MONTREAL – GAC: ccNSO onboarding session on ccPDP on Retirement of ccTLDs
Tuesday, November 5, 2019 – 13:30 to 15:00 EDT
ICANN66 | Montréal, Canada

PAR BRUMARK: Hello. May I ask everyone to be seated please? So on to begin this afternoon with we have our people from the ccNSO who will speak about different things but mostly about ISO. ISO, that is quite fundamental for the whole DNS system and not least the ccTLD system, so I don't know who of you will start. Stephen will start and this is Eberhard Lisse here.

STEPHEN DEERHAKE: Good afternoon, and thank you again for welcoming us into the GAC presentation. I want to thank Manal for the invitation, and thank you all for being here right after lunch. As you know we are traditionally come as the PDP retirement working group to give an update on what's happened since our last get together, and this is going to be a little different. It's more of a continuing education effort with an accompanying paper of some significance that can go into the GAC archives for consultation by yourselves and your future GAC members as they come on Board. Basically it's got your main parts. It's rather comprehensive review of the DNS and how we got to where we are today and it

sequeways into why ICANN needs a retirement policy for country codes and without further ado, over to Eberhard.

EBERHARD LISSE: I'm Eberhard Lisse, the ccTLD manager of .N and A device chair of the ccPDP working group and retirement of ccTLDs. Quite a mouthful. I am trying to advance this. That doesn't work here. I am unable to advance the slides. There we go. Maybe I must use the curser. What we wanted to do is to on Board newer GAC members into what is this PDP is about. We have heard -- we have been here twice explained so the experience members know a little bit of what is going on. But for newer members it's often not easy to hear terminology that hasn't been introduced and we sort of start in the middle of things. I have been given 45 minutes. I will try to get it done in less than that so that we have good time for a meaningful questions' session. I have sent you all briefly material an article in your papers. If you want to delve deeper please do so. The article has got a bit of notes and it has got a reference section so if you really want to take a deep dive, you can always make use of the original source documents. First, we explain a little bit how the DNS works because that's understanding is fundamental to know how ccTLD comes into existence, and then we talk a little bit about the end of the life

cycle of a ccTLD. How this works, why we are doing this, and what we have come up with so far.

What we are talking about is the domain names system and we all know that we -- this is the way that we put in a name and it translates it into an address that we don't know, and it fires up the browser to website without us knowing what the actual numbering address is. There's a large number, 255, or 56 to the power of 4 if I'm not mistaken in the old address system and an immensely bigger system in the IPB6 system. Nobody can remember the numbers so a system that translates this into names is better. In the beginning it was a pure text file. And as I said, in the beginning this was all covered together, at who can by some hippies at UCLA or at Berkeley and it was not a consistent design top down. Hard to interact with each other. It sorts of was designed but designed well.

At some stage they figured out -- and it's easy to understand if you take 5 or 6 minutes to add a name and test it and put it into the file, and distribute it you can do 6, 10 in an hour is 80 a day. If you have to make 100 changes a day, it's already a bit of a problem. The file size in itself was not so much of a problem. It was just the they realized at some stage they would not be able to add and change and do these things in a proper manner. So good computer nerds that they are and were. They designed -- they sat

down and designed some software... is the designer of this and he had many design goals about it and the most important ones are that it was going to be distributed and it was expense comfortable. This is what we know as the domain name system but it's actually a part of it. You see the domain name space.

We can see the top level and we can see hear for example -- if you see the curser there is 143 million COM names and 50 in the latest for the ccTLD table for thousands, and we are aware of this, but the DNS the domain name system consists of more, it has the domain space, what I just showed plus name servers that maintain these tables, and then also resolvers in the software which is used by everybody. Every cell phone has got a resolver. When you access the WiFi and if you looked at your configuration you will see that ICANN gives you 2 names servers in the IPB4 space and 2 in the IPB6 space. The numbers I don't even know the name of them, but you can put your own if you want to but if you get into a WiFi you get proposed 2 names at least 2 names servers.

The point of this is we don't want to know how it works. We don't want to be bothered with the details. We want to put a domain name in, and we want to end up on the website. The resolvers also keep this information for example if everybody here in this room accesses the Google website, we would all access the

resolver but only the first time. The first one to hitting the resolver would get the resolver to actually look up the address on the name server. It would then remember it and give it out to everybody else who queries it within the foreseeable time for efficiency purposes. You don't have to query the name that where the number isn't going to change within the foreseeable future every bloody second when we know okay it will last for about an hour. Then you every hour you check is it still the same number? Keep it -- or if you don't get queried after an hour you forget it and the next will start with a new -- send a new query and it will remember it for a while and then certificate of it to all other comers without creating outside queries.

