting information.

VINAYAK KEJRIWAL: Thank you so much.

DEBORAH ESCALERA: Very well done. We're going to move on to our next presenter, Kris Shrishak of Germany. Kris, I'm going to bring up your presentation and then you can proceed.

KRIS SHRISHAK:

Thank you. This is Kris Shrishak. I'm going to present to you about the work that I call multi-operator DNSSEC signing system. This is the result of a publication with four other collaborators. Next.

So this is the outline of my talk. I'll first mention briefly about DNS resolution and then about DNS security extension, and finally, a proposal which I call multi-operator DNSSEC signing system. Next.

DNS resolution in a very simple way, let's assume we have a client who wants to go to a website which is <https://ducks.de>. It sends a query to the ISP. So instead of the ISP, it could be also a public resolver. In this example, we just take the example of an ISP.

An ISP, if it does not know where ducks.de is, might send the query to the root server. Next, the root server might say, well, I don't know where ducks.de is but I can tell you where the nameserver of .de is. So then the ISP sends a query to .de nameserver. Next.

And .de is like, well, I don't know where ducks.de is but I definitely know where the nameserver of ducks.de is. Next. And finally, when you get to the nameserver of ducks.de, you get the response—next slide, please—of the IP address where ducks.de is. Next.

And once you receive this response, you can finally go to the website of ducks.de. This is what happens in the background when you try to visit a website. Next.

But unfortunately, DNS is not designed with security in mind. Next. This means that the first answer that the resolver receives is often accepted. Next.

Now let's take an example where the client again wants to go to ducks.de. And before the DNS server responds to the ISP, an adversary responds to this query with a malicious IP address. Next.

So with this malicious IP address, instead of the client going to ducks.de, it ends up on the website of an adversary. Next. And this is where DNS security comes in. Next. DNS security extension tries to fix this problem. How does it do that? Next.

It has two properties. The first is data integrity, which means that it assures you that the data was not changed in transit. Next. And the second is origin authentication, which means the data originated from the owner. It provides this assurance. Next.

And the manner in which it is done is that the DNS security extension digitally signs the records stored at the nameserver. Next. And because DNS is a hierarchical structure, first the root key needs to be considered, and the root key itself is hardcoded in DNS applications. Next. Which is essence is certification for DNS. Next.

But DNS security extension in itself has deployment issues. For instance, DNS operations are outsourced to DNS operators. This can be a positive, especially because DNS operators have experts in hand who can handle [the signing] and operation which most domain owners do not have expertise in.

Unfortunately, this also means that they will handle the signing keys, which are private keys. An analogy you can think about is that if you give your housekeys to a real estate agent and ask them to manage it

for you, this is similar. Next. Unfortunately, there are studies which have found that these same keys are used for thousands of domains. Next. Next.

And this means that your real estate agent, instead of having this one key for you, is using the same key for thousands of houses. Next. And another issue is that a 1024-bit RSA is being used. RSA is a signature algorithm and 1024 bit is the size of keys which is usually not recommended for any signatures. Next.

However, it is recommended in DNS security because of an issue known as fragmentation. Unfortunately, there are even domains which use even smaller keys of 512-bit size. Next.

So in practice, what we want with DNS security is—next—it should use a signing algorithm known as ECDSA instead of RSA—next—because it has smaller keys as well as the output signatures are much smaller for the same security parameters, and it also reduces the chances of [inaudible] fragmentation. Next.

And we also want to support multiple DNS operators. Why might you want to do that? Next. Because there have been cases of DDoS attacks on DNS servers, and having the possibility of multiple operators provides better availability. Next.

Now that we've seen the issues, let's go to the proposal that we have. So DNS security has signatures at its core. A traditional digital signature is one where one entity has a signing key and produces a signature. We propose to use threshold signature.

What are threshold signatures? In threshold signatures, none of the entities have the whole signing key. Each of them have a part of the signing key which are known as shares. And output signature that are got by using the shares is using identical to what you might get if one entity had the signing key. Next. And hence, we say that these two signatures are indistinguishable.

This is important because in DNS, there are many entities which are going to verify the signatures in comparison to the number of entities who are going to create the signatures. So if the signatures are indistinguishable, which means the verification algorithm does not need to change. Next.

In order to understand to what extent we could already deploy the solution we propose, we perform a measurement study using Alexa, a list, and we find that at least in the top 100, about 40% of the domains already use multiple DNS operators. Next.

So, how does it look when we use threshold signatures for DNS security? First, we create shares. In this example, we use three shares. Next. And when an ISP sends a query to one of the DNS operators—next—a multibody computation is run between the operators.

