

EVENT REPORT



SANOG - 44

with npNOG - 12

Kathmandu, Nepal
22 – 28 July 2026



HOSTED BY

Nepal Internet Exchange (NPIX)
Nepal Network Operators' Group (npNOG)

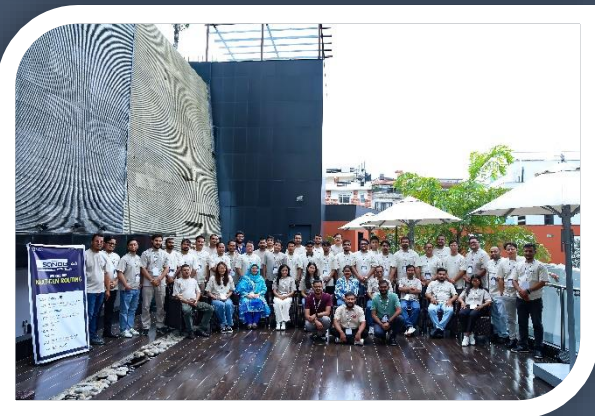


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Overview

Building on a legacy of regional cooperation that began in Kathmandu over two decades ago, [SANOG - 44](#) returned to the heart of the Himalayas in late July 2026. Hosted in collaboration with the Nepal Network Operators' Group ([npNOG-12](#)), the event continued SANOG's mission to foster a robust and secure Internet infrastructure across South Asia.

The gathering opened with four days of intensive, hands-on technical workshops (22–25 July), led by npNOG and designed to equip local and regional engineers with operational training across key topics in emerging network technologies, network engineering, and Internet infrastructure. This was followed by the three-day SANOG - 44 Conference (26–28 July), featuring keynote presentations from global industry leaders, technical plenary sessions, technical talks, panel discussions, and opportunities to engage with the latest developments in network operations, security, routing, DNS, peering, and emerging technologies.

As a premier non-commercial platform for network operators, ISPs, and researchers, SANOG — the South Asian Network Operators' Group — provides a regional forum dedicated to education, knowledge exchange, and the cooperative advancement of Internet operational excellence in South Asia. SANOG - 44 continued this tradition, fostering peer networking, technical capacity building, and regional collaboration in an inclusive and dynamic environment.

