BRIEF REPORT

ON

APRICOT 2014 Conference

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Petaling Jaya

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A. Introduction

APRICOT (Asia Pacific Regional Internet Conference on Operational Technologies) is a prestigious regional Internet event, which has run annually since 1996. Since then, APRICOT has provided a unique and successful educational forum for Internet builders in the region to learn from their peers and other leaders in the Internet community from around the world.

APRICOT has now clearly established itself as the Asia Pacific's premier regional Internet summit where related organizations come together to meet and host their annual general meetings, including APNIC (Asia Pacific Network Information Centre), APIA (Asia Pacific Internet Association), APTLD (Asia Pacific Top Level Domain Forum), and APstar.

Held annually, the ten-day summit consists of seminars, workshops, tutorials, conference sessions, Birds of a Feather (BOFs), and other forums all with the goal of spreading and sharing the knowledge required to operate the Internet within the Asia Pacific region.

- APRICOT's mission is to develop and advance the skills and understanding necessary to grow a robust Internet infrastructure in the Asia-Pacific region. APRICOT is about bringing the world's top Internet experts together with those who can most benefit from their knowledge.
- APRICOT attendees are the key builders of Asia's Internet. Many of the world's best Internet engineers attend APRICOT either to teach, present or do their own human networking.
- APRICOT provides its sponsors the chance to participate in a quality, content-rich event with excellent opportunities to target

their products and services at the decision-makers in the Asia Pacific Internet community.

- APRICOT's primary goal is to provide a vehicle for the transfer of technology and techniques to the Asia Pacific Region. As such, our attendance fees are set well below those of the more promotionally orientated conferences.
- APRICOT is an activity supported by various Asia Pacific Internet organisations as well as numerous individuals who give freely of their time and talent, and is not a commercial profit making venture. Any surplus funds are used to support outreach activities in the less developed areas of the Asia Pacific region.

B. Participants

The conference was attended by the experts of various Internet domains from around the world.

The Malaysian delegates from MTSFB are:

- Gopinath Rao Sinniah, MIMOS Berhad
- Zaharin Mohd Nadzri, Celcom
- Azura Mat Salim, TMNet

C. Session proceedings

1. Opening Session & Plenary

2 keynote speakers presented:

Prof. Kanchana presented on Rural Community wireless mesh networking while Prof. Nii Quaynor presented on the journey by African in Internet and technologies.

2. ICANN Update

There has been lengthy of discussion on the recent issues. The discussion were divided into

- Internationalized Domain Names (IDNs) – introduction of new TLDs in different scripts
- IDN variants – new characters such as Tamil, Chinese, etc that need to be supported by root DNS and the issues with it.
- New gTLD – 1900 new applications has been received and ICANN has been approving some gTLD in stages.
- Redefining and replacing WHOIS – The discussion was on the WHOIS database and query that will support new gTLD.

3. IPv6 Transition Technology Tutorial

This presentation by Alcatel Lucent talks about the various IPv6 transition technologies, each with its own advantages and disadvantages. Operators would have to evaluate each of the transition mechanism that is most appropriate for their deployment needs. The long term goal would be to achieve native IPv6 support. Four common transition technologies were described; namely dual-stack, dual-stack lite, 6rd and NAT64 while newer ones were also briefly discussed. In all of the transition, a change in CPE is required. Thus, the migration approach to IPv6 should take into consideration the investment & complication required to do CPE-swapping.

4. IPv6 in Mobile Networks

The speaker from Telstra Networks shares his experience in deploying IPv6 in Mobile Networks. In most operators, the main driver for IPv6 deployment is public IPv4 exhaustion. For Telstra, they were also facing issue of insufficient private IPv4 address. Due to its large subscriber base, it was already overlapping private IPv4 address at the User Equipment (UE). The speaker describes the two main transition methods deployed (after vigorous testing); NAT64 and 464XLAT. The challenge of IPv6 deployment in mobile/wireless environment is slightly different than that of wired. IPv6 support in 3GPP standards vary according to release. However, providers should adopt similar standard to minimize problems during international roaming/inter-op. It is recommended that mobile operators to support 3GPP R8 and above so that the transition to support international roaming is simplified. Prefix-delegation is only supported in the upcoming 3GPP release 10, which means tethering of devices will not work just yet. This would be challenging for mass-market deployment.

5. 464XLAT : Breaking free of IPv4

T-Mobile US is driven towards native IPv6 as they did not have sufficient IPv4 address to pursue a dual-stack environment. Together with NEC & JPIX, T-Mobile established a new transition architecture called 464XLAT in RFC6877 which overcomes the limitation of Nat64 by adding a NAT46 into the client. Currently, only Android 4.3 is able to support this protocol. 464XLAT will only address IPv4 connectivity while the user's IPv6 connected is native end-to-end (without any translation). T-Mobile believes

that this implementation is applicable for both wired & wireless environment.

6. Anatomy of CGN

The panellist discusses the topic of Carrier Grade NAT; sometimes a necessary evil that is deployed by many operators to extend the lifetime of IPv4. APNIC & RIPE had reached its last /8 of IPv4 address and will be followed by LACNIC within this year. While CGN attempts to prolong the use of IPv4, the panellists warned that its deployment should be only be considered with an IPv6 strategy as CGN does not solve the IPv4 address exhaustion.

7. IPv6 updates from various countries

Various speakers share some form of IPv6 updates, some from operator's perspective, from institute of higher learnings, from Internet advocates and more.

In terms of IPv6 Country League table shared by Chief Architect at APNIC, Malaysia sits at number 14. NTT outlined its IPv6 measurement study, which describes the criteria of measuring IPv6 penetration – IPv6 allocated prefixes in the core backbone, web servers and IPv6-enabled domains, IPv6 consumer service penetration rate, IPv6 traffic to Google and IPv6

8. APOPS1

In this session, three presenters presented on the current issues related to Internet deployment. The three topics are

- Breaking Bank: 'Operation Albabil' financial DDOS attack
  This is about the recent DDOS attack. The presenter provides the analysis of the attack which was targeted at financial institutions.
- Submarine Network in Asia
  In this presentation, the presenter shared the cables that were installed in the Asia Pacific Region and the connectivity with the other region.
- 100G IP Backbone in Asia

Conclusion

1. This annual event is an important avenue for industry players to convene and discuss technical issues pertaining to Internet deployment and operations.

2. In the recent years including this year, tracks on IPv6 deployment stories as well as IPv4 exhaustion are seemingly popular. However, it is important to note that the tone of discussion is concerning deployment/execution of IPv6 and the next step that is propagating the use cases of IPv6.

3. IPv6 in mobile networks is an area that is not fully matured yet. Standards are still being developed and successful deployments are still very few. As mobility is a strong requirement for the coming Internet revolution, Internet of Things (IoT), operators and policy makers alike need to pay close attention to the

developments in the industry in order to provide insight into deployment of IPv6 in mobile services. As such, this is a potential area for the MTSFB IPv6 WG to explore in order to bring IPv6 standards in Malaysia to greater heights.

4. MTSFB should engage with APNIC and other organisations that have deployed IPv6 in large scale. We can learn on their implementation methods, obstacles and solutions. This is particularly important for the mobile network as it is still not matured yet.

5. Based on the IPv6 sessions and through the interactions with some experts, two of the areas that the IPv6 WG will be working on the guidelines / standard are IPv6 for mobile networks and security considerations.