In this computation, the signature is generated, and along with the records that are going to be sent, the signature is sent back to the ISP. Next. Next. An important issue that we need to consider here is that this form of threshold signing should be not much more expensive than regular signing. This is important because as you see, if there are

multiple operators, there is communication between the operators that needs to take place. Next.

So, this is the only question you're going to see in my presentation. This is the signing question for ECDSA. Next. There are two parameters that need to be kept secure. One is SK, which is the secret key, which as you might think, needs to be kept secure. But in this case, we also need to keep an instance key, known as [K] quite securely. Next.

And when you do this in a threshold manner, what it means is that we need to keep these two sets of keys, which have been marked in [square boxes securely.] This is a tricky thing because we need to keep [KS] securely which means no one knows what [K] is, however, we need to invert [K] to create [K] inverse without anyone actually figuring out what K is or K inverse is. So in performing threshold ECDSA, this is the most challenging part mathematically. Next.

So we perform our signing system using three phases for efficiency reasons. Next. Next. So we have two preprocessing phases and one online phase. In the first preprocessing phase, what we can do is we create certain [inaudible] which are domain independent. What this means is we do not need to know beforehand for which domain these signatures are going to be created and we can create these [inaudible] for that section. Next.

And then we are able to create a message independent [inaudible] which depends on the domain that needs to be [inaudible] records for a domain that needs to be signed, but even before knowing which particular records are to be signed at that instance. Next.

And finally, we have an online phase, and the online phase is the only phase that needs to be run at the last minute. Everything else can be done beforehand. And this means that essentially, there is one round of communication between these operators and that's the best we can hope for in any kind of interactive protocol. So this way, we are able to make our protocol very efficient. Next.

You can actually find a lot of the details if you're interested in this link. That'll be the presentation. Thank you.

DEBORAH ESCALERA:

Thank you, Kris. Very interesting, very technical presentation. Are there any questions for Kris? Thank you so much. I appreciate your presentation. Are there any questions for Kris? I realize that was a very technical presentation but very interesting. Any questions at all? Okay, thank you, kris. Very interesting. Thank you for your presentation.

We're going to move on to our final presenter, Ferran Farré. Thank you for being willing to present today. You may begin.

FERRAN FARRÉ:

Hello everyone. I'm Ferran Farré, a legal advisor from Barcelona, now a NextGen participant, of course, and today, I'll talk about the problem of unique Internet identifiers as distinctive things of commercial [traffic.]
Next slide, please.

Let's start with a little bit of background. After the opening of the Internet back in 1993, we began to conceive the way of browsing that

we know today. We open a browser, we insert an address or domain name, DNS works its magic and the result quickly appears. The unique identifier system, and consequently the scalability of the Internet has changed our life forever.

But there is [inaudible] in all this that we must not lose sight of. The Internet is dynamic, secure, stable and interoperable in large part thanks to ICANN.

Let's think about registering a domain, a process that does not require more than two or three minutes. Simple and fast. We only require a series of data to create the WHOIS records, and that's it. This is precisely what is [inaudible] for the exponential growth of the Internet. Next slide, please.

In my case, as a [inaudible], despite being fascinated by the endless opportunities that this system offers us, and of which we're beginning to be part, of course, I cannot avoid the concept of legal insecurity coming to mind. The dynamism of the Internet is contrary to the [prior verification] of the legitimate interest in the registration of a domain name.

We are talking about the principle of temporal purity of first come first serve. And the dynamism has been the ideal setting for the work of the cybersquatting phenomenon. Thus, domain registrants making use and enjoyment of the [inaudible] principle can register domain names without prejudice to the fact that it may affect the rights of third parties related to intellectual property rights since there is freedom regarding

the registration of the vast majority of gTLD extensions. Next slide, please.

Let's see a practical example. Let's put ourselves on the space of a consolidate traditional company, a company with its reputation, identity and brand, of course. This company finally decides to transfer part of its business model to the Internet [and it's necessary] to register one or more domain name.

We look for a provider that offers such a service, like GoDaddy, Namecheap, [inaudible] among many others, and we start with the name of our company.

We quickly realize that the name as such is not a problem, that is the second-level domain, but the most common extensions or top-level domains are not available. Next slide, please.

We quickly go to the browser to see what use is being given to those domains. At the moment, none redirect to any website. It's likely that we have been victims of cybersquatting.

After that, the scenarios can be several, that we receive a shabby offer from a third party, that third party ends up redirecting those domains to sites that disturb our online reputation, that in some way that third party is taking advantage of our identity and reputation, or we simply cannot use the domain name because that third party wants to prevent us from doing so. In such cases, we [prejudice to] other avenues. We must resort to a dispute resolution procedure. Next slide, please.