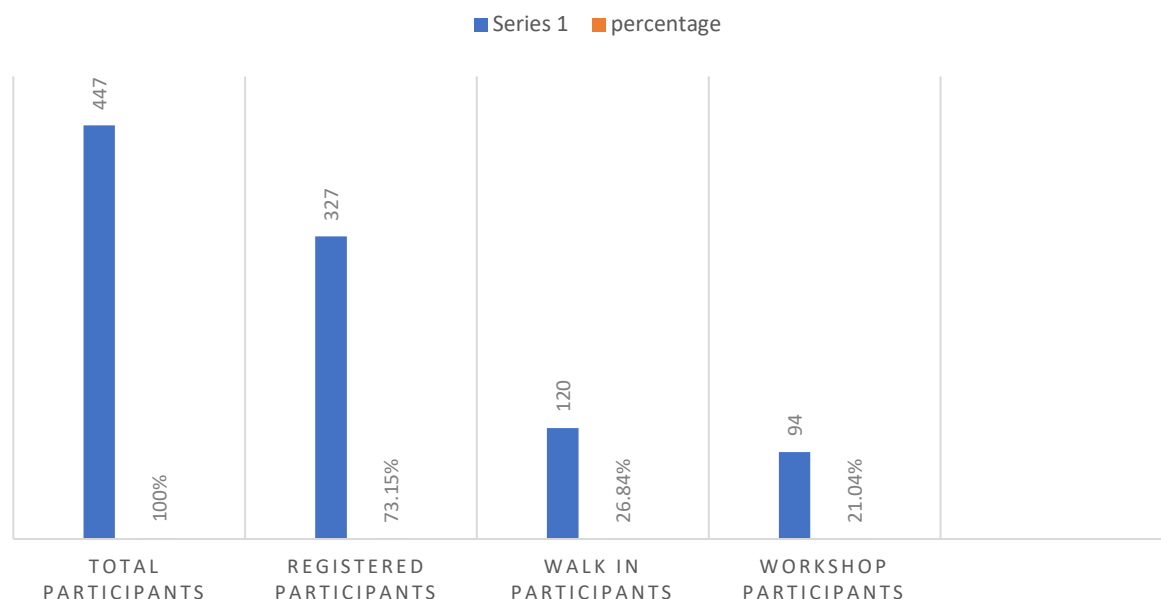
Event Snapshot

Item	Detail
Event	SANOG - 44 with npNOG - 12
Venue	Kathmandu Marriott Hotel, Nepal
Workshops	22 – 25 July 2026 (npNOG technical workshops)
Conference	26 – 28 July 2026 (SANOG - 44 Conference)

Participation at a Glance

447	94	327	120
Total Participants	Workshop Participants	Registered Participants	Walk in Participants

PARTICIPATION AT GLANCE

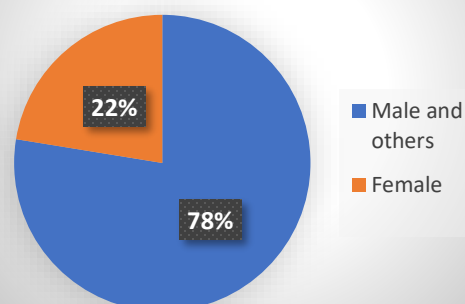


Top Economies Represented

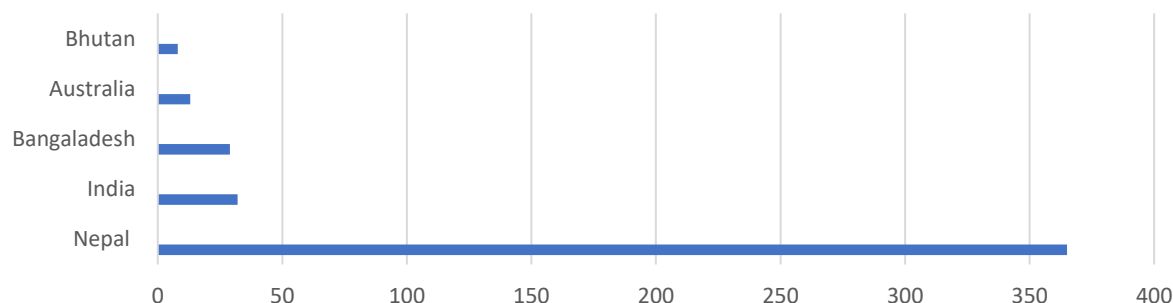
Delegates travelled from 20 different economies across the region and beyond. The five largest delegations were:

Economy	Participants
Nepal	298
India	32
Bangladesh	29
Australia	13
Bhutan	8

Gender in Percentage



Top Economics Covered



Program Structure

The program was organized across two phases:

- **Technical Workshops** (22–25 July): Four days of hands-on tutorials and operational training led by npNOG, covering emerging network technologies and infrastructure skills for local and regional engineers.
- **SANOG – 44 Conference** (26–28 July): Three days of keynotes, technical sessions, tutorials, panel discussions, the APNIC Sub-Regional Forum, REN Members Meetings, and a Sponsor Track.

Beyond the core agenda, SANOG - 44 brought together the region's operational community through Opening and MoU signing ceremonies, keynote addresses, the Internet Enablers Awards, technical talks and panel discussions, a Meta connectivity announcement, and active sponsor participation. A dedicated Partners Day convened with the NREN Members Meeting, an APNIC Foundation meeting, and an ISOC meeting alongside the first-ever APNIC Sub-Regional Forum held in South Asia, attended by four APNIC Executive Council members. npNOG played a central organizing role throughout, and the week saw strong cross-NOG participation and exchange among npNOG, btNOG, lkNOG, bdNOG, inNOG, and pkNOG.



Technical Workshops (22–25 July 2026)

Ahead of the conference, npNOG - 12 led four days of intensive technical workshops at the Kathmandu Marriott Hotel, running daily from 09:00 to 18:00 NPT (GMT+5:45). The workshops ran two parallel, hands-on tracks — Next-Generation Routing and Network Security — each combining expert instruction with lab-based exercises for engineers operating ISP, NSP, and enterprise networks.



