

New Market Evaluation Strategy Guide

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Walt Wollny, Director Interconnection Strategy Hurricane Electric AS6939

Who is Walt Wollny?

Hurricane Electric AS6939 – 1 year

 Director Interconnection Strategy – supporting the network to reach to over 22 counties and over 105 Internet Exchanges.
Focus on Global connectivity.

□ Amazon AS16509 – 4 years

- Developed IP Transit and Peering on five continents.
- Primary focus on Japan, Singapore, Hong Kong, India, Taiwan, Philippines, Australia.
- Over 62 new CDN sites.
- □ Microsoft AS8075 13 years
 - Developed IP Transit and Peering on four continents.
 - □ Primary focus on US, EU and South America.



Why is Walt Wollny here?

After 18 years working for two content networks I want to share what I have learned.

These techniques can be adapted to any location

"By failing to prepare, you are preparing to fail." — Benjamin Franklin



The boss tells you....

" I want a full report for this new network location!"





Why does the boss want a report?

- Ability to repeat tests over time if launch is delayed.
- Validation of decision after launch in market.
- Improvement of reporting and testing for next market.
- Accountability!



Phases of Evaluation

- Desktop Research
- In Country Research
- Other Considerations









Desktop Research

- NetFlow
- http://bgp.he.net/
- https://mi.renesys.com
- http://www.cedexis.com/
- https://www.peeringdb.com



NetFlow Data

- The next few slides represent traffic from outside the Philippines.
- Once traffic is localized you can expect that CDN traffic levels will increase ~20 to 50%.



NetFlow AS9299 PLDT





NetFlow AS4775 Globe Telecoms





NetFlow AS6648 Bayan Telecom





NetFlow AS9658 Eastern Telecoms





NetFlow AS9497 Digital Telecom





NetFlow Results

Company	ASN	V4 Routes	Cedexis	DYN Rank	Traffic	Total Traffic %
PLDT	9299				3200	48.63%
Globe	4775				3000	45.59%
Bayan	6648				275	4.18%
Eastern Telcom	9658				80	1.22%
Digital Telcom	9497				25	0.38%

With time limitations we will limit this presentation to the two top traffic destinations.





World Report



http://bgp.he.net/country/PH

Country Info

Networks: Philippines								
ASN	Name	Adjacencies v4	Routes v4 ↓	Adjacencies v6	Routes v6			
<u>AS9299</u>	Philippine Long Distance Telephone Company	112	822	8	5			
AS9658	Eastern Telecoms Phils., Inc.	53	542	0	0			
AS6648	Bayan Telecommunications, Inc.	117	432	8	4			
AS23930	IP-Converge Data Center, Inc.	42	261	7	2			
AS4775	Globe Telecoms	109	243	16	3			
AS55303	60 Market Square, P.O. Box 364	12	196	0	0			
AS17639	ComClark Network & Technology Corp.	23	157	1	1			
AS10139	Smart Broadband, Inc.	1	135	1	1			
AS132199	Globe Telecom Inc.	1	124	0	0			
	1	1	1		1			



http://bgp.he.net/country/PH

Country Info

ASN	Name	Adjacencies v4	Routes v4 ↓	Adjacencies v6	Routes v6
AS9299	Philippine Long Distance Telephone	112	822	8	5
AS9658	Eastern Telecoms Phils., Inc.	53	542	0	0
AS6648	Bayan Telecommunications, Inc.	117	432	8	4
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AS4775	Globe Telecoms	109	243	16	3
AS55303	60 Market Square, P.O. Box 364	12	196	0	0
AS17639	ComClark Network & Technology Corp.	23	157	1	1
AS10139	Smart Broadband, Inc.	1	135	1	1
AS132199	Globe Telecom Inc.	1	124	0	0





Route Propagation



Route propagation is to the following networks:

Company	ASN	Company	ASN	Company	ASN
Hurricane	6939	TiNet	3257	Sparkle	6762
Qwest	209	Dtag	3320	Cogent	174
UUnet	701	Level3	3356	AT&T	7018
UUnet Europe	702	GBLX	3549	Comcast	7922
Cable and Wireless	1273	Savvis	3561	Telefonica	12956
Sprint	1239	Orange	5511	Abovenet	6461
Telia	1299	ΤΑΤΑ	6453	IIJ	2497

Data gathered from Oregon Route Views http://www.routeviews.org/



http://bgp.he.net/AS9299#_graph4





AS9299 PLDT Route Propagation





AS4775 Globe Telecoms Route Propagation









AS9299 PLDT





AS4775 Globe



Hurricane Electric - Massive Peering!