As we said on the COM level is 143 millions. ICANN may have let's say 100 domain names under their own control, and the thick blue is what's called a zone. If every .org zone of which there is 10 million has got 100 names, in that zone that's a billion names. Which is already a large number. If we translate this to the .com top level domain times 100 is 14 billion and it becomes really a huge data base to access. However you will find that even on these big ones it's as fast as the small ones because they have got probably better connectivity.

These zone files I won't go into the details too much. Has differ record types. A start, IP addresses A is for the normal one. Old

one IP4 in Green the quadruple A shows it's new one. Everything in green in this presentation is an addition or new. In other words, they added on a new system when they realized we don't have enough IPB4 by inventing a new resource record. It's usually a difficult burst to stay in my profession but once the baby is delivered it's usually breathes on its own. The same for DNS. One of the record types being used here is also just -- just is not the right word -- is also added on into the system as a record type. We often speak of primary and secondary names servers. That's really a misnomer. We should perhaps speak of a primary or secondary zone file. And they only differ in the way they are being created. For redundancy there is one at source it's usually and larger one it's usually data base generated. Even in smaller once it's data base generated because humans are good at solving problems but not good at repeating the process over and over again because we tend to get bored and make mistakes. And in large zones there are all names servers are identical. There are provisioned identically. The way the zone -- where the zone files are being changed is totally independent on the name servers. It's just that we sometimes believe that the primary name server has got any more to say than the secondary server. They are totally identical.

There is ---- you can either pre-planned push out your zones like we do this once an hour, or in the larger ones where this is unfeasible for just for interest, and transport purposes, you update this when -- by queries randomly. I find it actually very difficult when I looked it up. I found it very difficult to find what a domain name is actually. With a big word of caution. Wikipedia entries often contain mistakes are wrong and mistakes tend linger. I personally -- and some of my colleagues disagree and I see some of them who vehemently agreed in the room -- I like this definition. If you like a better one that's fine. But we are talking about a domain name. What is a domain name? We all talk about it and we don't know about it. We have got generic top level domain names. Top levels. These are originally purpose based.

Now you can say there's also city names but actually purpose based and not really geography based. There is always a finite number. At the moment roughly 1200 and the zone -- yesterday I heard a presentation saying they were a little bit concerned or looking into measuring the growth of the Rootzone as a technical thing whether this actually affects security stability or any other purposes. The life cycle is regulated by a process. There is a contractual relationship. There is compliance which is very well organized and enforced. Recourse is by an independent review process and this process has recently been determined in a court

challenge and basically, it's settled. The life cycle is basically quite clear on this.

COM, I mentioned BIZ as one of the second round many top level domain names and we have the new ones here which I don't go into too much detail. The ccTLDs are geography based but as we all know that's not as easy as one thinks. Not only because it's sometimes difficult to decide what a country is, but also .ME, .LY, .IO. .CD. Document MD can also be used for non-geographic purposes. The process has developed over time and was well before ICANN even existed and was quite stable by that time because I think -- I don't have the numbers, but ICANN came into existence at the end of the 90's and they were already a large number of ccTLDs in the root system before then. So there is the process that has evolved over time. And in 1994 John POSTEL then performing the IANA function at that time wrote a document in what he specified basically how things are supposed to work and how they were working at that time

These are only obviously binding on ccTLDs who were delegated beforehand but most of us, found that this is a reasonable document, so we have been abided by it. Because it wasn't written for the purpose it's being used and also there's some typing errors in it and some omissions, the ccNSO embarked and

a process called framework of interpretation, so we have a more or less binding way of interpreting certain terms or all terms.

The ccTLDs are represented here in ICANN by the ccNSO or the country code name supporting organization of which ccTLD managers can become a member. Don't have to. And policy developed by the ccNSO is only binding on members during their tenure. That's is written clearly in the bylaws. So we can see we have got 245 delegated ccTLDs and we've got about 63IDN ccTLDs there for all intents and purposes they are considered ccTLDs. There is 3IDN, ccTLDs where the name strings are red, I had for delegation, but they haven't been delegated. I don't know the reasons, but they have passed the tests so if an application were to come in, I assume that this would happen. We see here .SS, 4000 if the youngest one and in red .AN for the Dutch ... until a switch has been retired. During that retirement process it came to a few misunderstandings or unhappiness so eventually it was decided that there must and policy development process that basically puts the process designs a fair and reasonable process which will then make these things absolute predictable if possible. It's important to talk a little bit about terminology. A delegation is defined as addition of a ccTLD to the root and assigning management responsibility to the ccTLD manager. There is not really a policy but there is a process that works that was developed over time and seems to work very well. It involves

I'm talking to the local Internet community to significant interested parties. One of which is the governments of the it are at this concerned.