Track 1 — Next-Generation Routing

Priya Ranjan Karn (WebSurfer Nepal Communication System, Head of R&D) led the track, drawing on 12 years of ISP networking experience in MPLS design and peering architecture. He was joined by Sujan Mahat (NCELL, Senior Network Engineer – Backbone & Core Transport), who brought 8+ years of experience in BGP, IP transport, and DNS operations; Kumar Tiwari (Subhashree Technologies, Technical Head), specializing in routing, switching, SD-WAN, and network security; and Sakar Pudasaini (Driven Tech, Inc., Network Engineer), an infrastructure design specialist and contributor to forwardingengine.com.

**Track 2 — Network Security**

This track equipped network and system engineers with practical skills for defending modern infrastructure, covering cryptography, VPNs, access control, packet analysis, DDoS mitigation, intrusion detection, and routing security including RPKI. The track was led by Shane Hermoso (Training Manager, APNIC), who leads APNIC's regional technical training and capacity-building work and is a regular NOG speaker on IPv6, RPKI, and secure Internet practices, alongside Rupesh Basnet (Co-Founder, Om Networks; APNIC Community Trainer for South Asia and Oceania). A notable example was Prakriti Timalina from Cryptogen, who attended SANOG - 44 as a returning fellow — a reflection of the long-term impact of the SANOG Fellowship Program in nurturing technical talent and fostering sustained

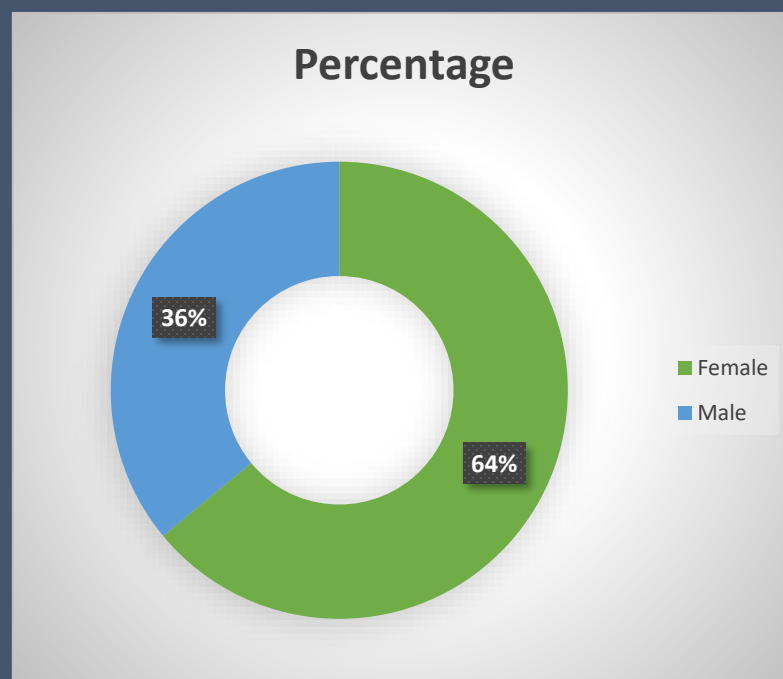


Fellowship Program

SANOG - 44 with npNOG-12 supported the participation of emerging network engineers and community members from across the region through its Fellowship Program, covering nine international fellows and fourteen local fellows from Nepal, generously supported by the APNIC Foundation and Flexoptix.

The SANOG - 44 Fellowship Program was one of the key community initiatives of the conference, enabling talented network engineers, researchers, Internet professionals, and students from across South Asia to participate in the npNOG – 12 Workshops (22–25 July 2026) and the SANOG - 44 Conference (26–28 July 2026) in Kathmandu, Nepal. The program was made possible through financial support from SANOG Fellowship Sponsors, whose contributions helped reduce barriers to participation and promote greater regional collaboration.

During SANOG - 44, fellowship recipients actively participated in technical workshops, keynote sessions, panel discussions, sponsor-track presentations, and networking events, and were encouraged to engage with experienced Internet professionals, exchange operational knowledge, and strengthen professional networks across the South Asian region.



