

Premium IP Management

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Premium IP Management

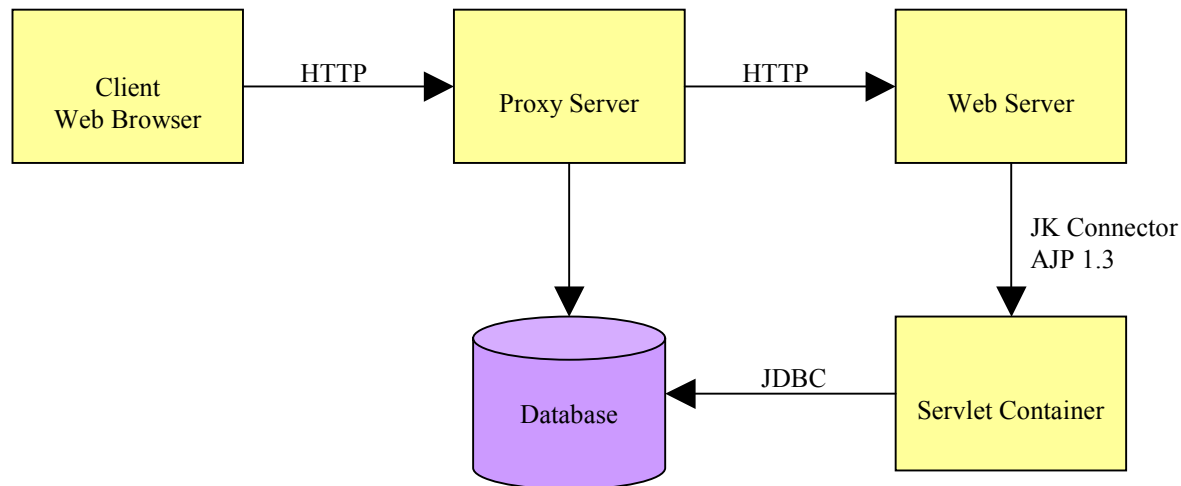
- Premium IP service implemented using DiffServ EF PHB
- Service currently enabled only on GEANT network
- Admission Control and Policing currently done on the GEANT boundary routers
- Operational procedure defined (SEQUIN)
- Service management is done manually
- Service set up, maintenance and termination is done by phone calls and emails

Need for Automation

- Considerable manual effort required
- Complexity in keeping track of:
 - Path information
 - Current and future reservations
 - Premium IP utilisation levels
 - Changes in network topology
- Multi-party communication

System Architecture

- Java web-based architecture
- Using Apache 1.3 web server, Tomcat servlet container & MySQL Database



Application Architecture

- Use open source software
- Reusable component-based architecture
- Flexible & Extensible
 - Customisable user interface
 - Parameter driven
 - XML interfaces for communication
- Work with all major browser platforms

Authentication & Authorisation

1. Authentication compatible with current monitoring tools
2. Two levels of authorisation
 1. Function control (modules)
 2. Data control (data records)
3. Immediate users - APM's, NOC, DANTE
4. In future, access can be given to other users



- Home
- Path Finder
- Reservation
- Utilisation
- S-IS Cost
- Configuration

dante.anand,

Welcome to Premium IP



Path Finder

- Find shortest path between two end points
 - GEANT NREN to NREN
 - GEANT Core Router to Core Router
- Dynamic based upon configured IS-IS cost
- A reusable component
- Possible web service

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Path Finder

Shortest Path between UKERNA and Hungarnet

Link Source	Source Interface	Link Destination	Destination Interface	ISIS cost	Link Capacity (Mbps)
JANET Access router	NA	uk1.uk.geant.net	POS 2/2/0	10	2500.0
uk1.uk.geant.net	POS 7/0	fr1.fr.geant.net	POS 7/0/0	70	10000.0
fr1.fr.geant.net	POS 6/0/0	ch1.ch.geant.net	POS 6/0/0	70	10000.0
ch1.ch.geant.net	POS 7/0/0	at1.at.geant.net	POS 7/0/0	100	10000.0
at1.at.geant.net	POS 1/2/0	hu1.hu.geant.net	POS 1/2/0	400	2500.0
hu1.hu.geant.net	POS 1/1/0	Hungarnet Access Router	NA	10	2500.0

