IGF 2016 Workshop Report Template

Session Title	Best Practice Forum IPv6 '*Understanding the commercial and economic incentives behind a successful IPv6 deployment*'
Date	7 December 2016
Time	15:00 – 16:30 (23:00 – 0:30 UTC)
Session Organizer	Izumi Okutani, Sumon A.Sabir, Wim Degezelle
Chair/Moderator	Izumi Okutani, Sumon A.Sabir, Marco Hogewoning, Susan Chalmers (panel moderators)
Rapporteur/Notetaker	Wim Degezelle
List of Speakers and their institutional affiliations	Aaron Hughes (6connect, ARIN Board), Paul Wilson (APNIC), Lise Fuhr (ETNO), Carlos Martinez (LACNIC), Afifa Hariz (ISET Charguia) (remote)
Key Issues raised (1 sentence per issue):	I. Setting the scene: introduction to IPv6 II. IPv6 deployment: Sectorial and regional observations III. Takeaways for policy and decision makers
If there were presentations during the session, please provide a 1-paragraph summary for each Presentation	IP addresses are unique identifiers on the Internet. The current stock of legacy IPv4 addresses is running out and therefore the new version – IPv6 – is being deployed. Several major global players are commercially deploying IPv4 as well as players in different regions. The map showing the IPv6 deployment rates learns that there are big differences between countries, and that these differences cannot always be explained by traditional economic variables (eg GDP or the state of development of the Internet in a country). Case studies collected by the BPF showed that long-term business continuity, cost savings by deploying IPv6 compared to solutions that allow to continue with IPv4, and image building are the main drivers for businesses that deployed IPv6 on their networks. The main challenges are situated in the access lines/side and accessing (local) content over IPv6. Presentation slides at: https://schd.ws/hosted_files/igf2016/e6/IGF2016%20BFP-IPv6.pdf
Please describe the Discussions that took place during the workshop session: (3 paragraphs)	The following issues were discussed by the panelists and audience: Recent trends and observations: ➢ Apple announced that it requires that applications support IPv6 and are tested in an IPv6 environment before they can be added or updated in the app store. This will result in a jump in direct native IPv6 traffic. ➢ One of the reasons for this requirement was the decision by a major mobile operator in the US to eventually cut off all IPv4 underlying connectivity on Apple iPhones. ➢ In the Asia Pacific region the Internet grows at a phenomenal rate. This creates opportunities to enable IPv6 in growing networks and infrastructure, and for new equipment and

	services that are bought and being developed. Every person, business, government and organization that today depends on the Internet must understand that IPv6 is needed if they want to continue to rely on the Internet in a similar way. ➢ Feeling fine with doing nothing because an organization or business still has a large resource of IPv4 addresses is trusting on a false sense of security ➢ IPv4 has become the legacy protocol and leaving infrastructure on IPv4 only will incur high costs in the future. ➢ Doing nothing hurts, as eventually it will be necessary to use IPv4 translators which impact user experience. Cost of IPv6 deployment . ➢ The deployment of IPv6 is completely situational. One size fits nobody and the cost of IPv6 depends on different factors, such as the characteristics of the infrastructure and dependency on the Internet. ➢ Not deploying IPv6 in new infrastructure and services is a wasted opportunity and ultimately a waste of money. Every purchase decision by an individual, government, company or organization should ask for IPv6, even if the own network is not yet ready. This will safe on upgrade and replacements costs in the future. ➢ Large commercial companies have taken the decision to deploy IPv6, they must have a good reason and business case to do so. ➢ There are some great examples of cost analysis from various perspectives of different types of organizations Customer needs ➢ Most users are not aware of what IP version they are using, however they might see their user experience degrading if their provider does not move to IPv6, as a study showed. ➢ In a world where IPv4 connectivity goes through a CGN box, it loses the end-to-end connectivity and applications degrade and become difficult to use, such as gaming, video streaming and downloading large files. Additional observations: - Governments can play an important role by stimulating, raising awareness and lead by example. - ISPs and large networks that took the decision to deploy IPv6 have been the main drivers behind the IPv6 uptake. Individual customers and Internet end users are in general not aware – and not supposed to be aware - of what protocol they are using. However, they might help to stimulate demand by asking their providers whether and when they will deploy IPv6.
Please describe any	Takeaways for policy makers:

Participant suggestions regarding the way forward/ potential next steps /key takeaways: (3 paragraphs)	- Request vendors to support IPv6; - Reach out to decision makers in the industry and stimulate them to deploy IPv6 (not regulate); - Raise awareness on which products support IPv6 and encourage purchasing of IPv6 supported CPE; - Need for training for mid-small scale business and in developing countries; this could be done by public-private collaboration (RIRs for example provide trainings in their respective regions) Takeaways for business decision makers: <u>Vendors</u>: have your products support IPv6 <u>Service providers</u>: - Deploying now means saving on (higher) investments in the future; - Choose IPv6 supported products when updating/renewing the network; - Training your staff is not hard if they already know how to run an IPv4 network. Make use of available external training courses. - When deploying IPv6 commercially, turn it on by default (not opt-in). Several companies have already done this without major problems. - Problems with IPv6 are often due to simple misconfiguration. Having properly trained staff will help to avoid them.