



The page contains presentations and tutorials Philip has developed and/or presented over the last decade or so. They are all sorted in descending of year. The most recent presentations/tutorials should be considered to be the most up to date versions of the relevant content. Please feel free to reuse these for your own training activities - and do let Philip know about any suggestions for improvements or enhancements to the most recent materials. All feedback is most welcome.

Year	Event	Slideset
2016	APRICOT 2016	<a href="#">BGP Techniques for Network Operators</a>
		<a href="#">BGP Multihoming Techniques</a>
		<a href="#">Troubleshooting BGP</a>
		<a href="#">Virtualisation for Network Testing &amp; Staff Training</a>
	SANOG 27	<a href="#">BGP Techniques for Network Operators</a>
		<a href="#">BGP Multihoming Techniques</a>
		<a href="#">Virtualisation for Testing &amp; Staff Training</a>
		<a href="#">Internet IPv4 Routing Table Analysis Update</a>
2015	APRICOT 2015	<a href="#">IPv6 Transition Strategies</a>
		<a href="#">IPv6 Deployment Planning</a>
	MENOG 15	<a href="#">Internet IPv4 Routing Table Analysis Update</a>
	PacNOG 17	<a href="#">A Practical IPv6 Introduction</a>
	SAFNOG 2	<a href="#">Migrating from OSPF to IS-IS</a>
		<a href="#">Internet IPv4 Routing Table Analysis Update</a>
	SANOG 25	<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">BGP Multihoming Techniques</a>
		<a href="#">IPv6 Transition Strategies</a>
		<a href="#">IPv6 Deployment Planning</a>
		<a href="#">Internet IPv4 Routing Table Analysis Update</a>

Year	Event	Slideset
2014	AfNOG 2014	<a href="#">Routing Table Update</a>
	APNIC 38	<a href="#">IPv6 Transition Strategies</a>
		<a href="#">IPv6 Deployment Planning</a>
	BDNOG 1	<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">BGP Multihoming Techniques</a>
		<a href="#">Internet Development: Experiences &amp; Lessons</a>
	BTNOG 1	<a href="#">Internet IPv4 Routing Table Analysis Update</a>
		<a href="#">Internet in Bhutan</a>
		<a href="#">DrukREN Technical Design</a>
	MENOG 14	<a href="#">Internet IPv4 Routing Table Analysis Update</a>
		<a href="#">IPv6 Transition Strategies</a>
	PacNOG 16	<a href="#">IPv6 Deployment Planning</a>
	SAFNOG 1	<a href="#">Peering and IXPs</a>
SANOG 23	<a href="#">BGP Best Current Practices</a>	
	<a href="#">BGP Techniques for Internet Service Providers</a>	
	<a href="#">IPv6 Essentials</a>	
	<a href="#">IPv6 Transition Planning</a>	
2013	AfNOG 2013	<a href="#">IPv6 Deployment Planning</a>
		<a href="#">NOG Update</a>
	APNIC 36	<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">BGP Multihoming Techniques</a>
		<a href="#">IPv6 Transition Strategies</a>
		<a href="#">IPv6 Deployment Planning</a>
	APRICOT 2013	<a href="#">IPv6 Introduction</a>
		<a href="#">IPv6 Transition Technologies</a>
		<a href="#">IPv6 Deployment Planning</a>
		<a href="#">BGP Multihoming Techniques</a>
	CaribNOG 5	<a href="#">Internet Routing Table Analysis Update</a>
	MENOG 13	<a href="#">Peering, Transit and IXP Design</a>
		<a href="#">Internet Exchange Point Design</a>
<a href="#">BGP Multihoming Techniques</a>		
MyNOG 3	<a href="#">IPv6 Transition Strategies</a>	
	<a href="#">Migrating from OSPF to IS-IS</a>	
SANOG 22	<a href="#">Internet Routing Table Analysis Update</a>	

