

GRAND DUCHY OF LUXEMBOURG Ministry of Foreign Affairs



Directorate for Development Cooperation

European Union Africa Infrastructure Trust Fund

## PeeringDB and Role of Peering Coordinators



## **The PeeringDB**

# **PeeringDB Background**

- PeeringDB is a 100% volunteer-driven system.
- Database written by Richard Steenbergen.
- System runs off donated hardware.
- Network connectivity provided by Server Central.
- Incorporate as an organization in 2011.

# What is PeeringDB?

- A peering database
  - Every network should have access and an entry
  - Every network should keep their information maintained
- Created by and for peering coordinators
- A common place to publish information
  - Lets other networks know about your network
  - Lets other networks know how to contact you
  - First stop when deciding where and whom to peer with
- A reference database for:
  - Network Access Points (NAPs) / Internet eXchange (IX) points
  - Colocation facilities

# What the PeeringDB is NOT

- PeeringDB is not your own sales funnel:
  - Do not mine data looking for sales opportunities.
  - Do not send UCE to contacts in PeeringDB.
  - Will lead to public embarrassment and a ban of your company

# **PeeringDB** Tips

- Interaction:
  - Based on a simple web interface.
  - PeeringDB team will create an account on your behalf.
  - Account can be read-only or read-write in nature.
  - Use your work e-mail address; validated much faster.
- Use:
  - Has become the default location for peering data.
  - Peering requests will almost always lead to a search.
  - Keep your records up-to-date including NOC phone numbers

# **PeeringDB** Tips

- Searching PeeringDB:
  - Finger:

#### finger as37100.peeringdb.com

- Whois:

whois –h peeringdb.com as37100

– MySQL:

mysql –u peeringdb –ppeeringdb –h peeringdb.com Peering

– Open URL's:

http://as37100.peeringdb.com

## Getting started with peeringDB

•Navigate to <u>www.peeringdb.com</u> and register a user account. Use your work email address.

•You will then be prompted to attach your user record to a network record. If one already exists for your company, you will need to be verified by the creator of the account. If one doesn't exist, you can create your company record.

•Putting more information into your company record will ensure more people will know about you and contact you!

## PeeringDB homepage

00			Home Page						
+	www.peeringdb.com								
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Navigation	Global System Statistics		Your User Accou	nt Status					
Home Page	Total Peering Networks	4449	Account Login	guest					
Logout	Total Public Exchange Points	382	Access Level	-					
Very December	Total Unique Public Exchange Presences	14259		Level 1 (Read-Only Access)					
Your Records Peering Record	Total Private Facilities	1116	Peering Record	BTnet (BT's UK IP Network - AS2856)					
User Account	Total Unique Private Facility Presences	8823							
OSCI ACCOUNT									
Search Records	Last 15 Updated Participants								
Networks	Company Name		ASN	Date Last Updated					
Exchange Points			50245						
Facilities	Serverel			1/31/13, 11:58:11 AM GMT					
Common Points	Core-Backbone GmbH		33891	1/31/13, 09:33:37 AM GMT					
	Arvig		16904	1/31/13, 09:13:11 AM GMT					
Suggestions	EDPNET		9031	1/31/13, 07:44:35 AM GMT					
Comments	W-IX LTD		50384	1/31/13, 05:58:24 AM GMT					
New Exchange	Dataline LLC		35297	1/31/13, 05:04:36 AM GMT					
New Facility	Convergence Group (Networks) Limited		41811	1/31/13, 04:37:24 AM GMT					
	RASCOM		20764	1/31/13, 01:37:14 AM GMT					
Help	GoDaddy.com		26496	1/30/13, 09:49:41 PM GMT					
FAQ	JumpTV		40064	1/30/13, 09:16:48 PM GMT					
Statistics	Microsoft MSN		8075	1/30/13, 04:43:22 PM GMT					
	Optimum West		33588	1/30/13, 03:48:09 PM GMT					
	Oxilion		48539	1/30/13, 03:48:01 PM GMT					
	Atrato IP Networks		5580	1/30/13, 02:13:08 PM GMT					
	Kabel Baden-Wuerttemberg GmbH & Co. KG		29562	1/30/13, 02:11:45 PM GMT					
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## Networks Page (All)

