

Why peering policies and all that stuff

The simple view of a
peering coordinator

NANOG
MIAMI, FLORIDA

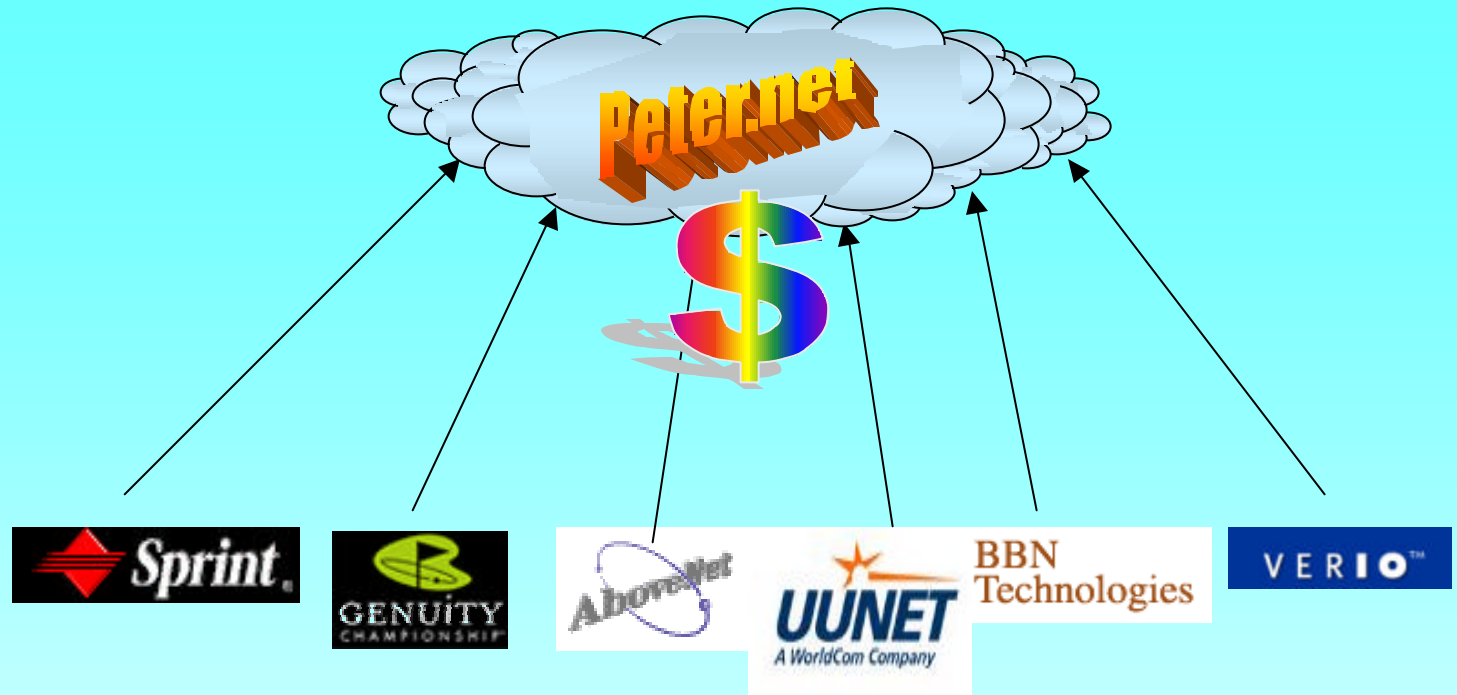
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To peer or not to peer

A view from the top





- ☐ **Why peer at all??**
- ☐ Simply connect to peter.net's BFR and pay Peter
- ☐ Nobody liked that: everybody wanted to be peter.net
- ☐ Peter had to continue working for a living

Rewind to 1995

- ☐ NSFNET refused to be a commercial ISP
- ☐ Sprint, Genuity, PSInet, MCI and others became commercial ISPs
- ☐ **How to make money?**
- ☐ Cerf & Hahn did not include a billing mechanism in TCP/IP
- ☐ Who benefits anyway – eyeballs or contents?? Sender pays all? Receiver pays all??

