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MONTREAL – ccNSO: Members Meeting Day 1 (4 of 5)

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UNKNOWN SPEAKER: Hi, everyone and welcome back. Now we're going to start the ccTLD knew session. We have five presentations and we're going to start with Alyssa Moore from .CIRA, welcome Alyssa.

ALYSSA MOORE: Hi. Thank you. Hi, everyone. I am Alyssa, and I am the senior policy and advocacy advisor at CIRA. This is my first ccNSO presentation, so, very happy to be up here presenting to you guys today. And I'm going to talk about a really big event for us this year at CIRA. A big organizational goal for us was moving 2.8 million names, our registry, on to our new registry platform, the CIRA registry platform. Where is my clicker? And I'm going to talk to you about the why, the how, and the lessons learned. The lessons learned is the fun part, so make sure you stick around to the end.

So, first of all, we saw an opportunity to make life easier, not just for ourselves as the registry, but also for our channel, the registrars and registrants. So, first of all, there were a lot of capabilities in our old registry platform that were hard coded and required the attention of a developer to change. And we wanted to make it a lot easier for more staff within our organization to be able to interact with the registry in a really easy fashion.

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So, I'm talking about marketing staff who might want to go in and operate campaigns about pricing with certain members of our channel, our registrar partners; or our customer support group, our customer service people to have access to functions that allow them to do their jobs, interact with registrars and registrants. And the new registry platform has a really user-friendly interface, a GUI, that makes that possible for staff across the board.

It was also an opportunity to really reassess some of our policies that have been in place for a long time. So, having to move everything over really forced us to go through stuff that's been around for two decades and say, "Does this still make sense in today's climate, in the day and age that we're in today, and does it make sense going into the future?"

And finally, it was an opportunity to move closer to gTLD standards. So now with over 1000 gTLDs it's not a .com.ca market for us anymore. To achieve kind of an economy of scale with our channel partners, by making it easier for them to integrate their processes with this new platform and to just be adopting some best practices and standards that are across the industry. And this whole process took two years from start to finish.

So, there are a few capabilities that we required and continue to require. I'm not going to go through all of these, but I will touch on a couple of them that I think might be unique to us at .ca. I'm sure we share a lot of these, but these are a few of the big ones.

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So, first of all, we had some compliance and abuse requirements. So, for example, our nexus requirements in order to register .ca we require Canadian presence, which means you have a legal tie to Canada in some way, and that's true of both registrants and registrars. And so, periodically or with need, we would need to audit certain domain registrations and say “Does this registrant actually meet Canadian presence requirements?”

And so, that was a very manual process previously, and a lot of those functionalities are now integrated into the new platform. Another really big one for us, and this goes back to the ease of use for staff who aren't necessarily developers, they're not coders, is a simple tagging interface. So, this really applies business logic to the registry operations.

So, if you're familiar with things like CRMs, I think that's customer relationship management, client relationship management software, there's this ability to easily tag people, or processes, or workflow to complete certain projects or programs.

And so, we wanted to take that logic and apply it to our registry so we can do things like tag certain domains or certain campaigns so that it's easy for partnering with our channel partners, registrars, to execute those campaigns, whether it's related to pricing for them, discounts for them, we wanted to build in that flexibility to easily manage tagging.

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And then that last one on there, RDAP and EPDP, it's a changing world, and with the new registration data access protocol, we wanted to make sure that we were up to date and integrating those functionalities and needs into the new platform. And while we obviously don't know the outcomes of the EPDP yet, we're cognizant that something is coming down the line and being that we also make this platform available to other TLDs, we needed the flexibility in there to be able to accommodate whatever comes down that pipeline.

And we also had some policy considerations that we needed to build into this new platform. So, I mentioned the Canadian presence requirements earlier and some of the compliance activities that go around that.

But another example is our IDN bundling. So, we support French characters and for bundling, the person who, the registrant who registers a name like montreal.ca, would be the sole registrant who is capable of registering both Montreal without the l'accent aigu and with the l'accent aigu. So, that would be reserved for the same registrant. We also have some restricted domains that aren't easily tagged with that tagging system, that's another thing that was really important to us. So, for reserved domain names, you can easily bulk tag with that functionality.

So, the planning, the build and transition. As I mentioned earlier, this was a two-year long process from start to finish and we are an agile shop at CIRA. And interestingly, not just with our IT ops or with our

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developers, our communications team also runs on the agile methodology. So, if you're familiar with that we built a series of epics.

So, those are big themes that we really dug into, into the nitty gritty and explored absolutely every potential risk, and opportunity, and thing that could go wrong, and how it should look in the platform. So, an example of that would be compliance. What does that look like? Or, WHOIS, what does that look like? And it was built with a combination of both agile, so continuous integration and continuous delivery pipeline, given the size and the scope, the scale of this project required both methodologies.

And in terms of the transition itself, I've included this part chart to the left, which is only a very small section of a very large and detailed integrate program evaluation review technique chart. And so, that's broken down nearly minute by minute, task by task for the day of the transition itself.

And if you were to zoom in there, you would see that there's names associated with each of these tasks and backup names associated with each of those tasks as well. Because it was also the dead of winter, so this happened on February 5th of this year in Ottawa, Canada, that is a very, very cold and potentially stormy time of year.

So, we're not worried about just things like folks may be falling, second, not being able to come in and needing a backup, but also things like broken water mains that have frozen and exploded and drowned an entire neighborhood in flowing water, which actually did

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happen a little bit down the street that day. Thankfully, everyone made it in, but planning for those types of eventualities with our backups was important to this process.

And so, on the day of, we did this in eight hours and the timeframe was really important to us. We did a lot of thinking about this and actually adjusted, based on feedback from our channel partners. So, we did it, first of all, during, not overnight, adjacent to business hours, started very early in the morning and went into early afternoon.

