The Federal GigaPOP and The Ottawa Internet Exchange

Confessions of a Siamese Twin

William F. Maton Sotomayor
National Research Council Canada
NANOG 37

What are these?

- There are two Internet Exchanges in Ottawa
  - Federal GigaPOP (GigaFed) is a private access point for Federal Science-based government departments to reach CA*Net 4
  - Ottawa Internet Exchange (OttIX) is a public, community-based Internet Exchange

History: OttIX

- OttIX Started passing traffic in April 2001
- Not-for-profit corporation, establish by William F. Maton, Jacob Zack, and Stanislav (Stany//) Vardomskiy
- OttIX has been plagued for the past 5 years with a lack of a proper neutral site to call home
- As a result, it has had to move from one ISP to another, causing disruption, forcing ISP's to pay to move connections, etc.
- It's lack of a proper revenue stream has hampered its ability to sustain itself
- But, people contribute what they can, particularly the founders themselves, out-of-pocket.

History: GigaFed

- Federal GigaPOP started operations in July 2001
- Founded by National Research Council and Ministry of Industry
- It’s co-located at the CANARIE POP in Ottawa, giving it a stable home
- It has a constant revenue stream supplied by people paying to connect for CA*Net 4 access, which is used for paying for upgrades, maintenance, etc.