“There is no known objective financial settlement model which is financially robust and technically feasible in the Internet”

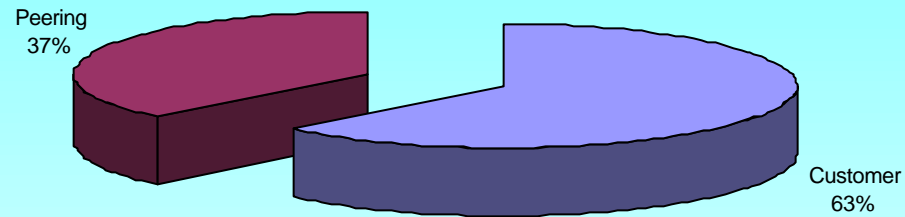
Geoff Huston 1998

- ❑ Everybody was a tier one
- ❑ Equal size, equal traffic, equal benefits
- ❑ Why bother charging each other or writing agreements
- ❑ **Peering was born**
- ❑ We had a beer, we shook hands, we peered
- ❑ **LIFE WAS GOOD**

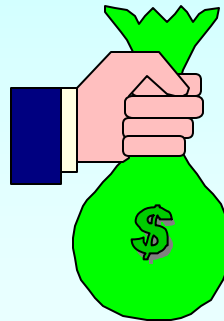
The Cost of Peering

AS3561 Traffic Distribution

September 2002



Total Peering Traffic = 6,642 TeraBytes



The Cost of Not Peering

No peering

No connectivity

No customers

- ❑ Predictably, some networks were more successful than others and multiple categories of networks emerged – Tier One, Tier Two, Tier Three or The Haves & The Have Nots
- ❑ Some Have Nots were actually asked to pay for services by The Haves, and were reduced to customer status or risked being disconnected
- ❑ **de-peering was born**
- ❑ **LIFE WAS NOT GOOD ANYMORE**

- ❑ Tier one – Tier Two – Tier Three – eyeball or contents rich
- ❑ Money started flowing from the bottom up
- ❑ The Have Nots cried foul and looked at the regulators to level the playing field
- ❑ Regulators looked upon The Haves management and suspected foul play and mumbled REGULATION
- ❑ The Haves management looked upon operations and demanded solutions
- ❑ **LIFE WAS MISERABLE**

- ❑ **Someone invented peering policies** and peering agreements to keep the playing field uneven and make money
- ❑ **Life was good again**
- ❑ At least for a Tier One peering manager