Okay, let's start with the uniform domain name dispute resolution policy. As we have been saying, the Internet is dynamic. The unique identifier system is dynamic. It is considered that way by design and endorsed since 1998 by the ICANN. But jurisdictional mechanisms for dispute resolution are not nearly this dynamic, and even less so in an international context.

This is why it was necessary to create in 1999, in collaboration with the World Intellectual Property Organization—the WIPO—of the uniform domain name dispute resolution policy, the UDRP. Consequently, the domain name registry service provider had to be previously accredited by ICANN of the registrar accreditation agreement—the RAA—and this point is especially relevant given the registrar [agent] is subject to the UDRP.

The UDRP is applicable to open international gTLDs like .com, .net, .org, while those new gTLDs approved by ICANN in 2012 are governed by a complementary extrajudicial procedure called the uniform rapid suspension system, which is complementary. Despite this, the most complex conflicts are results of the UDRP. Next slide, please.

Okay, let's see the UDRP procedure. Continuing with the introductory example, the practice of cybersquatting has been common since the beginnings of domain name registration activity, even the flexibility offered by this global system. Therefore, as soon as we have evidence that a third party has taken over a distinctive sign of which we are legitimate owners, we must resort to a procedure that determines that an abusive registration has indeed been carried out. To obtain the right

to be owners of a domain name, or rather, register, we must prove that in the case in question, a series of conditions are met.

The first one is that the domain name is identical or confusingly similar to a brand over which we have the right. Secondly, that the third parties have no legitimate rights or interest regarding the domain name. And third, that the domain name has been registered and is being used in bad faith. That is very important. Next slide, please.

At first glance, we can already foresee that the turning point, will I be able to prove the existence of bad faith? The UDRP focuses on throughout its fourth section specifically stating that demanding compensation for it, trying to avoid [inaudible] or taking advantage of the commercial and reputational [accommodation] of the legitimate owner would be clear indication of compliance with the third condition of the bad faith.

Even so, what seems clear at first glance can be right—my right of objections that demonstrate the importance of examining case by case whether we are dealing with an abusive record or not. That is, if a trademark [processor] examines the similarity or identity of the denomination, in the case of domain names, the purpose in the use or not of the domain name is examined. Next slide, please.

To use a procedure of this type, there are a number of UDRP dispute resolution providers which are approved by the ICANN. Some providers are the Asian Center for Resolution of Domain Name Disputes, National Arbitration Forum, or in Spain, the Spanish Association of the Digital

Economy, as it's called, Adigital, without prejudice to the fact that many of these disputes are resolved directly by the WIPO. Next slide, please.

We have some conclusions about that. The concurrence of the three circumstances to which we have made mention makes [inaudible] cases of logical choice are excluded from the policy because these cases lack the most important element to determine abusive registration of domain name: bad faith in the registration or use of the domain name. Therefore, in order to maintain the criteria of uniqueness of the registration and temporal purity of the registration of domain names, this option of the UDRP seems the most appropriate to provide the system with a minimum of [inaudible] without thereby distorting the exponential growth of the Internet and the [inaudible].

In conclusion, we can register a domain name even when it is identical or similar to a trademark. It will then be the principles of the UDRP to determine when that domain is being used illegally or when it's not. And the fascinating thing about all this is the freedom that the system consists from the moment in which a company has the resource it has cannot, if not by means of indiscriminate registration of the second-level domain, prevent the legitimate use by any person or entity of that denomination.

The Internet has come to change the rules of the game, invigorate the market, [inaudible] and allow endless possibilities for anyone who is interested in opening the doors to a scenario of real and effective equality. Classic commercial traffic based on the trademark law is still quite incompatible with the principles that establish the Internet. In my

opinion, this dispute resolution mechanism has come to stay, and [the rest] must adapt to it, make it even more a reality. Next slide, please.

And that's it. We can be in contact in the social media platforms. And I want to invite you to ask me any questions that may arise in regard at the end of the presentation, specifically regarding the difference between traditional systems for the protection of trademarks and distinctive signs and the protection of domain names as a distinctive sign of commercial traffic.

Thank you for listening. Let's finish.

DEBORAH ESCALERA:

Thank you, Ferran. An excellent job. I think it shows a lot about your professionalism that you were able to jump in when I invited you to present at the last five minutes before the presentation started. So thank you so much. You did an excellent job.

Okay, are there questions for Ferran? We have a few minutes to go before the webinar ends. Okay, I want to remind you that these presentations are posted on the website and I will be updating the agenda to show Ferran's name as a presenter for these presentations at ICANN 69.

Thank you to everybody who attended today, thank you to our presenters, and thank you to my ambassadors. Thank you so much for attending the ICANN 69 NextGen presentations. I appreciate your support and I appreciate all of your attendance. Thank you so much. Enjoy ICANN 69.

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