

BGP based Ethernet Delay Simulator Model: BGP-EDS

Presented By the Manufacturer:

EAST COAST
D A T A C O M , I N C .

www.ecdata.com

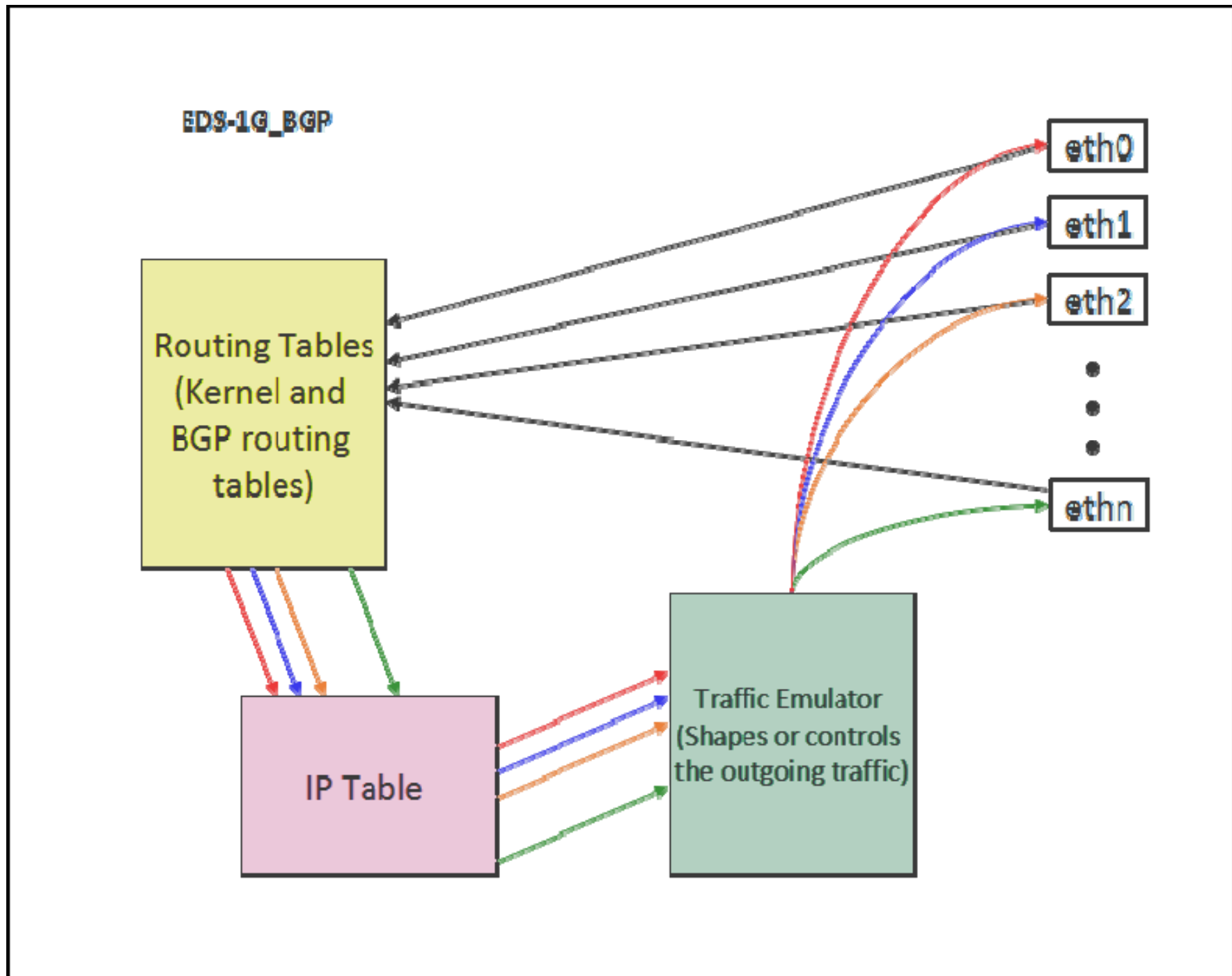
Purpose(Traffic Shaping)

- BGP Delay Simulator is used to simulate and test cross network transactions.
- A classic example would be a network datacenter which is connected to multiple sites across geography. If the user is required to test this router connected to multiple locations and subnet sites, the BGP Delay Simulator is used.
- Basic network characteristics like Network delay, Packet loss, Packet corruption, Disconnections, Packet re-ordering, Jitter, etc. can usher different levels of disturbances on Software Flow.

