



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
2023	PhNOG 2023	<a href="#">RouteViews: Global BGP Collector for Operators and Research</a>
	SANOG 39	<a href="#">Global Routing Table Update</a>
2022	APNIC 54	<a href="#">Peering Toolbox</a>
	SANOG 38	<a href="#">Peering Toolbox</a>
		<a href="#">Global Routing Table Update</a>
	PhNOG 2022 Hybr1d	<a href="#">Peering Toolbox</a>
	ThaiNOG 4	<a href="#">RPKI Operations</a>
	BKNIX Peering Forum 2022	<a href="#">Peering Toolbox</a>
	TNC'22	<a href="#">Global R&amp;E Routing Report</a>
	ICTP	<a href="#">Network Operator Groups</a>
	AfNOG 2022	<a href="#">Keynote: Post Pandemic NOG Evolution</a>
ThaiNOG 4	<a href="#">RPKI Operations</a>	
2021	mnNOG 3	<a href="#">Keynote: Mongolia's Internet Journey: from bits to Gigabits</a>
	btNOG 8	<a href="#">Keynote: The Events Defining Bhutan's Internet</a>
	APNIC Routing Security SIG Forum	<a href="#">Deploying RPKI and ROV at Cenpac</a>
	SANOG 37	<a href="#">Internet Routing Table Analysis Update</a>
	LKNOG 5	<a href="#">BGP Best Practices</a>
	vPhNOG2.0	<a href="#">R&amp;E Routing Table Update</a>
	AfNOG 2021	<a href="#">Global BCP for Routing Policy &amp; Security</a>
SANOG 36	<a href="#">Internet Routing Table Analysis Update</a>	
2020	LINX Seminar	<a href="#">Rebuilding a Pacific ISP During the Pandemic</a>
	PacNOG 26	<a href="#">Network Monitoring: The Foundation of Campus Security</a>
	APRICOT 2020	<a href="#">APRICOT 2020 RPKI Deployathon Report</a>
	SANOG 35	<a href="#">Internet Routing Table Analysis Update</a>

Year	Event	Slideset
2019	PacNOG 25	<a href="#">RouteViews: The BGP Collector for Today's Network Operator &amp; Researcher</a>
		<a href="#">Campus Network Design &amp; Operations Introduction</a>
	LINX107	<a href="#">IXPs in Asia &amp; Pacific</a>
	mnNOG 1	<a href="#">RouteViews: The BGP Collector for Today's Network Operator &amp; Researcher</a>
	SANOG 34	<a href="#">Internet Routing Table Analysis Update</a>
	PhNOG 2019 Manila	<a href="#">RouteViews: The BGP Collector for Today's Network Operator &amp; Researcher</a>
	SGNOG7	<a href="#">RouteViews: The BGP Collector for Today's Network Operator &amp; Researcher</a>
	PacNOG 24	<a href="#">RouteViews: The BGP Collector for Today's Network Operator &amp; Researcher</a>
		<a href="#">Campus Network Design &amp; Operations Introduction</a>
	btNOG 6	<a href="#">RouteViews: The BGP Collector for Today's Network Operator &amp; Researcher</a>
ThaiNOG 2	<a href="#">RouteViews Evolves: Modernizing the BGP Collector for Today's Researcher</a>	
SANOG33	<a href="#">Internet Routing Table Analysis Update</a>	
	<a href="#">Routing Security Tutorial</a>	
2018	PITA Telecoms Digital Strategy Forum	<a href="#">Modern Interconnects in the Internet Ecosystem</a>
	SANOG32	<a href="#">RouteViews: Enabling Research Through New and Innovative Infrastructure</a>
		<a href="#">Internet IPv4 Routing Table Analysis Update</a>
	btNOG5	<a href="#">Analysis of the Development of IXPs</a>
BKNIX Peering Forum	<a href="#">Analysis of the Development of IXPs</a>	
2017	APNIC44	<a href="#">IPv6 Transition Strategies</a>
	LINX98	<a href="#">IXPs around Asia</a>
		<a href="#">LINX 1994-1997</a>
	SANOG30	<a href="#">Internet IPv4 Routing Table Analysis Update</a>
		<a href="#">External BGP Route Propagation Behaviour without Policies</a>
		<a href="#">IPv6 Deployment Planning</a>
		<a href="#">IXP Design Best Practices</a>
	BhutanNOG 4	<a href="#">RIPE Atlas Intro (on behalf of RIPE NCC)</a>
		<a href="#">Internet Futures in Bhutan</a>
	SANOG29	<a href="#">Internet IPv4 Routing Table Analysis Update</a>
<a href="#">IPv6 Transition Strategies</a>		
<a href="#">IPv6 Deployment Planning</a>		
<a href="#">RIPE Atlas Intro (on behalf of RIPE NCC)</a>		