And that was important to us because, one, you're going to have your staff on their most alerts if it's closer to your normal business hours, and not only our staff, but also those that are at our channel partners, so, working with the registrars. And this eight-hour window also included an hour for a big team lunch, which was kind of fun at CIRA.

Our favorite treat is this Tex-Mex place for lunch, called Lone Star, and we all had fajitas and tacos and that was built into the part chart. So, 2.8 million domain moves, and so, not just those 2.8 million records, but 200 million records overall, historical records that were moved in that time. And the first brand-new domain registered on the new platform was loadandhaulexcavating.ca by Name Cheap.

And finally, lessons learned, to plan for the unexpected. So, these complicated ecosystems that we run potentially have a lot of skeletons and some of these skeletons emerged as zombies very quickly following the transition. So, big technical change like this is never without a few hiccups. One of the immediate ones right after

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was related to our to-be-released system. So, we did this on a Tuesday and our to-be-released sessions for deleted domains takes place in a brief window on Wednesdays.

And so, directly the following day, it became clear very quickly that there was an error in logic related to a very complex rule with carrying forward of third and fourth level domains, so that some domains that shouldn't have gotten through to TBR, they did make it through. And so, we were having to respond to this very quickly. And that made it clear to us that we should have planned, automatically, to have an enhanced operations window, following a big technical change like this.

So, we responded reactively, we had the resources ready and at the ready to respond to this. But in future change, and we have actually integrated this into our process now, we would automatically enact a window of enhanced operation in the days following major technical change like this.

And I mentioned we have enacted this already, last month we moved our backup data center from Ottawa to here in Montreal and automatically had a period of enhanced operation so that resources were at the ready to respond to anything that happened there.

So, continuous learning that's been integrated already. Yeah, moving away from a ccTLD registry to a more generic platform, I think a lot of us in this room probably have very purpose built platforms for our specific ccTLD and the policies and processes associated with that.

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And so, moving to a more generic platform benefits, not just us being able to make this available to other TLDs, but it also improves buy-in from our registrars, because they're familiar with the types of things that they're seeing, they're not having to familiarize themselves with another narrow purpose-built platform.

To be ruthless with messaging, not just emails out to our channel partners, but phone calls, and webinars, and making sure that they are ready for the transition. So, we did a lot of communications, a lot of messaging, a lot of folks on the phone making sure that this whole process was communicated over the course of several months before the changeover.

And then, finally, to make room for innovation during the migration. So, related back to that previous point, the communication with registrars, we built this registrar readiness monitoring to gauge how ready everyone was for the transition. And so, everything went down February 5th of this year and, after the fact, we surveyed our registrars for their satisfaction rate and that came back at 93% that we're pretty happy with.

And our goal was achieved at 100%, which is awesome, because this was a very high-profile event within the company. And while not everyone in the company actually touched the project in the process, our organizational goals for the year were tied to the successful execution of the transition.



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And what that means is, that everyone's bonuses in the company were also tied to the successful execution of this transition. And so, I think that really lent a sense of importance to this whole process and we all got our bonuses at the end of the year. That's it. Questions?

UNKNOWN SPEAKER: Thanks for a really interesting presentation. Do we have some questions for Alyssa? No? Thank you very much, Alyssa. Barbara will present our next presenter.

BARBARA POVSE: I'd just like to remind you that this is our favorite session. And now, after having this more stressful session before this, and we were interviewing candidates and grilling them, so now we can relax, but also now, listen carefully and ask questions, because this is about our business.

And here are the mics. Maybe you forgot from the morning session, so some housekeeping stuff. Two mics, and if you're shy, there is always Zoom and you can write a question and Kim will kindly read it for you, so, do ask questions. And our next presenter will be Peter from Zaire and will talk about past, present, and the future. The floor is yours.

PETER MADAVHU: Alright, good afternoon, everybody. My name is Peter Madavhu from .zadna, that's the .za namespace. The presentation that I'm going to be taking you through here, it covers some few issues on it, issues of

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the history of the .za, what we do currently, what we would like one to be. So, I'm going to take you through the entire presentation.

Alright, we're going to be outlining the, when I give you the introduction, the .za ccTLD for Africa, the .za structure, the domain name registration processes, and the domain name registration policies, as well as the .za direct registration. I don't think I'll say much on that, but I'll try to highlight some few things, because I can understand that people with interest specifically on that one. So, you will pardon me if I don't answer what you want to know on that one specifically, but let's take it through.

Alright, just the introduction there just tells us what .za is all about, how we were formed, what we do, who do we report to, in a nutshell, just tells that we are an entity that was established according to the title of the Chapter X of Electoral Commission act of 2002. And we are, we regulate and administer the .za domain namespace in South Africa. And above that, we have a non-executive team of directors which reports to the ministry, to the minister of telecommunications, postal services.

Of course, the operational issues, which is headed by the acting CEO for daily running of the business and we -- the registry structure consists of several second level domain names and registered domain names are also in the third level of that.

The next page is about the domains that we really, currently, have and are running. You see that there are active ones, and the dormant

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ones, and the private ones. The active ones are listed there, ac.za, co.za, edu.za, gov.za, law.za, as well as mil.za and continues until web.za. The dormant ones are, alt.za, ngo.za, and tm.za. And the private ones are the agric.za, grondar.za, and nis.za.

Alright. Okay, this is a little bit of background of where we come from, country issues, you see that it says that we are in South Africa, which is .za, the capital city there is Pretoria, some call it Tshwane. We have 11 languages, official languages, and English remains the official language to do business with. The area coverage there is 1.22 million kilo, I don't know what is that, but I think it is a kilo something, you guys will help me with that.

And then, the population, we are currently at 57, I think we added a million yesterday, it should be 58.8 million. And as we speak now, the registration under the .za are currently at 1.2 million, not that one that you saw there. And we have over 450 .za accredited registrars. I must say that we are one of the lucky countries, at least now, in the continent, we remain number one in terms of the registration of the domain names. Like I said, we had 1.2, which makes the number one, currently in Africa.