Year	Event	Slideset
2012	APRICOT 2012	BGP Multihoming Techniques
		Migrating from OSPF to IS-IS
	AfNOG 2012	BGP Multihoming Techniques
	APNIC 34	IPv6 Address Planning
		ISP & IXP Design
	MENOG 10	BGP Multihoming Techniques
		Migrating from OSPF to IS-IS
	MENOG 11	IPv6 Address Planning
		ISP & IXP Design
Peering, Transit & IXPs		
MyNOG 2	BGP Multihoming Techniques	
	IPv6 Address Planning	
	Internet Routing Table Analysis Update	
NZNOG 2012	Migrating from OSPF to IS-IS	
PacNOG 12	Peering, Transit and IXP Design	
SANOG 20	Internet Routing Table Analysis Update	
2011	APRICOT 2011	BGP Techniques for Internet Service Providers
		IPv6 Addressing & Routing Protocols
	AfNOG 2011	Routing Table Update
		BGP Techniques for Internet Service Providers
		BGP Multihoming
		Troubleshooting BGP
	PacNOG 9	Towards and IPv6-only network
PacNOG 10	IPv6 Deployment Planning	
SANOG 17	Internet Routing Table Analysis Update	
SANOG 18	Internet Routing Table Analysis Update	
2010	AfNOG 2010	NOG Updates
	APAN 29	The Next Three Years
	APRICOT 2010	BGP Techniques for Internet Service Providers
	NANOG 50	BGP Techniques for Internet Service Providers
	NZNOG 2010	The Next Three Years: IPv6, IPv4 runout and 4-byte ASNs
	PacNOG 7	Introduction to Cloud Computing
	PacNOG 8	IPv6 and 4-byte ASN update
	RIPE NCC Regional Meeting Moscow	Network Operations Groups around the World
	SANOG 15	Internet Routing Table Analysis Update
	SANOG 16	Network Operations Groups around the World
Internet Routing Table Analysis Update		
		Troubleshooting BGP

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2009	AfNOG 2009	<a href="#">Routing Table Update</a>
		<a href="#">NOG Updates</a>
	APRICOT 2009	<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">BGP Multihoming Techniques</a>
	Australian Computer Society ACS2009	<a href="#">The Next Three Years</a>
	MENO 5	<a href="#">IPv6 Deployment Study</a>
		<a href="#">32-bit ASNs</a>
		<a href="#">The Next Three Years: IPv4 runout and the motivation for IPv6</a>
		<a href="#">Internet Routing Table Analysis Update</a>
	RIPE 58	<a href="#">IPv6 Technical &amp; Service Considerations</a>
		<a href="#">2008-06: Use of Final /8 (v2)</a>
	SANOG 13	<a href="#">2008-07: Ensuring efficient use of IPv4 resources (v2)</a>
		<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
	SANOG 14	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
<a href="#">32-bit ASNs</a>		
<a href="#">BGP Multihoming Techniques</a>		
<a href="#">Troubleshooting BGP</a>		
		<a href="#">Network Operations Groups</a>

Year	Event	Slideset
2008	AfNOG 2008	<a href="#">NOG Updates</a>
	AfriNIC 9	<a href="#">How Cisco is preparing for IPv6</a>
	APRICOT 2008	<a href="#">Troubleshooting BGP</a>
		<a href="#">BGP Aggregation &amp; Deaggregation Report</a>
	Cisco AU ISP Roadshow	<a href="#">Internet Status</a>
	JANOG 22	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
		<a href="#">Network Operations Groups</a>
	MENOG 3	<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">IPv6 Addressing &amp; Routing Protocols</a>
	MENOG 4	<a href="#">IS-IS Tutorial</a>
		<a href="#">Network Operations Groups Update</a>
	NANOG 42	<a href="#">Introduction to IPv6</a>
		<a href="#">Troubleshooting BGP</a>
	NANOG 44	<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">IPv6 Addressing &amp; Routing Protocols</a>
	Netnod IPv6 Conference	<a href="#">IPv6 @ NANOG, APRICOT and other places</a>
		<a href="#">IPv6 Address &amp; Routing Protocols</a>
	NZNOG 2008	<a href="#">32-bit ASNs</a>
		<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
OECD ITC 2008	<a href="#">The State of the Internet Routing Infrastructure</a>	
PacNOG 4	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>	
	<a href="#">Network Operations Groups</a>	
PhNOG 3	<a href="#">IPv6 @ NANOG, APRICOT and other places</a>	
RIPE 56	<a href="#">Network Operations Groups</a>	
RIPE 57	<a href="#">Proposal 2008-06: Use of Final /8</a>	
	<a href="#">Proposal 2008-07: Ensuring efficient use of historical IPv4 resources</a>	
SANOG 11	<a href="#">32-bit ASNs</a>	
	<a href="#">BGP Techniques for Internet Service Providers</a>	
	<a href="#">Improving the Internet Infrastructure</a>	
	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>	
SANOG 12	<a href="#">BGP Multihoming Techniques</a>	
	<a href="#">Troubleshooting BGP</a>	
	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>	

