Collection of BCNET BGP Traffic
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BCNET MAP

- Primary BCNET backbone is a 10 Gbps Ethernet network with backup 1 Gbps links planned for rapid failover
- Data are sent to Traffic Filtering Device (Net Optics Director 7400) and to Data Capture Device (NinjaBox 5000)
- Optical Test Access Point (TAP) splits the signal into two distinct paths
- 30% of the split is sent to the Traffic Filtering Device that filters packets and sends filtered data to the Data Capture Device
- The transit providers are connected to BCNET via 1 Gbps and 10 Gbps network links

BORDER GATEWAY PROTOCOL (BGP)

- De facto Inter-Autonomous System (AS) routing protocol
- Operates over a reliable transport protocol (TCP)
- Exchanges network reachability information among BGP systems based on policy decision, shortest AS_path, and Next_hop router
- Employs the Best Path Selection algorithm to select the routing path
- Applies policies to the information contained in routing updates and accepts/rejects update information based on attributes

NET OPTICS DIRECTOR 7400

- The filtering device selects traffic of interest based on communication protocols, IP addresses, port numbers, and the virtual local area network (VLAN)

BCNET TRAFFIC COLLECTION

<table>
<thead>
<tr>
<th>AS</th>
<th>Number of packets</th>
<th>Statistics (packets per minute)</th>
<th>Number of connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>6327</td>
<td>30,653</td>
<td>min: 4 max: 96 mean: 11</td>
<td>683</td>
</tr>
<tr>
<td>13768</td>
<td>512,672</td>
<td>min: 23 max: 336 mean: 63</td>
<td>588</td>
</tr>
<tr>
<td>852</td>
<td>511,820</td>
<td>min: 79 max: 645 mean: 177</td>
<td>155</td>
</tr>
</tbody>
</table>

Traffic generated by the BGP update messages for the three BCNET transit providers

Walrus AS topology graph of the collected BCNET traffic

ENDACE DAG 5.2X CARD

- XFP interface with pluggable transceivers
- RJ45 socket for time synchronization
- FPGA with fan fitted

- Data Acquisition and Generation (DAG) is the main component of the Data Capture Device (NinjaBox 5000)
- DAG monitors and inspects traffic on 10 Gbps Ethernet LAN networks
- The card enables 100% packet capture at full line rates even on high-speed links operating at full line utilization
- Transfers up to 7 Gbps of traffic to software applications for further analysis
- DAG enables network managers to develop solutions that inspect security threats and measure network performance

BCNET TRAFFIC MAP

- British Columbia’s network extends to 1,400 kilometers and connects cities of Kamloops, Kelowna, Prince George, Vancouver, and Victoria
- The map shows the traffic bound for CANARIE (Canada’s Advanced Research and Innovation Network), the commercial Internet (Transits), and peering traffic at the Seattle Internet Exchange (Seattle IX)

REFERENCES


ITC 2011
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