Impact of the Fellowship Sponsors

- Expanding regional participation from multiple South Asian countries.
- Providing equal learning opportunities regardless of financial limitations.
- Encouraging diversity and inclusion within the Internet technical community.
- Strengthening regional cooperation and technical knowledge sharing.
- Investing in the future growth of South Asia's Internet infrastructure and operational expertise.

International Fellows (9 Recipients)

Name	Country
Shamonti Haque Rouppo	Bangladesh
Tenzin Wangmo	Bhutan
Srijan Sajid	Bangladesh
Mahrukh Anmol	Pakistan
Mapitiyage Dilki Prabodha Karunathilaka	Sri Lanka
Basant Subba	Bhutan
Madduma Wellalage Pasan Maduranga	Sri Lanka
Mst. Mithi Aktar	Bangladesh



Nepal Local Fellows (14 Recipients)

Name	Country
Sandhya Khanal	Nepal
Aakriti Gautam	Nepal
Saksesh Ghimire	Nepal
Vedant Agrawal	Nepal
Narayan Shrestha	Nepal
Bridizzma Mishra Paudel	Nepal
Sneha Khanal	Nepal
Ranjan Kumar Shah	Nepal
Rojina Maharjan	Nepal
Sajjan Kumar Chaudhary	Nepal
Smriti Shrestha	Nepal
Himani Gaire	Nepal
Laxman Bahadur Chand	Nepal
Prashansa Joshi	Nepal



Conference Summary

Day 1 — 26 July 2026

The first day of SANOG - 44 officially commenced with an inspiring Opening Plenary held in the Bagmati 1 conference hall. The plenary session was chaired by **Aftab Siddiqui**. The ceremony welcomed delegates from across South Asia and beyond through opening remarks delivered by Rupesh Shrestha (SANOG Chair), Samit Jana (npNOG President), and Jia Rong Low (Director General of APNIC).

MoU Signing between SANOG and APNIC

The event featured a formal Memorandum of Understanding (MoU) signing ceremony between APNIC and SANOG, highlighting the continued commitment of both organizations to advancing Internet development, technical capacity building, and regional cooperation. Chief Guest Arjun Ghimire from the Nepal Telecommunications Authority emphasized the importance of collaborative efforts in strengthening Nepal's and South Asia's digital infrastructure



Internet Enablers Awards

The Internet Enablers Awards were presented to **Dileep Agrawal** (Nepal), **Neeraj Sonker** and **Suchit Nanda** (India), **Tariq Mustafa** (Pakistan), **Sumon Ahmed Sabir** (Bangladesh), and **Jichen Thinley** (Bhutan). In a press release, organizers said the recipients played key roles in expanding access and building the infrastructure that enabled widespread internet use across the region.



The opening session continued with welcome remarks from the Chief Guest, Arjun Ghimire of the Nepal Telecommunications Authority, who highlighted the important role of the NOG community in strengthening Nepal's information and communication technology sector. He emphasized that in a developing country like Nepal, collaboration among network operators, engineers, researchers, and other stakeholders through the NOG community is essential for building a stronger, more resilient, and innovative Internet ecosystem.





This was followed by two keynote presentations addressing emerging trends in Internet technologies. Binaya Mohan Saud of Subisu Limited discussed how artificial intelligence is transforming Internet Service Providers through his keynote, “Internet to Intelligence: Reinventing ISP for the AI Era.” This was followed by David Conrad, Principal and Co-Founder of Layer9 Technologies, whose presentation, “It Doesn't Always Have to Be the DNS,” offered practical perspectives on network troubleshooting and operational diagnostic.

The Opening Plenary was followed by the first technical session which was chaired by the founding chair of SANOG Mr. Gaurab Raj Upadhaya. The session focused on strengthening operational knowledge and preparing network engineers for evolving challenges — covering effective decision-making through mental models, practical approaches to maintaining Internet connectivity during Internet shutdowns, and the emerging impact of quantum computing on modern cryptography.