And among registers that we have, the registries that are coming across the globe, South Africa and international, and I guess that is the reason why we are making business and our domain names are growing on databases. We appreciate it. The page there just shows the structure, the .za DNS, which shows the roots zone there, and then

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the .za underneath and all the TLDs that are falls under that; you see ac and all until the last one.

These are the domains, also explaining how they are moderated or not moderated, a list there from ac.za, which is moderated up until the web.za, which is unmoderated. The history, specifically to milestone, actually talks about the existence of .za, which shows that in 2004 the administration of the .za namespace was relegated to .zadna. And in 2011 and 2012, that's where the .za central registry was established, and then the .co.za was the one that was in charge before that.

Actually, it started running on APP platforms around the year 2011 to 2012, until now, currently. And org.za and net.za, web as well, transitioned into the .za ACR the following year 1415 which gave the .za a big chunk of what we we're doing, actually. And in 2015, we reach a milestone of 1 million domains and we had a good celebration to that and we're hoping that we will be reaching to 2 million sooner or later. In 2009, 2010 .za went through some major improvements. In issues that are related to the servers, you can see the page there.

The next page talks about how the domain name registration process takes place, actually, which talks about the first thing should be policies for each SLD guidelines, domain registrations. The second one talks about the issues of the SLD administration and classification, and then, again, talks about the issue of the registrant, that it's guided by the SLD charters. All SLD's must have a charter to guide what root is needed, who qualifies, if there are pricing issues, so that that is covered there as well.

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The cost of the domain name registration, there, we -- I guess we're not, it's not expensive, or it's not cheap compared to other ccTLDs. We are selling it on a wholesale price, which is, I guess, is affordable. It might be the reason why the numbers are talking to the growth there, actually.

And let me also say that some of the SLDs do not charge, the domain name registrations are free, and yes. Talking about the policies there, we have a few policies that we establish during that time. We talk about .za policy, which covers all the issues that are listed there. That was done in 2016 and we also have the .za SLD standard policy there.

Again, we have the .za DNSSEC policy, as well as the .za SLD operating agreement. This specifically talks about us having agreement with the service provider, especially the regulator will be having we have the registry, which we should have the agreement with. And the other policy listed there is the dispute resolution, which talks about the ADR in case if we have issues of the disputes among the distribution of the domain name there. We have a policy that speaks to that and that are solved accordingly.

Alright, the last part, actually, that talks about the direct registration, I'll touch on that at a later stage, but we show you an example of the third level addition there which is .co.za, net.za, which is not different to the one that we had earlier. And then, it talks about the issue of the fourth level legislation which can be WesternCape.school.za.

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Alright, and the direct registration is the one that could be, should be, the last example there, becomes -- did I just say the example? Yes, it becomes example.za. Those are the benefits of having the direct registration, that increases choice of consumers, a shorter, more memorable name and so on and so on.

Alright. This process, I must say that it's something that many of you might have seen, might have read, might have heard about, that .za was intending to roll out SLRs. That was the plan and showing the phases, what needs to be done on the first stage, the second stage, or, the first stage becomes transitioning, the second stage becomes your availability, and then, after that, was what we have been achieved so far.

It shows that the release of SLR public discussion document was released, review of the SLR PDP submissions, release of expression of interest, release of SLD general policies, amendments, public consultation, as well as the release of the proposal of our policy, review of submission to SLD general policy, the last one, become the review of SLR policy submissions.

Before I close, allow me to say that the process that was intended to be finalized, but this at this stage it hasn't been done. So, specifically, I'm talking about the issue of the SLR. You will know, most of you, that you saw the comments, the adverts, and then we also expressed interest to that, and then you came to do your presentation and after that we were intended to announce the appointment of the successful company to roll out.

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However, that process was not finalized because of some developments that happened during that time within the .za namespace. Of course, we're looking forward to finalize that because we were at the advanced stage. And I thank you.

BARBARA POVSE: Thank you very much, Peter. Are there any questions from the audience? So Peter, if there are none, I have one. Oh, another Peter has a question, please.

PETER VAN ROSTE: Thanks for the interesting presentation. My name is Peter Van Roste, I work for CENTR, European ccTLDs. Could you give a bit more detail on moderated versus non moderated second level domains?

PETER MADAVHU: Any other questions? Was that the last question? The only question? Okay. The moderated domains names are the ones that I can easily use the way they are regulated, even though it's not really specific to that. And then, the unmoderated ones are the ones that are just loosely regulated. Thank you.

UNKNOWN SPEAKER: Are there any more questions? Thank you very much, Peter. You want to say something else?

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PETER VAN ROSTE: No, no, I'm done, it's just I'm thinking.

UNKNOWN SPEAKER: Let's give him a big applause. Now, Maarja from .ee present the greatest innovation from the .ee, so we see.

MAARJA KIRTISI: I'm going to come standing in front of you. I don't have my notes like this, but maybe if I forget anything, then you might have some questions, then. Yes, I'm going to tell you a bit about the greatest innovation, at least we think it's the greatest we have had since almost 10 years, I guess, it's our auctioning system.

Yes. So, I'm going to tell you a bit about what it is, why we decided to add such a thing in between the deletion process and how we did it, what did we learn, because we actually did learn a lot. And what will we -- what are we dreaming of, what our next plans? And so, these are the actual memes from our campaign. So, this is the moment when you realize that you have forgotten to renew your domain name and this is the moment when a domain sees that you forgot your domain name, it's going to point at it.

And this is actually the whole reason why I decided to develop such a system in between, that, like this, maybe you can still get your name, because you will be as fast as the domainer will. So, what was before, business as usual, all the domains that get deleted. It's a 24-hour window where the system, at some points, random point, deletes the



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names, that's the usual. And then, first come, first served, whoever wants can register name. To that 24-hour window, we added an auction period.

