bifrost

KTH/CSD course kick-off
Summer 2009

Robert Olsson
What is bifrost?

Small Linux USB
For infrastructure
For research
Name of network and collaboration
For who?

Networking people
Unix/Linux
Needing a small flexible disto
Objectives?

- Hardware selection
- Software selection
- Testing
- Development
Basic functions?

Routing
Firewalling
Login services
Traffic logging
Gateways etc
Basic functions?

Routing
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Ipv4, ipv6
Routing

Routing uses tested versions of quagga
Bgp, OSPF both Ipv4, ipv6
Close collaboration with Linux networking Developers and industry

NAPI (3 years)
Pktgen,
fib_trie, (routing algo)
routing stats
Etc, etc
Cache effect/Performance
Measuring throughput

![Graph showing throughput, capacity, overload, and breakpoint.]
Overall Effect

- Inelegant handling of heavy net loads
  - System collapse
- Scalability affected
  - System and number of NICS
    - A single hogger netdev can bring the system to its knees and deny service to others

Summary 2.4 vs feedback

March 15 report on lkml
Thread: "How to optimize routing performance"
reported by Marten.Wikstron@framsfab.se
- Linux 2.4 peaks at 27Kpps
- Pentium Pro 200, 64MB RAM
Not all were selected...
Intel 10g board Chipset 82598

Open chip specs. Thanks Intel!
Block hw structure
Hardware – Box (set 2)

AMD Opteron 2356 with one quad core 2.3GHz Barcelona CPUs on a TYAN 2927 Motherboard (2U)
10 year in production at Uppsala University

Stockholm

UU-1

UU-2

Full Internet routing via EBGP/IBGP

L-uu1
AS 2834
L-uu2

Internernal

UU-Net

DMZ

PIII 933MHz
2.4.10poll/SMP
Current focus
Optical to Open Source Router

Energy next??
XFP Optical modules

XFP's are 10G and available for Long Range
XFP Optical modules

XFP's uses LC-connectors
XFP Interface Board

SUN Neptune 10g PCIe x8
CWDM MUX/DEMUX 4 Ports

Price idea 600 Euro
CWDM MUX/DEMUX 16 Ports
Usage

IN_updates: eBGP: KTH_LAN: only default 0/0; set LOC_PREF = 200
CSC_NETLAB: only local routes
iBGP: SSVL: default 0/0
192.16.124.0/22

OUT_updates: eBGP: KTH_LAN: 192.16.124.128/26; set community NO_EXPORT
CSC_NETLAB: 192.16.124.128/26: set community NO_EXPORT
iBGP: SSVL: 192.16.124.128/26

The link with KTH_LAN is used as a primary link for almost all (in & out) traffic (except for the direct traffic with SSVL and CSC_NETLAB). In case of the link failure to KTH_LAN the internet connection will be available via SSVL network. Valhallavägen router has a static default (with administrative distance = 255) route to CSC_NETLAB. Only the traffic originated within VV router will be forwardable via this link; VV router has an IP address from CSC_NETLAB range on one of its interfaces; the traffic that is not originated within VV is not provided with transit service by CSC_NETLAB.
That's all

Questions?