Thereafter afternoon's second technical session, chaired by Mr. Punit Manandhar, emphasized Internet security and routing resilience — demonstrating how open-source security tools can strengthen cyber defense capabilities, introducing ASPA and RPKI Path Validation to improve routing security, and exploring practical strategies for protecting Internet routing infrastructure.



The day's technical program concluded with a dedicated DNS Session, chaired by Tashi Phuntsho (FLEXOPTIX), examining global DNS query trends, showcasing how DNS log analysis can improve CDN performance and ISP visibility, and highlighting preparations for the upcoming Root Zone Key Signing Key (KSK) Rollover.

The day closed with the SANOG - 44 Social Event Dinner, which successfully brought together the diverse SANOG community in an atmosphere of friendship, collaboration, and regional networking — reinforcing SANOG's role not only as a platform for technical knowledge sharing, but also as a community-driven forum for building lasting relationships across South Asia and the Asia-Pacific region.



Day 2 — 27 July 2026

The second day focused on advanced technical discussions, practical tutorials, and collaborative knowledge sharing. The morning began with Technical Session 4, chaired by Rupesh Basnet, exploring operational challenges affecting modern Internet infrastructure — balancing DDoS protection without disrupting legitimate traffic, leveraging SNMP data for improved network visibility, and understanding large-scale supply-chain malware threats impacting network security in Bhutan and across South Asia.





Running concurrently, Tutorial offered hands-on training in Data Center Fabric Architecture, led by Pares Khatri (NOKIA), introducing modern data center networking concepts and scalable infrastructure design principles.



In the afternoon, Technical Session concentrated on Internet peering and interconnection strategies. Participants learned practical approaches to AWS peering architecture and troubleshooting before joining a panel discussion on the future of Internet peering in the region, with industry experts representing Packet Clearing House (PCH), DE-CIX, APNIC, Meta, and NPIX discussing opportunities to strengthen regional connectivity, expand Internet Exchange Points (IXPs), and improve collaboration among network operators throughout South Asia.

Tutorial: BGP Watch – Collaborative BGP Routing Analysis, Monitoring, and Incident Response Platform

The BGP Watch tutorial was presented by Niraj Acharya (NREN) and Aryan Joshi (NREN) during SANOG 44. It focused on practical approaches to BGP routing analysis, anomaly detection, network monitoring, and incident response. The SANOG 44 program lists BGP Watch as Tutorial 2, held during the conference technical program

The platform also uses data-plane probing to verify suspicious routing events. When an anomaly is identified, targeted probes can be used to examine reachability and determine whether a suspected hijack is actually affecting traffic.

The BGP Watch tutorial provided SANOG 44 participants with a practical introduction to modern BGP monitoring, routing-security analysis, anomaly detection, and incident response. The session demonstrated how collaborative monitoring platforms can help network engineers identify routing problems more quickly, investigate suspicious BGP behavior, and improve the overall resilience and security of Internet infrastructure.

Panel was conducted as part of Technical Session 6 – Peering at SANOG 44, held in Kathmandu from 26–28 July 2026. The session was moderated by Warren Finch (Internet Society) and brought together representatives from Internet exchanges, regional Internet infrastructure organizations, and major content networks.

The Panel Discussion was one of the key highlights of the conference, bringing together regional and global Internet infrastructure leaders to discuss the future of peering and Internet connectivity in South Asia. It focused on strengthening collaboration among Internet Exchange Points (IXPs), content providers, network operators, and cloud platforms to improve regional traffic exchange, reduce latency, and build a more resilient Internet ecosystem.

Panel Discussion: Future of Peering and Opportunities

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Role	Name / Organization
Moderator	Warren Finch — Internet Society
Panelist	Bill Woodcock — Packet Clearing House (PCH)
Panelist	Sudhir Kunder — DE-CIX
Panelist	David Phelan — APNIC
Panelist	Matt Jansen — Meta
Panelist	Rupesh Shrestha — NPIX / SANOG

Key Discussion Highlights

- The growing importance of regional peering in reducing latency and improving network performance.
- Expanding Internet Exchange Points (IXPs) across South Asia to keep local traffic local.
- Opportunities for collaboration between ISPs, cloud providers, content delivery networks (CDNs), and academic networks.
- Best practices for developing sustainable peering ecosystems and strengthening regional Internet resilience.
- Preparing Internet infrastructure for AI-driven applications, increasing traffic demands, and next-generation connectivity.