Year	Event	Slideset
2007	AfNOG 2007	<a href="#">Internet Routing &amp; Deaggregation Report</a>
		<a href="#">32-bit ASNs</a>
		<a href="#">Advanced Routing Workshop</a>
		<a href="#">BGP Multihoming Techniques</a>
	AfrINIC 7	<a href="#">32-bit ASNs</a>
		<a href="#">IPv6 at Cisco</a>
	APRICOT 2007	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
		<a href="#">BGP Techniques for Internet Service Providers</a>
	ARIN 20	<a href="#">IPv6 Addressing &amp; Routing Protocols</a>
	MENOG 1	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
		<a href="#">BGP Multihoming Techniques</a>
	MENOG 2	<a href="#">32-bit ASNs</a>
		<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
		<a href="#">IPv6 Routing Protocols: What has changed?</a>
		<a href="#">IPv6 Addressing &amp; Routing Protocols</a>
	NANOG 39	<a href="#">BGP Deaggregation Report</a>
		<a href="#">Troubleshooting BGP</a>
	NANOG 40	<a href="#">BGP Techniques for Internet Service Providers</a>
	NANOG 41	<a href="#">BGP Multihoming Techniques</a>
	PacNOG 3	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
PhNOG 1	<a href="#">BGP Multihoming Techniques</a>	
PhNOG 2	<a href="#">Improving the Internet Infrastructure</a>	
	<a href="#">BGP Route Aggregation Best Practices</a>	
SANOG 9	<a href="#">BGP Techniques for Internet Service Providers</a>	
	<a href="#">BGP Multihoming Techniques</a>	
	<a href="#">BGP Route Aggregation Best Practices</a>	
	<a href="#">Internet Routing Table Analysis Update</a>	
SANOG 10	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>	
	<a href="#">BGP Multihoming Techniques</a>	
UKNOF 8	<a href="#">BGP Best Practices</a>	
	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>	

Year	Event	Slideset
2006	AfNOG 2006	<a href="#">BGP Multihoming Techniques</a>
	AfrINIC 5	<a href="#">Aggregation Recommendations</a>
		<a href="#">IPv6: A Global Perspective</a>
		<a href="#">BGP Techniques for Internet Service Providers</a>
	APNIC 22	<a href="#">BGP Tutorial</a>
		<a href="#">BGP Multihoming Techniques</a>
		<a href="#">Troubleshooting BGP</a>
	APRICOT 2006	<a href="#">Deploying BGP</a>
		<a href="#">BGP Multihoming Techniques</a>
		<a href="#">Troubleshooting BGP</a>
	NANOG 36	<a href="#">Troubleshooting BGP</a>
	NANOG 37	<a href="#">BGP Techniques for Internet Service Providers</a>
	NANOG 38	<a href="#">BGP Multihoming Techniques</a>
	NZNOG 2006	<a href="#">Deploying BGP</a>
		<a href="#">BGP Multihoming Techniques</a>
<a href="#">Troubleshooting BGP</a>		
QUESTnet 2006	<a href="#">BGP Techniques for Providers</a>	
RIPE 52	<a href="#">BGP Flap Damping: Deprecating RIPE-229</a>	
RIPE 53	<a href="#">Route Aggregation Recommendations</a>	
RIPE NCC Regional Meeting Bahrain	<a href="#">BGP Best Practices</a>	
SANOG 7	<a href="#">NGP Multihoming &amp; Internet Exchange Points</a>	
	<a href="#">Internet Routing Table Analysis Update</a>	
	<a href="#">Scaling IGP in ISP Networks</a>	
SANOG 8	<a href="#">BGP Multihoming Techniques</a>	
	<a href="#">Internet Routing Table Analysis Update</a>	
	<a href="#">BGP Flap Damping: Where to now?</a>	
2005	APNIC 20	<a href="#">BGP Flap Damping: Where to now?</a>
	APRICOT 2005	<a href="#">Deploying BGP</a>
		<a href="#">Troubleshooting BGP</a>
	NANOG 33	<a href="#">Troubleshooting BGP</a>
	NANOG 34	<a href="#">BGP Techniques for Internet Service Providers</a>
	NANOG 35	<a href="#">BGP Multihoming Techniques</a>
	RIPE 50	<a href="#">Aggregation (?)</a>
		<a href="#">BGP Flap Damping</a>
	RIPE 51	<a href="#">BGP Flap Damping: Where to now?</a>
SANOG 5	<a href="#">Internet Routing Table Analysis Update</a>	
	<a href="#">IPv6 Tutorial</a>	
SANOG 6	<a href="#">Aggregation (?)</a>	