So, all the domains that are going to be deleted are put on auction for no matter reason they get deleted, either it's that they're not renewed, or they are forced into the deletion process, all of the domain names, no exceptions. Where did the idea come from and why? Drop catching for once, and not equal opportunities for the registrants, whoever the registrant is.

Drop catching, itself, it's a way of business, it's fine, but the thing is, they're more technically savvy than I would be, for instance, too, if I want to get a name. And under .ee, about 75% of registered names are registered to companies. So, they are important. If you lose the name of your company, well, if you lose it, then I guess it wasn't maybe that important if you forgot to renew it. But still, there are different reasons why domains get deleted.

So, the auctioning system was actually to create a value based and more equal opportunities for those who want names that are going to be deleted. And the idea was solely, came from our head of development, so that's why the greatest innovation. I think it's his baby.

About a bit of the process, these are where the key learnings come from as well, we were idealistic, we thought that, well about two years, have discussions with the registrars, make plans, develop it,

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find a partner, we'll be fine. Well, yeah, it took us four years. We had discussions with the registrars, of course, and our team as well, then we drafted the regulation. But then went back to the registrars and then somehow something had changed. It was like big news to them.

So, we had even more intense discussions which already again took time. And then, in two years, when we actually thought that we would be ready already, we started the actual development process. And then, it took us another two years until the launch in March this year. So, at first, we thought of finding a partner to do it, but in the end, well, we did it ourselves because we didn't really assess our resources very well, but I'm going to get back to that later on. Yes.

So, what is our auction system, besides it's 24 hours? It is a blind auction, which means that if you bid on it, you actually can't see if there are any other bids or how high the bids are. And this is why we chose it, this was a wish from our registrars, actually. And this is where we chose between English auction and a blind auction, went to a blind auction.

So, five years minimum bit, and the second request for my registrars was that they do not in any way want to be connected to the system in order, you know, you get, you win the name and then you just choose a registrar, register the name, and then you're done.

That was another, they didn't want to be part of that, so this bit of extra pressure to the registrant, because if legally to be correct, domains are not on auction, but the right to register the domain name

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is on auction. So, you win and then you can go with the code to register and then register the name. So, it's a bit of a pitfall in that project that registrants suffer a bit with that.

But the auction lasts for 24 hours, if you win you have seven days to pay the invoice. If you pay the invoice, you get a code. With that code, you can go to a registrar and then you have 14 days to register the name. If you don't pay within seven days, then the name will go back to auction. If you do that three times you will be banned for one year. So, that eliminates the possibility of someone exploiting the system, keeping one name in the circle all the time.

So, it doesn't really happen but it has happened, doesn't happen much, but it has happened that names get, they win, but they don't pay for it. Everything is automated, we take only instant payments. So, no invoicing as such, it does make it easier for us, and it works well. We are e-country we like that. How, as well.

As most of the registrants are Estonians, we have ID cards, electronic IDs, very easy to authenticate yourself, very easy to sign things. But as well, we allow any electronically ID under AIDUS, us which comes up, we add it to the system to make it more flexible for international users as well.

But of course, classic username/password works as well as long as it all has been verified. And unfortunately, I cannot participate. None of our team can, as well as our supervisory board, so of all people, we are

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the only ones who, and I don't even have access anywhere. But still, that's the case.

So, I need someone else if I find a nice name. What did we learn? As I said, from two years to four years, better planning, assess your resources, your manpower, and budget. None of these things listed here are actually anything new to probably any of you, but somehow, they still come up all the time, at least in our case. Yes.

And another, probably, from my field work, the best thing in this project is that we built the prototype before the actual development. So, that really, as we were small registry and we don't have that much resources and probably knowledge as well, sometimes, to write the documents they're by papers technical, whatever you need, technically.

So, the prototype really gave us the opportunity to think things through to see what worked, what didn't work. It allowed us to make tests on systems to see whether customers actually can work with the system we're building. So that was my takeaway, my field of work, small takeaway that I that I had from this. Where are we now?

So, we wanted to help, not to get rid of, but minimize domain as we have more of them now, but at least they buy based on what how they value the names, not who's faster. About 10% of the names that are going to be deleted are registered. So, it's not a big, big number, but before we launched the system it was about 5% of the names got registered on the first day if they were deleted, so there's a bit of a

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shift in that. Yes, still a bit of a number difference, 14% of names, offers are made, 10 are bought of the set. So, there's still, we lose some of them on the way. Yes. And this is how we feel now, every day, looking at an auction system. And about the future.

We have some reserve names and my favorite, we have one characters that we want to get rid of, so we're going to have an auction on those, and this is going to be an English auction so we still get what we want to get, and opening up to a secondary market that you can sell your names, if you want to. And there was another revolutionary idea, that I just discussed with my boss, and we do have that idea [inaudible]. But you can say it out loud, what your idea was yourself.

Yes, and that's about it. Oh, and it's open source, GitHub link there. Probably later on you'll see the presentations as well, you can get the link from there, you can see the code, you can take a look, give it to your techies, maybe you'll find something, we made an error somewhere. And [auction.internet.ee](http://auction.internet.ee) is the page where you can see the system, you can make user, you can login, and play around. Thank you.

BARBARA POVSE: Thank you very much, Maarja. What an interesting presentation. There must be some questions for -- yeah.

MAARJA KIRTISI: I already saw that coming.

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GIOVANNI SEPPIA: Thank you, Maarja. So, if I understand correctly, I'm sorry, Giovanni Seppia, Europe, .eu. So, if I understand correctly, the auction process, if I'm a registrar of a registrant whose domain gets deleted, I can participate in the auction. Can I?

MAARJA KIRTSI: Registers can.

GIOVANNI SEPPIA: Yeah.

MAARJA KIRTSI: But they shouldn't do it for themselves to act as a domainer, but for your client, yes. But to buy names as a registrar for selling purposes, that's not really allowed. But if you represent your clients and do that for your client then it's fine. Depends, it's a legal issue there.