Utilisation

- Check Premium IP reservation levels on each intermediate link along the path
- Take into account all active reservation during the given time period
- Search by
 - Link & Date
 - Link & Date Range
 - Path & Date
 - Path & Date Range
- Display the available Premium IP capacity

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Premium IP Utilisation

Utilisation by Date Range

Source	<input type="text" value="uk1.uk.geant.net"/>
Destination	<input type="text" value="fr1.fr.geant.net"/>
Link Capacity	<input type="text" value="10000000"/> kbps
Reservable Premium IP Percentage	<input type="text" value="10"/> %
Reservable Premium IP Capacity	<input type="text" value="1000000.0"/> kbps
Start Date	<input type="text" value="10/10/2003"/> (DD / MM / YYYY)
End Date	<input type="text" value="20/10/2003"/> (DD / MM / YYYY)

Daily Utilisation

Date	Reserved Capacity (kbps)	Percentage Reserved (%)	Available Capacity (kbps)	Percentage Available (%)
10/10/2003	1250	0.125	998750.0	99.875
11/10/2003	1350	0.135	998650.0	99.865
12/10/2003	1350	0.135	998650.0	99.865
13/10/2003	1350	0.135	998650.0	99.865
14/10/2003	1350	0.135	998650.0	99.865
15/10/2003	1350	0.135	998650.0	99.865
16/10/2003	1300	0.13	998700.0	99.87
17/10/2003	1300	0.13	998700.0	99.87
18/10/2003	1300	0.13	998700.0	99.87
19/10/2003	1300	0.13	998700.0	99.87
20/10/2003	1200	0.12	998800.0	99.88

Reservation

- Reservation management
 - View
 - Request
 - Modify
 - Cancel
- Based upon available Premium IP capacity
- Contact management
- IP Address management

Premium IP Reservation View

Reservation Details

Reservation Number	12
Source	UKERNA
Destination	Hungarnet
Direction	Bi-Directional
Start Date	10/10/2003
End Date	20/10/2003
Bandwidth	400
Status	Active
Application	Videoconferencing H.323
Project	Testing end to end QoS for Jitter on GEANT
Comments	Ensure enough bandwidth is available in Ukerna network
Created By	dante.anand
Date Created	26/08/2003
Modified By	dante.anand
Date Modified	26/08/2003

[Cancel Reservation](#)[View IP](#)[View Contact](#)[Add IP](#)[Add Contact](#)

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Premium IP Contact Details

Contact Details

Reservation Number	<input type="text" value="12"/>
Name	<input type="text" value="UKC Contact"/>
Institution/Role	<input type="text" value="University of Kent"/>
Phone	<input type="text" value="01223 455069"/>
Email	<input type="text" value="contact@kent.ac.uk"/>
Type	<input type="text" value="Technical Contact"/>
Comments	<input type="text" value="Mon to Fri 9-5 only"/>
Created By	<input type="text" value="dante.anand"/>
Date Created	<input type="text" value="26/08/2003"/>
Modified By	<input type="text" value="dante.anand"/>
Date Modified	<input type="text" value="26/08/2003"/>

[Update Contact](#) [Delete Contact](#)

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Premium IP - IP Details

IP Address Details

Reservation Number	<input type="text" value="12"/>
Version	<input type="text" value="IPv4"/>
IP	<input type="text" value="10.10.27.172"/>
End Point	<input type="text" value="Source"/>
Created By	<input type="text" value="dante.anand"/>
Date Created	<input type="text" value="26/08/2003"/>
Modified By	<input type="text" value="dante.anand"/>
Date Modified	<input type="text" value="26/08/2003"/>

[Update IP](#)[Delete IP](#)

Electronic Mail Notification

- Automated email notification to:
 - User
 - DANTE - Premium IP team
 - NOC
- upon Reservation
 - Request
 - Modification
 - Cancellation

Other Functions

- IS-IS Cost
 - Display IS-IS cost of all links
 - Help to keep IS-IS cost up-to-date
- Router Configuration
 - For NOC to update router configuration
 - For DANTE to check router configuration
- Reports
- Archival
- System Administration

Possible enhancements

- Aggregation between domains
- Handle router, interface or link failures
- Multi-homed NREN's (e.g. Abilene)
- Move components to web services
- 'What-If' analysis capability
- Multi-domain bandwidth broker

Q&A

Any further Questions, Comments, Feedback or Suggestions
please contact

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