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DEBORAH ESCALERA: Okay, everybody, we're going to start just five minutes early because we have a very packed schedule today. I'm Deborah Escalera, Manager for the Public Responsibility Support program. I manage the NextGen program as well as the Newcomers program, and I'd like to welcome you to today's presentation given by ICANN61's NextGen.

Welcome to the audience members and the online participants, and we're going to get started today with Gabriel Jiménez Barrón. Gabriel?

GABRIEL JIMÉNEZ BARRÓN: Good afternoon, everyone. Today I will be talking about net neutrality. The reason I put it in back to the future is because I will be talking about what happened before and what happened after and what could happen after the net neutrality issue that is happening in the United States right now – the implications and consequences.

So, first I would talk about what happened before 2015 and what could happen next if the FCC ruling prevailed.

I would talk about what is net neutrality, how the community action is essential to restore the Federal Communications Commission's net neutrality rules.

So, what is net neutrality? It is a rule protecting and promoting the open Internet, created in 2014 by the Federal Communications Commission, and it's established to protect and promote the open Internet. Specifically, to not block, no throttle, no paid prioritization by private companies and no unreasonable interference by the ISPs providers.

These sections here are the ones I will be talking about from the Federal Registry. Well, there are more sections on protecting and promoting the Internet. That's what we call net neutrality.

So, basically, the net neutrality will classify the broadband Internet access as a telecommunication service subject to Title II of the Communications Act; whereas broadband Internet, that's a service. So it's practically – imagine a traffic where you pass data from Point A to Point B with no interference, no blocking. So, that was net neutrality. So, from now on, when I talk about traffic, I'll be talking about the traffic of the data of the Internet. So it's basically that.

The net neutrality in 2014, the rule that the FCC approved, talked about no blocking, no throttling, no paid prioritization, no

interference by anyone or any organizations in the way you use the Internet and the way that people use the Internet.

What happened in December '14, so the FCC votes to repeal the net neutrality, what I just talked about to you before – what could happen if this ruling prevailed? So, basically, what we have now is that we have the ISPs provider, who you pay for Internet, and use the Internet however you want, use your e-mail, use YouTube, use Facebook, use Netflix, use Hulu, social media. And how the ISPs wants the Internet to be… So you'll pay for Internet, but if you are using a lot of data and you're putting a lot of traffic on their services, they will make you pay more to use a specific social media.

So, for example, you pay for Internet and you're using Facebook and you're using Netflix, and the ISPs could tell you, "Okay, but if you want to use Hulu you have to pay an additional $4.99. And if you want to use e-mails, you have to pay an additional $4.99." So, they will start charging you more for the use of Internet.

What happened before net neutrality – this is just a case and there are more cases – but Netflix paid Comcast so they could have priority on their services. So, basically, Netflix got priority on the broadband network of Comcast.

That could happen as well if the FCC ruling prevailed. For example, these companies, these ISPs providers, they also own

networks like NBC, and they also own e-mails like Yahoo so they could put on their traffic prioritization on their other networks and they could make you, as a consumer, decide what good to consume. So they can also control the consumers.

Before the net neutrality was passed by the FCC in 2014, the red lines are the ones who were against net neutrality – so you can see they were all ISPs providers. And today we have more participation of companies like even Netflix and Google and Microsoft. So, this is not a socialist thing like the U.S. government are talking about. It's something that everyone is against, even capitalist companies such as Microsoft and Amazon, etc. The companies below are the ones that today are lobbying against the FCC ruling.

What people are saying. I would like to focus on what the FCC director says after the ruling, "We should simply set the rules of the road, then let companies of every kind in every sector compete and let the consumer decide who wins or loses." I was surprised by that.

So, today, the senate of the United States has a deadline to [vote] on a Congressional Review Act resolution to return the FCC decision and restore net neutrality. So we still have time to restore net neutrality, and there are other legal actions that could be made.

For example, now, cities' mayors are trying that the companies that work under cities keep the net neutrality rules. Also, the state legislators, like the state of Montana, have made their own state laws that put their net neutrality rules.

But this could get complicated if the FCC rules… because the way the United States works is that their federal agencies have more power than states. What they rule, it will apply to all states. So we could get to court if this happens.

But what can we do as a civil society? I would like to mention this, I would like that… Here we have a lot of United States citizens. So, you could call your senator and tell them that you want to protect the free and open Internet. There are also non-profit organizations that have already got links that you can just put your name and your information and they will send the message for you.

The world is watching, so we have to prevent this from happening, so that other countries in the world follow this kind of rules.

The United States already has net neutrality, which is a really, really powerful rule for the society, for Internet access for everyone. And when I say "everyone," I mean all sectors: non-profit organizations and also for-profit organizations – it's all equal in the Internet.

And that's why the Internet was made and that's how the Internet got the leverage that it has right now. The Facebook creator, when he created Facebook, he was doing it in a way that net neutrality was the same for everyone.

So, please, everyone from the United States, I encourage you to do this, and if that doesn't happen then we will have to wait for the courts to decide.

DEBORAH ESCALERA: Thank you, Gabriel. We have time for two questions. Are there any questions in the audience? Any from the NextGen? Go ahead.

JAMES WILSON: Hi, James, NextGen. I just want to ask you, you briefly mentioned the impact that this would have around the world since the U.S. is such an important part of the Internet industry – could you go on any specific issues you would see if neutrality is kept or removed, and the implications you could see in potentially other countries such as developing countries?

GABRIEL JIMÉNEZ BARRÓN: So, I think the big implication will be that the countries are following what the United States is doing with the Internet, with

their broadband and the way it works, and if this rule passes, we are also letting the world know that, "Hey, you could do this as well." And it will impact especially developing countries. Even the countries that have sites, the domains, the ICANN work, could be affected on this issue specifically with the interference and putting prioritization to some sites.

DEBORAH ESCALERA: Okay, any other questions? Okay, thank you, Gabriel. Oh, sorry. Okay.

UNIDENTIFIED MALE: Very quickly: I don't know if you saw this, but last month the FTC sued AT&T for throttling data on its networks, and I was wondering if you think that this is the venue where net neutrality is going to be decided rather than the FCC. And it was just a jurisdictional point of view rather than a principled… or an approach to Internet governance, rather than an administrative or jurisdictional view to the decision.

GABRIEL BARRON: I really don't have the answer to your question right now, but I will do the research and pursue it tomorrow or on this weekend. I will let you know.

DEBORAH ESCALERA: Okay, thank you Gabriel for your presentation. We need to move on to our next presenter.

Our next presenter is Ishan Mehta. I will get your slides up shortly.

ISHAN MEHTA: Hi, everybody, I'm Ishan Mehta. I am a NextGen, and I do research at Georgia Tech where I'm also a master's student in the School of Public Policy. I'm going to be talking about amoral registrars and content regulation and ICANN.

Last year there was a big incident in Charlottesville, Virginia, of which I'm sure many of you are aware about. The Internet side of this comes in where The Daily Stormer, a neo-Nazi website, talks about a victim at Charlottesville in a really repugnant manner. And what happens after this is that the registrars hosting or rather providing the domain name to The Daily Stormer back out and say that "The Daily Stormer has violated its terms of service so we can no longer support your domain name."

So, we went and looked at what those terms of service actually say. Before Charlottesville, The Daily Stormer was hosted with GoDaddy, which is the biggest registrar in the world, and what

their terms of service say is that they can basically take down anything which has morally objectionable activities.

So, legally, yes, GoDaddy could take The Daily Stormer down, but this worries us that what exactly are morally objectionable activities? And should we give registrars some venue to challenge what legal online expression is?

After GoDaddy, The Daily Stormer moved to Google and Google basically had even more ambiguity and they just said that if you don't follow Google's rules or policies… And they don't define that as a particular company because Google owns YouTube, Google Hangouts, whatever. So, are all of those part of Google? Is it just the domain names? A lot of ambiguity there. But The Daily Stormer had to move on to a Canadian registry which ended up hosting them.

So, the question here is did Internet governance actually work here? A lot of people were like, "Yes, this is how the Internet is supposed to work. It's a private actor-driven governance model, and this is it at its finest." But if you actually look at what happened, this was… Well, first of all, the registrar is objecting to hosting a domain name, which is sort of a violation of network neutrality. And it's very easy to be anti-neo-Nazi, but morally objectionable covers a lot of stuff to a lot of different people. So,

are Internet infrastructure providers supposed to be deciding what is and isn't allowed on the Internet?

So then we looked at the top 70 ICANN contracted registrars, and that is 90% of all gTLD domain registrations. But of course this doesn't include the country code TLDs, but most private websites or organizations use gTLDs so we thought this was a good data set to look at. And we defined a morality clause as somebody saying the specific term moral in their contract. But what also happened was that there were other ambiguous terms that didn't use the word moral but essentially meant that we can take it down if we don't like it.

So, we looked at the first… so, 26 registrars of the 70 use the word: moral, that if your activities are not moral, if you don't have good morals, if you don't comply with the Internet's morals – I don't know what they are – then we are allowed to take down your website. So, that is almost 57% of all gTLD domain names.

