IDSA
Backgrounder

ICANN57:
A Backgrounder

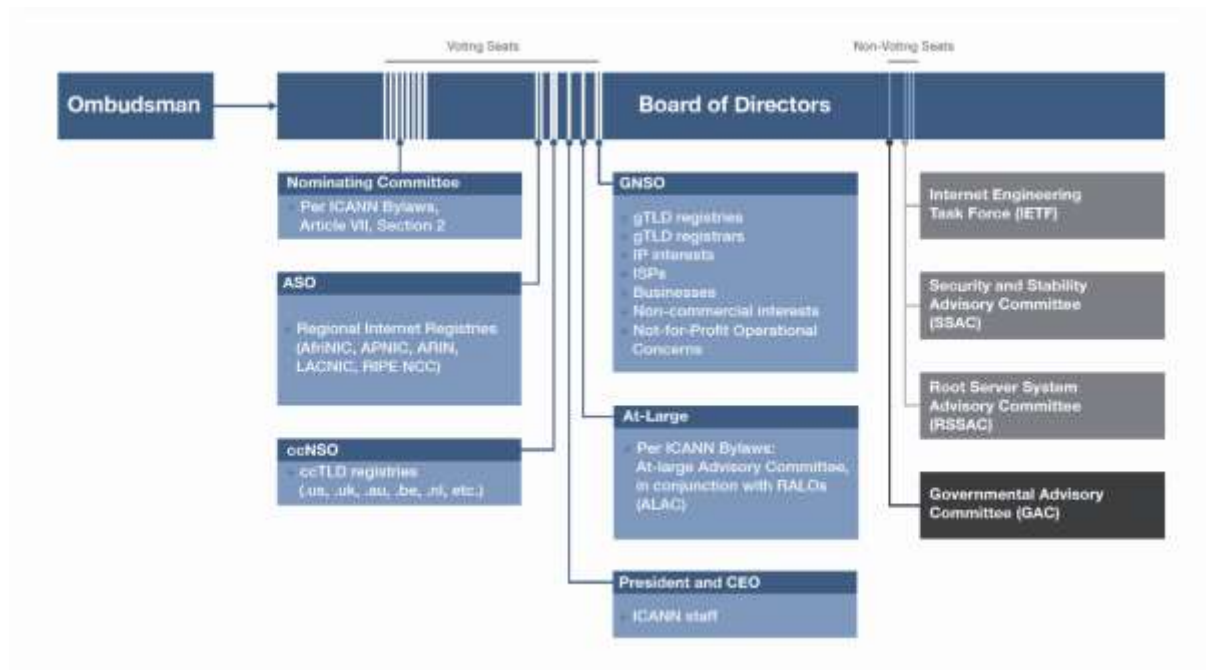*Natallia Khaniejo*

November 04, 2016

Summary

The Internet Corporation for Assigned Names and Numbers (ICANN) is a multistakeholder private corporation that supervises the functioning of the internet as we understand it today. It had been overseeing the functioning of the Internet Assigned Numbers Authority (IANA) in association with the US Department of Commerce. IANA and ICANN together, (in collaboration with associate/supporting bodies such as the Internet Engineering Task Force) are responsible for the management of the Domain Name System (or DNS) that controls the routing of Internet Protocol (IP) Addresses and Host Names; and forms the framework of the World Wide Web. On 30th of September the US Government officially handed over the IANA to the ICANN. The aftermath of this transition will be one of the key agenda points in the 57th ICANN meeting to be held in Hyderabad from 3rd to 9th of November. This paper examines the ICANN as a structure, the intricacies of the IANA transition, and the way it will impact the architecture of cyberspace in the future.

In a day and age of transnational cybernetworks, it is essential to examine and reconfigure the institutions responsible for the structuring of an amorphous and ambivalent Cyberspace. Technological advancement is not merely an individual asset, but a double edged sword that serves as a threat to as well as a weapon of State Functioning. As Information and Communication Technology (ICT) frameworks are increasingly integrated with daily life, examining the fundamental blocks that ensure the smooth functioning of this virtual simulacrum is the need of the hour. One such institution that forms a part of the foundation of a peaceful Cybersecurity architecture is the Internet Corporation for Assigned Names and Numbers (ICANN). Configured as a private US based multistakeholder association, the ICANN has become an exceedingly important pivot in the ongoing debate regarding governmental control, multistakeholderism and the transnational approach to Cyberspace. On 30th of September, the US relinquished its control of the Internet Assigned Numbers Authority (IANA) and transferred it to the ICANN, in what appears to be an 'unprecedented surrender of government control'. Given the upcoming meeting to be held in Hyderabad in November, this paper attempts to examine the ICANN as a corporation, the recent takeover of IANA, the bid for increased multistakeholderism and India's position vis–a–vis the emerging contours of Cyberspace.