Year	Event	Slideset
2016	BTNOG 3	<a href="#">Internet IPv4 Routing Table Analysis Update</a>
	APNIC 42	<a href="#">IPv6 Transition Strategies</a>
		<a href="#">IXP Design Best Practices</a>
	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>	
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>
		<a href="#">Internet IPv4 Routing Table Analysis Update</a>
	BTNOG 1	<a href="#">Internet in Bhutan</a>
		<a href="#">DrukREN Technical Design</a>
		<a href="#">Internet IPv4 Routing Table Analysis Update</a>
	MENOG 14	<a href="#">IPv6 Transition Strategies</a>
		<a href="#">IPv6 Deployment Planning</a>
	PacNOG 16	<a href="#">Peering and IXPs</a>
	SAFNOG 1	<a href="#">BGP Best Current Practices</a>
SANOG 23	<a href="#">BGP Techniques for Internet Service Providers</a>	
	<a href="#">IPv6 Essentials</a>	
	<a href="#">IPv6 Transition Planning</a>	
	<a href="#">IPv6 Deployment Planning</a>	

Year	Event	Slideset
2013	AfNOG 2013	<a href="#">NOG Update</a>
	APNIC 36	<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">BGP Multihoming Technqiues</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>	
2012	APRICOT 2012	<a href="#">BGP Multihoming Techniques</a>
		<a href="#">Migrating from OSPF to IS-IS</a>
	AfNOG 2012	<a href="#">BGP Multihoming Techniques</a>
	APNIC 34	<a href="#">IPv6 Address Planning</a>
		<a href="#">ISP &amp; IXP Design</a>
	MENOG 10	<a href="#">BGP Multihoming Techniques</a>
		<a href="#">Migrating from OSPF to IS-IS</a>
	MENOG 11	<a href="#">IPv6 Address Planning</a>
		<a href="#">ISP &amp; IXP Design</a>
		<a href="#">Peering, Transit &amp; IXPs</a>
MyNOG 2	<a href="#">BGP Multihoming Techniques</a>	
	<a href="#">IPv6 Address Planning</a>	
	<a href="#">Internet Routing Table Analysis Update</a>	
NZNOG 2012	<a href="#">Migrating from OSPF to IS-IS</a>	
PacNOG 12	<a href="#">Peering, Transit and IXP Design</a>	
SANOG 20	<a href="#">Internet Routing Table Analysis Update</a>	
2011	APRICOT 2011	<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">IPv6 Addressing &amp; Routing Protocols</a>
	AfNOG 2011	<a href="#">Routing Table Update</a>
		<a href="#">BGP Techniques for Internet Service Providers</a>
		<a href="#">BGP Multihoming</a>
		<a href="#">Troubleshooting BGP</a>
	PacNOG 9	<a href="#">Towards an IPv6-only network</a>
	PacNOG 10	<a href="#">IPv6 Deployment Planning</a>
SANOG 17	<a href="#">Internet Routing Table Analysis Update</a>	
SANOG 18	<a href="#">Internet Routing Table Analysis Update</a>	