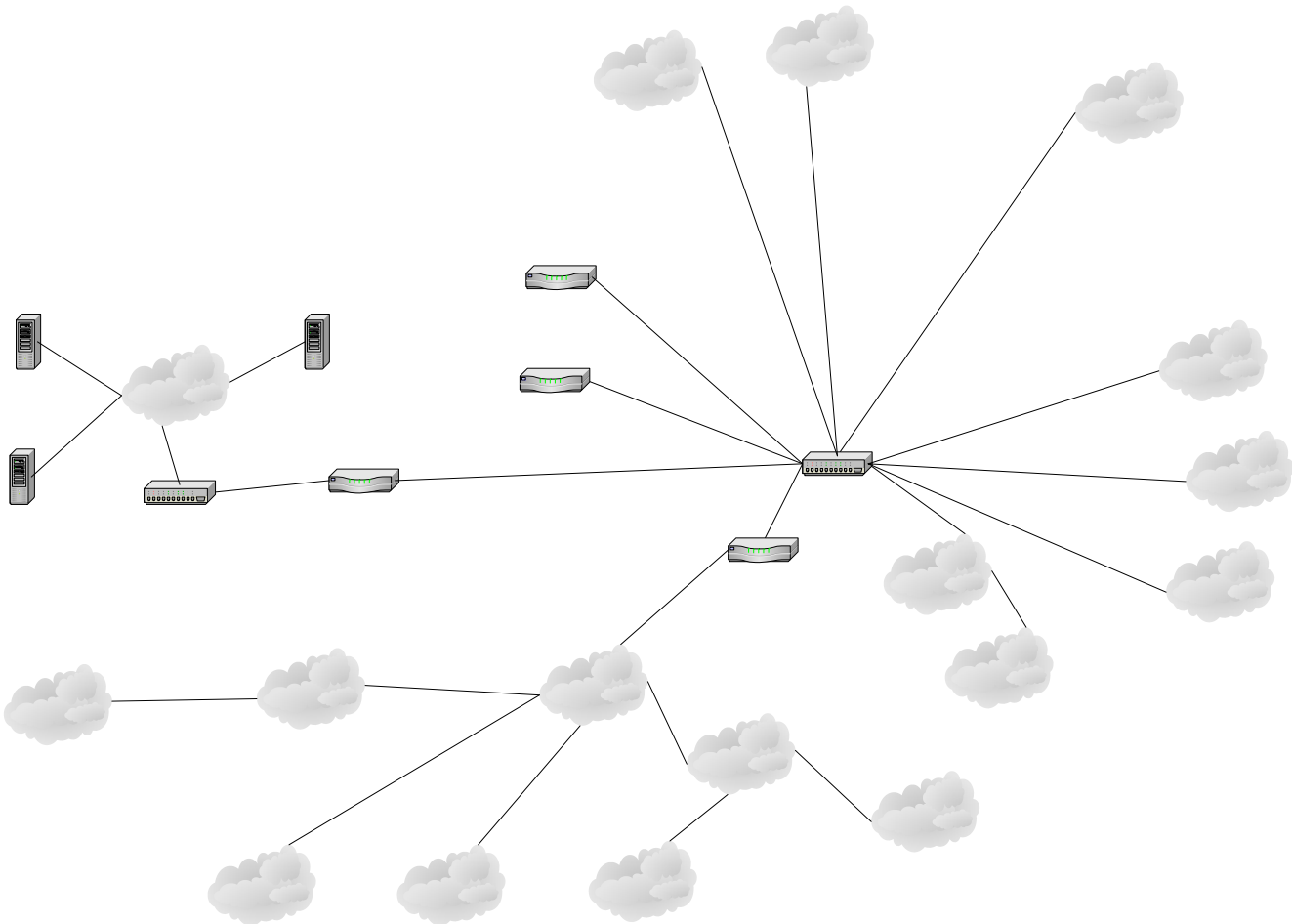
Architecture

- GigaFed and OttIX are modelled after the classical Internet architecture of routes servers and a switch
- In both cases, they each use ethernet switches
- Gigafed is a Cisco 6509, using a Sup2 engine built-in as a route server, with a 2651XM as a second route server
- OttIX uses a Cisco 3524XL switch, with two Cisco 4700M routers as the route servers

