

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
2025	PacNOG 36	Routing Security & Internet Routing Growth in the Pacific
		Internet Routing Table Update
	AIS 2025	NOGs: The first 30 years
	BKNIX 2025	RouteViews Technical Update
	ThaiNOG 7	Internet Routing Table Update
2024	LINX 123	IXPs and developments in networking: A 30-year personal review
	Peering Asia 6.0	The RouteViews Project: Update
	NANOG 92	BGP Techniques for Network Operators
		The RouteViews Project: Update
	mnNOG6	The Internet Routing Table using RouteViews
	SGNOG 11	The RouteViews Project: Update
	btNOG 11	The Internet Routing Table using RouteViews
	PhNOG 2024	Philippine Internet Routing Table Update: Using RouteViews
		Philippines Internet Journey
	PacNOG33	Pacific Internet Routing Table Update: Using RouteViews
	ThaiNOG 6	Thailand Internet Routing Table Update: Using RouteViews
	IETF 119/ISOC Policymaker Meeting	Overview of Routing & Interconnection
2023	PacNOG 32	Global Routing Table Update
	Peering Asia 5.0	RouteViews: BGP Global Monitoring Infrastructure and Services
	SANOG 40	Global Routing Table Update
	PhNOG 2023	RouteViews: Global BGP Collector for Operators and Research
	NANOG 88	BGP Techniques for Network Operators Tutorial
	SANOG 39	Global Routing Table Update

Year	Event	Slideset
2022	APNIC 54	Peering Toolbox
	SANOG 38	Peering Toolbox
		Global Routing Table Update
	PhNOG 2022 Hybr1d	Peering Toolbox
	ThaiNOG 4	RPKI Operations
	BKNIX Peering Forum 2022	Peering Toolbox
	TNC'22	Global R&E Routing Report
	ICTP	Network Operator Groups
	AfNOG 2022	Keynote: Post Pandemic NOG Evolution
	ThaiNOG 4	RPKI Operations
2021	mnNOG 3	Keynote: Mongolia's Internet Journey: from bits to Gigabits
	btNOG 8	Keynote: The Events Defining Bhutan's Internet
	APNIC Routing Security SIG Forum	Deploying RPKI and ROV at Cenpac
	SANOG 37	Internet Routing Table Analysis Update
	LKNOG 5	BGP Best Practices
	vPhNOG2.0	R&E Routing Table Update
	AfNOG 2021	Global BCP for Routing Policy & Security
	SANOG 36	Internet Routing Table Analysis Update
2020	LINX Seminar	Rebuilding a Pacific ISP During the Pandemic
	PacNOG 26	Network Monitoring: The Foundation of Campus Security
	APRICOT 2020	APRICOT 2020 RPKI Deployathon Report
	SANOG 35	Internet Routing Table Analysis Update
2019	PacNOG 25	RouteViews: The BGP Collector for Today's Network Operator & Researcher
		Campus Network Design & Operations Introduction
	LINX107	IXPs in Asia & Pacific
	mnNOG 1	RouteViews: The BGP Collector for Today's Network Operator & Researcher
	SANOG 34	Internet Routing Table Analysis Update
	PhNOG 2019 Manila	RouteViews: The BGP Collector for Today's Network Operator & Researcher
	SGNOG7	RouteViews: The BGP Collector for Today's Network Operator & Researcher
	PacNOG 24	RouteViews: The BGP Collector for Today's Network Operator & Researcher
		Campus Network Design & Operations Introduction
	btNOG 6	RouteViews: The BGP Collector for Today's Network Operator & Researcher
	ThaiNOG 2	RouteViews Evolves: Modernizing the BGP Collector for Today's Researcher
	SANOG33	Internet Routing Table Analysis Update
		Routing Security Tutorial

Year	Event	Slideset
2018	PITA Telecoms Digital Strategy Forum	Modern Interconnects in the Internet Ecosystem
	SANOG32	RouteViews: Enabling Research Through New and Innovative Infrastructure
		Internet IPv4 Routing Table Analysis Update
	btNOG5	Analysis of the Development of IXPs
	BKNIX Peering Forum	Analysis of the Development of IXPs
2017	APNIC44	IPv6 Transition Strategies
	LINX98	IXPs around Asia
		LINX 1994-1997
	SANOG30	Internet IPv4 Routing Table Analysis Update
		External BGP Route Propagation Behaviour without Policies
		IPv6 Deployment Planning
		IXP Design Best Practices
		RIPE Atlas Intro (on behalf of RIPE NCC)
	BhutanNOG 4	Internet Futures in Bhutan
	SANOG29	Internet IPv4 Routing Table Analysis Update
		IPv6 Transition Strategies
		IPv6 Deployment Planning
		RIPE Atlas Intro (on behalf of RIPE NCC)
2016	BTNOG 3	Internet IPv4 Routing Table Analysis Update
	APNIC 42	IPv6 Transition Strategies
		IXP Design Best Practices
	APRICOT 2016	BGP Techniques for Network Operators
		BGP Multihoming Techniques
		Troubleshooting BGP
		Virtualisation for Network Testing & Staff Training
	SANOG 27	BGP Techniques for Network Operators
		BGP Multihoming Techniques
		Virtualisation for Testing & Staff Training
		Internet IPv4 Routing Table Analysis Update
2015	APRICOT 2015	IPv6 Transition Strategies
		IPv6 Deployment Planning
	MENOG 15	Internet IPv4 Routing Table Analysis Update
	PacNOG 17	A Practical IPv6 Introduction
	SAFNOG 2	Migrating from OSPF to IS-IS
		Internet IPv4 Routing Table Analysis Update
	SANOG 25	BGP Techniques for Internet Service Providers
		BGP Multihoming Techniques
		IPv6 Transition Strategies
		IPv6 Deployment Planning
		Internet IPv4 Routing Table Analysis Update

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

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

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

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

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

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

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

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