

Report: The Middle East DNS Forum 2019

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We would like to express our gratitude to members of the Middle East DNS Forum Program Committee for their efforts on the agenda and other valuable contributions.

1 Executive Summary

The [6th Middle East Domain Name System \(DNS\) Forum](#) took place in Dubai, United Arab Emirates (UAE) on 20-21 February 2019. Co-organized by the Internet Corporation for Assigned Names and Numbers ([ICANN](#)), Asia Pacific Top Level Domain Association ([APTLD](#)), and Regional Internet Registry for Europe, the Middle East and parts of Central Asia ([RIPE NCC](#)), the event was hosted by the Telecommunications Regulatory Authority ([TRA](#)) of the United Arab Emirates (UAE). Attracting 146 in-person and 30 remote participants, the Forum was inaugurated by the Director General of TRA Hamad Obaid Al Mansoori, and was followed by keynote speeches by Cherine Chalaby, ICANN Board Chair; Ai-Chin Lu, APTLD Board Chair; and Chris Buckridge, Manager of External Relations at RIPE NCC.

During the two-day Forum, eight panel discussions were held:

1. General Data Protection Regulation (GDPR): Tales Not to Be Told by the Fireplace
2. New Generic Top-Level Domains (gTLDs): Future Rounds
3. Internationalized Domain Names (IDNs) and their Universal Acceptance (UA)
4. Domain Name Market in the UAE
5. What Registrants Need to Know About their Rights and Responsibilities
6. DNS Operations, Security, and Privacy
7. Emerging Trends in the DNS: Provenance, Internet of Things (IoT), and Blockchain
8. Security in IPv6-Enabled Top-Level Domains (TLDs)

Additionally, the event featured five presentations:

1. Etisalat: Telco as Your DNS Security Partner
2. Welcoming Remarks to the MEDNSF 2019
3. GSM Association (GSMA): Era of 5G
4. Domain Abuse Activity Reporting (DAAR)
5. Unleash Your Registry: How to Reach the Largest Audience

The **GDPR session**, held jointly with the 75th Meeting of APTLD ([APTLD75](#)), kickstarted the Forum. Panelists representing country code top-level domains (ccTLDs), generic Top-Level Domains (gTLDs), and registrars based in Europe and Asia Pacific addressed the administrative, legal, and operational effects GDPR has on gTLDs and ccTLDs.

Next, a talk titled “**Telco as your DNS Security Partner**” by Etisalat, the Forum’s digital partner, examined the role of an Internet Service Providers (ISP) in safeguarding digital security. The presentation discussed DNS security for business and government networks and looked ahead to protecting next generation smart networks such as smart cities, connected cars, smart meters, Internet of Things (IoT) and cloud services.

ICANN’s Nick Tomasso welcomed the Forum participants, and shared highlights from the past five years from **the Middle East and Africa Regional Office in Istanbul**. More detail about the activities shared can be found in the [“Middle East and Africa: 5 Years in Focus”](#) report.

The next panel, titled “**New gTLDs Future Rounds**”, reviewed lessons learned from the 2012 New gTLD Program, and provided updates on the ICANN community’s current assessment of a potential future round.

The GSMA hosted a talk with an overview on the current state of the mobile communications industry. Topics covered during the “**Era of 5G**” talk included 5G deployment, IoT outlook, and the implications for different stakeholder groups.

The final panel of the day, “**Internationalized Domain Names and their Universal Acceptance**”, featured a presentation on the [UNESCO Internationalized Domain Name \(IDN\) World Report 2018](#). The discussion focused on the status and challenges of enabling and using IDNs, especially in Arabic script. The panelists talked about community work towards developing standards to make IDNs secure, promoting international access, and encouraging Universal Acceptance. Panelists also discussed how the wider community can contribute to the ongoing work in this area.

The Forum’s second day started with a panel discussion, “**Domain Name Market in the UAE**”, with the Emirati ccTLD and registrars sharing their perspectives on the regional marketplace.