Another 18 registrars, which were roughly 5%, don't use the word moral but have an equivalent. So, that is 62% of the market of websites are under this sort of clause.

And this is what people defined as not having a liking for [on] the Internet. These are the terms we found in the contract: ethnic, nude, political. I'd like to see political stuff on the Internet but apparently some registrars don't.

So, then we decided that let's look at the people who don't use any of these. Registrars are still incorporated companies in a certain country so they are of course obligated to follow the laws of that country. So, a lot of registrars… or the remaining 24 registrars talked about that if you violate a law, if you are in breach of this country's legal code, then you are supposed to take down – which we think is the right way to go.

There's a huge segregation in the market of where the registrars are available overall, but especially you see a bigger segregation in the rule of law versus moral registrars. And Asia Pacific is this huge Internet market, the biggest growing Internet market, and no registrar outside of China or Hong Kong said that we are just going to follow the country's laws. All of them said that we have these moral values or said something equivalent.

It's slightly better in the Europe and the U.S.: 40% of the registrars say that we're going to follow the country's laws and not our own moral codes.

So where does ICANN come in? ICANN has a registration accreditation agreement. If you want to be really weedy you can go look at Section 3.18, but I can give you the gist here. So, ICANN sort of already does content regulation by saying that you need to respond to charges of illegal or abusive activity involving a domain name.

So, trademark, copyright, law enforcement interests are always pushing ICANN to implement these takedown clauses, terminate registrars' accreditation if they start hosting a lot of illegal or copyright info, but the way we look at it is that registrars are subject to competitive discipline. If you don't like what this registrar is offering you go to this one.

But every registrar has an agreement with ICANN, so that is a possible venue for registrar neutrality. Some advocates have called for registrar neutrality, and essentially they are saying that amend the agreement to show that you cannot object to any website being hosted with the registrar unless they're violating a specific country law. So, that obviously means that if you're hosting very clearly illegal stuff, child pornography, copyrighted content, stuff like that, that means you're being taken down. But registrars don't have their own purview in deciding what website deserves to be on the Internet and what does not.

So we wrote a paper on this. If you want, you can always talk to me or you can check out our website internetgovernance.org or follow us on Twitter: IGP Alert. The paper is not too long, it's 12 pages, it has a lot of pretty graphs, so I can send that to you.

I did this work with Brenden Kuerbis and Milton Mueller at Georgia Tech. Thank you very much.

DEBORAH ESCALERA: Thank you, Ishan. Are there any questions for Ishan? Go ahead, Kaitlyn.

KAITLYN KARPENKO: Hi, I'm Kaitlyn. I'm one of the NextGen. When you're envisioning a regime which tells registrars that they must be content-blind in allowing them to contract out, how does that jive with this American idea that if you own a business, as long as it isn't a discriminatory practice under the law explicitly, you have the freedom to contract or not contract. We don't tell the gas station that they have to stock every single type of potato chip. They're allowed to choose which ones they stock.

ISHAN MEHTA: Yes, but I would argue that it's not about what you're stocking. It's not between offering DNS and DNSSEC. It's about who you're selling to. I wouldn't like to be at a gas station which says that, "I'm not going to sell you a potato chip but I'm going to sell it to the next guy." If you remember Indiana and the baker, we sort of touched on that. This is what I draw the parallel to and it's about essentially website owners are customers of the registrar and customer discrimination has been an issue in this country in the past.

And also, I'm not saying ICANN has to be content-blind. Preserve copyright law, preserve country law, anything that's abusive, anything that's clearly breaking U.S. law or any other law where a registrar is accredited should be followed. But the idea here is that with the Internet being this bastion of free speech, we don't want private actors to be implementing their own jurisdiction or their own censorship.

DEBORAH ESCALERA: Was there any question from the audience? Okay, Martin.

MARTIN VALENT: Hello. I have one question and maybe a remark. The question is: can you tell us a little bit more about the concentration of the market? Because I think the argument behind the freedom of registrars to impose their own TOS is that if there is enough competition there is always going to be someone offering terms and conditions that address everyone.

So, in this case, theoretically, in the free market, free competition, that ICANN is like an assumption… it has an assumption that it exists… in addition to it being a problem in finding somewhere that you can host your domain, which we know is not true. So, I want to ask could you tell us more about… I know there's a huge problem or market concentration,

so everything that assumption has, that the free market can solve it, is not the reality now. And we don't have any reason to believe it's going to be in the future either.

So, first is can you expand a bit more on what you know about the market concentration of registrars and registry. That's one. And the other one is that registrars and registries are using TOS not only like this but they are also creating other sort of mechanisms in the DNS balance resolutions. For instance, in trademarks, or for instance, right now ICANN doesn't have a policy on copyright protection. So a lot of registrars are creating, in their TOS, copyright protections. So I'm working in IP [right side] ICANN. We have multi-stakeholder [inaudible], we create policy, we arrive at consensus, it takes us years, and then we have TOS. They go and create their own protection on copyright. My question – and this is not a question for you, it's a general doubt I have – is what's the power of ICANN to stop registrars and registries to create this subgroup of informal policy that in my view violates the spirit of their multi-stakeholder policy process?

I asked this question around and some people told me they are on the right to do so. But I think it's in the same problem of [right] censorship, it's the creation of different ways of control, all of them always orientated to market. Thanks.

ISHAN MEHTA: Yes, so on the concentration of market, the paper has a lot more details. I didn't want to make it too data-heavy, but if you look at this slide, I think… So, first of all, with registrars there's a big issue in concentration of market without bringing in morality clauses into it. There are a lot more registrars in the U.S., Europe than there are in Asia, Africa, and South America. I think this is where the free market argument is a weak one, because in Asia there's only one or two registrars that say that "We will only abide by this country law and not by our own designated moral standards." Essentially, if a policy is set for registrar neutrality, then it doesn't… this [isn't] ICANN RAA rather than leaving it up to the registrars to decide what they should host and not.

Coming to the copyright thing, I think it's slightly different because copyright law still holds in a lot of countries. So that puts the registrars in a legal liability, because if they are allowing for copyrighted content to be hosted illegally, then they often get pulled into court and stuff like that. So I see where they're coming from in that, but yes, copyright law in itself is a big issue, so that's a whole other conversation. But if you're interested in the concentration, you should definitely look at the paper.

DEBORAH ESCALERA: Okay, thanks, Ishan. Okay. We have time for just one more.

SAVANNAH BADALICH: You know I'm interested in this. Savannah, NextGen. I do work in White Supremacy Online, so this is very, very applicable. I actually completely agree with you on many of the pieces that you brought up today. But I also want to be specific because The Daily Stormer, as well as Stormfront and a few other white supremacist groups that ended up having those registrars being boycotted to pull down as a form of activism by anti-racists – The Daily Stormer often would incite violence and genocide, specifically towards people of color and Jewish individuals. So, it wasn't just… I agree that morally ambiguous or morally offensive is subjective and could be used to hurt queer folks, for example, but I'm curious if there were any TOS that focused on incitement of violence?

And then a secondary question which I just want to put into the room because I don't think you'll have time to answer, is that I'm wondering how International Human Rights law and customary law fits within this kind of conversation? Because domestic law can allow for a certain sort of… in the U.S. you can say a lot of different things about people who are different from you, and it can be considered incitements of violence but is allowed to stay on those platforms, whereas in Europe it's seen as what it is, which is hate speech. I'm curious if that came up for you as a consideration.

ISHAN MEHTA: Yes, I think the idea is that The Daily Stormer is registered in the U.S. and it still has a website which is up and running, just with a different registrar. And as far as my knowledge goes, they don't have any sort of legal proceedings against them regarding what they posted.

You like it or not, that's how U.S. law works. But coming back to different jurisdictions having different free speech laws, I think that's where there's the famous Yahoo Nazi memorabilia case in 2000 and something, where Yahoo's store in France wasn't supposed to auction off Swastika-embroidered something, and the U.S. store was allowed to.

So, I think that's something individual websites figure out on their own. Registrars are… the country which they're registered to, are of course supposed to follow that law. So if there's a registrar in France, that's what they follow. But the only point they're making is that I don't want the registrar to be making that decision.

DEBORAH ESCALERA: Okay. Thank you so much for your presentation. Very well done. Next, we're going to go to Kaitlyn Karpenko who has prepared a speech.

KAITLYN KARPENKO. Hi, everyone. My name is Kaitlyn, I'm a second-year law student at Columbia University. My main academic focuses in the law have been on cybercrime and transnational issues affecting Internet governance. However, in law school you don't have a lot of time to do independent research, so this is going to be sort of an overview of the international pressures that are facing ICANN both historically as well as the two big ones that are facing them today, the GDPR and net neutrality. Thankfully, this isn't super repetitive. Hopefully I don't go over too much that Gabriel already went over, and we can get going.

So ICANN is no stranger to international pressures and obligations. ICANN was created in part as a way to prevent governments, specifically the United Nations, from controlling the Internet. Two years ago, these community meetings were preparing dutifully for the handover of IANA from the United States over to ICANN, making it an explicitly international nongovernmental organization.