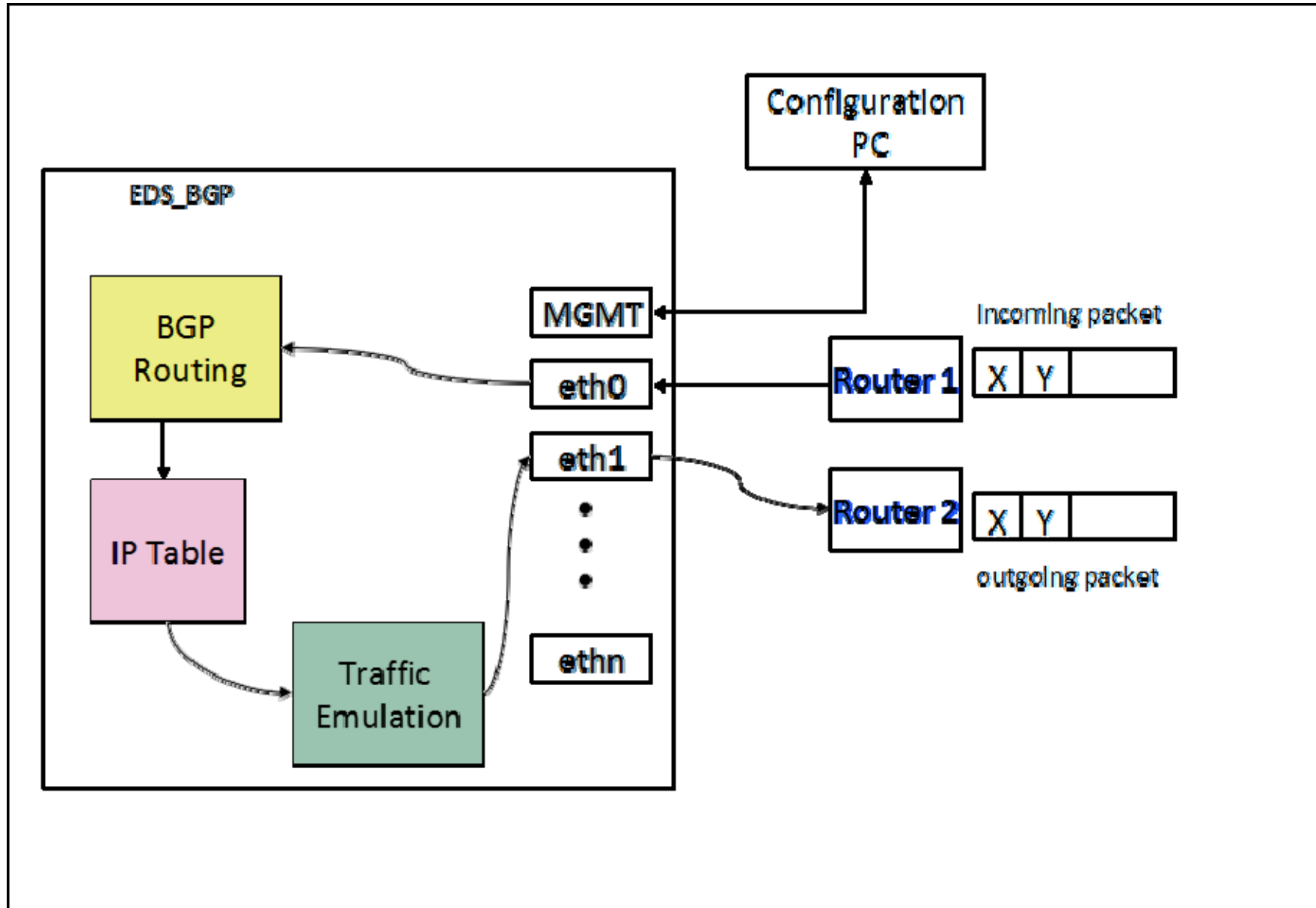
Solution

- The BGP-EDS Ethernet delay simulator is a product used to apply traffic rules on packets flowing out of the egress port for the intended packets matching source address and destination address.
- Traffic shaping can also be applied over Sub-netting Range of a particular network.
- Simulates slow/congested links between nodes. Each Simulation Profile can be uniquely stored ,verified and used later.
- Traffic Characteristics like packet delay, jitter, loss, duplication, bit-errors, re-ordering as well as Bandwidth limiting can be Simulated.
- Statistics of Network Simulation.

Block Diagram of Software Design



Simplified Block diagram



Benefits

- Traffic shaping is applicable for various Classes (A, B, C) as well as CIDR(Class-less Inter-Domain Routing) networks.
- Simulation Profiles can be created/edited/applied/disabled/deleted.
- Multiple Profiles can exist and switched.
- Persistent behaviour of Profiles even after restarting the System.
- Live Status of Network Connections .
- Graphical visualization of Bandwidth along with table of traffic characteristics such as Delay, Duplication and Loss.
- Easy configuration from remote System over Web Browser.
- Auto completion feature ,that will remember recently entered IP Address.

Add Profile

Add Profile

Profile name

P1

Bandwidth Range(300bps to 1000mbps)

256

kbit

Delay Range(0ms to 8000ms)

5

ms

Jitter Range(0ms to 8000ms)

0

ms

Loss Range(0 to 100%)

13

%

Reordering Range(0 to 100%)

20

%

1

