Fellowship Report – APRICOT 2025, APNIC 59 – PETALING JAYA, MALAYSIA

I participated in the masterclass with the track title **KINDNS: DNS & DNSSEC operational best practices to improve the DNS Ecosystem**. The workshop provided me with a deep understanding of DNS, DNSSEC, and best practices for securing DNS infrastructure. I learned about the distributed hierarchical database structure of DNS, including the roles of root servers, TLD servers, authoritative servers, and recursive resolvers. This knowledge will help me better manage DNS configurations, ensuring both integrity and authenticity through DNSSEC. I learned how to enable DNSSEC using *bind9*, generate key pairs (KSK and ZSK), sign the zone, publish the public key, and test the server. The importance of DNSSEC in preventing DNS hijacking and spoofing was focused, and I now have the skills to implement and manage DNSSEC effectively in my organization. Furthermore, I will be able to raise awareness about DNS security and contribute to policy discussions on strengthening the country's DNS security, particularly in implementing DNSSEC for the .np ccTLD. Additionally, I understand the value of using revision control systems(git) to track changes to DNS configurations, ensuring I can revert to a known working state, review changes, recover from failures, and collaborate effectively without conflicts. These skills will directly enhance my day-to-day job and improve the security and resilience of DNS management in my organization.

Moreover, the soft skills workshop was a great experience for me, with more fun, and focused on enhancing leadership, communication, and decision-making abilities. It covered essential topics like leadership styles, situation handling and effective communication techniques such as body language and impromptu speaking. The interactive group work, especially related to policy discussions with raising questions, encouraged brainstorming and improved public speaking skills. Overall, the soft skills workshop was a valuable opportunity to acquire and refine soft skills, contributing to both personal and professional growth.

Also, the conference had many helpful talks and discussions, but some were especially notable. One of my favorites was the tutorial on DNS Response Policy Zones (RPZ) by Swapneel Patnekar, which demonstrated how network operators and enterprises can use RPZ to detect and mitigate threats. The session covered configuring and managing RPZ for dynamic threat protection, blocking phishing attempts, preventing DNS queries to command & control (C2) servers, and integrating RPZ into existing security frameworks using some

OSINT. It highlighted how DNS can be transformed from a passive component into an active security mechanism.

Another interesting session was *Cryptography in the Quantum Era* by Paresh Khatri, which explored the growing impact of quantum computing on cryptography. The discussion included cryptographic fundamentals, symmetric and asymmetric encryption, and the transition to post-quantum cryptography (PQC). This session was particularly valuable in understanding future security challenges as quantum advancements threaten traditional encryption methods.

Additionally, the panel discussion on *Submarine Network Infrastructure Basics, Concepts & Operations* provided valuable insights into the complexities of undersea cables, their role in global connectivity, and cybersecurity concerns. Experts from various organizations shared their perspectives on subsea networks, resilience strategies, and operational challenges, making it an engaging and informative discussion.

Similarly, there were other exciting sessions, such as APNIC's IPv6 Deployment, IX peering and Routing Security, where I gained insights into how the community is evolving and contributing to the technical world.

Beyond the technical sessions, the *Opening Social* and *Closing Social* were truly enjoyable experiences. They provided a great opportunity to connect with more brightest minds, exchange ideas in a relaxed setting, and strengthen professional relationships, making the conference even more memorable.

In conclusion, APRICOT 2025 was a great success. I'd like to sincerely thank the organizing team for granting me the APRICOT 2025 Fellowship and their dedication in making this event a reality. A special thanks to *Mr. John Rattray*, the fellowship coordinator, for his support throughout the event, as well as to *Mr. Rupesh Shrestha* and *Mr. Aftab A. Siddiqui* for their guidance and inspiring leadership. I'm already excited about attending future APRICOT events and continuing to be part of this amazing and expanding community.

Thank You,

Rabin Raj Gautam

gautamrabinraj@gmail.com

rabinraj@nepalpolice.gov.np