				Peering	Networks Search	/List				li
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Navigation	Search Peering Networ	'ks								
Home Page	Company Name					Primary ASN				
Logout	Network Type	Select Value				IRR Macro				
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User Account									Searc	h
Search Records										
Networks	Peering Networks Sear	ch Results								
Exchange Points	Company Name		ASN	<b>General Policy</b>	Traffic Levels	Network Type	Network Scope	Public Count	Private Count	
Facilities	012 Smile Telecom		9116	Selective	Not Disclosed	Cable/DSL/ISP	Regional	3		3
Common Points	013 Netvision		1680	Restrictive	Not Disclosed	Cable/DSL/ISP	Regional	2		0
	1&1 Internet		8560	Open	100+ Gbps	NSP	Global	12		14
Suggestions	100 Percent IT		20915	Open	Not Disclosed	Cable/DSL/ISP	Europe	1		0
Comments	123.net		12129	Open	1-5Gbps	NSP	North America	2		2
New Exchange	1Asia Alliance Communicatio	on Ltd	10102	Open	Not Disclosed	NSP	Global	0		3
New Facility	2 connect a.s.		35236	Open	5-10Gbps	NSP	Europe	1		1
	23Media GmbH		47447	Open	Not Disclosed	NSP	Europe	1		3
	24/7 Real Media		36805	Open	1-5Gbps	Content	Global	2		0
Help	2Connect UK		51406	Selective	Not Disclosed	NSP	Regional	2		1
FAQ	34SP.com Ltd.		41357	Open	100-1000Mbps	Content	Europe	1		2
Statistics	3Crowd Technologies		22730	Selective	100-1000Mbps	Content	Global	0		0
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## Networks Page (Africa)

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				Peering Networks Search	h/List						+
Navigation	Search Peering Networ	rks									
Home Page	Company Name					Primary ASN					
<u>Logout</u>	Network Type	Select Val	lue 🗧			IRR Macro					
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User Account										Γ	Search
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Exchange Points	Company Name	<u>ASN</u>	General Policy	Traffic Levels	Netw	ork Type	Networ	k Scope	Public Count	Private Coun	ıt
Facilities	Neology	37105	Open	100-1000Mbps	NSP		Africa			2	6
Common Points	SEACOM Limited	37100	Selective	Not Disclosed	NSP		Africa			0	3
Suggestions											
Comments		- On	ly 2 African	Networks							
New Exchange		are	e visible. Mo	ost African							
New Facility			tworks list t	homeolyce							
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		as	Regional								
Help			<b>.</b>								
FAQ											
Statistics											

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## PeeringDB Network Info ..