Duplication Range(0 to 100%)

6

%

Bit Error Range(0 to 100%)

0

%

Cancel

Save

Profile

View Profile

Add +

Apply Profile

EDS-EBS - Mozilla Firefox

Mozilla Firefox Star... x EDS-EBS x +

192.168.0.251:8080/ebs/#profileshow

Search

EAST COAST
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EBS BGP
Ethernet Delay Simulator

Date : 27-4-2015
Time : 19:57 IST
Version : v3.0.0

Logout Shutdown

Info Setting Profile Statistics Routing Table Graph Help

Profile

View Profile Apply Profile

Select Profile Source IP Destination IP Apply Profile

Applied Profile	⇅ Source IP	⇅ Destination IP	
test	192.168.0.251	192.168.0.1	Edit Delete

Showing 1 to 1 of 1 entries

< 1 >

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Apply Profile (Subnet Mask)

The screenshot displays the EBS BGP Ethernet Delay Simulator web interface. The browser window shows the URL `192.168.0.94:8080/ebs/#profileshow`. The page header includes the logo for EAST COAST DATA COM. INC and the title EBS BGP Ethernet Delay Simulator. The version is v2.2.0. The navigation menu includes Info, Setting, Profile, Statistics, Routing Table, Graph, and Help. The Profile section has two tabs: View Profile and Apply Profile. The configuration fields are as follows:

192.168.0.94	<input type="checkbox"/>	Subnet Mask	Source Subnet Mask
192.168.0.0	<input checked="" type="checkbox"/>	Subnet Mask	24
P2			Apply Profile

Below the configuration fields is a table of applied profiles:

Applied Profile	Source IP	Destination IP	
P1	192.168.0.94	192.168.0.112	Disable Edit Delete