The session “**What Registrants Need to Know About Their Rights and Responsibilities**” featured a briefing on ICANN’s Registrant Program and an update from ICANN’s Contractual Compliance Team.

A panel entitled “**DNS Operations, Security, and Privacy**” covered technical developments related to the Key Signing Key (KSK) Rollover, DNS over TLS (DoT), and DNS over HTTPS (DoH). In addition, an update on DNS Security Extensions (DNSSEC) deployment in the Middle East and worldwide was shared.

ICANN org representatives presented details on the **Domain Abuse Activity Reporting (DAAR)**. The project’s purpose is to report security threat activities across the top-level domain (TLD) registries and registrars to the ICANN community, which can then use the data to facilitate informed policy decisions.

A presentation on marketing, called “**Unleash Your Registry: How to Reach the Largest Audience**”, took a closer look at a combination of art and science involved in the promotion of technology.

During the next panel, “**Emerging Trends in DNS: Provenance, IoT, and Blockchain**”, some examples of innovation in the TLD landscape were shared, and domains like .eth, .art, and .bit, and geofencing TLD networks were discussed.

The last panel of the Forum provided insight into building a registry properly to support both IPv4 and IPv6. “**Security in IPv6-Enabled TLDs**” also covered technical topics such as Route Origin Authorizations (ROAs) and Internet Routing Registry (IRR).

Overall, 146 people attended the Forum, with 38 (24.84%) from the UAE, 52 (33.99%) from the Middle East region, and 56 (36.60%) from outside the Middle East. Many representatives of ccTLDs from across Asia were also among the participants.

More information and content related to the Forum can be found at <http://mednsf.org/>.

Appendix A shares more details on the discussions that took place during each session of the MEDNSF 2019.

The 75th Meeting of APTLD, APTLD75, was held parallel to the MEDNSF. ICANN also contributed to this event. ICANN Board Member Kaveh Ranjbar and org member Patrick Jones sat on a panel that covered the evolution of the domain name root zone. They talked about the hyperlocal root, DNS fragmentation, and challenges posed by alternate name spaces.

Other discussions from APTLD75 included Internationalized Domain Names (IDNs) and Universal Acceptance, Email Address Internationalization (EAI), and ccTLD experiences in Asia Pacific.

2 Appendix A: Detailed Discussions

The following provides summaries from each moderator or speaker on the discussions and presentations that took place during the Forum.

Session slides can be found at <https://www.mednsf.org/program/>, and recordings can be found at https://www.mednsf.org/remote_participation/.

2.1 GDPR: Tales Not to Be Told by the Fireplace (Panel)

Moderator: Alister Paterson | Head of Government Affairs and Strategic Adviser, auDA

Panel:

- Andi Budimansyah | Chairman, PANDI (.id ccTLD)
- Elena Plexida | Senior Director, Government Engagement, ICANN
- Emily Taylor | Director, Netistrar
- Raedene McGary | Director of Legal and Policy, CentralNIC Group
- Stephen Deerhake | CEO, GDNS Technologies (.as ccTLD)

Andi Budimansyah opened the panel with the following two points:

- “First, in a legal aspect, the Indonesian Law Concerning Electronic Information and Transaction stated that .id registration was not limited to Indonesian residents only. The Law stated that Domain Name is available to everyone as an individual or a legal entity based in Indonesia or abroad.”
- “Second, in April 2018, we found that we already have more than 2000 EU residents as .id Registrant. These Registrants are the main subject protected by GDPR”.

Then, Elena Plexida explained that as of 25 May in 2018, ICANN put in place the Temporary Specification to comply with GDPR, creating a two-tier system that expires one year after adoption. ICANN’s Expedited Policy Development Process (EPDP) is now working on a permanent policy to address how third parties with legitimate interests can have access to non-public data. This discussion is to take place as part of Phase Two of the EPDP. ICANN’s declared aim has been to ensure the greatest visibility for WHOIS while complying with data protection laws.

