IPv6-based 5G, IoT,Cloud & Bockchain

Latif Ladid

Founder & President, IPv6 Forum; Researcher at the Secan-Lab, University of Luxembourg,
www.ipv6forum.org

ABSTRACT

The IANA central IPv4 address space has been fully depleted back in February 2011 making the deploying of new large-scale networks especially 5G, IoT and Cloud networks not scalable and sèecifically not what IoT really stands for. Hence the new IP protocol IPv6 has been designed to cater for this already back in the 90s and waiting for its killer apps to take off. 4G was the first one to adopt IPv6 in larger scale.

The IPv6 Deployment worldwide is becoming a reality now with some countries achieving more than 50% user penetration with India, China and Belgium with over 60%at the top ranking (http://labs.apnic.net/dists/v6dcc.html) and reaching double digits v6 coverage on Google IPv6 stats. May Autonomous Networks (ASN) reach more than 50% with v6 preferred or v6 capable: (http://labs.apnic.net/ipv6-measurement/Economies/US/).

Over 1.9 Million users are accessing Internet over IPv6 and probably not even knowing it. If this trend continues, we should achieve 75% by 2025 which would be the inflection point when the full roll-out of IPv6-Only becomes a strategic plumbing decision of the networks, a topic that is avoided so far due to many strategic and resources issues (lack of top management decision-making, lack of v6 skilled engineers and v6 deployment best practices, very limited ISP v6 access deployment, …).

The deployment of Carrier-grade NAT is in full swing making networking and user experience more brittle. The security and cybersecurity issues are like always brushed over at this

stage due mainly to lack of IPv6 security skills. However the US Government has announced last week June 16, 2021 that it will move to IPv6 Only by 20025. New topics are more on the lime light such as 5G and 6G, Cloud Computing, Internet of Things, SDN, NFV and Blockchain, … However, these fields are taking IP networking for granted designing them on IPv4/NAT building non-scalable and non-end to end secure solutions. The IPv6 Forum is driving new initiatives to garner support and create awareness in these are with initiatives such as the IEEE Comsoc IoT, SDN-NFV and 5G: www.ipv6forum.org.