What is the ICANN

The Internet as we understand it consists of a set of numerical instructions or Internet Protocol (IP) addresses that form part of a domain. These domains are identified and used by humans through their equivalent host domain names. The Internet Domain Name Service (DNS) translates these domain names to and from IP addresses as required by the programs running them. This Domain Name system has been in place since the genesis of the Internet in its original version of Advanced Research Projects Agency Network (ARPANET). Each IP address and Domain name needs to be unique to ensure the successful routing of information. The Internet Corporation of Assigned Names and Numbers (ICANN) is a non profit organization that was set up in 1998 by the Clinton Administration to oversee the administration of domain names. ICANN coordinates these identifiers across the world, and ensures the smooth and secure functioning of the cybernetic framework. The global nature of the Web today means that there are constantly increasing numbers of Domain Names, Host Names, IP addresses and web sites that are emerging on a daily basis. ICANN oversees this interconnected network and ensures that computers across the internet can find one another through defined unique pathways and identifiers. "This

is commonly termed "universal resolvability" and means that wherever you are on the network, you receive the same predictable results when you access the network."[1]

Structure of the ICANN

The ICANN states that it has adopted a "bottom up, consensus driven multi stakeholder approach".[2]

The organization consists of the Ombudsman, The Board of Directors, three supporting organizations, four advisory committees aside from its other Advisory committees.

1) Directors: There are 16 Directors with Voting rights and Four non voting Liaisons. These non voting Liaisons are elected by each of the following sub committees:
   a. The Internet Engineering Task Force (IETF):
   b. Security and Stability Advisory Committee (SSAC)
   c. Root Server System Advisory Committee (RSSAC)
   d. Governmental Advisory Committee (GAC)

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[1]   "What does the ICANN do?" at https://www.icann.org/resources/pages/what-2012-02-25-en (Accessed 24th September 2016)

[2]   "Welcome to ICANN" at https://www.icann.org/resources/pages/welcome-2012-02-25-en (Accessed 23rd September 2016)

The main function of the Board of Directors is to put to vote various policy recommendations made by the Supporting Organizations and the Advisory Committees.

2) The Ombudsman: The Ombudsman provides "independent internal evaluation of complaints by the members of the ICANN community who believe that the ICANN staff, Board or constituent body have treated them unfairly."[3]

3) Nominating Committee: This committee is responsible for the selection of directors that form the board. Excluding the president, the board possesses the power to choose the ICANN directors, and the supporting organization's directors.

4) Supporting Organizations: The ICANN consists of three basic supporting organizations namely:
   a. The Generic Names Supporting Organization (GNSO): Focused on policies surrounding Generic Top Level Domains (gTLDs), this organization brings together smaller stakeholders, constituencies, and other groups into a conglomerate of sorts aimed at "developing policies, forming consensus and making recommendations"[4]
   b. Country Code Names Supporting Organization (ccNSO): Another policy development organization, the ccNSO focuses on issues surrounding the Country Code Top Level Domains (ccTLDs).
   c. Address Supporting Organization: The final organization was founded in 1999. The ASO's purpose is to "review and develop recommendations on Internet Protocol (IP) address policy and to advise the ICANN Board."[5] The members are also part of the Address Council. It is made up from representatives of each of the five regional internet registers[6].

5) Advisory Committees: ICANN confers with and takes into account the suggestions provided by the Advisory committees who serve as representatives of stakeholders who aren't participating directly in ICANN's functioning or that of its supporting organizations. There are four basic advisory committees:
   a. **Governmental Advisory Committee:** This comprises of participants and representatives from governments across the world whose main function is to advise the board on Public Policy issues including but not limited to State ICTs, State Sovereignty, etc. The GAC also consists of a Chair[7] and a

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[3]   "Office of the Ombudsman" at https://www.icann.org/en/system/files/files/rmaf-08feb05-en.pdf (Accessed 22nd September 2016)

[4]   "Generic Names Supporting Organization" at https://icannwiki.com/Generic_Names_Supporting_Organization (Accessed on 23rd September 2016)

[5]   "Address Supporting Organization" at https://aso.icann.org/ (Accessed on 23rd September)

[6]   African Network Information Center (AFRINIC), American Registry for Internet Numbers (ARIN),

[7]   Mr Thomas Schneider, Switzerland, who will be reappointed

Vice Chair[8]. The Indian representatives at the GAC are all from the Ministry of Information Technology.[9]

b. **Security and Stability Advisory Committee:** This committee advises the ICANN regarding issues of security and stability requisite for maintaining a peaceful global architecture

c. **Root Server System Advisory Committee:** One of the two technical based committees, the RSSAC advises the ICANN on issues surrounding the functional maintenance of the Root Server System.

d. **At Large Advisory Committee:** A system aimed at representing individual users of the internet, the ALAC's main function is to advise the ICANN regarding the interests of individual internet users.

e. **Internet Engineering Task Force:** Lastly, the IETF is a community of network designers, operators, vendors and research involved in researching and theorizing the evolution of the internet.

