MikroTik Core Router at ISP NOC

- MikroTik Routers to deliver Giga-bits of Internet Traffic

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About Net Solutions

- Working with Broadband providers for More than 12 Years
- Provide HTTP Caching to ISP
- Provide Network Monitoring
- Provide Voice, Video and Collaboration Services
- Specialized in Network Resource planning and utilization for ISP.
Presentation Objectives

- MikroTik as Core Router for ISP
- Limitations of MikroTik
- Advantages of MikroTik
- Sizing and choosing Suitable Hardware
- Splitting Load to Multiple Routers
Target Audience

- ISP more than 500 mbps Bandwidth.
- Fast growing Broadband ISP who will reach 500 mbps bandwidth at NOC
- ISP looking for cost effective Redundant Core Router
- ISP interested in implementing IPV6 without disturbing their existing Network
Current Trends

- Options available for ISPs

Core Router:
  - CISCO
  - JUNIPER
Limitations of MikroTik

- Router Hardware
  - Tested & Certified Hardware with Benchmark
  - Best performing Network Adapters
- System CPU Uses 32 bit
- Difficulty in Expansion & Scaling
- Slow Packet Forwarding & packet Drops at High Load
MikroTik Advantage

- Runs on Standard Hardware
- Quick, simple and Low Cost Licensing
- Use Existing Knowledge and experience on MikroTik
- GUI to monitor
- Cost Effective Redundancy
- Planned Scale-ability
Common Do's and Don't

- Separate Core And Access Routers
- Avoid NAT
- Avoid Connection Tracking
- Allocate One Interrupt per LAN Card
- Allocate One CPU Core per LAN
- Local Traffic not through Core Router
- Suitable GBP options for minimum resources
- Fast CPU & RAM
Proposed Configuration

Internet Cloud

ISP 1 BGP 192.168.0.0/22
ISP 2 BGP 192.168.4.0/22
ISP 3 BGP 192.168.8.0/22

Gigabit Switch

Gigabit Switch

Destination Google/youtube
ip pool for Google Peering

Cache Cluster

10Gig

Core Network

N1 N2 N3 N4 N4 N5 N6 N7 N9 N8 N10
Case Study

- Five Network Solution (I) Pvt. Ltd.
- Largest Broadband Service Provider of Mumbai.
- End to End MikroTik
Core Router Cluster

- Two MikroTik Routers to Connect Up-link 6 STM TATA & 6 STM Spectranet, Intel i7 3 Ghz, 2 GB RAM, MikroTik Level 6, 6 Nos. Intel/Broadcom Gigabit LAN Cards on PCI-e Bus
- One MikroTik Router to Connect Up-link 6 STM TATA and 2 GBPS Google Peering Intel i7, 3 GHz 2 GB RAM, MikroTik Level 6, 8 Nos. Intel/Broadcom Gigabit LAN Cards on PCI-e Bus
### MikroTik NAS

<table>
<thead>
<tr>
<th>User</th>
<th>Online Users</th>
<th>Total Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>19067</td>
<td>4444</td>
<td>1291</td>
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</tbody>
</table>
MikroTik NAS Details

- Total NAS 125
- Maximum Online Users 21000
- Total Internet Traffic 6 GBPS +
- No Buffering on all YouTube Video for all plans
Redundant Backbone with Trunking
10 Gig Local 6 Gig Internet Traffic

- Gigabit Port Trunking on Switches for High Throughput upto 8 GBPS
- Intelligent Routing of Intranet Traffic
- Network Redundancy using rstp
- Remote Management of All Switches and NAS
- Network and NAS Monitoring using NMS
- SMS alert to respective managers for Link/NAS
Schematic Diagram 1
Current Setup Diag
Scalability

- Current Setup is can be scaled to 10 gig or more.
- Standby Router is kept for fail over
- Total Cost of ownership of this setup is just 5% of other options
- Existing Experience and knowledge on MikroTik is used for configuration and management.
- No dependancy on any proprietory hardware.
QUESTIONS
Thank You