Emily Taylor remarked that discussing the European data protection law in Dubai was strange, but the GDPR is a legislation with long arms, extending beyond the borders of the European Union. This has come as a surprise to many, causing complexities. Gulf countries looking to trade with the European Union are planning to harmonize privacy laws by mirroring GDPR provisions. They see this strategy as ensuring there are no undue regulatory hurdles.

Raedene McGary remarked upon the effort put into training the staff and working out data flows, and then working within the ICANN landscape: “We had developed a number of plans and then at the last minute we had the TempSpec [Temporary Specification], which threw out our models A, B and C, and now we’re doing this”.

Stephen Deerhake explained that the registry had never given out much information: “They don’t get the registrant name or contact details and that’s true for the administrative and technical contact...It is a ‘thick registry’ so it is of concern from a disclosure standpoint and the breach and theft standpoint. GDPR applies to all registrants, not just to those in the EU, and to both individuals and corporations without distinction. For the last five years, the registry has been operated within the EU, including maintenance of all the registry data along with the back-ups. Currently this is run out of the United Kingdom, but we are now moving to Paris because of you know what!”.

Question and comments raised by the participants included the following topics:

- New WHOIS model and its features
- Options for denial of registrants from Europe
- GDPR’s areas of influence including non-European countries
- Data collection: Content disclosures and consent of third parties
- WHOIS protocols and permissions
- EPDP satisfaction with the final report
- GDPR and ccTLD compliance
- Value of the WHOIS privacy market
- GDPR and Nominet in light of the Brexit
- Data protection and its maintenance
- GDPR and government public information
- Common worldwide privacy platform
- Data from small businesses vs. Data of large entities
- European Data Protection Board: Draft guidelines
- ePrivacy regulations
- WHOIS after-market
- Interpretations of the GDPR
- Government regulation of the Internet
- Privacy market obsolescence
- National legal observations
- Privacy services: Commercial applications

2.2 Telco as Your DNS Security Partner (Talk)

Presenter: Imran Bulan Khan | Digital Security Architect, Etisalat, UAE

Khan's talk can be summarized as follows:

DNS is the one of the mature protocols which is still and will be in high demand. While it is being heavily used by good actors to make their systems accessibility easy and fast, DNS is also a favorite of adversaries when it comes to security attacks. With the widely and easily available security attack toolkit, DNS can be used as a tool to attack other services or can be a victim itself. It's time to explore the other side of the DNS, and use it as a security weapon to defend against adversaries. Below are some tips to begin with:

- Establish a DNS Security framework.
- Identify your DNS environment and plan for adequate protection.
- Plan controls across all domains, invest not only in protection technologies but also in detect and response areas.
- Perform enhance security monitoring on DNS traffic with DNS focused use cases.
- Perform threat hunting using DNS based Indicators of Compromise (IOC) like DNS traffic Pattern, DNS packet size, etc. to uncover Zero Days threats.
- DNS setup for connected devices is secure and resilient is fundamental to IoT security.
- Focus on DNS while performing mass IoT and IIoT deployments. Use DNS as a tool for segmentation and attack containment.
- Perform due diligence to ensure your IoT devices are not the new recruits in the bots army (DNS logs are the best source to uncover the same).
- Complete your DNSSEC deployment with top priority.
- Leverage upon established DNS security infrastructure of your ISP with easy to onboard services with flexible subscription models.

You can view Khan's slides [here](#).

2.3 New gTLDs: Future Rounds (Panel)

Moderator: Rafik Dammak | Generic Names Supporting Organization (GNSO) Council Vice-Chair, ICANN

Panel:

- Amr Elsadr | Non-Commercial Stakeholder Group, GNSO
- Caitlin Tubergen | Policy Senior Manager, GNSO, ICANN
- Julie Hedlund | Policy Director, SSAC Support and GNSO, ICANN
- Mert Saka | Registry Engagement and Outreach Manager, ICANN

The panel's goals were to share:

- An update on the new gTLD program with the latest stats,
- An update on the policy discussions happening at new gTLD subsequent procedures working group (SubPro WG)

- An applicant experience from a developing region perspective, from application stage, to implementation and the operation of the a gTLD, and highlighting the challenges.

