An Overview Of The CA*Net3 IRR Next Generation Software

Meeting Name: Internet2 Routing Working Group Meeting  
Time: 8:00pm - 11:30pm  
Room Location: CALIFORNIA/WISCONSIN

Bill Rutherford (BCIT, CA*net3) will present an overview of the CA*net3 IRR next generation software. Bill will also give a demo, however, since there will not be connectivity in the meeting room, the demo will be the following morning, wed, jan 30, 10:45-11:30 (we have the space until noon), in the Memorial Union, Yuma Room (room 211).

LINKS:
- CA*net 3 IRR Web Site: http://irr.canet3.net/
- Project Development Team Web Site: http://c3-irr-project.gait.bcit.ca/
- CA*net 3 IRR NG Web Tool: http://brahms.gait.bcit.ca:8080/irr/
- IRR NG Web Tool – Customized for I2: http://jones.gait.bcit.ca:8080/i2rr/
- CANARIE: http://www.canarie.ca/
Figure 1 - PERL Based Site
Gigapop RPSL Object Reports

1. All TierA routes objects in the ARDNOC database

2. All route objects maintained by: ARDNOC-MNT

3. All CA*net3 IRR objects maintained by: ARDNOC-MNT

Report Results: Edit Save To File

Figure 2 Basic Reporting
Figure 3 - Manually populated drop downs
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create a generic IPv4 access list for routes sourced by Cisco.</td>
<td>AS6509</td>
</tr>
<tr>
<td>2</td>
<td>Create a Cisco access list.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Create an extended format Cisco IPv4 access list for all C3-TierA routes</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Create an extended format IPv4 access list for all routes sourced by Cisco.</td>
<td>AS6509</td>
</tr>
<tr>
<td>5</td>
<td>Create an extended format Cisco IPv4 access list for TierA routes maintained by ARDNOC</td>
<td>Submit</td>
</tr>
<tr>
<td>6</td>
<td>Create a IPv4 access list for route set name</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Create an AS path access list for AS set name</td>
<td>AS-03-GI-GIGAPOP8</td>
</tr>
</tbody>
</table>
Figure 5 - Example list for Juniper

```
@RtConfig access_list filter RS:ARDNOC-TierA
Juniper IPv4 access list for RS-ARDNOC-TierA
policy-statement prefix-list-100 {
    term prefixes {
        from route-filter 192.211.24.0/24 exact accept;
        route-filter 205.199.22.0/24 exact accept;
        route-filter 205.189.33.0/24 exact accept;
        route-filter 205.219.1.0/24 exact accept;
        route-filter 205.220.1.0/24 exact accept;
    }
    term catch-rest {
        then reject;
    }
}
```
Figure 6 - Basic management panel
ANAST CA*net 3 Next Generation IRR Tool

- Alpha Deployment Version 3.1.0

This application is an internet route registry (IRR) web tool Alpha site. Although the application may look similar to the existing CA*net 3 IRR web tool at irr.canet3.net, the technology is Java based making it scalable, secure, and remarkably platform independent.

This site is intended to be the first stage of the development process for the next generation ORAN IRR Web Tools. Notably, the application is designed in a general way so that it can be easily customized and deployed for IRR management sites.

The design used for the ANAST CA*net 3 Web Tool is Model-View-Controller (MVC) architecture, which separates three distinct forms of functionality within the application: Model - represents structured data, as well as some application specific data behavior. A View - is the presentation layer using Java server page (jsp) technology. A Controller - Embedded functionality in a loosely coupled layer of action mechanisms associated with jsp page controls.