6) There are two alternative advisory mechanisms in place for the ICANN to seek information. These are the:

a. External Expert Advice Group and the

b. Technical Liaison Group

The ICANN meets twice every year, to discuss and formulate future decisions regarding the smooth functioning of the internet.

The functioning of the body has constantly been under great scrutiny whether it is with regards to the 'mysterious' appointment of the board, metadata collection, organizational bylaws, connections with private businesses, etc.

ICANN performs four major functions namely:

1) Approval of companies that can become accredited registrars for domain names

2) Decision making regarding the addition of new Top Level Domains (TLDs) to the Root system

3) Coordinating technical parameters to maintain universal connectivity

4) creating a Uniform Domain Name Dispute Resolution Policy (UDRP) for competing domain names[10]

The above functions involve a mix of technical expertise as well as policy making. Given that the policies and decisions taken by the board will affect the entire global

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[8] Six nominations have been submitted for five available positions. The elections for the same will be held during the Hyderabad ICANN meeting. The nominations have come from China, Egypt, France, Niue, Peru and UK.

[9] Mr. Rajiv Bansal, Joint Secretary Department of Electronics and Information Technology (DeitY), Ministry of Communications and Information Technology (MoCIT), Mr. Rahul Gosain, Director, DeitY, MoCIT and mr. T Santhosh, Scientist "E" DeitY, MoCIT.

[10] "ICANN: The debate over governing the Internet" at http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1000&context=dltr (Accessed 24th September 2016)

cyber infrastructure the lack of transparency in the board selection and the unsatisfactory redressal mechanisms regarding these decisions are major causes for concern. There have been several controversies regarding the ICANN's handling of issues in the past, for example the ICANN had proposed an "annual and perpetual $1 tax on each domain name as a means to support its proposed annual operating budget of $5.9 million."[11] This proposed tax was later deferred when strong opposition to it emerged. There have also been issues regarding the ICANN's choice of adding TLDs and approving registrars with claims that "ICANN's process was biased towards approving registrants with which ICANN had a prior relationship, and that ICANN provided no way to review its decisions, leaving affected parties no choice but to file suit"[12]. Issues such as a lack of transparency, favouritism and "board squatting" raise questions about ICANN's capability to truly represent a diverse Cyberscape without reducing the internet framework to business transactions.

IANA Transition: What it is and what it means.

As mentioned earlier, the ICANN oversees the functioning of Domain names, and their relevant IP Addresses. "The long term government goal in creating ICANN— which is made up of governments around the globe, corporations and individual Internet users—was to eventually give the multinational organization full ownership of domain name systems."[13]

The Domain Name System (DNS) ensures that each URL leads to the right server which in turn pulls up the requisite website. The information regarding these identifiers (the names, numbers, etc) is found in a database controlled by the Internet Assigned Numbers Authority, or the IANA. The IANA works in close collaboration with the IETF to ensure universal resolvability and the smooth functioning of the internet. So far, the ICANN was managing the IANA, under a contract with the United States Department of Commerce. The tasks included the coordination of DNS root, IP addresses and other Internet Protocol resources. While the ICANN's vast community of volunteers monitored the smooth functioning of the internet and the various transactions required in accordance with the IANA, they weren't handed over control of the IANA until September 30th 2016.

There are several reasons why this shift is relevant and has caused a tremendous amount of debate regarding the future of the internet. The key issue lies in the official transition of the IANA directory to the ICANN board which alarmists

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[11]   "Governing Cyberspace: ICANN a controversial internet standards body" at http://www.fed-soc.org/publications/detail/governing-cyberspace-icann-a-controversial-internet-standards-body (Accessed on 28th September 2016)
[12]   Ibid
[13]   "Who controls the internet? US Government hands over control to ICANN." At http://www.ibtimes.com/who-controls-internet-us-government-hands-over-control-icann-2425491 (Accessed on 5th October 2016)

worldwide have heralded as a sign that the internet as we know it will cease to exist.