During SANOG - 44 (26–28 July 2026, Kathmandu), Meta participated as a technical contributor, with representative Matt Jansen joining the “Future of Peering and Opportunities” panel to share operational insights on Internet infrastructure and peering. There was a public announcement of a new **Meta product** or service launch at the conference; instead, Meta's contributions focused on improving Internet connectivity and collaboration within the South Asian networking community, emphasizing:

Meta also publicly announced its plan to establish its first Point of Presence (PoP) in Nepal at Data World's Tier III data center, targeted for completion by the end of 2026. The announcement represents a significant development for Nepal's Internet infrastructure and peering ecosystem, with the potential to improve local access to Meta services and strengthen connectivity between local networks and Meta's global infrastructure. The announcement is particularly relevant in the context of the SANOG 44 peering discussion, as the establishment of a local Meta PoP could contribute to **greater localization of Internet traffic, reduced latency, improved network efficiency, and enhanced resilience** for networks and users in Nepal.

- Strengthening regional peering ecosystems.
- Improving network performance through local traffic exchange.
- Collaboration between content providers, IXPs, and ISPs.

- Preparing Internet infrastructure for future traffic growth and reduced reliance on international transit.

The conference concluded its second day with an inspiring Closing Plenary, chaired by Rupesh Shrestha (SANOG Chair). Keynote presentations examined the economics of Internet connectivity in South Asia, the strategic importance of resilient communication infrastructure, and ongoing initiatives to strengthen technical capabilities across the Asia-Pacific region. Updates from National Network Operators' Groups (NOGs) highlighted recent regional achievements and future collaborative initiatives, while organizers officially introduced SANOG 45, scheduled to be hosted in Dhaka.



The **Closing Plenary** brought SANOG - 44 to a thoughtful conclusion, bringing together perspectives on the future of connectivity, critical Internet infrastructure, capacity building, and the continued growth of the regional NOG community. **GZ Kabir** delivered the closing keynote, "The Economics of Connectivity in South Asia: Falling ARPU, Rising Expectations, Rising Network Costs," highlighting the economic pressures facing network operators across the region and the need for sustainable approaches to meeting growing connectivity demands.



This was followed by, **Bill Woodcock General Secretary** of Packet Clearing House, who spoke on “Critical Communication Infrastructure,” discussing the international effort to define what constitutes critical communications infrastructure, and the protections being sought for it under international law. **Rajnish Singh**, CEO of the APNIC Foundation, then shared perspectives on “**Building Capabilities in the APAC Region**,” highlighting the importance of developing technical skills, knowledge, and local capacity to strengthen the region’s Internet infrastructure.



The “**Building Capabilities in the APAC Region**” session was delivered by Rajnish Singh, CEO of the APNIC Foundation, as part of the Closing Plenary of SANOG - 44. The session highlighted the importance of developing technical skills, strengthening Internet infrastructure capacity, and supporting the next generation of Internet professionals across the Asia-Pacific region. The official SANOG - 44 programme lists the session the session was particularly relevant to SANOG’s

broader mission of strengthening the human and technical infrastructure supporting Internet connectivity in South Asia. SANOG describes its programme as being focused on operational knowledge exchange, technical excellence, training, and regional cooperation.





The plenary also featured NOG Updates from communities across South and Asia-Pacific, including bdNOG, btNOG, inNOG, JANOG, lknOG, npNOG, phNOG, pkNOG, and SANOG, showcasing the continued collaboration and growth of the regional NOG community.

The **“SANOG45 (Dhaka) Update”** was presented by **Mohammad Aminul Hakim, President of the Internet Service Providers Association of Bangladesh (ISPAB)**, during the Closing Plenary of SANOG 44 in Kathmandu. The official SANOG 44 programme lists the update as part of the closing session, following the regional NOG updates and the “Building Capabilities in the APAC Region” presentation

The program concluded with closing remarks from Rupesh Shrestha, SANOG Chair, bringing SANOG - 44 to a close while reinforcing the importance of continued collaboration, knowledge sharing, and community-driven development of the Internet across South Asia and the wider APAC region.