More information and feedback:

ANAST CA*net 3 IRR

Figure 7 - New Java based site
Figure 8 - New database for object characterization
Figure 9 - Operator data and session selection
Figure 10 - Bare session
Figure 11 - Populated session
Figure 12 - Report from populated session
Figure 13 - New query panel with server selection
Figure 14 - New server profile showing RPSL parse setup
Figure 15 - New administration panel showing operator events
Figure 16 - New router profile
Figure 17 - New transit port profiles
Figure 18 - New router configuration rebuild with timestamps
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Figure 19 - Operator process overview with rebuild button
Figure 20 - New connection session with router configs
### Figure 21 - New router verification

#### Port 1: POS1/10
- **Parameter**: OC12 - Cal to Ring link
- **Desig. IPv4**: 205.109.32.130, **ping**: 205.109.32.130 is alive
- **Peer Desig. IPv4**: 205.109.32.129, **ping**: 205.109.32.129 is alive

#### Port 2: POS1/10
- **Parameter**: OC12 - Cal to Ring link
- **Desig. IPv4**: 205.109.32.133, **ping**: 205.109.32.133 is alive
- **Peer Desig. IPv4**: 205.109.32.134, **ping**: 205.109.32.134 is alive

#### Port 3: Gigabitethernet2/0.1
- **Parameter**: Gigabitethernet2/0.1 Calgary
- **Desig. IPv4**: 205.109.32.198, **ping**: 205.109.32.198 is alive
- **Peer Desig. IPv4**: 205.109.32.197, **ping**: 205.109.32.197 is alive

#### Port 4: Gigabitethernet2/0.2
- **Parameter**: Gigabitethernet2/0.2 Edmonton
- **Desig. IPv4**: 205.109.32.126, **ping**: 205.109.32.126 is alive
- **Peer Desig. IPv4**: 205.109.32.125, **ping**: 205.109.32.125 is alive

#### Port 0: Loopback0
- **Parameter**: Loopback0
- **Desig. IPv4**: 205.109.32.253, **ping**: 205.109.32.253 is alive
- **Peer Desig. IPv4**: none, **ping**:
Figure 22 - Future trends with GRID facilitation
Figure 23 - Possible optical cross connect session server
<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
<th>Parameter</th>
<th>Value</th>
<th>Test Type</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>point-to-point vSNS via STARTAP</td>
<td>Designated IPv4</td>
<td>205.189.32.94</td>
<td>ping</td>
<td>205.189.32.94 is alive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer Designated IPv4</td>
<td>205.189.32.93</td>
<td>ping</td>
<td>205.189.32.93 is alive</td>
</tr>
<tr>
<td>5</td>
<td>point-to-point CERN via STARTAP</td>
<td>Designated IPv4</td>
<td>192.65.184.181</td>
<td>ping</td>
<td>192.65.184.181 is alive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer Designated IPv4</td>
<td>192.65.184.182</td>
<td>ping</td>
<td>192.65.184.182 is alive</td>
</tr>
<tr>
<td>6</td>
<td>point-to-point NREN NASA via STARTAP</td>
<td>Designated IPv4</td>
<td>192.12.123.92</td>
<td>ping</td>
<td>192.12.123.92 is alive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer Designated IPv4</td>
<td>192.12.123.91</td>
<td>ping</td>
<td>no answer from 192.12.123.91</td>
</tr>
<tr>
<td>7</td>
<td>point-to-point Israel via STARTAP</td>
<td>Designated IPv4</td>
<td>192.114.98.5</td>
<td>ping</td>
<td>192.114.98.5 is alive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer Designated IPv4</td>
<td>192.114.98.6</td>
<td>ping</td>
<td>192.114.98.6 is alive</td>
</tr>
<tr>
<td>8</td>
<td>point-to-point NORDUnet via STARTAP</td>
<td>Designated IPv4</td>
<td>205.189.32.114</td>
<td>ping</td>
<td>205.189.32.114 is alive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer Designated IPv4</td>
<td>205.189.32.113</td>
<td>ping</td>
<td>205.189.32.113 is alive</td>
</tr>
<tr>
<td>9</td>
<td>point-to-point NASA NISN via STARTAP</td>
<td>Designated IPv4</td>
<td>192.150.29.14</td>
<td>ping</td>
<td>no answer from 192.150.29.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peer Designated IPv4</td>
<td>192.150.29.13</td>
<td>ping</td>
<td>no answer from 192.150.29.13</td>
</tr>
</tbody>
</table>

Figure 24 - From demo showing all NASA links down
Figure 25 - From demo showing "teaser"