Year	Event	Slideset
2004	APRICOT 2004	BGP Tutorial
		BGP Multihoming
	NANOG 31	BGP Techniques for Internet Service Providers
	NANOG 32	BGP Multihoming Techniques
	NZNOG 2004	Troubleshooting BGP
	RIPE NCC Regional Meeting Moscow	ripencc-moscow-routing.pdf
	SANOG 3	BGP enhancements for IPv6
		IPv6 Multicast
BGP Multihoming Techniques		
Internet Routing Table Analysis Update		
SANOG 4	Internet Routing Table Analysis Update	
2003	AfNOG 2003	Troubleshooting BGP
	APNIC 16	BGP Multihoming
		Catching Worms at APNIC 16
	APRICOT 2003	Routing Table Update
		BGP Tutorial
		BGP Deployment Technqiues
		BGP Multihoming
		BGP Troubleshooting
	NANOG 27	BGP for Internet Service Providers
	NANOG 28	BGP Multihoming Techniques
	NANOG 29	BGP Troubleshooting
	RIPE 44	Internet Routing Table Analysis Update
	RIPE 45	Day in the Life of a BGP Update in Cisco IOS
	RIPE NCC Regional Meeting Dubai	Introduction to Routing
	SANOG 1	BGP for Internet Service Providers
BGP Multihoming Techniques		
SANOG 2	ISP Essentials	
	BGP Multihoming Techniques	
2002	AfNOG 2002	BGP for Internet Service Providers
	APNIC 14	BGP Multihoming
	APRICOT 2002	Routing Table Update
	IEPG @ IETF54	Routing Table Update
	KIOW 2002	BGP for Internet Service Providers
	NANOG 25	IXes in the AP Region
		BGP for Internet Service Providers
	NANOG 26	Troubleshooting BGP
	RIPE 41	Internet Routing Table Analysis Update
	RIPE 42	Internet Routing Table Analysis Update

Year	Event	Slideset
2001	APNIC 12	<a href="#">Internet Routing Analysis</a>
	APRICOT 2001	<a href="#">Promoting Routability</a>
		<a href="#">BGP Multihoming</a>
	ARIN 7	<a href="#">Internet Routing Table Analysis Update</a>
	AUUG 2001	<a href="#">Router Security</a>
	NANOG 22	<a href="#">BGP Tutorial</a>
	NANOG 23	<a href="#">BGP Multihoming Techniques</a>
	RIPE 38	<a href="#">Internet Routing Table Analysis Update</a>
	RIPE 39	<a href="#">Revisions to RIPE 210: Coordinated Route Flap Damping Parameters</a>
RIPE 40	<a href="#">BGP for Internet Service Providers</a>	
2000	IEPG@IETF49	<a href="#">Internet Routing Table Analysis Update</a>
	ISPCON 2K	<a href="#">Promoting Routability</a>
		<a href="#">BGP Multihoming</a>
	RIPE 37	<a href="#">Internet Routing Table Analysis Update</a>
<a href="#">BGP Flap Damping</a>		
1999	APRICOT 99	<a href="#">Promoting Routability</a>
1998	APRICOT 98	<a href="#">Promoting Routability</a>

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