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# Peering Security

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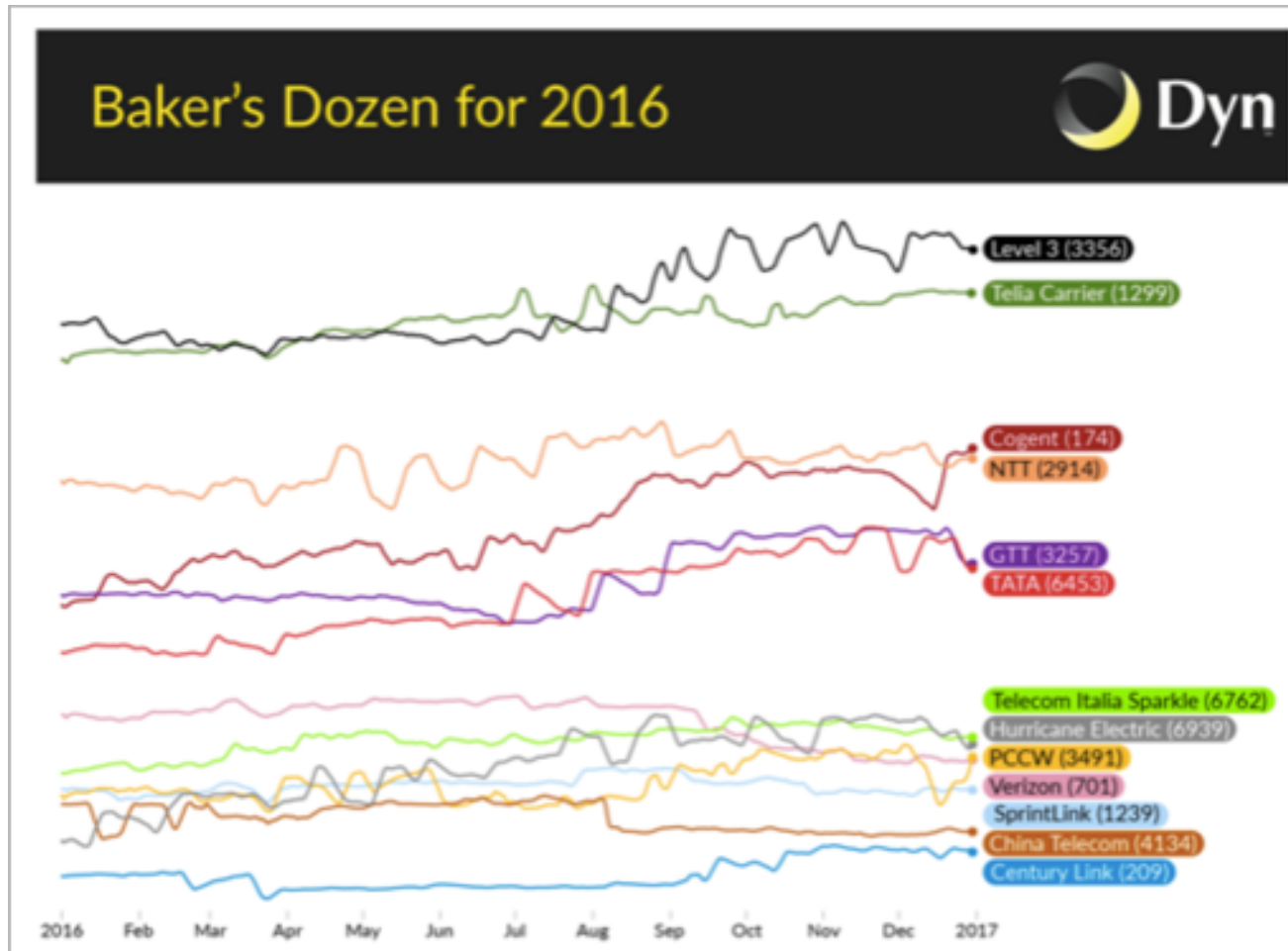
HKNOG  
2019

Walt Wollny, Director Interconnection Strategy  
Hurricane Electric AS6939

# Who is Walt Wollny?

- ❑ Hurricane Electric AS6939 – 4 years
  - ❑ Director Interconnection Strategy – supporting the network to reach to over 42 countries and over 206 Internet Exchanges and 184 POPS. 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.

# Hurricane Electric #8 in 2017 up from #13 in 2016 in the Global IPv4 rankings!



# Hurricane Electric Backbone





# The Most Peering Exchanges

Internet Exchanges

Exchange Participants

IX Participation Count		
ASN	Name	IXes
AS6939	Hurricane Electric LLC	206
AS13335	Cloudflare, Inc.	195
AS42	WoodyNet	169
AS20940	Akamai International B.V.	161
AS3856	Packet Clearing House	160
AS15169	Google LLC	148
AS8075	Microsoft Corporation	130



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# What does security have to do with Peering?

A lot. Now.

Security was an afterthought, but it can't be a forgotten thought.

Some of the basics...

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# Basics

- Best defenses for your network?
  - Logical Port Security
  - Routing Security
  - Best Practices

# Basics - Port Security

- Many IXPs will post their recommended port configuration ([HKIX](#), [AMS-IX](#), etc )
- Don't just connect a default interface to an IX Port!
- Services like Proxy-ARP will both disrupt the IX, as well as degrade your own network

# Basics - Port Security

- Don't forget to apply ACL's to your interfaces!
- The SIX (Seattle Internet Exchange) has a great example [here](#).
- Your IXP port is an exposed piece of your network
- Hundreds of other networks are directly connected
- Remove this security risk!

