Programs for SANOG 33

Bhutan Telecom will be hosting SANOG33 (South Asia Network Operators Group) from 9th – 16th January 2019 in Thimphu, Bhutan

Introduction

SANOG was started to bring together operators for educational as well as co-operation. SANOG provides a regional forum to discuss operational issues and technologies of interest to data operators in the South Asian Region. The main objective is educational, but at the same time gives vendors a chance to talk to engineers about newer technology and products on the sidelines. Engineers get to talk to each other about experiences, benefit the entire community. This non commercial people networking is in line with established practices like NANOG in North America, RIPE Meetings in Europe and APRICOT in Asia.

SANOG framework incorporates workshops and tutorials in conjunction with the meeting. While tutorials will always be part of any SANOG meeting, workshops are done when there is a demand and resources are available. The regional area covered by SANOG includes Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri-Lanka. We also welcome participants from West Asia to the gathering to build up relationships. While issues in this region will be discussed prominently, participants from the Internet policy and operational community all over the world are welcome.

SANOG specially invites people from the community to contribute through being instructors and sharing experience. Network operators in the region are in nascent stage of development, and all such help will be valuable. We also welcome participants from all regions who can benefit by SANOG's educational goals.

Fees

SANOG expenses are met through the registration fees and from Sponsors

Registration Type	Registration fee for Bhutanese in Ngultrums	Registration fee for SANOG Members (in US$)
a. Passport Registration	18,500.00	250.00
b. Workshop only (5days)	11,100.00	150.00
c. Conference and Tutorial (3days)	9,250.00	125.00
c. Conference only (1day)	3,700.00	50.00

I. **Conference:** 9th -2019

II. Tutorials: 10th and 11th January 2019

Conference and Tutorials designed in a lecture format will cover in the areas of field of ICT.

III. Workshops (3 Tracks): - 12th -16th January 2019

Participants are required to bring their own laptops. These can be Windows/Linux/macOS and must have working wireless to allow participation in the hands on lab exercises.

Track 1: Campus Networking (36 seats)

Campus Network Design and Operations (CNDO)

This is a technical workshop, made up of lecture and hands-on lab work to teach the skills needed to design, build, operate and manage a Office or tertiary education institution's campus network infrastructure according to current best practices.

Workshop Topics

Participants in this course will learn about:

- Research and Education network infrastructure
- Campus core infrastructure design best practices
    - Campus design principles
    - Physical infrastructure (cabling and cabling installation)
    - Fibre optics
    - Switching (spanning tree, VLANs, L2 best practices)
    - Routing (static routing and OSPF)
    - IPv4, IPv6 and deploying dual stack infrastructure
    - Choosing campus routers and switches
- Best practice techniques in core network operations
- Campus security implementation and best practices
    - Acceptable use policies
    - Monitoring
    - Firewall placement
- Building sufficient instrumentation to monitor and manage the network

These skills will in turn drive an increase in campus network usability, security and reliability, as well as enhance the usability of the National REN the campus connects to, and improves the connectivity to and engagement with the regional R&E networking community.

Target Audience

- The course targets the network & systems engineers from Enterpie and Governmen Offices, tertiary education institutions (campuses) and National or Regional Research and Education networks (RENs).

Prerequisites

- Medium to good knowledge of the UNIX/Linux command line environment
- Basic knowledge of TCP/IP networking
- *Participants are required to bring a laptop*

Objectives

At the end of the workshop, students will be able to:

- Explain the goals associated with fit-for-purpose network design and demonstrate this understanding through successful completion of lab exercises.
- Explain the different models of a Research and Education Network and be able to share with the class model used or proposed in their economy.
- Explain physical cabling types, their differences and where they might be best deployed.
- Explain and demonstrate how to build networks hierarchically using a star topology. Students will be able to present their current network topology and explain how this compares to the star-topology taught in class.
- Produce a sample addressing plan and present it, plus the underlying design rationale in class.
- Produce an IP Subnetting and VLAN design for their campus network.

Track 2: Linux System Administration Workshop (36 seats)

Will cover the following

- TCP/IP Essentials
- Introduction ot Linux
- Security Essential (SSH), SSH agent
- Linux Commands and CLI
- Linux Permission Basics
- DNS Fundamentals
- Security Auto updates and Host Firewall
- Monitoring Libre NMS
- Monitoring Libre NMS (Labs)
- Monitoring: Smokeping, Nagios & other NM tools (Labs)
- Automation Ansible
- Automation Labs
- Back Ups, PC
- Virtualization and Cloud
- Linux Scripting Basics

Track 3: IPv6 Deployment Workshop (36 seats)

Workshop Goals

This five-day IPv6 Deployment Workshop, teaches network operators how to deploy IPv6 on their network infrastructure.

Target Audience

Technical staff who involved in Internet technology standards, local and national network infrastructure deployment, and day to day network operations.

Pre-requisites

It is assumed that the workshop participants know how to use a router command line interface, do basic router configuration and have a working knowledge of an IGP (OSPF or IS-IS) and BGP fundamentals. Knowledge of the IPv6 protocol is helpful but not essential.

This workshop is not an introduction. The lab exercises use Cisco IOS configuration syntax.

Profile of Instructors

IPv6:
Philip Smith: http://www.bgp4all.com.au/dokuwiki/about
Tashi Phuntsho: https://training.apnic.net/about/team/

Campus Design:
Dale Smith: https://nsrc.org/bios/DaleSmith.html
Nimal Ratnayake: https://nsrc.org/bios/NimalRatnayake.html
Abdul Awal: https://nsrc.org/bios/AbdulAwal.html

Linux Sysadmin:
Hans Kuhn: https://nsrc.org/bios/HansKuhn.html
Mike Jager: https://nsrc.org/bios/MikeJager.html