● ○ ○				Peering Networks De	tailed View						R <sub>M</sub>
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60 🕅 🎹 Apple	Marc Liyanaon M	ac OS X Apple	▼ Yahoo! aggreg	ate.html Amazon Google Maps	YouTube eBay Wikipedia News 🔻 Po	pular 🔻					
1				Peering Networks Detai	ed View						+
Navigation	<b>Company Inform</b>	mation			Public Peering Exchange Points						
Home Page	Company Name	SEACOM	Limited		Exchange Point Name	ASN	IP Addr	ess	Mbit/s	ec	
Logout	Also Known As	SEACOM			No records						
	<b>Company Websit</b>	http://w	ww.seacom.mu		Private Peering Facilities						
Your Records	Primary ASN	37100			Facility Name	ASN	City	Country	SONET	Ethr	ATM
Peering Record	IRR Record				SFR Netcenter Marseille		Marseille	FR		1	
User Account	Network Type	NSP			Telehouse London (Docklands North)		London	UK		<u></u>	
Garanda Daramita	Approx Prefixes	220			Teraco House Johannesburg JB1		Johannesburg			2	
Search Records	Traffic Levels	Not Disc	losed		Teraco House Johannesburg Joh	57100	Jonannesburg	24	0		0
Networks	Traffic Ratios	Mostly I	nbound								
Exchange Points	Geographic Scop	e Africa									
Facilities	Looking Glass U	RL									
Common Points	Route Server UR	L									
Suggestions	Notes										
Comments	Protocols Suppor	rted Unicast	IPv4 🗹 🛛 Multi	cast 📄 🛛 IPv6 🗹							
New Exchange	Date Last Update		-11 16:30:12 UTC								
New Facility	Peering Policy I	nformation									
<u>iterr ruenty</u>	Peering Policy U	RL									
	General Policy	Selective	2								
Help	Multiple Location	ns Preferre	d								
FAQ	Ratio Requireme	nt No									
Statistics	Contract Require	ment Not Req	uired								
	Contact Inform	ation									
	Role Con	tact Name	Telephone	E-Mail							
	Policy Mar	k Tinka		mark.tinka@seacom.mu							
	Technical Peer	ring Team		peering@seacom.mu							
	Technical Sime	on Mayoye		mayoye@seacom.mu							
	NOC SEA	COM NOC		snoc@seacom.mu							

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## PeeringDB IXPs view

00		Public Exchange Points	Search/List				h
<   > (+) (*) (*) w	ww.peeringdb.com/private	e/exchange_list.php				d	Reader
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Navigation	Search Public Excha	nge Points					
Home Page	Exchange Name		City				
Logout	IP Block		Country				
Your Records	Media Type	Select Value 🗧	Continental Region		ect Value 💠		
Peering Record	меца туре	Select value +	Conunental Region	Sel	ect value +		
User Account							Search
<u>osci Account</u>							
Search Records	List of Public Exchar						
Networks	Exchange Name	Long Name	City/Region	Country	Continental Region	Media Type	Participants
Exchange Points	AAIX	Alpes Adria Internet eXchange	Klagenfurt	AT	Europe	Ethernet	3
Facilities	ACTIX	ACT Internet Exchange	Canberra, ACT	AU	Asia Pacific	Ethernet	11
Common Points	ALP-IX	DE-CIX, the Munich Internet Exchange	Munich	DE	Europe	Ethernet	44
	AMPATH	AMPATH - Florida International University/CIARA	Miami	US	North America	Multiple	0
Suggestions	AMS-IX	Amsterdam Internet Exchange	Amsterdam	NL	Europe	Ethernet	980
Comments	AMS-IX HK	Amsterdam Internet Exchange Hong Kong	Hong Kong	HK	Asia Pacific	Ethernet	0
New Exchange	Angola-IXP / ANG-IXP	Angola Internet Exchange point	Luanda	AO	Africa	Ethernet	3
New Facility	APE	Auckland Peering Exchange	Auckland	NZ	Asia Pacific	Ethernet	50
	ASIX6	Academia Sinica Internet Exchange 6	Taipei	тw	Asia Pacific	Multiple	1
	ASSOCIO	mpls ASSOCIO	Tokyo, Nation wide	JP	Asia Pacific	Multiple	0
Help	AZIX	Arizona Internet Exchange	Phoenix, Arizona	US	North America	Ethernet	9
FAQ	B-CIX	Berlin Commercial Internet Exchange	Berlin	DE	Europe	Ethernet	69
Statistics	B-IX	Balkan Internet Exchange	Sofia	BG	Europe	Ethernet	7
	Balcan-IX	Balcan-IX	Romania	RO	Europe	Ethernet	15
	BAYANTEL	Bayan Telecommunications Internet and Gaming Exchange	Quezon City	PH	Asia Pacific	Ethernet	3
	BBIX	BroadBand Internet eXchange	Tokyo	JP	Asia Pacific	Ethernet	12
	BDIX	Bangladesh Internet Exchange	Dhaka	BD	Asia Pacific	Ethernet	6

