

Design and Deployment of a Global Data-Collection Infrastructure

Version 1.0

January, 2004

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Packet Clearing House

PCH Background

- Started in 1993 and 1994
- 70% of the Internet was in California
- 50% of Internet traffic both originated and terminated in California
- 100% went through Washington D.C.
- PCH formed to address that problem
- Went on to assist in other places

PCH Goals

- Uphold the core values of the Internet: unconstrained access and sound engineering.
- Support the Internet operations community through training, policy development, and the creation and maintenance of tools.
- Support the research and academic community through data collection, dissemination of information, and mediation with sources.

PCH Principal Projects

- Internet Exchanges
- Internet Routing Topology Archive
- INOC-DBA hotline phone system
- PeerMaster

Designing a Platform

- Assess needs
- Fix minimum requirements
- Design a platform architecture
 - Components
 - Node
 - Topology
- Prototype and test

Assess Needs

- Support an Internet Exchange
 - Route-server / Looking-glass
 - Switch ports or spares
 - Perform data collection
- Perform data collection
- Host experiments
- Host services

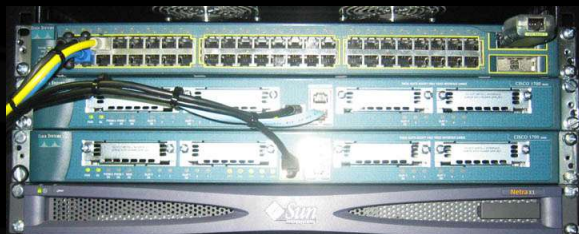
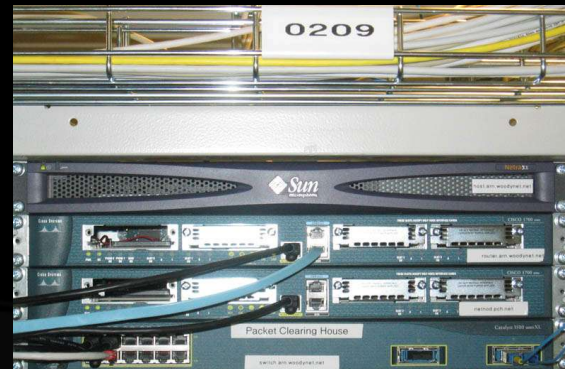
Minimum Criteria

- BGP routing, many views
- IPv4, IPv6
- Unicast, anycast, multicast
- Data collection, spooling, reduction
- DNS, HTTP, SMTP, NTP
- Secure remote management

Specifying an Equipment Package

- Many, many tradeoffs:
 - Cost versus scalability
 - Broad range of capability versus cost
 - Specific strengths versus breadth of capability
 - Size, weight, heat, power, redundancy
 - Modernity versus availability

Uniformity



Deployment Considerations

- Weight thresholds
- Dimension thresholds
- Apparent value
- Consumables and disposable tools
- Sparing

Local Participation



Maputo, Mozambique

Katmandu, Nepal



Topology

- Redundant transit at every location
- Tunnel mesh
- Redundant private hubs

Current Data-Collection Footprint



New Sites in the Pipeline





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