Many people were worried about accountability, the future of Internet control, as well as the lack of control that this regime created. However, I think as most of us know, nothing changed for the end users in those two years. ICANN did what it always did, but with the freedom that the global organization needed.

ICANN is perpetually caught in the middle of global interpretation and goals, as I think the GDPR highlights well for us. ICANN serves a utilitarian purpose and ensures the digital domain is protected before legal conflicts can even arise. It has been much more likely that domain name disputes arise because of intellectual property claims or copyright claims as opposed to naming collisions or people accidentally registering a number that they shouldn't have.

ICANN mandates a grievance process for contracted parties, something that's actually been upheld by the second circuit in the United States. ICANN also provides an avenue for arbitration, specifically for claims of trademark violations. This allows these disputes to be litigated before they reach courts, and it also provides a venue in cases of international jurisdictional confusion.

During ICANN's inception as well as numerous times since, international bodies like the UN have toyed with the idea of integrating domain name services into global government structures. Each time, these proposals have failed, in part because of a distrust of institutions like the UN. The process by which authority would be transferred is also uncertain and be a huge undertaking for a nontechnical organization.

But ICANN does not hold a monopoly on Internet governance. In 2016, the United Nations Human Rights Council issued a nonbinding resolution guaranteeing the promotion, protection and enjoyment of human rights on the Internet. This aimed to help guarantee Internet access as encompassed under a general right of expression in Article 19 of the Universal Declaration of Human Rights.

So now looking forward, we have these two changes that are facing us in the Internet governance realm: the GDPR and net neutrality in the United States. Much of this meeting has been focused on the GDPR, and we also heard a great overview of the basics of net neutrality. So hopefully this isn't repetitive.

Net neutrality was – and still is – a bit of a tentative experiment in America. In just 2015, broadband providers were reclassified as common carriers under Title II. While this seems like a short period of time, it is a little bit of a misleading figure. Originally, the Internet was run over phone lines, so it has always been a common carrier. It wasn't until the infrastructure diverged that the need to formally classify them arose.

Title II net neutrality as we heard was removed by the FCC last year, but the full extent is still being litigated in American courts. Numerous states have enacted their own methods of net

neutrality. Several states are actually suing the FCC in order to stay the removal as well.

Our own Göran Marby, the CEO of ICANN, both at this meeting and at the Global Internet Forum in December, stated that ICANN would not be affected by net neutrality. I however think that this is optimistic.

DEBORAH ESCALERA: We're having a little technical issue. Sorry to interrupt.

KAITLYN KARPENKO. Does that work now? Is everybody hearing me? So I don't want to contradict our CEO, but I will say that the ultimate decision to lose net neutrality could easily change the way ICANN distributes information in the future. ICANN is an American-based corporation. Telecom companies will undoubtedly want to treat data differently, and the creation, tagging, movement and priority of that data will all play a role in how an ISP monitors web traffic.

ICANN's control of TLDs would make the organization an easy target for lawsuits and investigations to help protect company property. When contrasted with an obligation to remain a neutral global company, ICANN will likely be put into a sticky situation. Profit margins are motivating factors for any global

industry, and this may seem ominous. The rigor that goes into verifying data for certain TLDs could prove to backfire when ISPs hope to throttle and gate Internet data.

Even TLDs that do not require verification could lead to an ISP making a decision about their content, such as .porn or .adult. The collection of WHOIS data will help ISPs to determine how to categorize Internet browsing. We already have seen the Motion Picture Association of America as well as the Recording Industry Association of America put pressure on ICANN to police the registration of domain names more heavily.

While both associations were asking for only the affirmation that domain name registers don't violate local laws, this puts ICANN in the position of being an interpreter of those local laws. ICANN thankfully upheld its mission and did not wade too far into the fray of registry policing in that manner, but it's easy to envision a future regime where such action could be taken, especially in light of the compliance challenges that are already facing ICANN and the GDPR.

ICANN cannot sit back and pretend it is not in the business of content regulation when it gatekeeps certain TLDs – for good reason – or collects and verifies WHOIS data. While they're certainly different from running an interactive message forum,

they do require ICANN to actively handle user data and content in small ways.

United States Secretary [inaudible] spoke yesterday and cautioned against full compliance with the GDPR in light of "public policy," highlighting that there were "legitimate reasons" for the current information available via WHOIS. Ignoring that this comment itself is possibly contradictory, I disagree with Secretary [inaudible] ultimately.

I believe that the GDPR attempts a humane model of data accountability. However, he does present a reasonable overarching question of how ICANN should change its global policies based off of the actions of only a few countries. When thinking back on the potential effects of net neutrality on ICANN operations, the perspective and questions on the GDPR change radically.

I agreed with Stephanie Perrin and Thomas Rickert yesterday at the GDPR Compliance models for the WHOIS cross-community meeting. Stephanie was fighting against security companies who were complaining that the cookbook solution for GDPR Compliance would make their job harder.

Thomas also questioned whether security company interests were even appropriate to be weighted in interpreting the GDPR.

Questioning how and whose voices we weigh is essential, and possibly the very purpose of the GDPR to begin with.

The GDPR was created in part to give users more rights to their data and protect against third-party disclosure without permission from the end user. I could not get into the specifics of what this regulation requires in such a short amount of time, but I will caution that anyone speaking at absolutes regarding what is and isn't compliant with the law misses the point of the GDPR. It is meant to balance many of these different issues, but codify that the original user still maintains a huge stake in that data because it pertains to them or because they created it.

Prior to this law, users maintained little to no legal rights to their own data once it was given to a third party. The GDPR also attempts to balance the legal creation of these rights with the published reality of Internet content. The scope of the GDPR is likely to be litigated and adjusted for years to come, and there is no simple solution as to whether something is or is not compliant.

I'm running out of time, but take away from this that there is an ever-changing landscape of local laws that will affect the global Internet. These put pressure on ICANN and the way it modulates information flow. And ICANN's response to the GDPR could present a blueprint for other Internet regulations such as net

neutrality. ICANN however does have a strong history of weathering past storms, and we have every reason to believe it will survive, thrive and keep a working, stable Internet for years to come. Thank you.

DEBORAH ESCALERA: Are there any questions from the audience? Okay, from the NextGen? No? Okay, give us a moment to start the next slides. Our next presenter is Haley Lepp.

HALEY LEPP: Does this work? Am I miced now?

UNIDENTIFIED MALE: Yes, you are.

UNIDENTIFIED FEMALE: Yes, we can hear you.

HALEY LEPP: Okay. Well, I'm miced now. Hi, everyone. My name is Haley Lepp. I'm studying for my graduate degree in computational linguistics in the University of Washington, and I actually completed an undergraduate degree in political science. But today, I'm not going to be presenting on computational linguistics or political

science either. I'm going to be talking about another project that I've been working on. And I'm really excited to talk about this topic because I think it intersects with a number of the topics you've all presented on. And I think it's a question that we have all been asking ourselves throughout this week, and that is, "How are we going to develop the next generation of global Internet citizens and create a more representative Internet governance field?"

So throughout this week, we've heard many times about the goal of having one world and one Internet. I'm going to discuss how online education can address the issue of creating a representative multi-stakeholder community and strengthen engagement in areas that are currently underrepresented.

So to start, did you know that youth make up one in four Internet users? Depending on the region that you're in, that statistic is much higher, which brings us to a challenge. If we want geographic representation, we need to engage younger users.

So as I move through this presentation, I hope you can think about who the current stakeholders in ICANN and the global Internet are and who the future stakeholders will be. And finally, how do we teach them to value the global Internet as a shared

resource in understanding importance of consensus and see themselves as global citizens of the Internet.

I'm going to start with a story. Oops. Oh no. Looks like the… Are they not working? Sorry, everyone. One minute. I'll start talking about the story while they're setting this up.

In mid-October, an Iraqi 15-year-old sent a message to my class. He said, "Today, I was going to be a refugee." And he launched into a detailed description of an attack on his Northern Iraqi city. Another student who's from Kentucky in the United States shared her sympathy and mentioned to me later that she would never have learned about Kurdistan or the events there if not for her online connections in Iraq. The history of the United States in Iraq is now intertwined by war, violence and fury, yet the populations remain surprisingly isolated from each other, which perpetuates a cycle of fear and more isolation. But despite this divide, my students came together as an online community driven by the common interest of building a peaceful future over the Internet.

DEBORAH ESCALERA: Sorry, [inaudible]

HALEY LEPP: That's okay.

DEBORAH ESCALERA: So sorry. We'll be back online soon. Sorry, Haley.

HALEY LEPP: Yay. Thanks, everyone, for your patience. So here's my story. But we already went through the story. So why is digital education important? Education and civic engagement go hand in hand. According to OECD, education has a strong correlation with civic and social engagement. And digital programs targeting diverse cohorts of youths can bring access to both.

However, the number of youth who are out of school is on the rise. Approximately one in five kids worldwide are out of school. And this is often the result of armed conflict, force migration. In Iraq which is the community or the area in which I work, one in three kids are actually out of school. But these kids still use the Internet, and digital education can help target these youth who are out of school and help educate them and also engage them in their communities.