1 2 3 4 5 6 7 8 9 10 of 21 Next> Last>

New York

US

North America

27

Ethernet

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The Big Apple Peering Exchange

BigApe

## PeeringDB IXPs view (Africa)

00		Publi	ic Exchange Points Searcl	h/List			
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6+9 💭 🎹 Apple	Marc Liyanaon Mac OS X	Apple ▼ Yahoo! aggregate.html Ama: Public	zon Google Maps YouTi c Exchange Points Search/Li		a News ▼ Popular ▼		
Navigation	Search Public Exchange	Points					
Home Page	Exchange Name			City			
Logout	IP Block			Country			
Your Records	Media Type	Select Value 💠		Continental Region	Africa ‡		
Peering Record							Search
User Account							Search
	List of Public Exchange	Points					
Search Records	Exchange Name	Long Name	City/Region	Country	Continental Region	Media Type	Participants
Networks	Angola-IXP / ANG-IXP	Angola Internet Exchange point	Luanda	AO	Africa	Ethernet	3
Exchange Points	CINX	Cape Town Internet Exchange	Cape Town	ZA	Africa	Ethernet	27
Facilities	DINX	Durban Internet Exchange	Durban	ZA	Africa	Ethernet	1
Common Points	IXPN Lagos	Internet Exchange Point of Nigeria	Lagos	NG	Africa	Ethernet	3
Suggestions	JINX	Johannesburg Internet Exchange	Johannesburg	ZA	Africa	Ethernet	60
Suggestions	KIXP	Kenya Internet Exchange Point	Nairobi	KE	Africa	Ethernet	10
Comments New Exchange	LIXP	Lesotho Internet Exchange	Maseru	LS	Africa	Ethernet	0
New Facility	LuIXP	Lusaka Internet Exchange Point	Lusaka	ZM	Africa	Ethernet	1
New Facility	MOZIX	Mozambique Internet Exchange	Maputo	MZ	Africa	Ethernet	0
	NAP Africa	NAP Africa	Johannesburg	ZA	Africa	Multiple	16
Help	NAP Africa Cape Town	NAP Africa	Cape Town	ZA	Africa	Multiple	6
FAQ	RDC-IX Kinshasa	Kinix	Kinshasa	CD	Africa	Ethernet	1
Statistics	REUNIX	REUNIX	Saint-Denis, La Reur	nion RE	Africa	Ethernet	2
	SISPA	Swaziland Peering Point	Swaziland	SZ	Africa	Ethernet	1
	TIX - Tanzania	Tanzania Internet eXchange	Dar es Salaam	TZ	Africa	Ethernet	7
	UIXP	Uganda Internet Exchange Point	Kampala	UG	Africa	Ethernet	2

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for most African IXPs

## **Peering Coordinator**

### What a Peering Coordinator is not...

• Salesman

• Product manager

• BGP expert

• Network architect

# Peering Coordinator Skill Sets

#### Technical

- Ability to understand the technical aspects of peering and Interconnection.
- Interpret peering and flow information

#### Social

- Ability to build and maintain relationships within the peering community
- The "go to guy"

#### Business

- Peering is more about the business case
- Peering coordinators should be able to develop peering business opportunities
- Ability to calculate peering costs and identify peering locations and opportunities

#### • Legal

• Some peering agreements involve peering contracts and negotiations. Therefore an ability to review and negotiate contractual agreements is a useful skill

## Conferences to attend

- Africa Peering and Interconnection Forum (AfPIF)
  - Best concentration of African network operators, IXP Operators, and peering coordinators from around the world.
- Africa Network Operators Group (AfNOG)
  - Held annually with a good mix of operators, NRENs, etc
- European Peering Forum
  - Good mix of North American, European, and Asian peering coordinators.

# Tips for successful conferences

- Know who is attending
  - Check the attendee list and make a list of people that work at networks that you work or want to work with. Ask the meeting coordinators to help with introductions if necessary.
- Schedule meetings before you arrive
  - The best way to ensure you speak to everyone you want to is to email them and fill up your appointment calendar.
- Send out-going, friendly, English speaking people
  - A lot can get done at the actual meetings, but a good company representative can make the initial contacts and pass along contact information as well.

