

## **APRICOT 2026 Fellowship Report: A Journey from Configuration to Community**

I applied for the APRICOT 2026 Fellowship to sharpen my technical skills but gained a transformative perspective on my role as a network operator. Beyond the honor of being selected, the true value was joining a vibrant Asia-Pacific community of engineers, researchers, and policy experts, working together for seven days to tackle the complexities of the global Internet.

The highlight was MasterClass 1: Advanced BGP, led by Aftab Siddiqui (APNIC Foundation), Phil Mawson (Vocus), and Mark Duffell (Telstra). Unlike dry documentation and isolated troubleshooting, the workshop was intensive, practical, and grounded in modern ISP operations, bridging the gap between the “how” of routing protocols and the “why” behind every decision.

**Day 1:** We began by revisiting BGP fundamentals, but with an operator's lens. We didn't just review the Finite State Machine or TCP port 179; we dissected them to understand where things go wrong in production. The most significant takeaway was realizing that BGP is not merely a protocol for finding the shortest path; it is a tool for executing business strategy. Through hands-on labs configuring peers and analyzing packet captures, I saw firsthand how operators manipulate path attributes to balance commercial agreements with network performance. The distinction between iBGP and eBGP became less about syntax and more about trust boundaries and policy enforcement.

**Day 2:** If Day 1 was about understanding the map, Day 2 was about driving the car. We explored traffic engineering in real-world ISP environments, covering peering at IXPs, route servers, and remote connections to understand Internet redundancy.

The highlight was hands-on policy work—prefix-lists, AS-path filters, and complex regular expressions. Labs on LOCAL\_PREF, AS-path prepending, and MED for routing control revealed the trade-offs between cost and latency, showing that effective traffic engineering balances performance with economic reality.

**Day 3:** The final technical day brought a sobering focus on security. BGP's original design relies heavily on trust. We moved quickly to defenses: prefix filtering. The RPKI lab was the standout moment of the entire week. Generating our own prefix filters, validating ROAs, and then simulating a hijack to see the protection mechanisms kick in made the abstract concept of "routing security" tangible.

### **Day 4: The Human Element: Leadership and Communication**

What set this fellowship apart was Day 4, focused entirely on professional development. Facilitators William Stockbridge, Aftab Siddiqui, Terry Sweetser, and Robbie Mitchell shifted the focus from routers to people. Through intense role-playing on incident management, we learned to communicate technical failures clearly to non-technical stakeholders—a skill that can prevent panic during real incidents. A policy exercise on reducing minimum IPv6 allocations underscored

that technical decisions are rarely black and white, shaped instead by policy, economics, and community needs.

### **Day 5 – Day 7: Conference Insights and Regional Connection**

Beyond the masterclass, APRICOT offered insight into the regional landscape. NOG reports allowed me to benchmark Nepal’s progress in traffic growth, security, and operations. Sessions on SRv6 highlighted the shift from rigid MPLS to flexible, programmable IPv6, while discussions on network automation reinforced that the future is code-driven operations.

The most impactful moments were informal—coffee breaks and social events where operators from diverse economies shared similar challenges: scalability, cost, security, and resilience—creating a sense of shared purpose across borders.

### **Reflections and the Path Forward**

This fellowship transformed my perspective: routing decisions are now business drivers, security is a daily habit, and community collaboration is a vital defense against Internet fragility. Exposure to BGP, SRv6, and automation has given me a clear vision for the industry and confidence to guide my organization forward.

### **My Commitment to Nepal and the Community**

Back home, I am committed to ensuring this knowledge reaches others. I plan to support internal technical sessions on advanced BGP policies, traffic engineering, and practical RPKI implementation. I also aim to share key learnings with local engineers through npNOG, promoting wider adoption of security best practices. Additionally, I intend to draft internal guidelines covering BGP filtering standards, IRR and PeeringDB hygiene, anti-spoofing measures, and mandatory RPKI validation. Looking ahead, I will advocate for exploring SRv6 in controlled lab environments and expanding automation in our network operations to ensure greater consistency, scalability, and future readiness.

### **Conclusion**

The APRICOT 2026 Fellowship was more than a training—it was a catalyst for professional growth and a reminder of the power of community. The Advanced BGP Masterclass gave me the technical depth I sought, while the conference connected me with a regional network of engineers working toward a more secure and resilient Internet. I am deeply grateful to the organizers, instructors, mentors, and fellowship committee. I return to Nepal not just with new configurations, but with renewed passion and commitment to applying these lessons, sharing them widely, and strengthening both local and global digital infrastructure.

Name: Mani Prasad Dumre, Nepal telecom, AS23752

Masterclass: Advanced BGP

Dates: February 05 – February 11, 2026