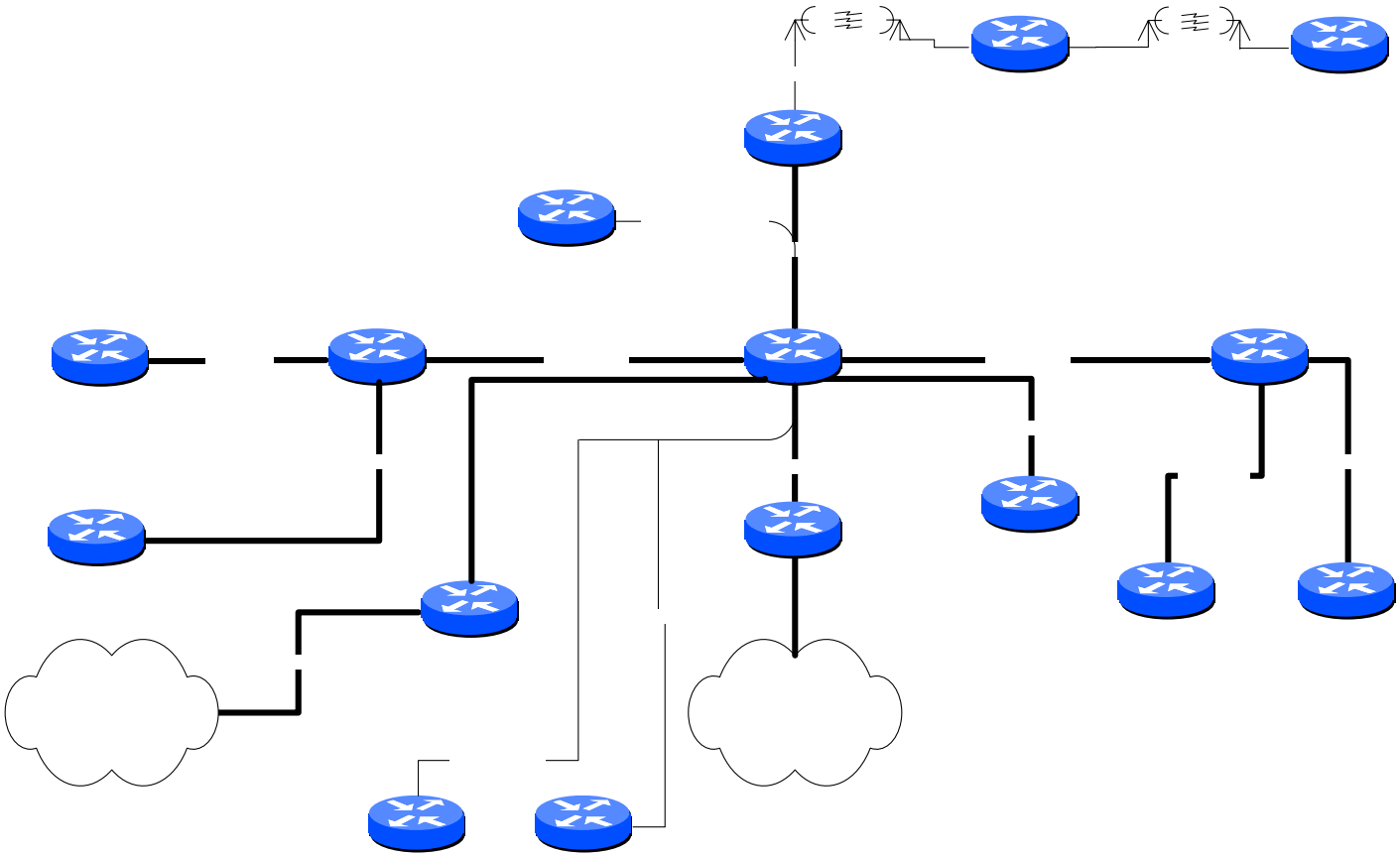
Arch

- Both Exchanges are running IPv6 and multicast, in addition to unicast IPv4 traffic
  - MSDP for participants
  - MBGP overlayed on the same structure
  - Neither uses VLAN's to isolate traffic
- OttIX, ironically, has a higher demand for IPv6 than does the Federal GigaPOP, while the reverse is true for multicast.
  - ISP's have limited knowledge of rolling it out

OttIX



Federal GigaPOP



Policies (1)

- The Federal GigaPOP is only open to Federal Government Science and Research for transit to CA*Net 4, but will peer with anyone otherwise
  - But there are a lot of hurdles due to the colo owner
- OttIX peers with anyone, regardless of who they are, using whatever means necessary, but must terminate on RJ-45

Policies (2)

- Each has a set of route servers
  - Federal GigaPOP, everyone must peer with the route servers – not everyone is BGP-savvy at the labs
  - OttIX, everyone can peer with the route servers, but they are free to make direct peerings
  - Federal GigaPOP will only accept routes from the OttIX route servers though

Services

- Federal GigaPOP supplies just transit connectivity to it's CA*Net 4-eligible peers, and peers with OttIX
  - NRC sponsors an anycast instance of f.root
- OttIX, conversely has a diverse set of services, provided by both its members and itself:
  - NNTP peering, DNS slaving, AS112 node, AdUni, local IRR, NTP stratum 2 (via NRC)

Promotion

- An IX can only rest on its techie laurels for so long, and cannot depend on one person to drive it all the time
- It needs to be an inclusive group that advocates positively
- Things like a resources page, listing what prominent service each ISP houses increases the IX value to current and prospective members

Futures

- Federal GigaPOP depends on CA*Net 4 continuing.
  - If it doesn’t, it’s likely to be shutdown
  - If it doesn’t shutdown it may get housed elsewhere and continue in some form
  - If CA*Net 4 continues, it, like OttIX, will be moving
- OttIX depends on its member ISPs, and the value they perceive it brings to them
- In both cases, it’s time a neutral facility be established in Ottawa
- Insights from others always appreciated

Links to more info

- Federal GigaPOP
  - http://www.gigafed.net/
- OttIX
  - http://www.ottix.net/