Case Study

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Outline

- Routing Issue @ Head Node
- Data Transfer across City
- Access to Garuda from Desktop
- Simple network trouble shooting tips

Routing Issue @ Head Node

- Garuda Network Peer-Peer connected
  - All 45 location can be accessed directly if proper routes are defined in head node
- Routes for your LAN
  - Take list of Network which are there in your LAN
  - Add corresponding routes towards your Internal router

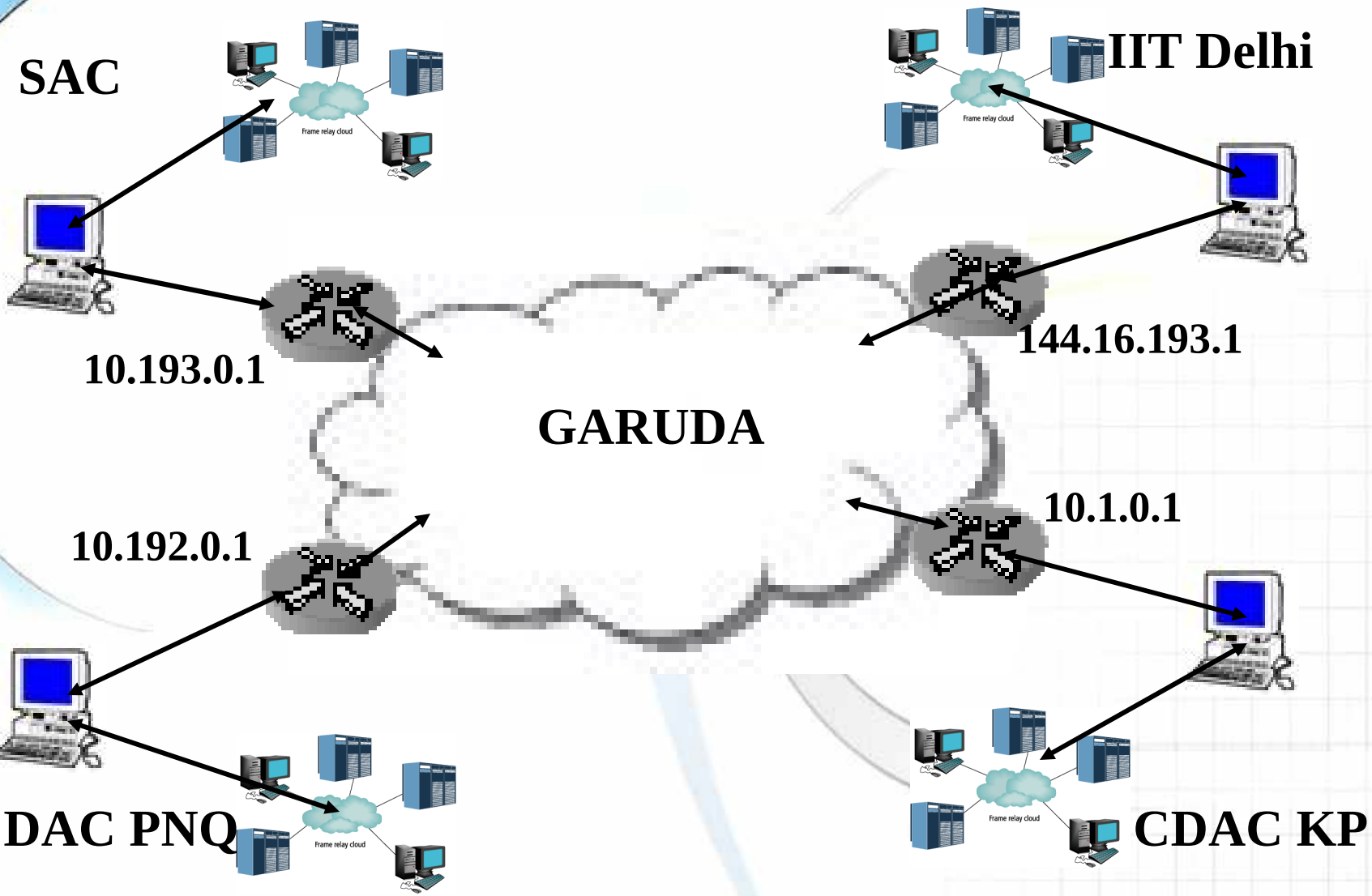
Routing Issue @ Head Node

- Routes for Garuda Network
  - 10.0.0.0/8, 144.16.192.0/24, 144.16.193.0/24, 192.168.60.0/22, 192.168.0.0/21 and 196.1.109.0/24,
  - Add static routes for the above networks towards Garuda Gateway router