Then the change of a ccTLD manager, what is sometimes -- will sometimes be referred to as a redelegation but it is nowhere defined what a redelegation is. It can be an agreed transfer where both sides agreed, or it can in a situation where the old ccTLD manager does not agree. Then it would be a revocation. Sometimes they use the word hostile revocation is used. And subsequently a delegation that uses the process of delegations that is mentioned in the first line.

That has never happened. Substantial misconduct is one of the ... it has never happened it has been done like this. We don't expect this because it's relatively simple not to substantially misbehave. The removal is called a retire. And because we don't have a policy for this, we decided one is needed. The council decided one is needed with regards to the PDP. For technical reasons it is obviously important that for a subsidiary the principle is important and geographic principles support us that the ccTLD manager should reside in the country where that corresponds to the code. Traditionally the administrative contact and also the technical contact exist. The administrative contact must reside in the country according to RFC1591 but can be... so

that debates the purpose much it's important to have those 2 additional contacts so when you communicate with the manager or you receive instructions from the manager to make changes that always more than one individual is acting on this and there is always confirmation by two people for principle. Now we come to past safety subject the ISO. ISO stands for international organization for standardization and we all realize that this is not a correct abbreviation. It comes from the Greek word ISO. I personally think in 49 when they came up with the organization, they made a mistake and they rationalized it later, but it doesn't matter. It makes sense. The ISO obtains a list of country names from the United Nations. Through statistical manuals. This is not relevant here and the definition of a country name is peculiar. Its name of a country dependency or other area of particular geo-political interest. It's not just a country. POSTEL wrote he was not in the business of decided what a country is. The ISO is also not in the business of deciding what a country is. They are not even in the business of deciding what a country name is. They get a country name and they add codes for the representation of these names.

It's like a spread sheet. You have your name in English, short and long and then in French and then you have columns for different codes. You have a 3 letter code foreign Canada CAN. You have a 2 letter alpha two-letter code this is what you're talking about

which is for ca is CA., and then you have a numeric one is 3 digital. I don't know which one it is for Canada. This standard is regularly reviewed. There was a draft it's called a draft international standard. A review of the standard that was on going and the voting period for this routine review ended recently so there may be some terminology changes upcoming not really relevant. I just mention it for the completeness.

How does the 2-- letter alpha two-letter code element system works? It supposed to use the table from AA to ZZ but it doesn't. It doesn't use AA and it doesn't use ZZ. It also doesn't use some elements in the Q range and does not use any of the X range. Which I can use easily in my example on the last slide. Within this there is a number of country names with their short and long abbreviations with the alpha 2, 3 and numeric codes and other 250 I think, 245 for 245 there are delegations. There are 4, 5 ISO codes for which the no ccD is delegated on and off the side it's not the ISO code it's the ccTLD starting with the first stop that is concerned. We don't need to go too much into the detail. It's relatively small one. There's one controversial one. The other once are municipalities from France and the Netherlands and the other one is .UM outlining American minor islands where I usually make the joke there's only a few radioactive animals and a few biologists. There is no Internet community so that's not worth them going through the effort. It's also an issue of the retirement

how that one was retired but that's -- then there is not 12, 2 letter combinations which are not in the table. Not in the standard. But which are reserved for a purpose of interchange as they write it. There is 4 for which corresponding ccTLDs are concerned. 2 are grant fathered. AC which is stands for Ascension Island .AC which belongs into SH for St Helens and others. Then there is UK. And then UK to pass a Board resolution and SU is a legacy. Now what times of retirement get it. You can have a country changing its name. But you can't just change the code element. You have to remove the old one and put in a new one. Technically, country ceases to exist when east Germany joined west Germany to Germany. Germany both of them continue today use the E -- DD was scrapped. There was no ccTLD delegated so this was not an issue. The Dutch Antilles split up constituent countries of the kingdom into Curaçao and St. Martin and other outlying -- special municipalities. BQ is interesting because it was used in 2010. BQ it be used up to 79 for British Antarctica was so not used for roughly 30 years if you reuse such an ISO code too early then the ccTLD can become confusing. This has happened in the past so now they say up to 50 years. 30 years as in this case makes sense to me because it was a very small ISO -- it hadn't even a ccTLD been delegated and then when a country splits off through to independence. That does not result in any code changes. Now, how does the same things play out in the ccTLDs? When the name of TIMOR changed the codes one was removed. One was