### Peering negotiations

### First and foremost, know your network

- Who are your marquee customers?
  - Your customers make you interesting. It's OK if you don't have transit customers, traffic sourced or destined to your network can many times be interesting enough.
  - Singly-homed traffic gives you power. There is only one place to get that traffic from, YOU!
- What markets and networks does your traffic come from? Where is it going?
- Does your network architecture/hardware allow you to expand into many or few sites?
- Have facts and figures of your network profile.

# I know who am I, who are you?

- How do you know where your traffic is coming from/going to? You may have a gut feeling, but is your company going to spend millions of dollars on a feeling?
- Use flow-based tools to find out for sure, you may be surprised.
- Create a list of top networks that you exchange traffic with that you are not currently peering with, and rank them by amount of traffic.

# Know your target peer's network

- Now you know who you want to peer with, what next?
- Before you contact them, find out where they have network POPs.
  - Check company website for network maps.
  - Check peering.db for a list of facilities and IXs.
- If possible, find out what size the network is
  - You may only be exchanging 1Gbps of traffic, but that may be 10% of their traffic. Most networks would welcome peering off that percentage of traffic.
- What type of peering strategy do they have?

# The actual negotiation (part 1)

- Most networks have open peering policies, so if you're both connected to an IX, peering can begin within hours or days of initial contact.
- What if someone has a selective policy? Chances are if you have an interesting enough network or if they don't sell transit in your home market, you'll be able to peer.
  - Many selective networks have peering policies that they expect you to meet.

# The actual negotiation (part 2)

- The most difficult network to get peering from is the restrictive network.
  - Timing is everything.
  - Some restrictive networks are forced to maintain a certain number of peered networks due to merger regulations. In these cases, smaller traffic flows are in your favor.
  - Depending on who your upstream is, there may be congestion or ratio issues with their peering partner, so to help alleviate those concerns, you may qualify for peering.
- You can't get what you don't ask for. To the bold goes the spoils!

### Network expansion?

## Expanding your network for peering

- Theoretically, you now know that if you expand into a new POP, you could pick up X amount of peering, time to start making introductions. But who do you talk to?
- Contact the colocation provider and IXP operators in the target city. They usually have contacts at all the networks they provide services to. Plus, more peering for you means more business for them, so they have business reasons to want you to join and exchange traffic.
- Many networks use generic mailing lists for common tasks, such as peering@ or noc@

## Expanding your network for peering

- Email either the contacts you gather or as a worst case scenario, the peering@ list alias.
- Include a description of your network is and why they should want to peer with you. This is your opportunity to brag about your network.
- Create a list of favorable responses and how much traffic that represents.
- Now the important part, find out whether it makes sense for you to expand your network in order to peer!

# Building a business case

- Get quotes from colocation providers and transport providers and compute how much it's going to cost to build a new POP.
- Divide that cost by how much traffic you believe you will be able to peer.
- If that cost is lower than how much you pay for transit, you have a good case to expand your network.
- Transit may cost less. It's not always cheaper to peer.
- Consider other factors like performance, redundancy, ability to meet previously unattainable peering policies.

### In summary

# Summary

- Devote one person to peering at your company, it's a full time job!
- Design your network so that you are flexible enough to achieve your traffic engineering goals.
- Create a viable peering strategy that fits your network.
- The more visible you are, the more successful your peering will be. This includes using industry standard mailing list aliases and joining peering.db!
- Know as much about your target network as you can.
- Send the right people to the right meetings.
- Remember that in the end, it's all dollars and sense.

# **Acknowledgement and Attribution**

This presentation contains content and information originally developed by the following organisation(s)/individual(s) and adopted for the African Union AXIS Project

Mark Tinka: - SEACOM Guy Tal: - Limelight Networks Martin Levy: - Hurricane Electric



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## PeeringDB and Role of Peering Coordinators