So as the Internet governance community looks to be more inclusive and increase representation around the world, digital education programs can help prepare a new generation of leaders. So there's your one in three.

So this is the program I've been working on. For the past year, I've helped to design an online exchange and leadership development program for high school students in the United States and Iraq. The program takes place entirely online, so there are few limitations to who can join. Whether displaced by the hurricane in Puerto Rico or hiding in the destruction of Mosul, these youth, my students, came together as long as they had a working mobile phone.

So I have over 200 students with my colleague at my company, and our program helps to develop their leadership skills. It's project-based, they design community projects. They can join from anywhere in the world, as I mentioned, and they come together for video conferencing, chatting, webinars and games.

So a couple of highlights of this program. It allows for unparalleled geographic and linguistic diversity. These are the languages that we had represented in our program.

Oops. Looks like some animations are working, some aren't.

We also had 14 Iraqi provinces represented, 21 U.S. states, Puerto Rico, and we also had students living in Germany and Jordan. Our kids came from conflict zones, they were refugees, IDPs, they lived in rural areas, they were on the move. They could participate throughout the day on their phones, and it was very affordable.

So there's a chicken and egg argument. It's often stated that we can increase accessibility in different regions before there's a need for content. But in my experience through this program, it's actually the process of improving content that leads to better accessibility. So we found with this program, against all odds, our participants will enthusiastically pursue content if they think it's interesting or relevant.

They face regular power outages, lack of bandwidth, old-fashioned mobile devices, censorship, language barriers, and even parents who just tell them not to be on their devices. But after two iterations of the program, we found workarounds f or almost all of this.

In this picture for example, we have a group that's come together for video chatting, and I think there's a guy on the right who didn't have the bandwidth to get up on his video chat, so he's just talking to them on the side. And when you allow that flexibility, you find that people will make it work.

These workarounds have also helped increase our reach to the U.S. population, and a solid percentage of our participants have come from rural areas, title one schools and other situations that typically would limit their representation.

So following ICANN's bottom-up model, we let our community members design their own content. Our strategy is to create

curriculum that is so flexible it can be localized to empower youth to achieve whatever their needs are. That includes things like teaching them to set goals, do needs assessments and using apps to explore the needs in their community, designing project plans, designing budgets. These are all skills that youth, no matter where they are, this will help them be more active and civically engaged. And we're not deciding what the actual content is – and by the way, this is a real budget that one of the students put together. Next slide.

And happily, our data shows that this curriculum works. So I'll explain this chart real quick. I think that a really key element in civic engagement is that people feel that they're part of a group and that they all need to contribute to support each other within a community.

So these charts show before and after the program how participants thought the other participants felt about them. So if you look, for example, on this graph on the left, this is how U.S. participants thought Iraqis felt towards them. At the beginning, you see very few of them thought that their peers felt warmly towards them. And by the end, we had significant growth.

So some more data. Oh, that's very pixelated. Our participants also became very active within their communities after the

program, and these are very pixelated photos of ways they got involved. Here are more pictures of our students.

So it's been very successful in encouraging them to get more engaged and design both in-person and online service projects. So this is coming to the end of my slides, but programs such as this program, Dial Up, which really works hard to develop cohorts of civically engaged in-person citizens as well as digital citizens can help engage youth from diverse backgrounds as stakeholders within the Internet community.

So in turn, these youths can help drive further access for their peers and their communities, combating the digital divide and improving their own representation on the global stage. So how can all of you as representatives of your communities get involved?

Thinking clearly about who is and isn't represented in this arena, funding the development of these programs, and helping standardize digital citizenship as part of worldwide education, and finally, creating opportunities for younger people to engage in this community. Thank you.

DEBORAH ESCALERA: Thank you, Haley, and so sorry for the technical glitches. Obviously, Adobe Connect is not the greatest program. Are there any questions from the audience? Okay. James.

JAMES WILSON: I just had a quick question. How was outreach done to these communities in Iraq? Was it through communities, schools? I'm just very curious how we build that connection in the first place. And also, I just love the program. It's really interesting to see this kind of work done just to connect people one-on-one and create that, "Oh, you're just a normal person like I am."

HALEY LEPP: Thanks for your question. And that's actually my organization's sort of secret sauce. We do have Iraqi field staff who live in Iraq who are Iraqi, as well as a very well-established community, communities all around the country we work with for nondigital programs. So we have kind of roots all over the country. And similarly in the United States. Thank you. Go ahead.

UNIDENTIFIED MALE: Hi, Haley. I really, really, really appreciate this project. I think it's very interesting. And it goes much [towards] uniting the entire global youth sphere. One question I have for you is in terms of the future of the program. Have you considered probably even

having ambassadors for the programs in different regions? As well as if for example someone who has an accreditation, like for example someone who has an [ACCA] or so on, something, does the [early] session, if those students would do that session could actually achieve some form of certification or something.

HALEY LEPP: That's a really excellent question, and that's something we have been exploring either including certification for completing the program or engaging other people who are experts within their fields. Something we do actually have is a youth development program for facilitators, which is sort of the equivalent of NextGen ambassadors.

So we had I think 12 facilitators in this last iteration who were all youth themselves who had demonstrated really successful leadership and civic engagement skills within their own communities. And I wish you could meet these youth, because it's really inspiring to see what people so young are doing.

ALLAN FRET: Allan Fret, NextGen. First of all, I think we all can agree that we are really impressed by the initiative, and I would like to know the motivation. How did you start it? What motivated you? If it

was a professor or if it was a personal experience that motivated you to create such an amazing initiative like that.

HALEY LEPP: Thanks. That's a really good question. And I guess I should clarify: I did not create it. I was on a team that… I'll start from the beginning. I'm not sure if any of you have heard of Ambassador Christopher Stevens, but he was the U.S. ambassador who was killed in Benghazi, Libya a couple of years ago. And in his memory, a number of organizations came together to design educational initiatives to connect the youth of the United States and the youth of the Middle East.

And so this project was a recipient of that grant, and so we were sort of given guidelines on how to design the program. And definitely, the first iteration was a huge sort of learning opportunity, and the second one is when we learned a lot about how to make something like this run. And we're hoping to have the opportunity to do the program again.

DEBORAH ESCALERA: Okay. Thank you. It seems there are more questions, but you can take them offline so we can move forward.

HALEY LEPP: Real quick, if you are interested, please feel free to reach out to me. I also have business cards. I'm happy to share and talk more. Thank you.

DEBORAH ESCALERA: Okay. Thank you. Our next presenter is Anna Loup. And give us a moment to load your slides.

ANNA LOUP: Okay, great. Good afternoon, everybody. My name is Anna Loup. I'm doing my doctorate work at the University of Southern California, and I'm going to be talking briefly about two of our ongoing Internet history projects from the Internet histories project that my colleague and I, Frances Corry are working on. She's also based out of USC. I was hoping she could also be here, but unfortunately, she is in Finland. But anyways, she and I work as a team, and it's really great to have such a wonderful colleague. So shout out.

So moving on. There we go. Okay. So for this presentation, there are two main questions that drive both of these projects. I'm going to try and talk about them in parallel to start, and then I'll talk about them individually. But two of the key questions for this presentation are, how do certain forms of rhetoric impact the way history is understood, how do we understand history

and how is that shaped by the sort of rhetoric that we use to describe things? And I'll get into how that makes sense in the Internet. And then the next is, how can we better collect and analyze global Internet histories?

So as somebody who is very interested in history, it's not just the history itself but how we do it. This question of how it's done is really important and is very intriguing to me, and sort of something I've been watching here during this conference.

So starting with the rhetoric of Internet pioneers. So the term pioneer, you've probably heard this frequently. We first came across it when we were reading in the Postel e-mail archives, and it was Bob Braden who said, "We pioneers who were there at the time have at best hazy memories of what happened when. Twenty years from now, Internet historians will be asking about what happened to the Internet in the 1990s and early 21st century. Where is it being written down?"

And this e-mail has actually inspired us for a variety of our projects, but that one word, "pioneers," has stuck with us. It feels off. So we started thinking about what this rhetoric means. So these are two big questions that we've been asking within this project, is, first, how has the word "pioneer" come to describe these early figures? So when did it start being used? Because it actually has as history, right? The use of the word has

a history. And the second is, how has this metaphor shaped the larger discourses of Internet history?

So it's not just when did it start being used, who decided to use this, but also how do we then sort of process our understanding of history when we use this term, "pioneer." And we're using a lot of science and technology studies theory to drive our research. I'm not going to get into that, but we're also using what's called The Pioneer Legend by JB Hirst. He wrote it in 1978, and he was actually talking about the pioneer legend in regards to Australia and sort of the creation of a national history through the use of pioneer.

And we see the same actually in the United States. When we think about American progress – so this is – if you're familiar with science and technology studies, this picture is very famous because it was painted by John Gast in 1872 and you see sort of the figure of American progress, right? She's going through the plains and she's bringing with her the telegraph and the trains, right? So this is idea of progress. But what you see right on the left, you see what this technology is displacing. You see indigenous peoples fleeing, you see animals, you see sort of wildlife being displaced. And so this picture is very powerful when we think about this idea of progress and pioneering.