Year	Event	Slideset
2010	AfNOG 2010	<a href="#">NOG Updates</a>
	APAN 29	<a href="#">The Next Three Years</a>
	APRICOT 2010	<a href="#">BGP Techniques for Internet Service Providers</a>
	NANOG 50	<a href="#">BGP Techniques for Internet Service Providers</a>
	NZNOG 2010	<a href="#">The Next Three Years: IPv6, IPv4 runout and 4-byte ASNs</a>
	PacNOG 7	<a href="#">Introduction to Cloud Computing</a>
	PacNOG 8	<a href="#">IPv6 and 4-byte ASN update</a>
	RIPE NCC Regional Meeting Moscow	<a href="#">Network Operations Groups around the World</a>
	SANOG 15	<a href="#">Internet Routing Table Analysis Update</a>
	SANOG 16	<a href="#">Network Operations Groups around the World</a>
<a href="#">Internet Routing Table Analysis Update</a>		
<a href="#">Troubleshooting BGP</a>		
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>
	MENOG 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>
		<a href="#">IPv6 Technical &amp; Service Considerations</a>
	RIPE 58	<a href="#">2008-06: Use of Final /8 (v2)</a>
		<a href="#">2008-07: Ensuring efficient use of IPv4 resources (v2)</a>
	SANOG 13	<a href="#">BGP Aggregation &amp; The Deaggregation Report</a>
	SANOG 14	<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>
		<a href="#">Deploying BGP</a>
		<a href="#">BGP Multihoming Techniques</a>
	NZNOG 2006	<a href="#">BGP Multihoming Techniques</a>
<a href="#">Troubleshooting BGP</a>		
<a href="#">BGP Techniques for Providers</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	<a href="#">BGP Tutorial</a>
		<a href="#">BGP Multihoming</a>
	NANOG 31	<a href="#">BGP Techniques for Internet Service Providers</a>
	NANOG 32	<a href="#">BGP Multihoming Techniques</a>
	NZNOG 2004	<a href="#">Troubleshooting BGP</a>
	RIPE NCC Regional Meeting Moscow	<a href="#">ripencc-moscow-routing.pdf</a>
	SANOG 3	<a href="#">BGP enhancements for IPv6</a>
		<a href="#">IPv6 Multicast</a>
<a href="#">BGP Multihoming Techniques</a>		
<a href="#">Internet Routing Table Analysis Update</a>		
SANOG 4	<a href="#">Internet Routing Table Analysis Update</a>	
2003	AfNOG 2003	<a href="#">Troubleshooting BGP</a>
	APNIC 16	<a href="#">BGP Multihoming</a>
		<a href="#">Catching Worms at APNIC 16</a>
	APRICOT 2003	<a href="#">Routing Table Update</a>
		<a href="#">BGP Tutorial</a>
		<a href="#">BGP Deployment Techniques</a>
		<a href="#">BGP Multihoming</a>
		<a href="#">BGP Troubleshooting</a>
	NANOG 27	<a href="#">BGP for Internet Service Providers</a>
	NANOG 28	<a href="#">BGP Multihoming Techniques</a>
	NANOG 29	<a href="#">BGP Troubleshooting</a>
	RIPE 44	<a href="#">Internet Routing Table Analysis Update</a>
	RIPE 45	<a href="#">Day in the Life of a BGP Update in Cisco IOS</a>
	RIPE NCC Regional Meeting Dubai	<a href="#">Introduction to Routing</a>
SANOG 1	<a href="#">BGP for Internet Service Providers</a>	
	<a href="#">BGP Multihoming Techniques</a>	
SANOG 2	<a href="#">ISP Essentials</a>	
	<a href="#">BGP Multihoming Techniques</a>	
2002	AfNOG 2002	<a href="#">BGP for Internet Service Providers</a>
	APNIC 14	<a href="#">BGP Multihoming</a>
	APRICOT 2002	<a href="#">Routing Table Update</a>
	IEPG @ IETF54	<a href="#">Routing Table Update</a>
	KIOW 2002	<a href="#">BGP for Internet Service Providers</a>
	NANOG 25	<a href="#">IXes in the AP Region</a>
		<a href="#">BGP for Internet Service Providers</a>
	NANOG 26	<a href="#">Troubleshooting BGP</a>
	RIPE 41	<a href="#">Internet Routing Table Analysis Update</a>
	RIPE 42	<a href="#">Internet Routing Table Analysis Update</a>

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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