AFIX Technical Workshop: Overview

This document gives a brief overview of the content and timing of all the sessions during the two-day AFIX Technical Workshop.

The workshop is aimed at people from existing or would-be ISPs, regulatory agencies and others who want to develop and extend their networking skills. To get the full benefit from this workshop, you should have some knowledge of basic networking and be an experienced Internet user. It will be most useful if you attend all the sessions.

Day 1

Session 1: High-level overview 8:30-10:00

This session provides a brief look at the history and current status of the Internet and its architecture, and introduces (or refreshes) some key concepts.

Content outline

- High-level Internet architecture and history
- Peering vs transit
- Rationale for an exchange point (IXP)
- History and status of various peering/transit arrangements globally and in Africa

Objectives

After the session, participants should:

- Understand the current underlying structure of the Internet and the technical, social, political and economic forces that have shaped it.
- Understand the concepts of peering and transit.
- Know what an Internet Exchange Point (IX) is.
- Understand some of the dynamics of global and specifically African peering and transit arrangements.

Session 2: Cost savings exercise 10:30-12:00

This session explores the cost-savings dynamics associated with participation in an IXP by an ISP, including the dynamics for the overall ISP market.

Content Outline

- What operating costs can change and why, when ISPs have the option to participate in an IXP.
- How interrelationships among ISPs in a market can affect cost.
- How different sizes of ISPs and levels of participation in and IXP affect cost for individual ISPs.
- Using a modelling tool (provided in the session) to compare and test different scenarios for ISP participation in an IXP, and what cost-savings implications result.

Objectives

After the session, participants should:

- Understand what factors drive cost and savings for an ISP participating in an IXP.

- How other ISPs in a market are likely to be affected by the creation of an IXP.
- How to use a modelling tool to test various scenarios pertaining to the establishment of an IXP and understand the likely cost-savings implications.

Session 3: Technical refresher exercises 12:00-16:30

(include lunch break)

This session refreshes the concepts of static and dynamic routing and provides several exercises, which are the most significant part of the content.

Objectives

By the end of the sessions participants should:

- Understand the difference between communication between devices on a single logical network and communication between different logical networks
- Be able to set up static routes and dynamic routes on an interior network and check their status.
- Understand the role that a router/gateway plays in such a set of logical networks.
- Be familiar with the ping and traceroute networking tools and how they are used to diagnose routing/networking problems.

Session 4: Technical aspects of peering 16:30-17:30

This session focuses more closely on how to set up peering.

Content outline

- Peering checklist / requirements.
- Introduction to eBGP (peering between different autonomous systems).
- Do's and don'ts of eBGP.

Objectives

By the end of the session, participants should:

- Understand what is required to set up successful peering.
- Be able to set up an eBGP network between two or three peers.
- Be able to diagnose and correct common problems.

Day 2

Session 4: Technical aspects of peering (continued) 8:30-10:45

This session focuses more closely on how to set up peering.

Session 5: Preparation for an IXP 11:15-12:15

This session focuses more closely on how to set up an IXP.

Content outline

- AfriNIC and how to get the required AS numbers and IXP addresses..
- Peering checklist/requirements.

Objectives

After the session, participants should:

- Know how to make an application to AfriNIC.
- Understand what is technically required to set up your national IXP.

Session 6: Business aspects of Internet Exchanges 12:15-13:00

This session explores the business models applicable to an IXP and the associated financial and business implications.

Content outline

- Key non-technical characteristics of a successful IXP.
- Appropriate forms of business entity.
- How to ensure financial sustainability: appropriate fee structures and settlement options.
- Managing relationships among stakeholders and clients.

Objectives

After the session, participants should:

- Know which are the most important business and financial decisions to be made in setting up an IXP.
- Have the knowledge and tools to assess the most appropriate options for their own context.
- Be able to anticipate likely political and business-related problems and know how these have been solved in other contexts.

Session 7: Policies for peering and IXPs 13:30-15:30

This session will explore the most common issues around peering from an ISP policy point of view, and review some general conditions of and criteria for peering. During the session participants will study three real-world examples of different bilateral and multilateral peering arrangements.

Content outline

- Peering criteria and arrangements
- Classification of IXPs
- Acceptable use policies
- Exercise

Objectives

Participants should understand the reasons for adopting different types of IXP, and their consequences. During discussion of the real-world examples participants should develop a rough draft of an appropriate policy for their own local context.

Session 8: Final exercise and wrap 15:45-17:30

During this session participants will explore the strategic and financial role of peering in an ISP strategy, though playing the Peering Game developed by WB Norton.