Mert Saka presented several statistical data on new gTLD program, which indicated that some gTLD were terminated and most of them were “.brand”. The data also highlighted that few new gTLD applications came from the Middle East. You can view Saka’s slides [here](#).

Julie Hedlund shared general information about the working group and its mandate. She also shared the current working timeline with regards to the input received through public comments and the expected dates for delivering the final report. She also presented three selected issues from those discussed at SubPro: applicant support, community-based applications and geographic names. Her presentation indicated that at this stage, unless there was consensus in working group regarding change in the recommendations, the status quo will remain. You can view Hedlund’s slides [here](#).

Calvin Browne shared his experience at dot Africa registry (and cityTLDs such as .durban) with regards to the marketing of the regional domain names. He also highlighted the findings from the work on Competition, Consumer Trust, & Consumer Choice Review, which are supposed to feed the discussion at SubPro WG. It was indicated that the SubPro is already considering such input while waiting for Board approval of its final recommendations.

There were a few questions from the audience about the dates for the new gTLD next rounds, which are still unknown and will depend on the recommendations of the working group. There was also a question about challenges faced in relation to Universal Acceptance, and how that can hinder user adoption of gTLDs.

The session ended with the recommendation to have a follow-up in future to raise more awareness about forthcoming rounds for new gTLD and how the Middle East region can be ready for that.

2.4 Era of 5G (Talk)

Presenter: Jawad Abbassi | Head of Middle East and North Africa (MENA), GSMA

Abbassi explored the key developments that are shaping our mobile future in his talk, summarized as follows¹:

Today there are more than 5 billion individual subscribers globally. Mobile now connects more than two-thirds of the world’s population – by 2025 it will be close to 6 billion. The Mobile industry has an opportunity, an obligation, to leverage our mobile networks and services to help achieve the UN Sustainable Development Goals, the SDGs. The mobile industry is helping people in times of disaster, reducing inequalities, helping to preserve our

¹ The data provided by Abbassi is based on GSMA reports that can be found here: <https://www.gsma.com/r/mobileeconomy/>

world's resources, and we are positively impacting people's lives every day. In short, mobile is creating a better future – today.

The mobile industry continues to make strong progress with 5G and most of the 5G pioneers are planning commercial launches for this year and next. GSMA Intelligence estimates that by 2025, there will be 1.2 billion 5G connections worldwide, with 5G networks covering about 40% of the global population.

Initially, 5G seems to be providing a super-fast, enhanced broadband experience, as well as enabling massive connectivity, building on the early promise of Mobile IoT.

For consumers, 5G will deliver exciting, immersive experiences, transforming the way that we communicate and consume content. For example, we will be able to use a hologram to “visit” our children when we're traveling.

Network slicing is the key 5G solution to deliver smart capabilities to enterprise customers. Operators will be able to create multiple virtual networks, addressing different market segments and use cases, all on a single 5G network infrastructure. Handling the varied requirements of companies in the utilities, automotive, and manufacturing sectors with one highly flexible network will be possible.

Operators are set to invest half a trillion dollars worldwide in mobile Capex between now and 2020, but this investment can only be possible if there is a regulatory framework that is fit for the digital age. In order to make these substantial investments, an environment that provides higher levels of certainty and consistency is necessary.

In particular, the following are needed:

1. The timely release of harmonized spectrum with the right conditions. An internationally harmonized spectrum for 5G needs to be made available in a way that is both affordable and predictable, and spectrum roadmaps to provide stability and transparency are needed.
2. A more balanced tax regime. Rebalancing sector-specific taxes and regulatory fees will promote connectivity, economic growth, investment and fiscal stability.
3. Policies that enable deployment of next-generation networks. Reforms in planning rules, facilitation of the deployment of base stations and other network infrastructures, and permits for voluntary network sharing are required.
4. The ability to harmonize international privacy and data protection rules. A balance that will protect consumers and ensure data privacy, while enabling the international flow of data, which will encourage the rapid growth of the digital economy is needed.