Peering Policies

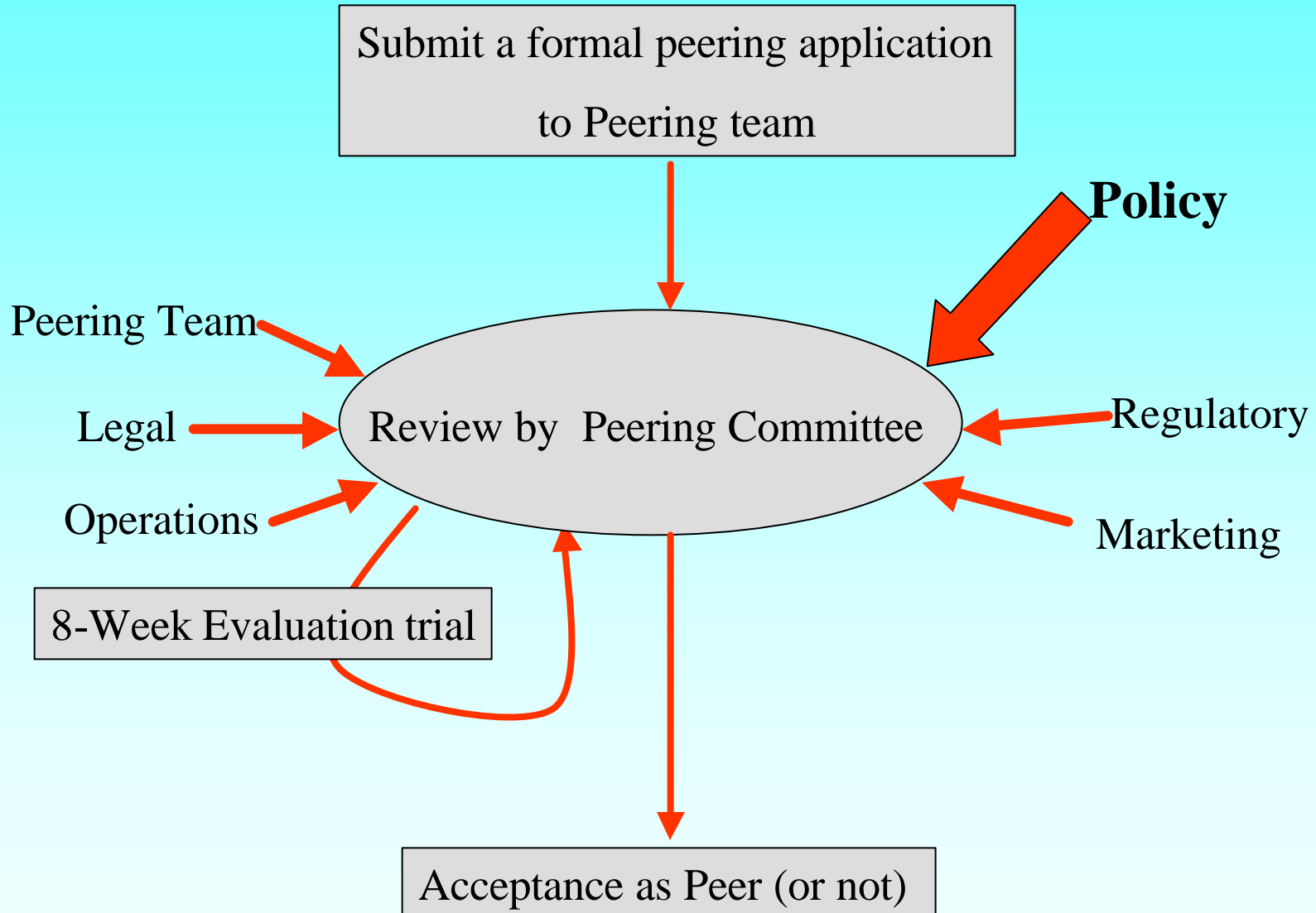
- ☐ establish transparent rules for peering relationships
- ☐ aim to establish “mutually beneficial relationships of equals”
- ☐ eliminate the need for regulation
- ☐ ensure that rules are applied equitably to all peers
- ☐ **facilitate the delicate balance between good connectivity and the cost of peering**
- ☐ can be changed, but must be applied equitably to all peers
- ☐ Peers that cannot comply with Peering Policy may be subject to de-peering

Policy Justification



- ☐ Regulatory scrutiny
- ☐ Little flexibility
- ☐ Keep peering cost to a minimum
- ☐ Maintain a defensible position
- ☐ Provide excellent network connectivity
- ☐ Accommodate increased contents

The Process



The de-peering Process

- ❑ All peers are subject to changes in policy
- ❑ If an existing peer can not comply with C&W's policy, a de-peering process can be started
- ❑ If de-peering would create a “black hole,” the agreement will be cancelled but the connections will be maintained until a commercial interconnect agreement or other arrangements have been reached

General Regulatory Principles

- ☐ Peering is **NOT** regulated by the FCC or any other agency at this time
- ☐ Peering Policies are **NOT** reviewed or approved by the regulators

However

- ☐ If a peering policy is not consistently implemented, the regulators may take action - including regulating the service providers

The Regulators Argument

- ❑ Regulation adds value by protecting consumers and enabling fair competition where
 - **There is market failure, and**
 - **The market cannot heal itself**
- ❑ Market failure is only likely where dominance exists in the market

Network Providers' Contention

There is no market failure

- ❑ Peering is an exchange of equal value and hence settlement free
 - This assessment is best made through commercial negotiations
- ❑ Regulatory intervention is likely to be sub-optimal
- ❑ Transparent published peering policies of many backbones, e.g.
 - CWA (<http://www.cw.com/peering>)
 - UUNet (<http://www.uu.net/peering/>)
 - Level 3 (<http://www.level3.com/us/products/crossroads/policy>)
- ❑ Backbones compete vigorously for transit customers to increase the value of their network

Questions ?



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