So pioneer still is used today when we talk about the Internet. We don't just talk about pioneers as people who went out west or whatever, but this idea of the pioneer rhetoric has even been part of this idea of the wild west of the web. So we see this in 1999, we see it today in 2013, the Wild West of the Internet, but we also see it going all the way back until 1994.

So we're very privileged to be working in the Postel archive which is housed at the University of Southern California. It's amazing to be able to sort of sift through the history of the Internet. But we realized that actually, the Bolt Beranek and Newman, one of the sort of major groups that was there at the beginning of the Internet had, in 1994, they had a 25th anniversary ARPANET celebration. And this was devised by their marketing director because he realized that BBN wasn't getting – or he felt that BBN wasn't getting proper credit for the history of the Internet. So we actually see the beginning of the use of the term "pioneer" in relation to the history of the Internet and ICANN, sort of Internet governance spaces, in 1994 with this 25th anniversary of the ARPANET celebration. And so it was actually a marketing ploy. So we get this rhetoric that we still use today. I mean I sometimes us the term "pioneer." I'm trying to get it out of my vocabulary as a result of this project. But it's very interesting to see that this is sort of what came about.

So what I find really interesting, and sort of as a result of our research, is we argue that – and I'm going to read this because this is the academic part – the pioneer legend is alive and well within the historical narrative surrounding the Internet, and it continues to drive which Internet histories are considered, who is included in these Internet histories, and how these histories are written.

As with any pioneer legend, however, these histories can evolve and be reflected upon, and I'll get to that in my next project on how we can do that. So as such, we assert that highlighting the ubiquity of the term "pioneer" in Internet history alongside a concerted effort to bright forth histories that have been obfuscated and occupied by those dominant histories, we can change how we imagine the emergence of the Internet. But we can also celebrate the diverse group of actors who engaged in different forms of labor to make the Internet we know of today a reality.

So this brings me to my next project, is global Internet histories. So there are a bunch of questions driving this, but what I'm really interested is thinking about how there are different types of histories going on. So there are a bunch of different histories, but a lot of histories have been obfuscated or forgotten.

One of my favorite histories that sort of brought me to this work is the history of Joyce Reynolds. How many of you have heard of Joyce Reynolds. Not me telling you about Joyce Reynolds, but prior. Okay, there's one person. I don't know behind me. Okay, there are three people.

It's very interesting. Joyce worked alongside John Postel at ISI for many, many years. She's also one of the most prominent writers in the request for comments that are hosted by the IETF, the Internet Engineering Taskforce. She has written some great RFCs, you should take a look at the one that she wrote in 1989 about the Morris Worm. She talks about science fiction and Beetlejuice, so if you're a science fiction nerd, you should check it out.

But she died in 2015, and nobody noticed. And her history is very difficult to track down, and so a lot of the work that I'm doing with my colleague Franny right now is trying to figure out, "Who is Joyce?" Because we were in the archive and we read – so after John passed away, they did a book for him, a memoriam, and she wrote this beautiful memory. She talked about how she and John used to work together, and they would both be e-mailing back and forth with somebody who was trying to work with ISI. And they would say, "Oh, is this John or Joyce?" They were trying to figure out who they were talking with, and John would always just reply, "Yes."

So this idea that they were working together and that they were constantly communicating with people, but it was unclear who is there. So we always remember John as this figure in the history of the Internet, but our question is, where is Joyce?

Anyways, I have been doing some interviews. I need more funding, so shoutout. I've only done two. Well, I've done four but I've done from two different countries because I decided to use a [grounded theory] approach and start collecting interviews and start to think about how we can sort of understand how history is divided.

So I'm going to quickly go through. I'm doing [lead] interviews and I'm doing live story interviews. So instead of asking people about the history of the Internet, I actually ask them about their lives, how they got into working in this space, what difficulties they faced. And it's really exciting, because when you ask somebody just to tell you the history of the Internet, it's very technical. It's very much, "This happened when."

But when you ask them about their experience and how they sort of experienced the history of the Internet, it's this light, you just see them light up. So it's really exciting to be able to do this. So right now, I'm working with empirical data, and so then I went through and I was looking through at the sociopolitical and

economic issue areas, and then I've sort of devised this Internet history type.

So there are three different types that I'm working with. The first is the history of technology and protocological factors. The second is the history of infrastructure development. So this can be things that are physical infrastructure but also digital infrastructure. And then the last is history of institutions.

And this is where ICANN comes in. I promise, we're going to get there. And so I've devised this, and this is still in development, but sort of four subsections, ideas about history. So using ICANN as an example, which is a history of an institution, you can think about the influence of academic institutions of ICANN.

So USC, UCLA, labor. So what is the history of labor within ICANN? Which is a fascinating history if you think about it. The layers of technological accessibility. I've actually moved this into just accessibility. So thinking about the history of accessibility within ICANN. So remote meetings, how did those come about?

And then finally, thinking about the history of visions of the future. And this is sort of a cool thing to think about. How did people imagine the future over time, and how did this impact how they developed policy? What did people think about the future? And so that's really where I am, that was a huge overview of two really big projects. So if you have any questions, let me

know, but thank you so much for listening, and hopefully I'll have more updates.

DEBORAH ESCALERA: Okay. Are there any questions from the audience for Anna? One in the back.

PIERRE DANDJINOU. Thank you very much for quite an interesting presentation here. I'm Pierre Dandjinou, I'm VP of ICANN [or whatever]. But the perspective here for me, I mean the interest is about the kind of idea we're having on Internet history in Africa for instance. Quite interested to know that in your interview, you were considering Uganda as one of the places to go. If you would like to tell us more about why Uganda. And also, you also spoke about funding and that you don't have enough of it, I think. Well, by the way, who is funding it right now? Thanks.

ANNA LOUP: Thank you so much for your question. So I know Kyle Spencer who's working at the Internet Exchange in Uganda, and so he and I had a conversation about how he was trying to find people to interview for my [lead] interviews, and he was like, "Oh, I can put you in touch with everybody." So it was helpful because I just asked people who knew. So then [Mark Dean] was really

helpful in helping me connect with people in Argentina. So it was more I used my network that already existed to try and start the ball rolling for this project.

And funding, I've actually been self-funding the interviews and the transcriptions and the translations myself as a sort of proof of concept, but I'm a graduate student, so it was very limited funding. Thank you.

JASON HYNDS: Hi. Jason Hynds from Barbados. Good presentation and good project. When I saw the Uganda and Argentina bit, it had me thinking about the history of Internet development in individual countries. So I like that direction. Secondly, the Internet Society has done a little bit on this, and the whole Internet Hall of Fame certainly does cover some things, and then ICANN has this interesting Internet histories project that they're running. So just highlighting those as well, but I like the direction yours is going in with all these tracks. Thanks.

ANNA LOUP: Thank you. Yes.

ROBERTO GAETANO: Robert Gaetano from Italy. I wonder if you are aware that there is an ICANN history project in – okay. I just wanted to make sure so that there's a synergy, obviously. Thank you.

ANNA LOUP: Yes. I was able to connect with Brad White, so it's been great sort of interfacing with them.

DEBORAH ESCALERA: Okay. We have time for one more question from the NextGen if there are any questions. Okay, no questions. Oh, we do have a question. Kaitlyn?

KAITLYN KARPENKO: I know that you're sort of in the beginning of this project so this is probably a question to research, but how much do you think the lack of representation of women in our history is because there was actually a lack of women or because they've been systematically sort of ignored, removed or just not part of our narrative? You gave one example, but it's still like one in 22, and I'm wondering how many other voices are lost or missing or weren't there.

ANNA LOUP: Yes. So actually, women in computing – women have always been in computing. I actually gave a presentation at [NASIG] last week, and part of my presentation is I reference Janet Abbate's gender book about women in computing. So there's a long history of women in computing, and it's a very interesting software-hardware dynamic of what is valued, but also thinking about labor.

Women have always been there. If we think about who was organizing the request for comments, it was Joyce. So this idea of organizational labor and archiving is predominantly seen as sort of feminine work, and it's less valued. And so sometimes what happens is it's actually a labor thing, because women have always been there, it's just more of what we value in history. So sometimes it becomes we value the technical history more than the labor that goes into it. And that's why I split it up.

So my framework is sort of saying that. There's an institutional part, but there's also a technical part, and we should value those equally and together. And that will help us have a more holistic view of the Internet's history.

DEBORAH ESCALERA: Okay. Thank you so much, Anna. Okay, our next presenter is Carole Vodouhe. One moment.

CAROLE VODOUHE: Hello, everyone. My name is Carole, NextGen. Today, I'm going to speak about the resolution of the disputes related to domain names on the African continent. Briefly, the registration of domain names allows a brand to have a virtual address on the Internet to give itself a visibility and to generate some profit. As such, it is considered as being part of the intellectual property. So I'm going to run a prospective study on the situation in Africa.

There's something missing. It's not there at all. Maybe easier on PowerPoint?

UNIDENTIFIED FEMALE: Brief intermission.