GIOVANNI SEPPIA: Okay. So, if I'm -- Okay, just -- So, if I'm a registrar --

MAARJA KIRTSI: Yes, yes, you can.

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GIOVANNI SEPPIA: Or a registrant, who's the main name gets deleted user to save that domain name if I know that my client has won the lottery and is in a cruise around the world for three years, I can protect by participating in the auction.

MAARJA KIRTISI: Or, like this, if you, the registrant, gives you the right to do it, that's one thing. But just to save it on your own, then no, you shouldn't do it. I understood what you meant. Yes.

GIOVANNI SEPPIA: Okay.

MAARJA KIRTISI: So that's the difference. As a registrar, yes, but it depends on the conditions why you are doing it.

GIOVANNI SEPPIA: Okay, thank you.

ROELOF MEIJER: Thank you. My name is Roelof from SIDN.nl. Very interesting. I've two questions. The first one is , your first few slides suggested that you started this, or suggested to me at least, that you started this because domain name holders were forgetting to renew their domains and

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they would lose it, then it would be dropped caught so they couldn't register it again.

Have you ever -- If that's the case, so if that was the main objective, have you ever considered a quarantine period in which it is possible for the former registrant to re-register the domain at a certain price?

And my second question is, do you have an idea of what the average price is in relation to what your wholesale price is normally for domains that were auctioned through the system?

MAARJA KIRTISI:

Firstly, we did consider different solutions, different, but then the auctioning system sounded innovative and different from the other solutions, like you said. So, we did try to find a solution that would suit us, but then that was what we, later on, decided to do, something new and something different that someone else has not tried.

ROELOF MEIJER:

Yeah wish we had tried it, yeah. My second question.

MAARJA KIRTISI:

Yes, second question. As it is a blind auction, sorry, I can't tell you anything. But we have an idea.

ROELOF MEIJER:

Okay.



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MAARJA KIRTSI: I have, even me --

ROELOF MEIJER: I'll ask you again, privately.

MAARJA KIRTSI: Just going to add to that. Even me, I have heard occasional cheers from different offices in our office, but even I don't know. But my boss is sitting there and smiling.

PIERRE BONIS: So, thank you very much, Maarja, for this very innovative presentation. I mean, the subject. One question about -- You do that only for domain names that were just private previously and that otherwise would be open to registration, normally, that's it? So why don't you do that for every registration?

MAARJA KIRTSI: Maybe in the future. But right now, it's only for the names that are going to be deleted.

PIERRE BONIS: What is the rationale behind that? Because, I mean, a domain name that is deleted, in a way, is exactly the same thing as a domain name

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that has not been registered. I mean, it's a domain name that is available. So, if it works for these domain names that are about to be deleted, why don't you do that for every domain name that is registered?

MAARJA KIRTISI: Every domain name under .ee.

PIERRE BONIS: Yeah.

UNKNOWN SPEAKER: Yeah, it would be an innovation in France.

MAARJA KIRTISI: That would be an innovation, yes, probably throughout the world, I'd say. But we're still we're a cc, where our foundation. That would be another business case, I guess, if you would do auctioning for all of the domains that are going to be registered. And another thing is, well, we're still .ee, we are a small market, and if you want to be as open as possible to registrations, then, still, that would be probably, in my opinion, a bit too innovative. But again, I don't know what my boss says.

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GORDON DICK: Hi, Gordon Dick, Nominet. I'm wondering, do you know how many users you have on your auction system, people logging in and looking to actually take part in an auction, and are they repeat customers for the auction process?

MAARJA KIRTSI: There are repeat customers, yes. As I said before, there are even now, more people that buy more than just for probably for their business purposes, for other business purposes, let's say. I don't know the number by heart, but I can look it up for you if you want to.

GORDON DICK: That would be helpful.

DANNY AERTS: Now, the question I have is, would you be willing to, sorry Danny Aerts, .se. So, would you be willing to test to change to one day, to one week, just to see what effect it has and then come back to send to ICANN for presentation?

MAARJA KIRTSI: I noted down and give it to our -- give it to Timo.

BARBARA POVSE: Thank you, Maarja, you definitely woke up the audience. And now for something completely different. Everyone who know Marc

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Vanwesemael is already looking for presentation on a different subject, but it's always good listening to Marc.

MARC VANWESEMAEL:

Thank you, Barbara. My name is Marc Vanwesemael, I'm CEO of EURid.eu. If you want to be fashionable these days, you need to use a few words like artificial intelligence, machine learning, so that's what I've done now. So, there you are. It's, but, so it's a system of abuse prevention and early warning system and we're using it in machine learning, but it didn't start like that. It started with an idea about reducing the impact of abusive registrations. What is an impact of an abusive registration?

If you hit the press with a very bad thing happening on a website with fraudulent whatever, maybe terrorism or whatever, that's bad for your reputation and, or it could also be if a bad domain is active and you want to delete it, it could be potentially, like, you could be liable for the damages. So, we wanted to have a solution to prevent that. So, we started thinking about a model that could tell us, at the time of registration, which are potential abusive domain names.

Now, we didn't think of machine learning or artificial intelligence at all. And we talked, we talked with an external party, which in fact, is the University of Louvre, and after some tests and studies they came up with a tool that is based on machine learning. What does it do? It uses abusive lists, or abuse lists like spamhaus, SURBL, whatever, APWG. And it uses previous registrations to match the two and do a

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daily training of which ones were the good ones, which ones were the bad ones, in the past.

That creates a sort of predictive model and each new registration is tested against that predictive model. And when it passes a threshold, then the domain name is put aside, is not becoming active, and will be checked by a person. In a previous presentation I said a human person, but apparently that's the same. So, it's really looked at and that person has to identify himself.