Dyn Internet Intelligence Philippines

IPv4 Customer Base: Retail							
1	Philippine Long Distance Telephone Company	9299					
2	☆ Bayan Telecommunications	6648					
3	Creation Contraction Contractica Contracti	4775					
4	Digital Telecommunications Philippines	9497					
5 🕇 1	☆ Eastern Telecoms Phils.	9658					
6 🖡 1	☆ Smart Broadband	10139					
7 🕇 1	☆ Globe Telecom Inc.	2.1127					
8 🖡 1	INFOCOM Technologies	7629					
9	☆ DMPI, Digitel Mobile Philippines Inc.,	24106					
10 🕇 1	IP-Converge Data Center, Inc.	23930					
		View Listing					



AS9299 PLDT

IPv4 Provider Profi	ile (Global)	?						
👷 Philippine L	AS 9299							
Market: Multin	Market: Multinational							
Market Breakdo	own:							
4	Continents							
9	Countries							
5	US States or Canadian Provinces							
Customers:								
98	AS Customers							
12	Critically Dependent							
963	IPv4 Originated Networks							
694	Transited Networks							
Providers: 11								
Selected Peers:	34							



AS9299 PLDT

IPv	IPv4 Critically Dependent AS Customers (Philippines)							
£	AS 9299							
	sort by Relative Contribution	\$						
1	Smart Broadband AS 10139 since 1 Jan 2006							
2	Since 1 Jan 2006							
3	Since 2 Jan 2006							
4	C ePLDT Inc. AS 2.1134							
5	Amazon AS 16509 since 1 Oct 2013							
6	Since 17 Mar 2011							



AS4775 Globe

Pv4 Provider Profil	e (Philippines)	?					
☆ Globe Teleco	Globe Telecom						
Market: National							
Market Breakdo	wn:						
3	Continents						
6	Countries						
3	US States or Canadian Provinces						
Customers:	inch to global view.						
63	AS Customers						
12	Critically Dependent						
69	IPv4 Originated Networks						
309	Transited Networks						
Providers: 16							
Selected Peers:	23						



AS4775 Globe

IPv	4 Critically Dependent AS Customers (Philippines)	?
2	Globe Telecom	AS 4775
	sort by Relative Contribution	\$
1	Globe Telecom Inc. AS 2.1127	
2	AyalaPort Makati, Inc. / Data Center Operator AS 17894 since 1 Jan 2006	
3	Since 6 Sep 2013	
4	* 8F Tower 2 The Rockwell Business Center AS 2.1157	
5	Aditya Birla Minacs Worldwide Ltd AS 23994 since 23 Aug 2013	
6	Since 18 Jun 2009	







http://www.cedexix.com/



ISPs ranked by percentage of sessions

We identify each network as part of our Radar benchmarking method. This can tell you where your users are most likely to be coming from within a country.

Philippine Long Distance Teleph... 41% 17% Globe Telecom Inc. 14% Smart Broadband Inc. 8% Others 7% Globe Telecoms 6% Bayan Telecommunications Inc. 5% Skycable Corporation 2% Comclark Network & Technolog...



http://www.cedexix.com/



AWS Tokyo



AWS Singapore



AWS Oregon

	PhilipBava	opine Long In Telecom	g Distance Tele	phone Company	Globe Telec Globe Telec	om lnc. 📒 Sma	rt Broadband In	с.	
	500ms -								
	400ms –								
oonse Time	300ms –								
HTTP Resp	200ms –								
	100ms –								
	0ms 18.	Feb	19. Feb	20. Feb	21. Feb	22. Feb	23. Feb	24. Feb	25. Fe

Hurricane Electric - Massive Peering!