    » OR

  - Set Default route as Garuda Gateway router

Routing Issue @ Head Node



Data Transfer across City

- TCP Window size
  = “available bandwidth in bits” X “RTT in seconds” / 8

- Example
  TCP Win size = 100 000 000 000 X 0.069 / 8
  = 862500 Bytes

- net.ipv4.tcp_rmem = 4096 87380 8388608
  - *minimum receive buffer*
  - *default receive buffer*
  - *maximum receive buffer*
    - /etc/sysctl.conf

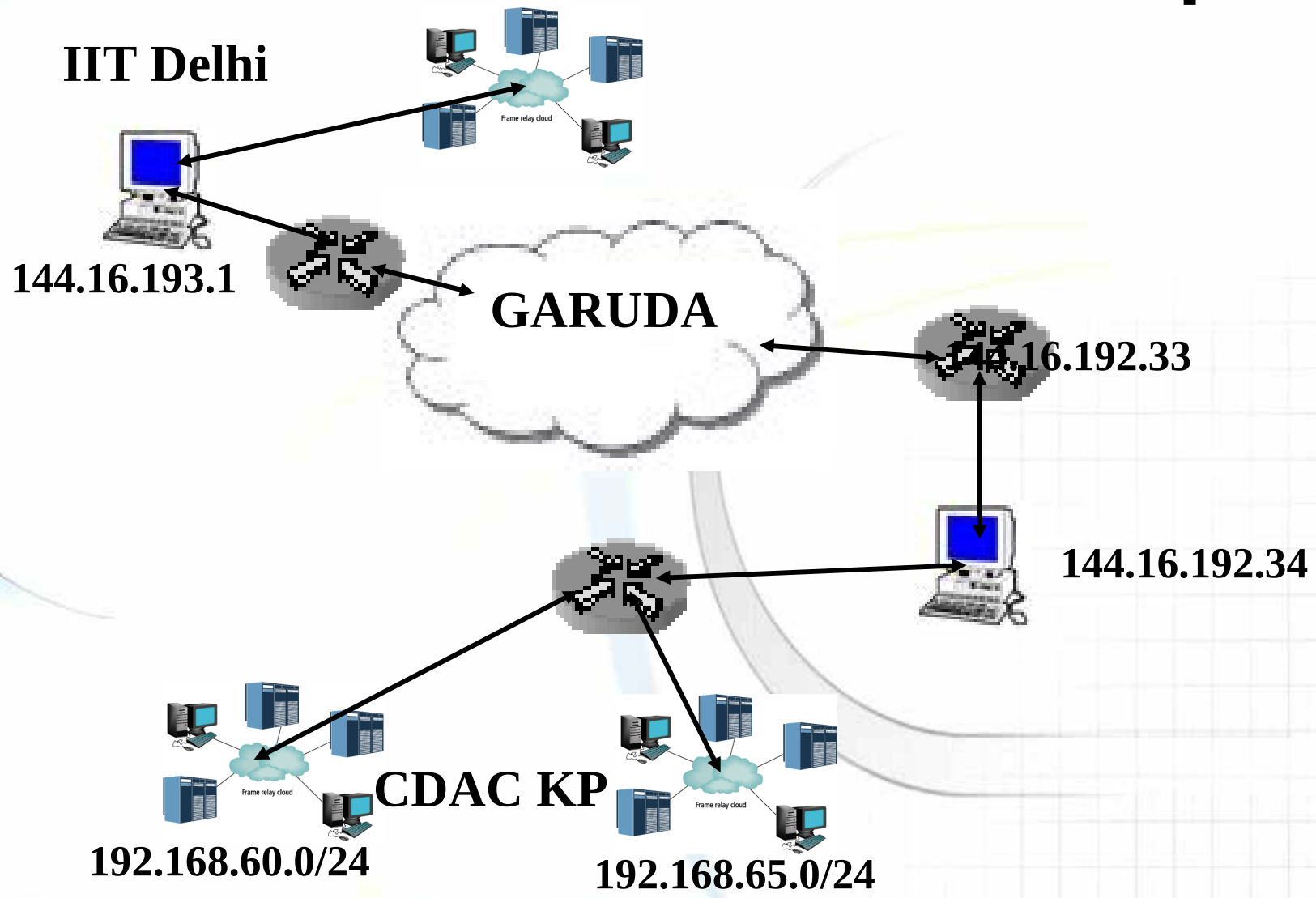
Data Transfer across City

- System requirement for 100 Mbps
  - Intel P-IV with 3.0 GHz or higher
  - 1 GB of RAM or Higher
- Operating System
  - Linux with kernel 2.6 or higher
- File transfer Application
  - SCP with ssh2.0 or higher
  - ftp
  - gridftp

Access to Garuda from Desktop

- Take list of network from Garuda which you want to access
  - 192.168.60.0/22, 10.0.0.0/8, 144.16.192.0/23
- Set static route towards your Head node
- Translate your unknown IP to Known Garuda IP by NAT in your Head node.
  - Example
    - iptables -A POSTROUTING -t nat -s 192.168.65.4 -d 144.16.193.0/24 -j SNAT --to 144.16.192.34

Access to Garuda from Desktop



Simple network trouble shooting tips

- **mii-tool**
  - **To check the status of Interface**

    [root@gokultm ~]# mii-tool
    eth0: negotiated 100baseTx-FD, link ok
- **ping**
  - **To check “am I in the Network?” ping to your gateway**

    [root@gokultm ~]# ping 192.168.60.254
    PING 192.168.60.254 (192.168.60.254) 56(84) bytes of data.
    64 bytes from 192.168.60.254: icmp_seq=1 ttl=128 time=1.22 ms