That means, in most cases, if there is malicious content or malicious intention, the person is not going to identify himself and the domain name will never become active. If he does, then probably, or most likely, he will not have with malicious intent and the domain name becomes active anyway. If, on the other hand, it doesn't go over that threshold, then the domain name is activated immediately, which does not mean that it can't be used in an abusive situation later on.

So that's the model and it is based on a similarity clustering. I'm not going to go into detail on this, on the technicalities of this. If you want to know more about this, there is a session tomorrow in the SSAC about this and that goes into the very nitty gritty details of this system. Because, the researchers from the University of Louvre was invited by the SSAC to talk about that system, so all the technical parts will be covered tomorrow. But it's more or less, in this case, a quick overview.

You have the dark circles and the white circles from the past. The white ones are the benign registrations, the dark ones are the

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malicious ones. So, they cluster them together, what do they have in common, and whenever there is a new registration, they look at the distance between the new registration and those clusters. If that is close enough, then it's probably one of the same and the domain name is seen as potentially malicious.

We had some test phase in the beginning, and now I'm going to be a little bit technical, but you, it's very important for the next slides. We talk about recall and precision. Recall, is in fact, of all the bad registrations. How many did we find in percentage? And precision is of all the ones we predicted to be bad registrations. How many times where we correct in percentage? So that are the two, the two important measures, and it's all measurements, they are balanced. If one goes up the other goes down, in principle.

Suppose, for instance, that you have one domain name that you are absolutely sure of, that it is malicious, it is registered with malicious intent, you just predict this one will be malicious and you don't predict any other one. So, your precision will be 100% because you were right with that one, but your recall, how many did you find, is only one out of many more, so your recall will be 0.00%.

So, the two need to be in balance, have to have a good system, and during the test phase, we had a recall of 82% and a precision of 81%, so we found 82% of all the cases that were later reported by SURBL, spamhaus, and others. And we found we had the precision of 81%, so in 81% of the cases our prediction was correct for bad registrations.

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Then we went into production, and that started late last year, about a year ago now. And as it is a learning system, people adapt their habits and you see, sometimes, that the precision or the recall of the system goes down and then catches up again to become better. It's a fully automatic system, it learns by itself, and it is trained daily, as I said. And now, in October, for instance, we had the precision of 79%, 79.2%, and a recall of 82%, and that's quite consistent. So, we keep more or less, as I always say, around 80% of recall and precision.

If you look at the results on a daily basis, the green bar is the true positive, that means those that we predicted to be abusive and were abusive. So, that's around 100, well, no. The main part is about 20, 30 per day, but sometimes we have peaks of 100 and more.

The red bar is the false positives, which means we said that they were abusive, but they never showed up on any other lists. This does not mean that we were wrong, they probably have not been used yet, and so they didn't show up. So, that can only be, can only improve our system. If later they show up, that red bar will shrink and it will become a green bar.

And then you have, the more, the yellowish part of the bar that are false negatives and that are really things we missed. We said it was not an abuse and it was one because it showed up on any of those lists. But there is also, sometimes you see the accuracy of such a system, a machine learning system, and that's what I call the accuracy trap. The percentage of predictions that were correct was 99.33%, but if we would have said that, if we would have predicted, for every

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registration that it was no abuse our accuracy would have been 98.53%, because most of them are not abusive.

So, then we would be correct in most of the cases, 98% of the cases. So that's not a good measurement to take. So, you have to look at the recall and precision, if those are at a high level, and in balance, then you have a good system. Then something that we did not expect at all is, these are for those who can't read the dates, that starts in July 2017.

Then we had high peaks in January, or until January 2018, and then it started dropping to get to a very low number of cases into July 2018 and later. The red bar is the names that showed up on the abuse lists and the green bar, the green area, is those that we predicted or we found. So, what you see here is that the number of bad registrations started dropping just by the fact that we, that they knew that we were doing something and that we chased them. That was totally unexpected and that was one of the nice results.

So, I stopped, we call this the delay delegation, as we stop the domain name from getting into the zone at the time we find or we predict that it will be abusive. Until now, we have not delayed the act, the domain name, that's how we can measure the recall and the precision, otherwise we wouldn't even know. We will delay it, it will not happen, and we will not know if we were correct or wrong. So, until now we have just let it go, and when it showed up in the lists, and we had predicted it to be wrong, then we know we were right. That was a way of testing our system.



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Now, the next step that we will have to do is start delaying, which will, probably around early December. The effect of that will be that the whole ecosystem will change, there will be no feedback loops anymore from those lists. So, we will need to see how that will impact the system.

If you want more information, as this was developed and further invented by a university team, they of course, they only have one purpose, that is to publish, and they published four papers about this topic, which you can find on our website. With a short link, [link.EURid.eu](http://link.EURid.eu) and then slash prediction 1, 2, 3, and 4, especially, the last one is the one that explains in very detail how the system works. And I think that's it. Thank you.

BARBARA POVSE:

Thank you, Marc. What do registrars say about the next phase when you start delaying?

MARC VANWESEMAEL:

Some of these things have been, well, not some of these, these things have been discussed with our registrars, we have registrar advisory board where we have presented the progress of this and they're really supportive of this, the system. The nice thing of this is that they don't have to change their procedures, they just register the way they used to register.

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They don't have to do things up front, they don't have to do things afterward, the only thing that they had as a remark, is that they want to know in an easy way, when their domain name is delayed so that they can answer the registrant when it happened. And so, if he asks, “Why is my domain name not active?” then he can he can immediately answer that. But from another perspective, if we look at in the registrars who are impacted, it's a very small set of selection of registrars, it's always the same.

BARBARA POVSE:                      Anyone have other questions?

DANNY AERTS:                         It's Danny from .se. Marc, I don't understand. You say you've been testing the system, but not delaying.

MARC VANWESEMAEL:                Yeah.

DANNY AERTS:                         Just to see how it works, then again you see already that registrations go down.