All of these are crucial to the development of a rich and vibrant digital economy and to the very future of the mobile industry.

You can view Abbassi's slides [here](#).

2.5 Internationalized Domain Names and their Universal Acceptance (Panel)

Moderator: Sarmad Hussain | Director of IDN Programs, ICANN

UNESCO Report Presenters:

- Emily Taylor | Director, Netistrar Ltd.
- Giovanni Seppia | External Relations Manager, EURid

Panel:

- Abdelmonim Galilla | Deputy Manager, dotMasr Registry, Egypt
- Nitin Walia | Director, Data Xgen Technologies

The panel on Internationalized Domain Names (IDNs) and their Universal Acceptance (UA) started with a presentation on the World Report on IDNs 2019 by Emily Taylor.

Taylor shared the facts about IDNs, with 7.5 million IDNs deployed by the end of 2017, a total of about 2% of total domain names. Han, Latin and Cyrillic scripts make up 88% of the IDNs, with Han script alone being 51% of the total. The Middle East and adjoining countries register 1% of the domain names, and less than 1% of the ccTLD registrations are IDNs. However, the region has 164 million daily Facebook users. Taylor also shared that the IDNs lead to more linguistically diverse content online, but their universal acceptance remains a challenge.

Giovanni Seppia followed with providing details of IDNs under EURid, which were launched in 2009 covering official EU languages. EU string in Cyrillic was launched in 2016 which required Cyrillic second level domain names and implementing homoglyph bundling across Latin and Greek. Seppia reported that the IDN registrations have seen a decline in past five years, with 37,448 IDN registrations under EU in Latin and 1948 under EU in Cyrillic at the end of 2018.

You can view the presentations of Taylor and Seppia [here](#).

Next Abdalmonem Galila introduced the UA of Domain Names with the goal to ensure that all domain names and email addresses can be used online and in internet-enabled applications. He explained that this has become a challenge after new, longer and IDN domain names have been introduced in the root zone since 2009, because applications may not accept the domain names with such top-level domains. Having applications UA ready will benefit new users who will use local languages, promote culture and provide additional economic opportunity. UA-readiness requires applications to accept, validate, store, process, and display domain names and internationalized email addresses properly. The work on UA is being managed by the UA steering group, a community-based initiative supported by ICANN. More information is available at the <http://UASG.tech/> website. You can also view Galila's slides [here](#).

Nitin Walia introduced the internationalized email (EAI), which has username or local part in UTF-8 format and domain part (after the @ sign) as an IDN. Such email addresses are already supported by Gmail, Outlook and Xgenplus. Walia shared that to enable EAI, webmail, IMAP, POP, SMTP, Contacts, Calendar, Antispam and many other applications must support the relevant protocols. He shared that the support can be checked by typing an email address at <https://uasg.tech/eai-check>. You can view Walia's slides [here](#).

Finally, Sarmad Hussain presented on ICANN's progress on IDN top-level domains (TLDs). He explained that work is underway to determine rules to formulate valid TLD labels and identify their variant labels, being defined by community-based panels. This work is underway for 28 scripts covering the widely spoken languages across the world. In addition, work has been done to identify, block, and possibly allocate IDN variant TLDs. ICANN org also supports the Fast Track process to evaluate and delegate IDN ccTLDs. A total of 59 IDN ccTLDs have already been successfully evaluated from 41 countries and territories. More information is available at www.icann.org/idn. You can also view Hussain's slides [here](#).