CAROLE VODOUHE: Brief intermission. Perfect, so let's continue. So there are several ways to settle a domain name dispute. On December 1, 1999, ICANN published principles and rules governing the resolution of these disputes. Currently, there are two existing policies: the Uniform Domain Name Resolution Policy, UDRP, and the Uniform Rapid Suspension, the URS. That is a supplement to the UDRP that's faster and more affordable.

As the main institution in charge of the application of these policies, the World Intellectual Property Organization created arbitration and Mediation Center for this purpose. Its mandates apply to the gTLD, so general top-level domain, and on the request of certain countries for the resolution of ccTLD dispute, country code top-level domain disputes. As such, on the African continent, ten countries chose to take the services of the WIPO for the dispute settlement resulting from the registration of ccTLDs on the territory.

To give you an overview, the African continent accounts 55 countries recognized by the African Union. On the scale of the continent, only 38% of the African countries have policies of extrajudicial regulation of the disputes, either by using the formula of WIPO, either by publishing national policies. According to a survey conducted by WIPO in 2009, only South Africa can be considered as mature in domain name market and extrajudicial resolution disputes.

It should be mentioned that the African continent brings together countries with strong growth economies with domain name market evaluate at $52 million as of May 2017. So five million domain names associate with Africa.

Besides, the creation of the new .africa gTLD will allow to bring the continent together under the umbrella of ecommerce,

technology and infrastructure. As you can see on the table that I have created for [inaudible] proposed, on the continent scale, 58% of the African countries do not have any resolution policy, 18% refer to WIPO, 20% have a national policy, and 3% situation is unknown.

If we consider that the adoption of policy and the application [measure] the protection of consumer, then the lack of regulation does not inspire in the registration of domain names and reduces the chances of generating income on the local plan.

So we have over five million African ccTLD and gTLD domains registered on the continent, and only 19 countries using extrajudicial resolution. And considering the lack of trademark owner protection, it was important for me to address the issue. Previously, we have established that Africa has been growing rapidly and is composed by several countries.

We well implement policies, so having the ability to grow the customers' trust and ability to market the marketplace [inaudible] Considering that domain names allow innovation and competition, entrepreneurs and investors have to be reassured, and according to me, it is a priority.

What could be the solution to ensure African trademark owners protection? And subsequently, what will be the challenges of the implementation of this new system?

So let's take a look at online dispute resolution. It is an alternative form of dispute settlement, of which all procedures are carried out on Internet, and according to the chosen formula, the presence of the parties is not necessary.

This [extrajudicial] means of settlement allows among other things a quick, cost-effective and adapted solution. The very basis of the online dispute resolution is the fact that it provides solution in a borderless, international context in which most of the difficulties associated with the traditional form of dispute resolution are addressed in innovative ways by the use of technology.

As professor Karim Benyekhlef asserts, in addition to be able to save money on travel and other expenses, the online dispute resolution allows the use of electronic communication. In the case of Africa, there will be no need to reinvent the wheel. We collaborate efforts from North to South or South to North. The exchange of knowledge is possible. Some existing infrastructure can lead to proceed. The collaboration will have promoting the value of the regional market at the full benefit of trademark owners and investors.

But as highlighted by WIPO, the issue with the implementation of this kind of system are not only costs but also availability and performance within each country, and indeed the connectivity

between countries. Another obstacle is the willingness of countries to work together. The determination means real involvement of all parties resulting in the adoption at the local level of public strategies.

The multiplicity of existing regulations and law also implies long-term collection and uniformity work which is on another hand a strength too since it shows the possibility of crating solutions adapted to the continent. And also, there will be a need to enforce the existing scales.

To conclude, I will say that the domain name dispute resolution system in Africa has deficits, but they can be overcome by taking example on existing models like the WIPO Arbitration and Mediation Center, for example, or the Cyber Tribunal of Montreal. It is the approach I'm going to use to study the implementation of the online dispute resolution project in Africa. Thank you very much for listening.

DEBORAH ESCALERA: Thank you, Carole. Are there any audience questions for Carole? Okay, [inaudible].

UNIDENTIFIED FEMALE: How do you view these arbitration bodies as handling competing countries' law? So how do you envision bodies

handling competing country law? Let's say there's a dispute and the law between the two countries is different.

CAROLE VODOUHE: That's a really good question I was thinking about. As I said, there is an obstacle, the multiplicity of these laws. But what we can use from that is the modularity and collaboration method. It will bring in what is in common, and what makes the difference, it is a long-term study that has to be done. And also, we can take the inspiration of the model of the UDRP which is the main policy used by several countries in the world, and the WIPO Arbitration and Mediation Center, for example, use this policy to administrate claims over 127 countries. So it is possible to overcome the differences in the laws by also creating an adapted solution finally.

DEBORAH ESCALERA: Any other questions? [inaudible]?

UNIDENTIFIED MALE: Hi. First, congratulations. It's a great work. And I [inaudible] just because I did papers in those things, so I want to collaborate. The first one is that on the problem part, in my case I did Latin America, something similar, at least with the same perspective.

We also found that language [inaudible] but also the diversity in the providers.

Going to WIPO for Latin America was a deterrent to maybe answer a complaint and you lose your domain just because you didn't answer. So we were trying to find out the relevance of having a local – like in this case an African – provider that could provide arbitrators. And the arbitrators' diversity, because if all arbitrators are intellectual property lawyers that deal with trademarks, there's a very clear – it could be partial the way they handle the disputes.

And there's [inaudible] solutions. The other paper I did, it was on the use of free trade agreements to get provisions on intellectual property protections in domain names. And the argument is that free trade agreements are great for this because they can widely spread uniform policies on domain name protection. But it's also true that in free trade agreements, there is no multi-stakeholderism. They are trading bananas for cocoa and they're being [voted] like a commerce chamber. So they're creating DNS policy outside ICANN. The same countries that are here in ICANN in the GAC.

So I would also state to be – when you talk about global uniform processes on a continental scale, it's already sort of happening with free trade agreements, and I think it's sort of problematic. I

think I agree that the uniform is something that is good and should be achieved in the whole ecosystem, but it's being achieved by free trade agreements right now, and that's dangerous in my personal perspective. My two cents.

CAROLE VODOUHE: Thank you very much for your comments. And yes, the implementation of this kind of project raise a lot of concerns. And your concern you just brought out is a really important one. But my main concern is that there are a lot of trademark owners on the continent despite of the existing of those kind of agreement that are not protected, either because of the political situation in the country or the level of the development. So a solution has to be found.

And according to me, there is a strong technical skill [existing] on the continent. There is infrastructure, and there is a really growing economy there. So the online dispute resolution system will be part of the solution, and those agreements and all those concerns can be, at a certain point, put apart to see the main objective which is the good of the interest – the full interest of the African trademark owners.

DEBORAH ESCALERA: Okay. Thank you so much, Carole, for your presentation. Okay, our next presenter is Shamar Ward. Shamar, give us a minute to just load your –

SHAMAR WARD: Yes, I hear you. Okay. Good afternoon, all. Today, we're presenting on using repurposed cell phones to power Internet rich applications. Just a little bit about myself. I'm currently a PhD student studying computer science at the University of the West Indies, Cave Hill Campus. I've given multiple talks at the ACM Special Interest Group for University and Colleges Computing Support Services. I'm also the male CARICOM Youth Ambassador for Barbados. My research interests mainly lie in computer automation using low-cost devices and personal efficiency systems.

So I will start and give you a little overview of what the problem actually is. Most smart applications as we know can assist with various inefficiencies, but especially in the Caribbean, having access to smart information can be very important. Smart applications however require IoT devices or sensors which will be used to collect the data which you would make smart decisions on.

However, in the Caribbean we have a little of a ticklish situation. That situation is that some of our economies are actually based

on taxation on imported goods. For example, an IoT device that costs probably about $5 US can actually go as high as $30 US when it actually comes into our ports. So as you can see, it can actually be very expensive to implement such applications.

Also, we also suffer with most of our Caribbean islands have areas where we dispose of stuff very close to our population. What that does in the event – as you can see here, cell phones contain very dangerous toxins. One of them is bromide which is used as a fire retardant which basically stops the cell phone from bursting into flames. Now, that is actually very dangerous if it gets into the water supply, because of course it can become poisonous to persons.

So our approach to solving this problem is to look at actually recycling, or what we refer to as creating a repurposing model which allows us to reuse shelved, retired or damaged cell phones. You may have a cell phone and your screen cracks, and most persons just say, "I'm not going to waste time fixing that screen, I will just get a new one."

But actually, the phone that you are tossing away can have a very huge purpose or can really benefit persons, because the screen may not make it usable to you as the user, but the phone also contains other sensors such as Wi-Fi sensors, Bluetooth

sensors and other sensors which could be used in other applications.

So by applying this repurpose model, what it does is it reduces the amount of devices which we actually have to import, which of course initially would make the cost of developing smart applications extremely cheaper because now you're using something that someone would have once discarded, you are now taking it and using it to better help with smart applications. Now, as you can see, it says it reduces the cost of implementation of projects as shelved, retired or damaged cell phones can be attained at a lower cost or even donated.