added. A new .TL was added to the root and .TP was retired. For the Dutch Antilles .CW was added to the root and .SX was added. .AN was retired and .BQ was not. There was something in your document which I can paraphrase. It's so small it wasn't worth it. There are special municipalities of Netherlands they can use .NL and setting up a registry implies costs and it's not worthwhile for such a small thing. When the Soviet Union split apart and SU was removed from the standard. It was exceptionally resolved but not the country name. Just the 2 letters. And .SU remained in the root and remains in the root. So there are 2 forms of trigger events at the ISO that can have an impact and ccTLD life cycle. In almost all cases an alpha two-letter code element is assigned by the standard organization. In rare exceptional cases other like Board resolutions when it's just an exceptionally reserved code and not in the standard. It will be retired when the ISO alpha code the corresponding code is moved or in very rare other cases.

Now in order to retire we have to have certain steps. There must be a trigger event saying okay, country name -- country -- reunifies, ISO code goes away. Code 11 goes away. CcTLD must be retired. Then the IFO the IANA function operator will just take and communicate the decision to the ccTLD manager, which starts the clock running. ICANN question mark means we are not really finalized yet whether the ICANN Board should like it takes at the end of the process whether it

should also take off the start of the process. I don't think it's evenness. I just put it in because I feel we haven't ventilated this had to the end.

Once the ccTLD manager is informed it's best to come up with a retirement plan which the IFO will agree and will be implemented. The IFO will decide whether to remove it and when it's finally approved do it. Now the retirement plan is not mandatory but we and anticipate it should take 5 years and if you need more time you must send in a retirement plan which communicates why you need more time.

That is not in the formally -- in the formal sense an agreement but also should agree, okay we believe that's the right thing to do. And then it should probably also include a communications plan how you will communicate this matter to your registrars and to the registrants. So in most cases if a country ceases to exist people who live there know that it has ceased to exist, and they will as clients also realize that it may have consequences and when they're informed for this and this reason the ccTLD is going to stop -- going to be removed or retired. They know why, and they just need to know how long they have.

There is one problem that only came up during our discussions. The ccTLD manager must or should commit to stop taking registrations renewals or transfers that exceed the date of

retirement. For example if the retirement is in 5 years and I take money for renewing a domain name for ten years. That borders on the criminal. It's not that we in our group have anything to say but that's something we don't want to encourage that is happened. So we would encourage that this is being considered and the ccTLD of manager of the retiring ccTLD puts a commitment there, but we won't be able to enforce it. Eventually you will return the excess of the registrar and they cannot be renewed. They sort of fizzle out because when they were not renewed, they are suspended, and they get removed eventually the zone will be e-mail if I. Then no DNS updates will be taken and then IFO can remove it from the root. Okay some things are out of scope. The decision to take retirements or remove. That's -- it's going to it happen and that's nothing to do with our PDP. We make policy for ICANN. So whether you're a member or not plays no role.

The decision of whether registrants used a domain for one or another purpose and in large numbers cannot inform our decision or the process or the policy to retire. With the register starts with going to... depending on this for our livelihoods in a way one is sorry, but it can also not inform the decision. It comes the ccTLD comes into life so to say, when the ISO puts the code in and it comes to an end when the ISO code gets removed. The other things are not really part of our policy.

Now, we said a transfer would require the buy-in from the local Internet community. And specifically significantly interested parties. What would happen if there is no such thing? If a country splits into 12 parts which of the 12 parts is having the local Internet community. Will of the 12 governments is now the government that is the significantly interested party? We haven't figure that had out yet. What happens if the manager just walks away? We haven't really finalized this had yet but for stability and security purposes it may be required that some form of assistance is required. I call this personally CCVRO there was also opposition from the same party. There are no formal things but what do we need to do if we need to find a place for this while it's being retired? The GNSO has 3 of these emergencies back-end operators of last resorts. All are ccTLD managers so it's conceivable that one of those would be willing to assist. So this is in the scope of the PDP is also not yet decided. What happens if CCT manager is uncooperative but continues to function not part of our policy. They must take it up among themselves, and probably use conflict resolution outside of this process.