MARC VANWESEMAEL:                Yeah.

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DANNY AERTS: But you don't delay?

MARC VANWESEMAEL: Yeah.

DANNY AERTS: How do they know that you're doing something and they stopped doing it before you do it, and how did you do the communication if it's only the registrars that know that you're doing it? And then the domains are going down. You understand my question?

MARC VANWESEMAEL: Absolutely, and I have an answer. You're very sharp, I must say, that so late in the afternoon. It's such a smart question. First of all, we don't delay, but that doesn't mean we don't chase the guys. So, immediately when that system flags it, it becomes active, but we also start asking for proof of identity.

And if we don't get it, we delete the domain name, but that's after the fact. The purpose is to have the doing before the facts and so that it never becomes active. Yes, the know we are doing something, because immediately after the registration we are there to ask some information and that they know.

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DIRK KRISCHENOWSKI: Dirk Krischenowski from .berlin and .hamburg. Marc, I'm really impressed about this and I remember your pricing study you did a decade ago, which is still a...

MARC VANWESEMAEL: That's a long time ago.

DIRK KRISCHENOWSKI: Yeah, it's a long time ago, but still valid. For the gTLDs, I would ask myself, as we have relatively low abuse rates with high prices of 30 euros to the registrar, or so. Which kind of abuse are you really targeting or preventing now? Is it farming, phishing, is it copyright infringement, child porn, or trademark abuse?

MARC VANWESEMAEL: At this point, we use lists and at this point it's mostly spam, phishing, these kinds of things, but any less can be entered into the system. So, once we have a list of abuses and whatever an abuse is defined, we can use that list, and that sort of abuse will then enter into the system and will also be detected. So, depending on the on the input, what these academics call 'the ground truth.'

DIRK KRISCHENOWSKI: Okay, thank you.

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UNKNOWN SPEAKER: [inaudible 01:04:56] Belgium. Marc, an important question for me to understand how big the issue in the EU zone is, do you know how much percentage of the abuse is related to new domains and how much of the abuse is related to compromise or hacked domains? Just to get an idea. And second one, of course, is are you going to open source it?

MARC VANWESEMAEL: First question, I don't know. There are things I don't know. But in second question, we're still having to look into -- First of all, we need to perfect the system, it's not final yet. And then we will look into a way of how we can make it available. I don't know how, this is not even discussed yet, but I'm getting this question more and more and, well, we'll be looking at it.

BARBARA POVSE: Out of time, so please, very, very quick, short questions, not...

MARC VANWESEMAEL: Short questions, long questions.

PIERRE BONIS: So, am I correct when I say that your predictive work is on the domain name and not on any content, because it's previous to the delegation?

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MARC VANWESEMAEL: Yeah.

PIERRE BONIS: So, one question about the new trend that we see about the fake web shops who are registering domain names that has nothing to do with the content and that used to be legitimate domain names and use it for fake web shops.

Don't you think that's a kind of machine learning, like that, would, in a way destroys the value of a domain name that has nothing to do with the content and that this domain name would be delayed every time because it has been put in a blacklist somewhere? Because what I'm talking about is, hundreds of thousands of domain names all over Europe.

MARC VANWESEMAEL: I don't know. In the end it's -- There is a link with content. If you have lots of eshops, or let's say eshops, bad eshops where they sell a lot of counterfeiting and non-delivery of goods, and those kinds of things, these shops will show up on some lists and we use those lists to identify the domain names. But we identify them through the features of the domain name, maybe there isn't, then they're using the same name service. Maybe they're using the same address, or same telephone number, or these kinds of things. So, in the end, yes, it's based on the features of the domain name, but there is a link to the to the content indirectly.

ROELOF MEIJER:

Roelof Meijer from SIDN.nl. Marc, I'm a bit surprised that you said that you were surprised that, when you started doing this thing, bad registrations dropped. Because I think many of us, or at least quite a number of us, have similar initiatives and I think over the years we've very easily noticed that as soon as you intervene that bad actors go somewhere else. It doesn't stop.

So, if we all start doing this at the same time, I'm not sure we will actually solve the problem, but at the moment, and I think this is very common to what happens in the physical world, if you have an area in your town with a lot of burglaries, if you start neighborhood watch the burglaries won't disappear altogether, they would just move to another neighborhood.

And I think that's the same that happens here. They're all kinds of measures that you can take and immediately you will see that the bad actors move somewhere else. We ask our registrars to take down domains, or at least to interact with the registrant if there's a problem. And so, we see another phenomenon, and that is that the bad actors move to registrants based outside the Netherlands and they don't react. And very often they're ICANN accredited ones.

MARC VANWESEMAEL:

You have points, but my task, my mission is to keep .eu clean. So, if they move to somewhere else that's good for me. I can't imagine it's

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not, in the end, good for the internet, or the ecosystem as a whole. But yeah there, that I don't have a solution.

BARBARA POVSE:

Thank you, Marc, and to all who asked questions. It seems this theme is -- thank you. It's very interesting for most of us, so I would like to ask a question. Would it be of interest of this group that we have a session on the methods that, because I know that different ccTLD registries are having different methods of prevention of abusive registration.

If we have a session on this theme, so presenting different methods. Would you raise your, flex, or those who are interested? So, it's a deal. Okay, thank you. And we are moving to the last presentation. It will be about risk management and security, so obviously this is a hot topic for all.

YUDHO GIRI SUCAHYO:

Thank you, Barbara. Good afternoon, everyone. My name is Yudho. I'm from PANDI. PANDI is actually a .id registry. It's Indonesia, beautiful country with 17,500 islands. We haven't finished naming all those islands. And Bali is actually one of the famous islands in my country. We had IGF in 2013, it's more than five years ago.

