6 Watch:
Monitoring IPv6 Deployment and Connectivity

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Building on Two Systems

- RouteViews => 6Views
  - Global BGP data collection
  - Well established in operations
  - Large number of research citations
- SecSpider => 6Spider
  - Tracking DNS Security since day one
  - Used in research and operations
- 6Views + 6Spider = 6Watch

6Views BGP Monitoring

University of Oregon Route Views Project

Advanced Network Technology Center
University of Oregon

Maintenance Status Information (NOTE: EQIX Format Update)
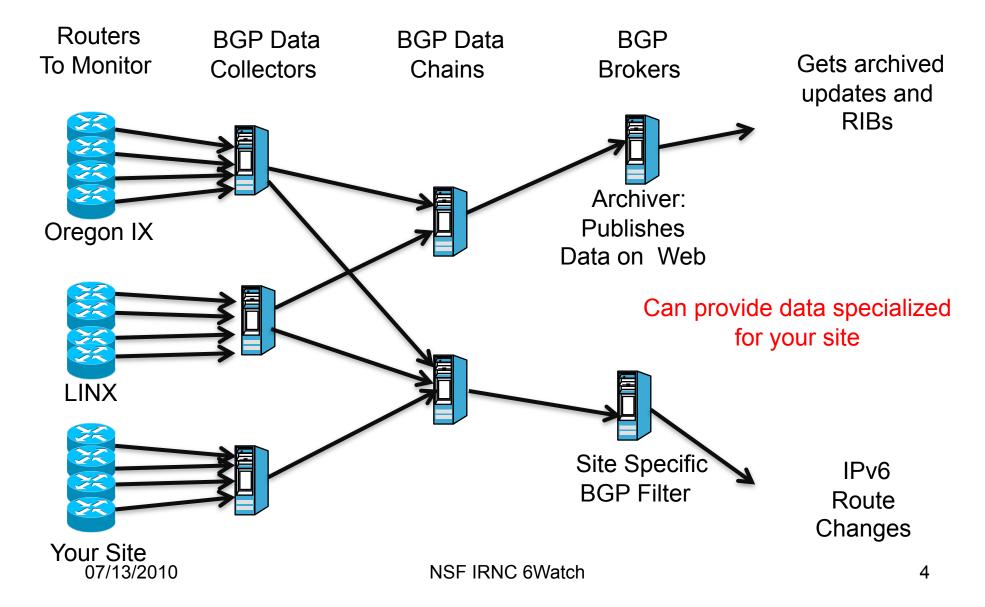
NEW! New Route Views Collectors

- **Introduction and Goals**

The University's Route Views project was originally conceived as a tool for Internet operators to obtain real-time information about the global routing system from the perspectives of several different backbones and locations around the Internet. Although other tools handle related tasks, such as the various Looking Glass Collections (see e.g. NANOG, or the DTI NSPIXP-2 Looking Glass), they typically either provide only a constrained view of the routing system (e.g., either a single provider, or the route server) or they do not provide real-time access to routing data.
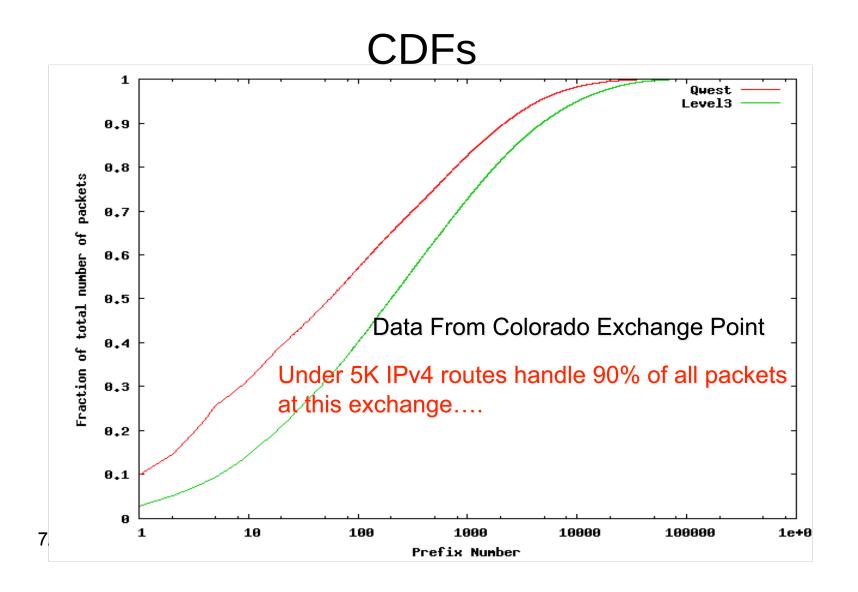
While the Route Views project was originally motivated by interest on the part of operators in determining how the global routing system viewed *their* prefixes and/or AS space, there have been many other interesting uses of this Route Views data. For example, NLANR has used Route Views
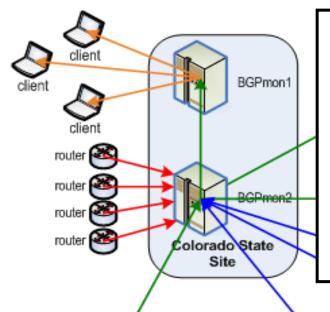
07/   3