This is a rather exaggerated portrayal. The ICANN was already in charge of handling/managing the database of IP addresses and Domain Names, the only thing that has changed is that it now has direct access to IANA, the main file that has gathered and stored all the information regarding these protocols since the genesis of the internet. While the transition isn't entirely without consequence the system of balances needs to be placed within a larger global context. If one were to rudimentarily call the IANA the Internet's address book, one could make a statement that whoever controlled this resource potentially possessed the power to 'censor the internet'. They could possibly "delete a domain name (such as economist.com) and the website [would] no longer be found."[14] This is the primary reason why several US Republican senators lobbied so hard to prevent the transition of IANA from the US government to the ICANN. It is also one of the key reasons why over the years America has refused to hand over this control to the United Nations or an equivalent international body.

However, what needs to be remembered is that despite being an American invention, the Internet has now become a global architecture that forms an integral part of daily functioning world over. The need of the hour is a globalized diverse peaceful cybernetic architecture built on transnational collaboration. It is regressive and pointless to yearn for days past when state boundaries placed unimpeachable restrictions on every aspect of life. In a day and age of global commerce and postmodernist world of capitalistic hedonism, it is also regressive to leave private stakeholders out of a decision as important as the IANA transition and the road forward. The internet of today needs to be a diverse space inclusive of race gender, ethnicity, and class.

Issues and limitations of the ICANN

While the IANA transition has been heralded as a move towards an internet free from governmental intervention, the politics of this transition need to be examined in greater detail. As mentioned earlier, the ICANN functions as a "non profit group with a license from the US Department of Commerce." Given the inescapable conundrum of its hierarchical structure, the ICANN has frequently been criticised "for an alleged lack of accountability and opaque decision making."[15] While it has been painted and reconstituted under the mould of a multi stakeholder structure, the politics of power and privilege that form the limited set of voting directors seems to speak otherwise.

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[14]   "Why is America giving up control of ICANN?" at http://www.economist.com/blogs/economist-explains/2016/09/economist-explains-19 (Accessed on 30th September 2016)

[15]   "US gives up its remaining control over the internet to ICANN" at www.ft.com/content/66291afc-87f8-11e6-8cb7-e7ada1d123b1 (Accessed on 9th October 2016)

The ICANN claims that it aims to "share control between a wide range of interests including technical experts, academics, representatives of civil society and governments without giving control to any of them"[16] However this claim is yet to be fulfilled given the nascent state of the transfer and the unpredictability of the outcome. Furthermore, there is no denying the fact that the ICANN remains based in California, and is therefore primarily subject to US law. Moreover the lack of diversity in its theorising body is a major cause for concern. As a body aiming to represent individual stakeholders across the world or the "Global internet consumer", the predominance of North American representation and first world academic rhetoric within the policy making body is suspicious to say the least. The registry Association Franc Nommage Internet En Coop (Afnic) conducted a survey earlier this year the results of which state that:

1) 40% of the 190 Leaders are North American making it the primary delegation in the ICANN while Africa, Latin America and Asia are underrepresented
2) 2/3rd of the ICANN leadership consists of native English speakers which can pose language barriers that would inhibit the formation of a seamless global internet architecture
3) Only 26% of the leadership comprises of women which is a tremendously unhealthy number given the need for policymaking that safeguards women in cyberspace from attacks through anonymous sources
4) The Business world and the Academic/Technical community constitute 80% of the ICANN body leading to underrepresentation of Civil society and the public sector.[17]

While the above data is worrying, the bureaucratic structure of the body itself is another major cause for concern among theorists. As the Economist states, "ICANN's "multi-stakeholderism", which means that everybody has some say, sounds like a bureaucratic nightmare. Yet it may be the best hope for finding common solutions to the global problems created by the internet."[18]

Another issue is the leadership transition taking place. While the IANA transition was to occur during the previous CEO's term, several issues led to a deferment until 30th September. The previous CEO Fadi Chehade had worked towards increasing ICANN's autonomy and setting it up as a global solution for transnational Cyberspace. However, his term ended in March 2015 and the onus of following up the IANA transition and the omplications that might emerge thereafter now lies with his successor Göran Marby. This change in leadership and the subsequent policy

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[16]   Ibid.
[17]   "AFNIC reveals figures on diversity within ICANN" at https://www.afnic.fr/en/about-afnic/news/general-news/9961/show/afnic-reveals-figures-on-diversity-within-icann-1.html (Accessed on 29th September 2016)
[18]   "Why is America giving up control of ICANN" at http://www.economist.com/blogs/economist-explains/2016/09/economist-explains-19 (Accessed on 30th September 2016)

changes that might occur within the ICANN structure is another concern among theorists given the complications that are already associated with the IANA transition. However, there is still hope since the ICANN "is largely independent of national governments."[19], furthermore since "the board is elected by outside organizations composed of businesses, non-profits, and Internet users from around the world. And those organizations can recall individual board members, or the entire board."[20]. Furthermore, as Alissa Cooper states "Because the proposal roots the accountability responsibility in the various stakeholder communities, that is one of the defenses against capture by any single constituency, the proposal does a good job of maintaining the aspects of the current system that have been working well and carrying them forward to the future."[21] While the ICANN has addressed some of these claims and issues, the path ahead remains convoluted.