Day 3 – 28th July 2026

The third day of the program focused particularly on engagement with industry partners, including APNIC and the Nepal Research and Education Network (NREN), providing a platform for discussions, collaboration, and knowledge sharing. The day also featured dedicated sessions for sponsors, who were given a half-day program to showcase their latest technologies, products, and solutions, giving participants an opportunity to learn about emerging developments directly from industry leaders.



REN Members meeting



The third and final day of SANOG - 44 was dedicated to regional collaboration, policy discussions, community engagement, and industry innovation. The day commenced with the REN Members Meeting, where representatives from National Research and Education Networks (NRENs) gathered to exchange experiences and strengthen regional partnerships. Discussions focused on organizational objectives, current **NREN** activities, peer experiences from **BdREN**, and updates on the **Asi@Connect** initiative. Participants also engaged in interactive discussions to identify common priorities, collaboration models, and future opportunities for supporting research and education networking across the region.



APNIC Sub Regional Forum



In parallel, the **APNIC Sub-Regional Forum** brought together APNIC members and Internet stakeholders to discuss registry services, resource management, and Internet governance. Sessions led by **Pubudu Jayasinghe** explored Registry Accuracy, as well as technical topics including **IPv6 deployment**, **RPKI**, and **ASPA**, emphasizing the importance of secure and reliable Internet resource management. The afternoon continued with comprehensive discussions on the APNIC Policy Development Process (**PDP**), community participation mechanisms, recent policy developments, and operational implications for members.

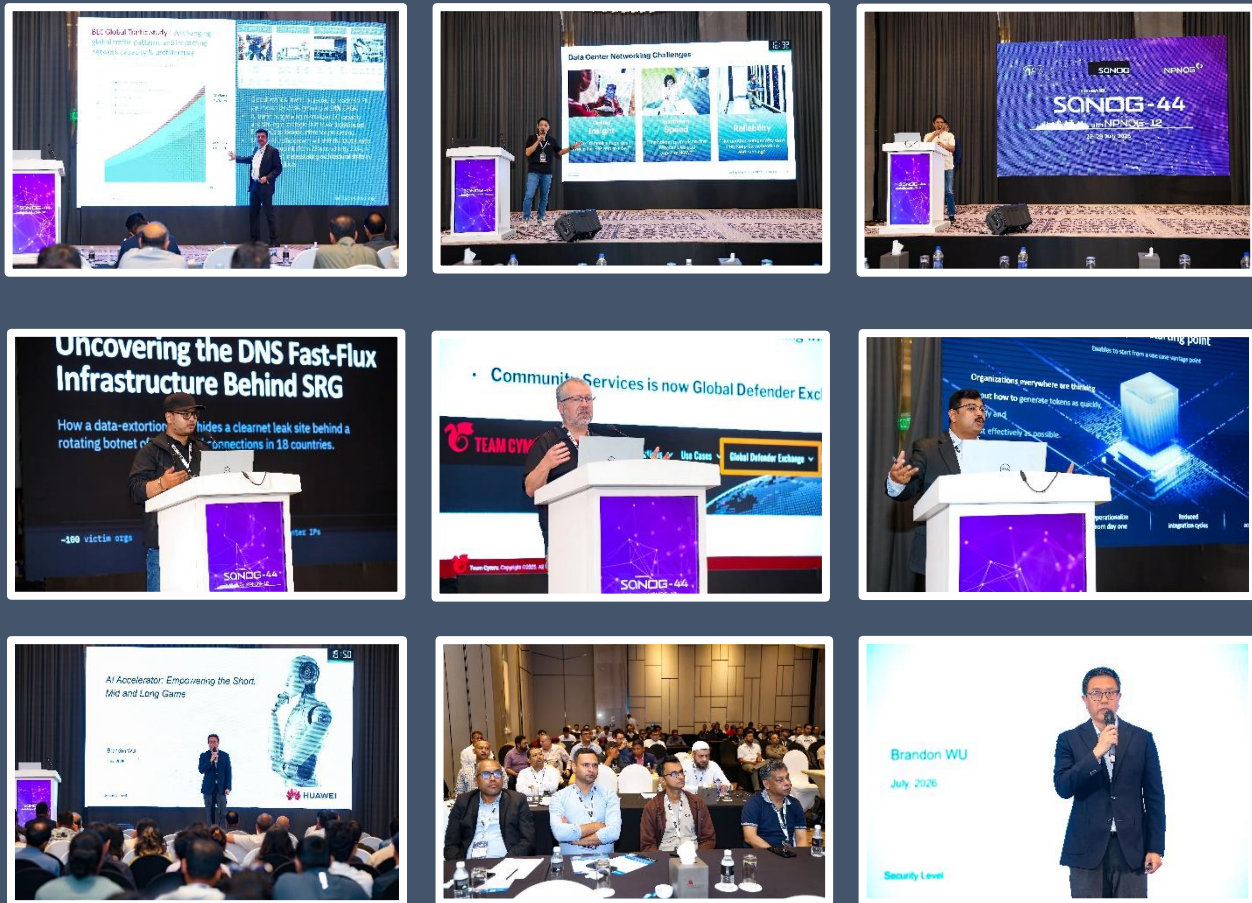
An update from the APNIC Foundation highlighted ongoing capacity-building initiatives and opportunities for regional collaboration, followed by a Community Listening Session where APNIC leadership gathered valuable feedback and recommendations directly from participants



