Advanced Routing - BGP Multihoming with IPv4 and IPv6

Instructors:
Philip Smith, Mark Tinka

Who should attend:
This is a technical workshop, made up of lectures and hands-on lab work. Open to technical staff who are operating a wide area TCP/IP base Internet Service Provider (ISP) network or Internet eXchange Point (IXP), likely with international and/or multi-provider connectivity.

Pre-requisites:
Cisco IOS Fundamentals; user level UNIX and maybe some system administration; some use of network design, preferably TCP/IP-based; knowledge of OSPF and of BGP. All attendees must have in the past completed the APRICOT ISP Routing Workshop, or demonstrate competence equivalent to the level attained by that workshop.

What you will learn:
- Techniques for design, set-up, and operation of a metropolitan, regional, or national ISP backbone network. This includes advanced BGP4 and complex network configurations.
- Techniques for the design, set-up, and operation of Internet Exchange Points.
- Techniques for multiple connections to the Internet (multihoming), including connections to IXPs, other ISPs and to Internet Transit providers.
- Techniques to achieve optimal performance and configuration from a Cisco backbone router. This includes routing scalability, network design, and configuration tips.

Technologies Covered:
Introduction to ISIS. IPv4 and IPv6. Refresher on iBGP; eBGP, BGP Scaling, BGP Multihoming Techniques, BGP Transit, BGP Best Practices, BGP Communities, Advanced IXP Design.

Each class is different and tuned to the participants requirements. If there are any specific requirements, these should be communicated to the instructors during the workshops. The instructors who teach at these workshops are among the top Internet engineers today, and between them, have a great deal of knowledge on many current technologies.

Abstracts

- Network Management and NOC Workshop
Hervey Allen (NSRC), Phil Regnauld (NSRC), Chris Evans (Delta-Risk)

- VOIP Deployment Workshop
Jonny Martin (PCH), Vicky Shrestha (PCH), Daniel Griggs (FX Networks)

- Network Security Workshop
Damien Holloway (Juniper Networks), Kunjal Trivedi I(Cisco), Merike Kaeo (Doubleshot Security)

- ISP Routing Workshop using IPv4 and IPv6
Gaurab Raj Upadhaya(PCH), Amante Alvaran (APNIC), Shankar Vridhagiri

- Advanced Routing - BGP Multihoming with IPv4 and IPv6
Philip Smith (Cisco), Mark Tinka (Global Transit)

- Toward The Internet 2.0
Hiroshi Esaki, Ph.D.

- Advancing the Philippines' Internet Infrastructure
William Torres, Ph.D.

- Integrating IP Wireless Sensor Networks
PatrickÂ Grossetete, Archrock

- Lessons Learnt from the Beijing Olympic Games Website Measurement
Rocky K. C. Chang, The Hongkong Polytechnic University

- A technical demo and overview of .tel
Jim Reid (Telnic)

- BGP IN 2008 - what's changed Â
Geoff Huston (APNIC)

- IPv6 Traffic levels on Hurricane Electric's backbone
Martin Levy (Hurricane Electric)

- JANET's 40Gbps backbone
Rob Evans (JANET)

- From IPv4 only to v4/v6 Dual Stack
Shin Miyakawa (NTT)

- How to Keep CGNs from Breaking the Internet
Randy Bush (IIJ)

- IPv6 Deployment at IIJ
Yoshinobu Matsuzaki (IIJ)

- Session aware NAT
David Miles (Alcatel-Lucent)

- IANA and DNSSEC at the root
Richard Lamb (IANA)

- IPv6 at Google: lessons learned, state of the art, and the road to deployment
Lorenzo Colitti(Google)

- Euro-IX update
Serge Radovcic (Euro-IX)

- IPv6 at Monash University
John Mann(Monash University)

- What can IXPs do for IPv4/IPv6 route exchange?
Takabayashi Takejiro (Japan Internet Exchange Co., Ltd.) and Mawatari Masataka (Co-author)

- What can IXPs do about IPv4 exhaustion?
MAWATARI Masataka (Japan Internet Exchange Co., Ltd.) and TAKABAYASHI Takejiro

- DNS-OARC's Open DNSSEC Validating Resolver
Duane Wessels(DNS-OARC)

- AMS-IX Update
Cara Mascini(AMS-IX)

- DNSSEC in 6 minutes
Joao Damas (ISC)

- NIXI - Internet Exchanges in India
Amitabh Singhal,NIXI
- IPv6 - IPv4 Co-Existence: IETF Report
Jari Arkko, Ericsson Research, IETF
- Rogue DNS servers - a case study
Feike Hacquebord,Trend Micro
- Building a very large scale compute system for organizing the worlds information and making it universally accessible
Vijay Gill
- Mobile Backhaul Architecture Options
Rishi Mehta ,Redback Networks
- Membership Development
Tomas Marsalek, NIX.CZ
- Broadband Forum v6 Home Networks
David Miles, Alcatel-Lucent
- BGP Routing Scalability Considerations
Danny McPherson,Arbor Networks, Inc. Co-author: Shane Amante, Lixia Zhang
- 2008 Infrastructure Security Report
Danny McPherson,Arbor Networks, Inc.
- 32-bit ASNs
Chris Malayter, Switch&Data, Co-author: Greg Hankins , Force10 Networks

- The Internet Regulatory Environment in Saudi Arabia
Dr. Ibraheem S. Al-Furaih (CITC)
- Tutorial: Introduction to IPv6
Kurtis Lindqvist (NetNod)

- Tutorial: BGP Multihoming Techniques
Philip Smith (Cisco)

- Tutorial: BGP Techniques for Service Providers
Philip Smith (Cisco)

- Tutorial: Troubleshooting BGP
Philip Smith (Cisco)

- Tutorial: Network Core Infrastructure - Best Practices
Yusuf Bhaiji (Cisco)

- Tutorial: Anatomy of a network attack, network forensics, network attack and defense
APNIC Training Team and Team Cymru

- Tutorial: Internet Routing Registry
APNIC Training Team

- Tutorial: MPLS Service, Applications & Deployment Best Practices
Santanu Dasgupta (Cisco Systems) and Kasu Venkat Reddy

- Tutorial: Layer 2 Attacks and Mitigation Techniques
Yusuf Bhaiji (Cisco)

- Tutorial: Managing Voice Quality in Converged IP Networks
Faisal Chaudhry (Cisco Systems)

- Tutorial: Internet Resource Management Essentials (IRME)
APNIC Training Team

- Tutorial: DNSSEC Deployment
Phil Regnauld and Hervey Allen (Network Startup Resource Center)

- Tutorial:MPLS-based Metro Ethernet Services
Paresh Khatri(Alcatel-Lucent)

- Tutorial:IPv6 Deployment
Mark Tinka(Global Transit International)

- Tutorial:IS-IS Deployment (Dual-Stack)
Mark Tinka(Global Transit International)