India's relation with the ICANN and the road ahead:

As an emerging global power with an ever increasing populace, the database of internet users in India is constantly on the rise. The government vision of a "Digital India" is something that relies heavily on collaboration with registries and organizations world over. The aim of a digital India will involve tremendous investment on behalf of the government towards capacity building access provision and inclusivity. India has a larger role to play in global governance of the Internet and this is evinced by its inclusion in the United Nations Group of Governmental Experts (UN GGE) as well as the decision to host the 58th meeting of the ICANN in Hyderabad from 3rd to 9th November. This meeting will be the first meeting post the IANA transition and needs to be watched with interest. The discussion will examine the immediate effects of the transition, and possible hurdles that might emerge in the future.

The meeting currently includes 2500 delegates from around 80 countries. There is a need for increased diversity with regard to global governance. Officials have gone on record to state that "There should be more representation in the ICANN board from India and China and others with large populations. While everyone talks of the next billion Internet users coming online from this side of the world, we also need to make sure they are adequately represented on the board of ICANN,"[22]. Furthermore, Ravi Shankar Prasad, Minister of Communication and Information Technology has gone on record to state that "the internet must remain plural, must be managed

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19   Ibid.
20   "The internet finally belongs to everyone" at https://www.wired.com/2016/10/internet-finally-belongs-everyone/ (Accessed on 8th October 2016)
21   "Who controls the Internet?" at http://www.ibtimes.com/who-controls-internet-us-government-hands-over-control-icann-2425491 (Accessed on 5th October 2016)
22   India can have a bigger say with ICANN now managing the Internet" at http://tech.economictimes.indiatimes.com/news/internet/india-can-have-bigger-say-with-icann-now-managing-the-internet/54665249 (Accessed on 4th October 2016)

through a multi-layered and multistakeholder system… ..its strengths will lie in partnerships between like-minded nations and stakeholders, built on a platform which supports and will sustain a future of equity and innovation and collaboration and inclusion."[23] The meeting in Hyderabad provides a tremendous platform for raising issues and concerns as well as seeking partnerships across borders to create an inclusive and access equal Cyberspace.

Technical issues that can be expected to emerge aside from the IANA transition would be the decision to implement Rotating Cryptographic Keys with regards to the DNS. While this is a novel security initiative, such an experiment has never been conducted before since miscalculations could lead to severe consequences. ICANN said earlier this year. The current DNS Security protocol is based on the original 1,024 bit RSA Key that was generated in 2010 as the root zone key. Over time, given the tremendous advancement within the Cyberscape, these keys have become vulnerable to threats. Increased computational abilities[24] now pose a serious threat to the current system which must consequently be upgraded to a 2,048 bit key.

Issues of diversity, human rights, accountability, digital access and network inclusivity will also be addressed and the ICANN board has also made statements along the lines of enhancing ICANN's accountability.

Conclusion

Despite the various limitations of the ICANN and the issues with its hierarchical structure, currently it remains a key multistakeholder private body in internet governance. The meeting in Hyderabad is the perfect platform to increase India's role in global internet governance. Now that the handover has officially been conducted, perhaps the second phase of discussion can begin regarding the future of the Domain system, the reconfiguration of IPv4 and IPv6, changes in the Root Zone KSK and the creation of a diverse Cyberscape with inclusive digital access across race, class and gender. Given the changing demographic of internet usage and the proliferation of technology, it is essential to reconfigure the internet into a more inclusive mould reflective of the globalized world order we inhabit today. Creating an accessible Cybernetic discourse is the first step towards building a secure and smooth functioning Internet architecture.

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[23] "The I in Internet must also stand for India" at http://thewire.in/4688/the-i-in-the-internet-must-also-stand-for-india/ (Accessed on 22nd September 2016)

[24] And the attempt to move towards quantum computing

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The Institute for Defence Studies and Analyses (IDSA) is a non-partisan, autonomous body dedicated to objective research and policy relevant studies on all aspects of defence and security. Its mission is to promote national and international security through the generation and dissemination of knowledge on defence and security-related issues.