Before I move on, what I will go through from here are various projects which would be implemented using these recycled cell phones. Before these projects were even developed, we did a cell phone drive at the University of the West Indies. We just asked persons, "Could you donate some old phone you have probably at home? If it is damaged, it doesn't matter. Just donate it to the initiative."

And we found that people were very interested in it, especially when you told them all of these projects I will show you actually help to improve the campus community. So once we told a student, "Hey, well if you give me your old cell phone, we will

build an application that will be able to help the campus community."

So what this first system does is it uses a very old Blackberry 8520. Some of us may have had Blackberries, or even the 8520 itself. But we have a strange problem. I'm not sure if it happens on all campuses, but a lecture will be going on, students would burst into the room peep in to see if this is their class. This normally happens at the beginning of the semester. Or some person's just looking for a classroom to see if it is vacant.

So what this system does is that this places a Blackberry smartphone on the outside of the classroom so that a student can look at that and see, "Okay, well, currently there's a class in progress" and there will be no need to actually enter into the classroom to disrupt the class. So this is one application that was developed.

The second application which has been very useful to students also is letting students know in which areas you can get high Wi-Fi signal. Now, our campus being on an island, it's normally mostly warm most of the time, so some students want to study outside. But the difficulty comes knowing where exactly I can get a high signal, especially if I need to use my computer for certain activities. Say I'm downloading something, say I'm doing some

strenuous activity that will put strain on the network. You need to know where you can go and get a good Wi-Fi signal.

So in this project, what we did is that we placed cell phones all over the campus in strategic areas, and these cell phones basically report on the signal strength in the area. It reports also on the download speed so you can sit even at home and look to see, "Okay, if I go to campus, where I can go and sit and study in an area that has a good Wi-Fi or has a good download speed." So this helps students to plan effectively where they would go and study, where they can go and study at various times.

Now, the most important application to most students here was the shuttle project. We offer an off-campus shuttle to students because our campus doesn't only have students from Barbados. We have students from all over the Caribbean, and even from all over the world. And of course, students wouldn't know the country. So the university offers a campus shuttle service to help students get on and off campus.

Now, the problem with this campus shuttle service is that a student sometimes will stand at a bus stop or in the rain for hours and not sure when the shuttle is coming, or even if the shuttle is coming. So what this system does, it takes a reused cell phone and it places it on four of the shuttles that we have. So now you can actually sit at home and see where the shuttle

is, where it's going, if it is coming close in your area. And of course, GPS systems in my country can be very expensive. But this project, the only cost that is associated with it, being that it is a reused cell phone, is the cost of data which will be to just transmit the location of the shuttle or the phone.

So as we move on, how can ICANN have a role in smart city and smart systems in the Caribbean? Internet provides a base for us to basically perform research because it is important for us to see before we implement anything what has been done before. So that is very important. It's also important for us as we showcase many products, many services that we showcase are our tourism [sector] and so on.

Domain names and proper management of the Internet through the Internet governance ecosystem is integral to Caribbean businesses. Caribbean businesses who use smart city services need a web presence to facilitate further information gathering in terms of collection and so on. And also, a program such as NextGen, such as this, are very important for us in the Caribbean as it really brings a focus to Internet governance, its importance, and it can really motivate other students such as universities and so on to become involved.

Now, my future work in terms of this project. For example if we have places which do not have Internet connectivity and so on,

we're actually looking at using a project where we would fly a drone which contains recycled cell phones, and this drone will place the cell phone in an area which does not have Internet connectivity, and that drone will give Internet connectivity to that area. So that's one of the projects we are looking at.

We're also looking at creating an open source movement of such technologies, so persons who are interested in recycling other things other than cell phones, because recycling can be very important, it can reduce cost, and also in areas where – not only just in the Caribbean but other areas where it's expensive to have various systems, they can use recycled things to help still build systems that can work.

So as I close – just my references of two papers that we published on this. Before I close, I just want to remind those persons who are developers, those persons who are designing or developing systems, we'd just like to say before you actually go and purchase, before you actually go and start to design your system, look around and see what is around you that you do not use that you can use to build a system inside of your project. I thank you.

DEBORAH ESCALERA: Thank you, Shamar. Very insightful. I particularly like the idea of the one outside the classroom, because we could use that

application here. Are there any questions from the audience? NextGen? Go ahead.

JUAN A. FIGUEROA ROSADO: Juan, NextGen. Thanks for that great presentation. I wanted to ask you how you felt about expanding this initiative with different Caribbean islands like ourselves. We have a lot of campuses with a lot of computer science departments that would be really interested in working in this initiative. And actually, we can provide with old devices that we ourselves can find in the campuses and expand on this and just keep growing and keep helping you with this great initiative. It actually will help the budget and increase attention span in classes and more productivity. So it's a great initiative and I hope you keep working on it.

SHAMAR WARD: Thank you so much, Juan. Of course we will have a discussion afterwards on that. Definitely. Thank you.

UNIDENTIFIED MALE: I just had a comment, really. As somebody whose lab manager just purchased a Raspberry Pi and built something as simple as a people counter as you walk into our lab, it's really interesting to just be like, "Well, why purchase that when you can simply

recycle and use things from your own community?" And that's something, an insight I'm definitely going to take back with me. So thank you for telling us this.

SHAMAR WARD: Actually, we are working on doing a comparison between the cell phone and the Raspberry Pi as actually being a competitor in that regard. So thank you, and yes, definitely something that we are working on. And hopefully we'll hear about it as we move on.

SAVANNAH BADALICH: Yes, thank you for that. A question and then two comments. Question being, how long does the Wi-Fi last? Like the connection last for when you place those cell phones in specific centers. So that's the first question. The second is, I run a startup accelerator in New York, and we focus primarily on civic tech or tech for public good. And many of the companies that are in my accelerator focus on accessibility transportation, and especially in sections of New York City that are transit starved.

And one of the big issues are with dollar vans or Access-A-Rides, so usually vans for low-income New Yorkers or vans for disabled New Yorkers. One of the big issues is they are stranded, for often hours, waiting outside. And I think that this would be a great

application. So I'm going to connect with you on that. The two organizations, the two companies are OnBoard and DollarVan.

The second being an invitation to Smart Cities New York. There's a conference from May 8th through the 10th which Civic Hall, the company I work at, is also sponsoring, and this would be a great initiative. I think that New York would love to see this as well as talking about that open source networking. So we should definitely talk about having you speak there if that's possible. Thank you.

SHAMAR WARD: Thank you so much for that information. And also, I have had the experience of your dollar vans. Actually, to talk about your scenario, your scenario actually could be worse than ours because you suffer from sometimes slow [starts] and so on, and being in the cold outside standing up. That could be very – yes. We don't suffer from that in the Caribbean, but it can be difficult. So yes, thank you for the invitation. Definitely, we can connect and discuss some more. Thank you.

DEBORAH ESCALERA: Okay. Thank you, Shamar. Okay, and our final presenter is James Wilson.

JAMES WILSON: Alright. Hello, everyone. My name is James Wilson. I'm an undergraduate statistics major with a minor in digital humanities at UCLA, and I'm part of the NextGen program here. And I'm just here to kind of discuss the statistics and Internet governance as these two things really mesh really well and are important that we consider them together more often than not.

So a little background about myself. This past summer, I was an intern for ICANN in the department of the Office of the Chief Technical Officer, for David Conrad working alongside John Crain and Steve Conte and a lot of great guys there. So I'm going to be overviewing kind of the importance of good statistics in this field as well as illustrating some of these examples from my previous research. So – yes.

DEBORAH ESCALERA: I'm going to pause you for a minute because the Adobe Connect – we lost [connection].

JAMES WILSON: Oh, sure.

DEBORAH ESCALERA: And if you could scoot over a little bit, you're just slightly off camera.

JAMES WILSON: Oh, sure. Keeping with time, I'll just – oh, okay.

DEBORAH ESCALERA: Okay, go for it. Sorry.

JAMES WILSON: Awesome. Welcome back. So keeping with time, I will read this quote real quick. So as Katherine Wallman who is the Chief Statistician of the United States for the past two decades has proudly stated, statistics produced by the government inform public and private decision makers in shaping policies, managing and monitoring programs, identifying problems and opportunities for improvement, tracking progress and measuring change.

Keeping a good record on the changes that we see in our governance as well as the information that's kept, the data that we find and build, all of these influence our public policymaking, and public policymaking then encourages the creation of future statistics. So they go hand in hand, and it's important that we have good statistics in this field to maintain a well-educated background in our decision-making.

So just a quick overview of some good statistics and examples of what that means. Basically, you're trying to avoid things like biased samples, which is where the data you're pulling is improperly built, you're not necessarily equating for differences in factors such as gender and age and stuff like that, as well as overgeneralizations where you take a small sample and you try to equate it to the population, causality where you're trying to determine whether one thing influences another and improperly do that, incorrect analyses where you're using a multivariate model for something similar to like you're just trying to predict one value, as well as something like violating the assumptions for an analysis.