2.6 Domain Name Market in the UAE (Panel)

Moderator: Baher Esmat | VP, Global Stakeholder Engagement, Middle East, ICANN

Panel:

- Abdulrahman Almarzouqi | Senior Manager, Internet Advancement, TRA UAE
- Munir Badr | Founder and CEO, AEServer

Almarzouqi started off by giving a quick overview about domain market in the UAE, and highlighted the following:

- 23 .ae registrars are currently in operation;
- 41 domains per capita, noting that this is a low figure compared to:
 - 31 domains per capita in Singapore,
 - 8.2 domains per capita in Australia,
 - 5.3 domains per capita in Netherlands,
 - 5.1 domains per capita in Germany;
- 75,000 .ae domains in 2007 (50% not used), while today the number of .ae domains is around 217,000 (212,920 registered at the 2nd level), 1684 under .the IDN (امارات), and there is still a room for growth;
- Market share (top 3):
 - Etisalat comes first with 73.7%,
 - Instra (Australian) 5.67%,
 - AEServer 5.4%;
- Pricing: 100 DHS per year (27 USD)
- Reserved list: geo and religious names, bad words, government functions;
- Services: WHOIS, registrar transfer, trademark disputes, cybersecurity incidents;
- Issues: contact information accuracy, cybersquatting, spamming, missed renewal, lack of domain strategy;
- Benefits to use a .ae domain: more trusted domain, fully automated process, no limits in number of domains per user;

One of the participants raised the question about whether the system in place ensures data accuracy and whether WHOIS policy would change as a result of the GDPR. Almarzooqi replied stating that the .ae team does the daily checks to ensure data accuracy, and sometimes they do random checks. Regarding the GDPR, he answered that they are working with their legal team to better understand the effect of GDPR on .ae registrars and registrants, and to figure out how to move forward.

Next, Munir Badr talked about the AEServer journey: How it all started in 2007 as a small business acting as a domain reseller for UAENIC (part of Etisalat that used to be the .ae registry), to today where the company ranks 2nd in terms of .ae domain market share and does business in other countries in the region as well.

He noted that before 2008, .ae was a monopoly, and that the registration process was manual with no clear policies. Today, there is competition with registry and registrar model in place and the process is fully automated with clear policies.

You can view Badr's slides [here](#).

Three questions were asked to the panelists:

- One question was on Etisalat being by far the largest registrar and whether this was good for the market. Panelists responded that this situation makes sense as Etisalat used to be the registry in the past with a big customer base, numerous business channels, and knowhow. At the same time, new (small) businesses bring value as well as they come to the market with fresh, innovative ideas.
- Another question was regarding Expo 2020 that is coming up very soon and whether number of domain registrations is expected to increase. The answer to this was yes.
- The last question was about IDNs and the slow uptake of (.امارات). Panelists responded that while TRA believes in the value of the Arabic ccTLD, there is clearly a lack of interest given that most of the people in the country use the Internet in English.

2.7 What Registrants Need to Know about their Rights and Responsibilities (Presentations)

Moderator: Fahd Batayneh | Manager, Global Stakeholder Engagement, Middle East.
ICANN

Presenters:

- Seher Sagiroglu Ayhan | Contractual Compliance Specialist, ICANN
- Mukesh Chulani | Senior Manager, Registrar Services and Engagement, ICANN

This session involved two separate, but related talks. The first one by Mukesh Chulani, who talked about ICANN's Registrant Program. His speech is summarized as follows:

The Program has two primary objectives: 1) educating registrants about their rights and responsibilities, the domain name ecosystem and how to navigate it, and the ICANN policies

that impact them and, 2) identifying and raising awareness about issues and challenges that registrants are facing. To this end, the ICANN org is publishing semi-annual reports aimed at providing quantitative data to inform community discussions and collaborations. This inaugural report provides data from the ICANN Global Support Center (GSC), ICANN Contractual Compliance and some observations from the ICANN Complaints Office. You can view Chulani's slides [here](#).

During the second talk, Seher Sagiroglu Ayhan shared some data on complaints received by ICANN Contractual Compliance such as transfer, domain deletion (domain suspended for non-response to WHOIS inquiry), and domain renewal. She described the content of complaints falling in ICANN's contractual scope and explained how to address issues related to domain name management. You can view Ayhan's slides [here](#).