    64 bytes from 192.168.60.254: icmp_seq=8 ttl=128 time=1.00 ms
    --- 192.168.60.254 ping statistics ---
    8 packets transmitted, 8 received, **0% packet loss**, time 7007ms
    rtt min/avg/max/mdev = 1.005/1.042/1.221/0.076 ms

Simple network trouble shooting tips

- netstat -nr OR route –n
  - To check routes are properly defined

```
[root@gokultm ~]# netstat -nr
Kernel IP routing table
Destination     Gateway         Genmask         Flags   MSS Window  irtt Iface
192.168.60.0    0.0.0.0         255.255.255.0   U         0 0          0 eth0
192.168.0.0     192.168.60.252  255.255.248.0   UG        0 0          0 eth0
169.254.0.0     0.0.0.0         255.255.0.0     U         0 0          0 eth0
0.0.0.0         192.168.60.70   0.0.0.0         UG        0 0          0 eth0
```

Simple network trouble shooting tips

- **Traceroute**
  - **To check where my packet are dropping?**

```
[root@gokultm ~]# traceroute 10.192.0.10
traceroute to 10.192.0.10 (10.192.0.10), 30 hops max, 40 byte packets
 1  gridmon.ctsf.cdac.org.in (192.168.60.70)  0.142 ms   0.111 ms   0.108 ms
 2  144.16.192.33 (144.16.192.33)  2.526 ms   2.558 ms   0.493 ms
 3  10.11.1.1 (10.11.1.1)  2.348 ms   1.974 ms   1.986 ms
 4  221-135-152-45.sify.net (221.135.152.45)  25.810 ms   25.634 ms   25.659 ms
 5  segment-124-7.sify.net (124.7.247.2)  25.716 ms   25.619 ms   25.635 ms
 6  10.11.0.22 (10.11.0.22)  25.308 ms   25.173 ms   25.176 ms
 7  10.11.0.21 (10.11.0.21)  25.674 ms   25.678 ms   25.688 ms
 8  10.192.0.10 (10.192.0.10)  25.911 ms * *
[root@gokultm ~]#
```

Thank You