Okay, so in the next 15 minutes let me share with you what is happening right now with PANDI, because we are currently in the process of -- to get the ISO 27001 certification. PANDI is following a



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multi-stakeholder model. So, we have a representative from academics, we have representative from technical community, and also government. The risk of being a multi-stakeholder model is that you can end up having a chairman, which is also a full-time professor in the university in Indonesia. Okay, so the reason why we -- Are these the new slides?

Okay, so the reason why we just to get ISO 27001 certification is that information and IT security quality are the two most important things to organization. And as mentioned yesterday, in TLD-OPS workshop, that disaster recovery and business continuity is also an important thing. In the case of Indonesia, it is actually mandatory by the regulation. So, for all those that have an electronic system, strategy electronic system, which is in this case, PANDI is actually one of them, then, it is, you need to comply with ISO 27001 certification.

Okay, so the first thing that if you want to get ISO 27001 certification is that you need to deal with the scope. And in our case, the scope is actually on the .id addressing system, but also including its data center, and also the disaster recovery center. There was a case a couple of weeks ago that we experienced a blackout in Java island, including Jakarta, for 10 hours without electricity, and we managed to switch to our DRC system under one hour, only 45 minutes.

So, the objective of having ISO 27001 certification is actually simply CIA, confidentiality, integrity and availability, so that we want to get, we want our system to be available all the time. We want to make sure that all the data inside is actually correct. And we want to make

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sure that the data is actually only for those who get the authorization to access it. So, if you want to get the certifications, these are the steps.

First step, you need to do gap assessment and risk management. And then, the second step, you need to develop documents. If it's going to be more than 20 documents, in our case it's already reaching 25 documents, policies, guidance, procedures, etc. And then after that, third step, you need to do ISM, information security management.

The last phase, sorry, the fourth phase, is that you get to do internal audit. We did this two weeks ago. And then next week, after I come back from Canada, we will do management review, and hopefully that we will get our certification on week four November, 2019.

So, those are actually five steps that you need to do. If you ask me how much is the budget, in the case of the scope, this is actually, PANDI is not as big as other registries in this in this room, maybe, but it's around 15,000 to 20,000 US dollars, in US dollars. So, you need to allocate this budget and then when you get the ISO certification next year, then you need to do the surveillance and then another surveillance on the second year, and then recertification on the third year. Okay?

So, this is the context, why we do this certification is increase the amount on Indonesia domain name. We also increase our infrastructure, higher salary requirements, and if you follow the ICANN registry agreement, SLA, I think it's about 99%, 200% cyber threat,

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competencies of the human resources, dependency of third party system, and we are also, actually, being monitored by the government, because the organization is also set up by the government. And we always have representative from the government as well in PANDI.

And the last one is compliance through regulation. So, you also need to identify the stakeholders for this certification, management, regulator, registrant, registrars, third party, etc. And the expectation is that we want to get optimal and reliable service with service level 99.99%. Okay? So, I'm sure that yesterday that TLD-OPS explained to you about risk management.

There are two ISO certifications that you can follow for the risk management. The first one is ISO 31000 and then the next one is ISO 27005. So, you have two options. But usually, if you, if you want to do ISO 27001, then usually the consultants will choose to do the 27005. So next, that you need to develop risk criteria, you need to identify threats in your country where, in the case of Indonesia, we have every threat, you name it.

For another option we have earthquake, we have flood, we have everything. It's a danger zone country, so, traffic jam as well, in Jakarta. So, you need to develop all those risk criteria, and you also need to develop risk metrics. I'm sorry this involves Indonesia, but actually, the main thing is that you need to categorize which risk is actually small, medium, high, and very high. If it is small, actually,

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how you mitigate, you can just simply accept it, like traffic jam in Jakarta, accept it.

Although we have online sharing, ride sharing, etc., but you accept it. But like, if it is medium, high, very high, then you need to mitigate. So as an example, if power failure is actually one of the problems in developing countries like Indonesia, then you need to do something with it.

So, in the case of PANDI, we put our server, not only in one place, but in separate places. Not only in Java island, but also in other islands. So, if there is any blackout in one island, then we still have a backup system in another island. Okay. So, we also need to identify people, process, technology.

Most of us actually focus on the technology part. A few of us actually focus on the people and process, where actually, people are the weakest link in the information security process. So, you need to do awareness, you need to the training, you need to improve your process in your day to day system, and still you also need to improve the technology.

So, these are the list of documents that you need to develop when you do ISO certification. So, it's more than 20, we have finished drafting, not drafting, but it's all already finished, 25 documents so far for the ISMS. So, these are the case with a recent blackout in Java island, then ours without electricity. So, we moved the using the data center at the backup data center in an island located near Singapore, not on

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Java island. And there was also the case that we need to move our office, quote unquote, also because of the power failure.

Fortunately, we have like a virtual office about one or two kilometers from our office. And at that time, it was okay, so we move all the staff there. And we did a test on all those things, these are actually some of the pictures that we go through for the internal audit training, and then these are for the ISMS awareness.

If you note, this is like a quiz with the staff related to risk management and information security simply to raise awareness about information security. And these are the video of our BC/DPRP testing, so we do this test annually, once a year. It looks simple but the question is, have you ever done that this year? You need to do it at least once a year.

Okay. So, this is the picture of our internal audit and external audit. And thankfully, with all this risk management information security, we can reach this SLA, which is actually, it's only 1% above the ICANN registry agreement, but still, we are okay. By doing this, risk management information security. If you have any questions, after this we have the coffee break session. So, that is my presentation. I give it back to Barbara.

BARBARA POVSE:

Thank you. Thanks a lot. This exercise looked really -- You were in action. Are there any questions? No? Then, I would like to thank all the presenters for a great presentation. To all who contributed, I am so glad that the room is still full. Now we have a 15 minutes coffee

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break, but don't forget, be back. Do you remember Alejandra presented a teaser for this next session? We are going to discuss the final recommendation of ccNSO review and it's very important that we cooperate and participate at this debate. So, we meet in 20 minutes.

**[END OF TRANSCRIPTION]**