Network Data Results

Company	ASN	V4 Routes	Cedexis	DYN Rank	Traffic	Total Traffic %
PLDT	9299	957	55%	1	3200	48.63%
Globe	4775	367	24%	3	3000	45.59%
Bayan	6648	432	6%	2	275	4.18%
Eastern Telcom	9658	542	n/a	5	80	1.22%
Digital Telcom	9497	84	n/a	4	25	0.38%



Exchange Points & Facilities

List of Public Exchange Points								
Exchange Name	City/Region	Country	Continental Region	Media Type	Participants			
BAYANTEL	Bayan Telecommunications Internet and Gaming Exchange	Quezon City	PH	Asia Pacific	Ethernet	3		
GIX	GLOBE INTERNET EXCHANGE	Makati City	PH	Asia Pacific	Multiple	3		
<u>Manila IX</u>	Manila Internet Exchange	Manila	PH	Asia Pacific	Ethernet	6		
PHIX	Philippine Internet Exchange	Metro Manila	PH	Asia Pacific	Ethernet	1		
PHIX-AP	Philippine Internet Exchange	Metro Manila	PH	Asia Pacific	Ethernet	0		
PHOpenIX	Philippine Open Internet Exchange	Metro Manila	PH	Asia Pacific	Ethernet	9		

List of Interconnection Facilities										
Common Name	Management	CLLI	NPA-NXX	<u>City</u>	State/Prov	Postal Code	Country	Participants		
No records										



Exchange Points Results

IX Name	9299	9658	6648	4775	9497
Bayantel GIX	6648				
Manila IX	6648	9658			
PHIX	9299				
PHIX-AP					
PHOpenIX	4775				



Time to Fly to Manila



Total travel time from Seattle ~23 hours



Hurricane Electric - Massive Peering!

In Country Research

- Local Datacenters
- Exchange Points
- Local Networking



Datacenter Checklist

- Visit the top providers datacenters.
- Inspect networking hardware.
- Telco and Meet Me room evaluation.
- Cross connects can you get to everyone on every floor?
- Are you 100% sure?
- Get it in the contract.



Local Exchange Points

- Visit all the local exchange operators.
- Understand the hardware and physical layout.
- Who is actually on the exchange?



Local Networking

- Connect to the main providers on Wi-Fi and test local and international destinations.
- Do the top providers peer locally?
- Does your traffic stay local?
- Does your traffic hit the US before coming back to the local country?



Other Considerations

- Culture
- Manners
- Holidays



Cold vs. Warm cultures

- Task based vs. Relationship based
- Direct vs. Indirect Communication
- Individualism vs. Group Identity
- Time and Planning



Manners

- Initial greetings are formal and follow a set protocol of greeting the most important person first.
- □ Appointments are required and should be made 3 to 4 weeks in advance.
- □ Face-to-face meetings are preferred.
- Wait to be told where to sit.
- Dress well. Appearances matter and you will be judged on how you dress.
- Once a relationship has been developed it is with you personally.
- Give your business card first always with two hands.
- "Yes" may mean "no". Avoid yes or no questions!



Holidays

- Understand the local holidays and how it may impact your timelines and expectations.
- The United States has 6 paid holidays.
- The Philippines has 36 paid/unpaid holidays.



Resources

- <u>http://bgp.he.net</u>
- <u>https://mi.renesys.com</u>
- http://www.cedexis.com
- https://www.peeringdb.com
- <u>http://www.timeanddate.com/holidays/philippines/</u>
- http://www.thegreatcourses.com
- Foreign to Familiar: A Guide to Understanding Hot And Cold Climate Cultures, by Sarah A. Lanier
- Customs of the World: Using Cultural Intelligence to Adapt, Wherever You Are, by <u>Professor David Livermore Ph.D</u>, The Great Courses
- Boss clipart





Thanks!

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