Sponsors Meet

The **Sponsors Meeting and Discussion** at **SANOG - 44**, held in Kathmandu, Nepal, served as an important platform for engaging with sponsoring organizations and strengthening partnerships within the South Asian Internet community. The meeting provided sponsors with an opportunity to interact directly with the SANOG organizing committee, regional Internet leaders, network operators, and technical experts while discussing future collaboration and technology initiatives. SANOG - 44 brought together network engineers, ISPs, IXPs, cloud providers, researchers, and Internet organizations from across South Asia and the Asia-Pacific region.

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Conclusion

SANOG-44 with npNOG-12, held in Kathmandu, Nepal, from **22–28 July 2026**, was a grand success. Over the course of **one week**, the event brought together 447 participants from 20 economies — **including** network operators, ISPs, researchers, policymakers, and Internet pioneers — for four days of intensive technical workshops followed by a three-day conference **featuring** keynotes, technical sessions, panel discussions, and community meetings.

The event **delivered on every dimension of SANOG’s mission**. Four days of hands-on npNOG workshops on **Next-Generation Routing** and **Network Security** strengthened the operational capacity of 94 engineers. The Fellowship Program, supported by the APNIC Foundation and Flexoptix, extended this opportunity to 22 emerging professionals from across South Asia.

The week also marked significant milestones in institutional collaboration, including the formal **signing of an MoU between SANOG and APNIC**, the first-ever **APNIC Sub-Regional Forum** in South Asia, the **Internet Society’s community meeting**, and the **REN Members Meeting**. The Internet Enablers Awards recognized **pioneers** whose contributions continue to shape and strengthen the region’s Internet infrastructure.

The conference program, **featuring** keynote presentations and **insights shared by several renowned experts, provided an enriching learning experience** for all participants. An engaging panel discussion brought together industry leaders for insightful conversations on the Future of Peering and emerging opportunities, highlighting SANOG's growing role in fostering collaboration, innovation, and the continued development of global Internet infrastructure.

Strong support from the Government of Nepal, our sponsors, and the wider npNOG community played a **vital role** in ensuring the smooth and successful delivery of the event. Presence, participation and support of all the SANOG Core-Com members comprising of representatives from each of the active NOGs of South Asia (BDNOG, BTNOG, INNOG, LKNOG, NPNOG, PKNOG), SANOG Steering Committee, NPNOG, NPIX and many community partners, sponsors, participants and local partners **collectively engaged together to make this event a great success.**

The **social dinners** and closing celebrations provided the region's Internet community with valuable opportunities to connect, strengthen personal relationships, and foster **collaborations** that continue to sustain and advance SANOG's mission. Thank you all for this wonderful participation and collaboration and see you again next time in Dhaka, Bangladesh for SANOG-45 with bdNOG-23.

Thankyou!