Okay, exception reserve. We mentioned this. This is no policy guideline -- no policy for adding it to the root. The DEU was done by a Board guideline or Board resolution. We don't foresee this to happen again, or it's -- it could happen in Syria but it's not conceivable that it happened. What happened this one of the 4

are currently having ccTLD gets put into the proper standard and are only thinking AC .AC is one of the candidates -- in the past this happened to JG on... and IM for Isle of Man and that had no consequence and the manager when the ccTLD manager continued. What would happen for example if an exceptionally reserved name is dropped? I call formerly used. For example SU was just removed. We don't know what process we would use there. It would require retirement. We don't know what are process we use. Probably case to case, and my view is, and it's not ventilated to the end. We would probably use the spirit of this policy, but it is a remote exception to a remote situation, so we don't want to -- we probably don't need to over-engineer this. Now we are almost coming to the end. Internationalized domain names. IDN names. They're not in the standard. .IN has 15 or 16. But they're not in the ISO standard. If .IN were to disappear totally. If the government in the country of India was disappearing from the face of the earth. Then these 16 would go away by themselves but what happen in India can changed the names? What would happen to the -- I steam to recall it said something like BARAT in a different language. If India changed its named to BARAT that would have no consequence on the IDNs. The trigger element is difficult because it can only be dealt with individuals who understand the language, so we put the standard out. There is ... so they will define the trigger element. Once we have the trigger element the policy will use that.

And on the lighter note. As the final example to explain how this work -- should how this IDN it could work. If a hypothetical republic of XUBUNTU changed to Federal Republic and the ISO code changed from XR to XF. Then the XR would be removed. XF would be added. That would require the retirement of .XR. And that would be would require an addition of .XF a delegation. Now if there is an IDN name XUBUNTU and I'm using a well known font and maybe there was one or two in the room who know what it is or can read it because they will be tested because I put a spelling error in there -- point being here none of us really raised their hand. We cannot read that language so we cannot say what does it mean? And if the ISO code change, we cannot really say will that have an impact on the name -- on the IDN name. Does that need to change, or can it remain the same? I can't do this. I don't see anybody violently saying they can do that. So this is part of the IDN, PDP process that they find a way of defining if a country name changes in the ISP table how can we decide or look at whether the IDN table name needs to change? And now, I am actually a minute over my time that I set myself. But we started a little bit later. I would like to ask urgently for some questions please.

PAR BRUMARK, GAC VICE-CHAIR: Do we have any questions for the good Dr. Eberhard on this topic? It was obviously so thorough there aren't room for any questions.

EBERHARD LISSE: If I had known that I would have packed more things in. If I had had more ten minutes. But in any case. If there is, if there is last time one question was passed which I find is important, we are talking about country names. But it's not just country names. It's also names of dependencies. Names of areas of geo-political interest. That's the way it is. And I can blame you. The governments for making it like this. So it has however worked for 40 years. It was a relatively clever move to use it. It's not 100% par, but time has shown it works so we basically have to only deal with the detail and once we've sewn that up, we can deal with that. If you want to read into this in your brief there is a... plus additional notes with some footnotes to make sure that you don't think all of this is totally authoritative and I have put in the reference section of about 2 pages if you want to read the RFC document yourselves. Just click on the link the original document should come up. I tested them so it should work. All right. Thank you very much. For the -- there is one other thing that I have forgotten, and my chair is probably going to -- we like to have on each PDP, and I think it's even in the bylaws. We like

to have representation by GAC. So please, could -- if somebody could find it in their heart to volunteer one of their junior staff members who needs punishment, we are a pleasant bunch. We meet every 2 weeks telephonically. 6 hours apart. We do not really expect everybody to participate in every meeting at 3 o'clock in the morning. But we need to government buy-in and input into this because it -- some -- the actual policy does not really involve governments, because it only has to be fair and reasonable. And it doesn't have to -- the decision, what that -- that this has to be is an outside event. It's event for which governments in the end are responsibility. But as a general thing in the meetings we like to have government input. They have also got input.

PAR BRUMARK: I reiterate what Eberhard said. I'm happy to have a volunteer. You've heard me request that before. And I will continue to do so. Thank you so much for your time this afternoon for your attention. And with that I turn it back over to you guys.

We thank you. One minute over time. Thank you very much. The ccNSO and the volunteers. Please think about it.

[END OF TRANSCRIPT]