# Basics - Port Security

- Your IXP Port is a target for DDoS Attacks!
- Applying the best security practices will help keep your network online during attacks.
- Part of the security is in making sure you know what your IX Provider is doing too...

# Basics - Routing Security

- The IXP is responsible for protecting the infrastructure
- The IX LAN is not your IP space and should not be routed.
- Checking this...

# Basics - Routing Security

## Public Peering Exchange Points

JPNAP|


Exchange ▼ ASN	IPv4 IPv6	Speed RS Peer
<a href="#">JPNAP Osaka</a> 6939	210.173.178.70 2001:7fa:7:2::6939:1	10G ○
<a href="#">JPNAP Tokyo</a> 6939	210.173.176.106 2001:7fa:7:1::6939:1	10G ○



# Basics - Routing Security

← → ↻ <https://bgp.he.net/ip/210.173.176.106>

Apps TPE golf HE stuff personal toons ITW Matrix - ITA Softw... Google C



**HURRICANE ELECTRIC**  
INTERNET SERVICES

**210.173.176.106**

**Quick Links**

- [BGP Toolkit Home](#)
- [BGP Prefix Report](#)
- [BGP Peer Report](#)
- [Exchange Report](#)
- [Bogon Routes](#)
- [World Report](#)
- [Multi Origin Routes](#)
- [DNS Report](#)
- [Top Host Report](#)
- [Internet Statistics](#)
- [Looking Glass](#)
- [Network Tools App](#)
- [Free IPv6 Tunnel](#)

**IP Info** **Whois** **DNS** **RBL**

**210.173.176.106** ([gigabitethernet2-8.core1.tyo1.he.net](#))

Announced By		
Origin AS	Announcement	Description
<a href="#">AS7521</a>	<a href="#">210.173.160.0/19</a> 🔍 ✓	
<a href="#">AS7521</a>	<a href="#">210.173.176.0/20</a> 🔍 ✓	
<a href="#">AS18403</a>	<a href="#">210.173.176.0/24</a> 🔍 ✓	

Address has 0 hosts associated with it.

# Basics - Routing Security

## Oceania

CC Exchange	Speed	IPv4	IPv6
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AU Equinix Melbourne	10GE	183.177.61.28	2001:de8:6:1::6939:1
AU Equinix Sydney	10GE	45.127.173.24	2001:de8:6::6939:1
AU NSW-IX Sydney	10GE	218.100.52.249	2001:7fa:11:4:0:1b1b:0:1
AU VIC-IX Melbourne	10GE	218.100.78.108	2001:7fa:11:1:0:1b1b:0:1
AU MegaIX Melbourne	10GE	103.26.71.122	2001:dea:0:30::7a
AU MegaIX Sydney	10GE	103.26.68.236	2001:dea:0:10::ec
NZ APE	10GE	192.203.154.197	2001:7fa:4:c0cb::9ac5
NZ AKL-IX	10GE	43.243.21.17	2001:7fa:11:6:0:1b1b:0:1
NZ MegaIX Auckland	10GE	43.243.22.82	2001:dea:0:40::52

# Basics - Routing Security

- Make sure the IX LAN is not routed on the internet.
  - [bgp.he.net](http://bgp.he.net) is a quick and easy way to check
  - Please don't originate the IXP LANs!
- 
- There are many IXPs LANS that are being routed today
  - Please help eliminate this risk

# Basics - Routing Security

- ❑ <https://bgpmon.net/>
  - Monitoring, notifications of when errors occurs
  - Price is free for up to five prefixes per month.

# BGPmon.net Notification

## BGPmon Alert

Sent: Wednesday, January 30, 2019 at 11:08 AM

To: info@seattleix.net

You received this email because you are subscribed to BGPmon.net.

For more details about these updates please visit:

<https://portal.bgpmon.net/myalerts.php>

### =====

#### Possible Prefix Hijack (Code: 10)

### =====

Your prefix: 206.81.80.0/22:  
Update time: 2019-01-29 21:55 (UTC)  
Detected by #peers: 1  
Detected prefix: 206.81.80.0/23  
Announced by: AS10310 (YAHOO-1 - Yahoo!, US)  
Upstream AS: AS29467 (LUXNETWORK Network Service Provider in Luxembourg, LU)  
ASpath: 60983 29467 10310  
Alert details: [https://portal.bgpmon.net/alerts.php?details&alert\\_id=86973730](https://portal.bgpmon.net/alerts.php?details&alert_id=86973730)  
Mark as false alert: <https://portal.bgpmon.net/fp.php?aid=86973730>

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\*for questions regarding the change code or other question, please see:

<https://portal.bgpmon.net/faq.php>

Latest BGPmon news: <http://bgpmon.net/blog/>

- \* Popular Destinations rerouted to Russia
- \* Today's BGP leak in Brazil
- \* BGP leak causing Internet outages in Japan and beyond.

# Basics - Routing Security

- Why we should care
  - ❑ [The DDoS That Almost Broke the Internet](#)
  - ❑ Cloudflare March 2013 ~120Gbps attack on LINX