This is an instance such as that when you're building a linear model and you don't have a constant variance or you're having bad leverage points, and other statistical nuisances such as these. So knowing this going into your projects is important for making sure that you are conducting good research and coming up with things that are valid.

So why do I talk about all this? Well, first, let me just give a brief overview, a preface for my research so that we can go forward. My research, one of my main projects involved the DNS system, specifically with root servers. As you know, the domain name system is just a hierarchical, decentralized naming system for computers and the services [we're running on them].

So basically, when your computer is connecting to a DNS server, we can record the latency it takes to reach the root, the TLDs and so forth. So the root, basically all you need to know is the top level. It's the first instance that when your computer goes out to look for that website or address that you're looking for, it's the first thing it touches.

So my first project and the main project I worked on was a RIPE DNS report alongside Daniel Karrenberg in Amsterdam. RIPE Labs is basically just a division of the RIPE NCC which is a regional Internet registry that gives out IP addresses for Europe, as well as a community of technologists who focus on that governance in that region.

So as a subdivision, we do a lot of research on root servers, which as you can see from the illustration are Anycasted to pretty much anywhere in the world. So it's a very big project. And the root servers are – for different nodes across the world, there are different probes that are attached to computers throughout, and these computers that are distributed across the world collect information on Internet speeds and connections and stuff like that.

So basically, the inspiration from this project was that we were seeing a lot of instances in business communities and other communities in the ICANN sphere that were making

generalizations, claiming certain things about root servers such as, “Oh, the root server A is significantly better than B for X and Y reasons.” And they weren’t really giving proper claims, and so we wanted to investigate and kind of encourage good research in this region.

So we did our own research. We collected 100 million individual probe measurements drawn from a large distribution of 10,000 unique probes situated across the world, and we wanted to focus on response times. And just a quick preface before I continue: when we talk about response times, we’re not saying – I’m going to give a measurement such as, “Oh, this root came back to me in 22 milliseconds.” And that might seem like it’s the fastest, there’s no such thing as a fastest root server in the DNS sphere, because at any given time, different root servers are just going to end up being faster for a numerous amount of reasons just because of the infrastructure of the Internet. And so you’ll see that illustrated in this research.

But continuing on, the first example is when it comes to cleaning and sampling your data. It’s really important that when we are cleaning and sampling data, we are doing it in a manner that is unbiased and that we understand what we’re dealing with.

So one example is when we get nonresponse rates from root servers. When you are going out and you’re saying, “Oh, I want

to go to this website" and you get a nonresponse back. That's an issue and we want to be able to research that, but at the same time, sometimes that issue isn't necessarily with the root itself but with an individual's computer.

So we took instances where if a probe could not find all 13 – any of the 13 Anycasts of root, we would remove those from the data set. And actually, we saw a 40% uptick in improvements in calculations to the root. So that's an instance where cleaning your data is important, as well as sampling.

As you can see from these illustrations, depending on how huge of a sample you take, if you only calculated the day versus if you calculate an entire month's worth of data like we had, we see different responses over time and general amount of – and response time from these roots. So for instance, we're seeing a much more accurate representation with a month even though it's probably not perfect.

Additionally, if you look at the graph on your right, we see that or different samples from different countries, we see that some roots – there are multiple roots that are just as fast if not faster than others, but at the same time, this is just for unique probes. So this is finding for each unique probe in that country which root was the fastest. And we see just random results, and it

generalizes that there's no necessary basis for certain claims in this field.

Continuing on, a really important note I'd like to make about root servers is the difference between geolocation and topography. If we have two computers in the same room, it's very easy for two computers to find different roots completely. One can find A and one can find B at the same time simply because they're on different networks within the region. Whereas for geolocation, it's important that we equate for regions before we make assumptions.

So for instance if I were to do research in Puerto Rico where there aren't as many probes versus the U.S. where there's an abundance of probes, different statistical measures need to be taken to make sure that our generalizations are correct and statistically significant, because a good population can equate for all the U.S., but only having 10-20 probes in Puerto Rico may not be representative of the whole. So that's an important measure to take into account.

And by the way, the biggest takeaway from our project was the fact that top-n statistics are not valid and should be avoided. So for instance if a company comes to you and says, "Hey, we're running all of our servers off of F for some reason and we want you to do that too because look, hey, it's the fastest," and you

say, “Oh, okay, sure.” But then you look at the background, you look behind the curtain and you see that most roots are just as fast, if not sometimes faster.

And more so, it’s important that we take our research to look at random nuisances in the field. So for instance, this is from Germany. What we can see here is that the B and H roots are much slower, and that’s because they’re geographically in different locations such as Asia. Even though they’re Anycasted, they’re going to be naturally slower to a degree, whereas D and E definitely deserve future research because we’re seeing these weird tail ends and latency responses that posit future research in asking, “Why aren’t they being consistently with the other roots in their response rates?”

So that’s basically the root server project we did. Just a quick overview of a second project I did that has different kind of takeaways. This is the Domain Abuse Activity Report system that ICANN is continuing to work on. Basically, it’s a facilitation of abuse data such as phishing and malware, and kind of trying to monitor the rates of these in the community.

And so my test was to kind of open source it. And it’s really difficult to do so, because – and as we’re seeing with GDPR and discussions with that – a lot of these things are locked behind

huge paywalls that not many people in the community can even access, only really large companies can get to these abuse trails.

And so increasing transparency in data formats as well as offering free trials are some positive ways to allow for future research on these, and it's going to be very interesting to see where things change along with GDPR, and access to these as well as if they're even going to be around in the future, depending on where WHOIS goes.

So overall, just want to leave you with a couple of takeaways. Make your research reproducible. Today, I've seen a lot of really great research where people are continuing [Ishan's] where you're open sourcing everything you can, you're offering your data, you're visualizing your metrics correctly, and you're really just trying to be open and transparent about what your objectives are or what your takeaways are supposed to be, as well as being clear in your metrics.

So just for my sake, I'm hoping to look to continue research in this field and joining the Internet Incubator at UCLA to further research into this. And yes, so that's a little bit about some good statistics and the Internet Governance community. So if you have any questions or you want to talk more about root server statistics and whatnot, feel free to shoot me a message or add me on LinkedIn. Thank you.

DEBORAH ESCALERA: Thank you, James. Any questions from the audience?

KAREN LENTZ: Thank you for the presentation. My name is Karen Lentz, I work for ICANN and my team supports a number of research projects for the community. My question is to you, I wonder if you've given any consideration to making the information accessible and applicable to some of the work that's going on. That's one of the things that we're sort of looking to build into our processes and making people aware of the research that's out there. But part of it is making it available, and then the second part is helping people to understand it. So I wondered if you just had any thoughts on that from the work that you've done so far.

JAMES WILSON: So you're kind of asking how to help open source the research being conducted by ICANN and really make it available to the community? Is that kind of your question? Yes, so we kind of led by example. We published this paper on rootservers.org, and we kind of really want to encourage community members to publish their research.

And I think that would be a really neat program to look into, is to kind of – bringing all of the research that ICANN does do into

kind of an open source page, like something alongside an ICANN research page, and definitely focusing on promoting those kind of values in the community, and trying to really make it transparent and easy to understand as well with abstracts and whatnot.

DEBORAH ESCALERA: Go ahead, Gabriel.

GABRIEL JIMÉNEZ BARRÓN: What tool do you use for data analytic? What tools do you recommend for data analytics on this type of research?

JAMES WILSON: Great question. I'm a big data nerd. And with the statistics department, we focus on a multitude of languages. My favorite's R, so all the visualizations you saw up there were with a package called ggplot2 which is great. I love it to death. And you can do a lot of really clean – and it's not – the coding background necessary is not intensive, so it's definitely easy to pick up online. Python is another great language for that if you're more comfortable with object-oriented programming. And you can do some stuff with SQL and SPSS and [Stat] if you can get licenses for those things.

DEBORAH ESCALERA: We have time for one more. Go ahead.

UNIDENTIFIED MALE: Thanks. I'd just like to ask you if you have interesting outliers in some of the – for example in the picture shown in Slide 8.

JAMES WILSON: Slide 8. Let me just go back real quick. Was this – oh, yes. So yes, this was one example. I did similar graphics for several countries. And you definitely see that geography plays a big role in response rates for root servers. Just naturally being farther away, even with the Anycast system, they're going to be slightly naturally slower. So that's something that most root operators are aware of.

Whereas like, again, with D and E here, we are seeing these weird outliers that are even more significant than B and H. And those definitely are some things that we've encouraged people to look into further. And outliers in those kind of things are definitely where it's a question of either it's a bad response rate, bad probe, or just a multitude of random issues. Yes.

DEBORAH ESCALERA: Okay. Thank you, James. Okay, and that ends our presentations. I want to thank everybody for your fantastic presentations. Thank you to the audience members, and thank you to our online remote participants. And everyone have a good afternoon.

Everyone, if you could please throw your trash away. We need to move out of this room right away because there's another session coming in. Thank you.

Okay, guys, please pack it up. There's another session coming in in just a few minutes. Thank you.

UNIDENTIFIED MALE: Testing. Can you hear me, [Michelle]?

[END OF TRANSCRIPTION]