6Views: BGP Data Monitoring

Routers To Monitor

BGP Data Collectors

BGP Data Chains

BGP Brokers

Gets archived updates and RIBs

Oregon IX

LINX

Your Site

Archiver: Publishes Data on Web

Can provide data specialized for your site

Site Specific BGP Filter

IPv6 Route Changes

Example: Packets Per Prefix

CDFs

Data From Colorado Exchange Point

Under 5K IPv4 routes handle 90% of all packets at this exchange….
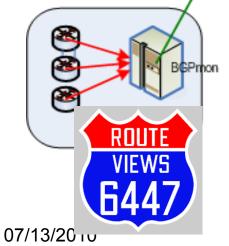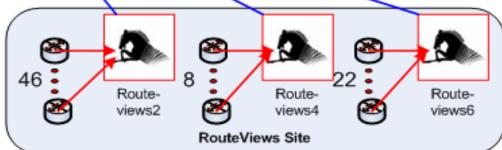
6Views Data in Real-Time

You can receive updates and routing tables in real-time

Updates: **129.82.138.26 TCP port 50001**

Tables: **129.82.138.26 TCP port 50002**

http://bgpmon.netsec.colostate.edu

6Spider DNS Monitoring

SecSpider the DNSSEC Monitoring Project

Home | Blog | Documentation | Trust-Anchors | Pollers | GPG Key

NEW! Check out our **BIND formatted Trust Anchors File!**

NEW! Check out our new sister-project **Vantages** with libvdns, `dnsfunnel`, and `vantaged`!

To add a zone for monitoring, please submit below:

Zone to add: [   ] Submit

Vouch for or against a zone's production status

For more information, questions, or comments please contact:
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Lixia Zhang (*lixia@cs.ucla.edu*)

Deployment status as of: *Thu Dec 10 21:17:53 2009 UTC*

Search for zone:

Zone: [   ]
Submit

Monitoring Summary:

18921 Zones

    16911 Zones have NS sets that match their parents' delegation set

9227 DNSSEC enabled zones

    4821 Zones use both KSKs and ZSKs

3739 Production DNSSEC-enabled zones

    Distribution of key algorithms in use:

Algorithm	# Keys

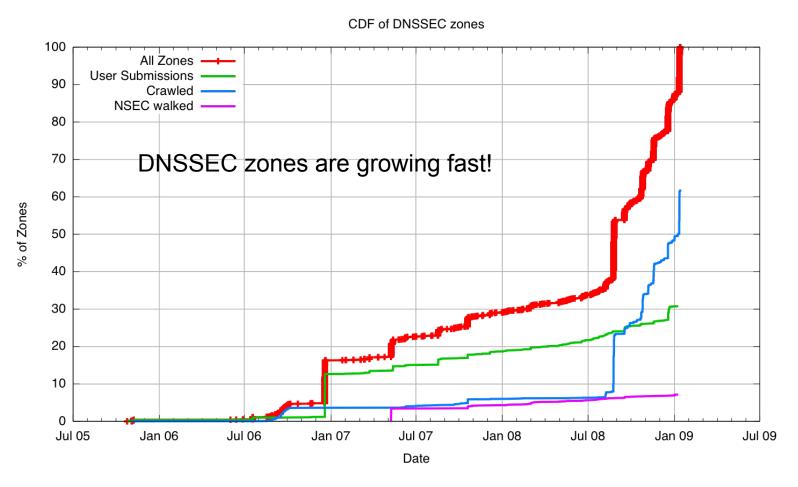Distribution of the Number of Stale RRSets

SecSpider's Vantage Points

- Poll all of our DNSSEC zones from vantages in:
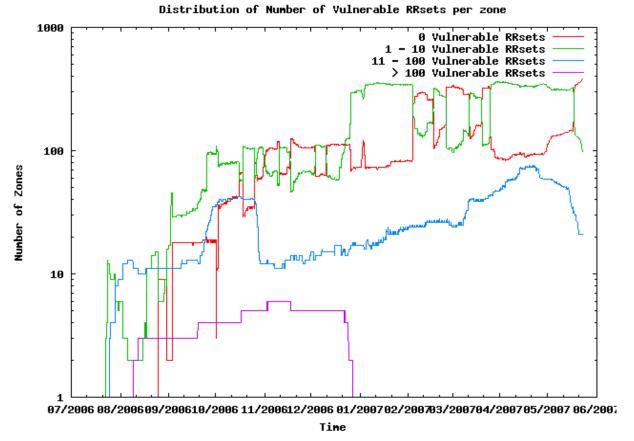 - Europe
  - Asia
  - North America

- We're always looking for more
  - Please consider hosting a lightweight poller for us
  - If you might be interested, contact eoster@cs.ucla.edu

How SecSpider Finds Zones

CDF of DNSSEC zones

DNSSEC zones are growing fast!

Monitoring Impacts Operations

Distribution of Number of Vulnerable RRsets per zone

- Monitoring reports coincide with dramatic reduction in vulnerable record sets

Added Value of Combination

- Control plane shows potential connectivity
  - IPv6 routing scale, churn, etc.
  - Time from allocation to announcement

- Data plane
  - IPv6 route equals real connectivity ??
  - Monitor using DNS messages

IRNC Collaborations

- 6Watch Provides Operational Data
  - Suite of tracking tools and systems
  - Many new advances from real-time BGP to DNS
- Host 6Watch pollers/peers
  - BGP route peering or DNS monitor host
  - Share IPv6 Deployment Plans and Status
- Help Address Needs and Problems
  - Especially for IPv6 networks…

Questions?

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