2.8 DNS Operations, Security, and Privacy (Panel)

Moderator: Massimiliano Stucchi | Program Manager, IPv6, RIPE NCC

Panel:

- Jan Žorž | Operational Engagement Program Manager, ISOC
- Mohamed Alomran | DNS Engineer, TRA UAE
- Patrick Jones | Senior Director, Global Stakeholder Engagement, ICANN
- Pavel Khramtsov | DNS Projects Manager, MSK-IX

2.9 Domain Abuse Activity Reporting (Talk)

Presenter: Samaneh Tajalizadehkhoob | Lead Security, Stability and Resiliency Specialist, ICANN

Tajalizadehkhoob's talk can be summarized as follows:

DNS abuse is on the rise. Many domain names are registered to be used for various criminal purposes. Criminals exploit resources of registries and registrars for fraudulent purposes. This highlights a severe need for a more proactive approach towards DNS abuse. The Domain Abuse Activity Reporting (DAAR) is a system for reporting on abuse data across gTLD registries and registrars. This project mainly aims to provide data to support community, academic, or sponsored research and analysis for informed policy consideration. DAAR is a work in progress. In February 2019, ICANN started publishing DAAR's first monthly report providing historical trend analysis of abuse located within gTLD registries. Improving the current abuse data and providing reports on security threat incidents for ccTLD registries and registrars are among DAAR's future work.

Learn more about the [DAAR program here](#).

2.10 Unleash your Registry, How to Reach the Largest Audience (Talk)

Presenter: Joe Alagna | Director, Business Development, Afilias

Alagna's talk focused on market reach and some of the marketing strategies that can be used in the business building aspects of running a domain name registry. The process begins with great Customer Relationship Management (CRM) and proceeds through a cycle of ideation, lead generation and management, sales closure, analysis, and then doing it over again.

2.11 Emerging Trends in DNS: Provenance, IoT, and Blockchain (Presentations)

Moderator: Tom Barrett | CEO, EnCirca Inc.

Panel:

- Tom Barrett | CEO, EnCirca Inc.
- Calvin Browne | Director, DNS Africa

The talk by Tom Barrett examined some of the trends emerging in Internet of Things (IoT) and Blockchain, as they relate to the DNS. Barrett's talk can be summarized as follows:

The DNS is the essential "plumbing" of the Internet. The DNS specification is described in nearly 150 Request for Comments (RFC) that are developed after extensive debate and peer reviews within the software engineering community. New DNS standards for security and IP addresses help drive increased website security and the expansion of IP addresses to enable applications for the Internet of Things (IoT). However, the pace of change in the DNS is too slow for some. For example, the development of Blockchain technologies is giving rise to an infrastructure and framework that resembles the traditional DNS, but offers features not found or allowed in the traditional DNS. Examples from registries such as .ETH, .ART, .BIT, and .BANK were shared. Geofencing network TLDs were also shared.

You can view Barrett's slides [here](#).

2.12 Security in IPv6-Enabled TLDs (Panel)

Moderator: Hisham Ibrahim | Middle East Technical Program Manager, RIPE NCC

Panel:

- Jan Žorž | Operational Engagement Program Manager, ISOC
- Massimiliano Stucchi | IPv6 Program Manager, RIPE NCC
- Maher Yamout | Kaspersky
- Mohamed Ali Gharghi | Asiatech

The panel discussion covered the Internet as a whole, with a focus on the cyber-attacks and issues that might affect the security and stability of the Internet. The session did not categorize the issues into only a DNS or a routing category.

IPv6 deployment trends, the current threats (such as DDoS attacks), trends on both IPv4 and IPv6, and some best practices were discussed.

The session also covered Internet hijacking and gave an overview of Resource Public Key Infrastructure (RPKI), Route Origin Authorizations (ROAs) and Internet Routing Registry (IRR).

You can view Žorž's slides [here](#), and Yamout's slides [here](#).



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