Showing 1 to 1 of 1 entries

Statistics of Applied Profile

EDS-EBS - Mozilla Firefox

EDS-EBS

192.168.0.251:8080/ebs/#

Search

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DATACOM. INC

EBS BGP
Ethernet Delay Simulator

Date : 27-4-2015
Time : 08:27 IST
Version: v3.0.0

Logout Shutdown

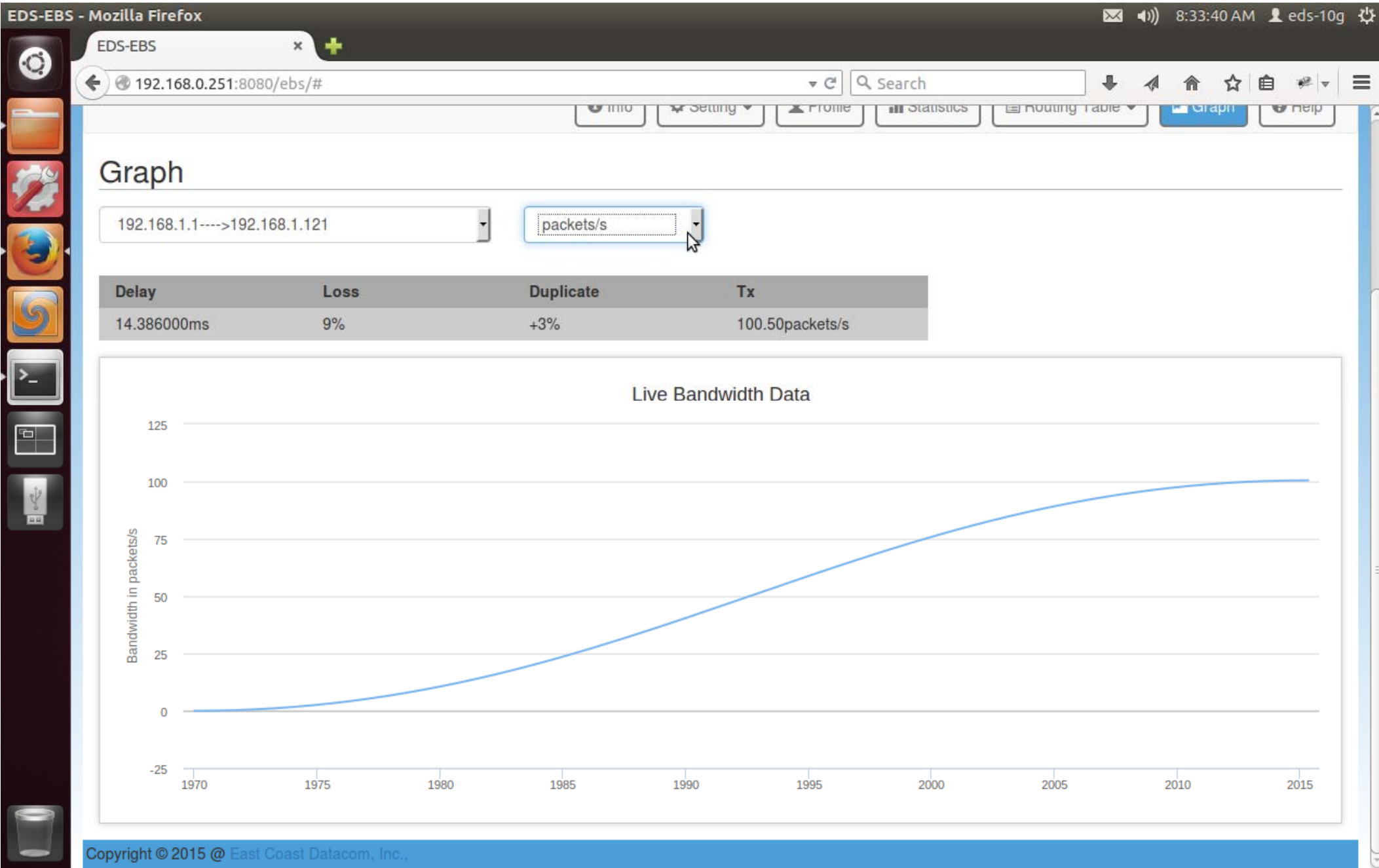
Info Setting Profile **Statistics** Routing Table Graph Help

Statistics

Profile Name	Source IP	Destination IP	Bandwidth	Delay	Loss	Duplicate	Corrupt	Reorder	Gap	Tx Bytes	Tx Packets
P1	192.168.1.1	192.168.1.121	256000bit	5.0ms	13%	6%	0%	20%	1	136224	2227

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Graph of Applied Profile



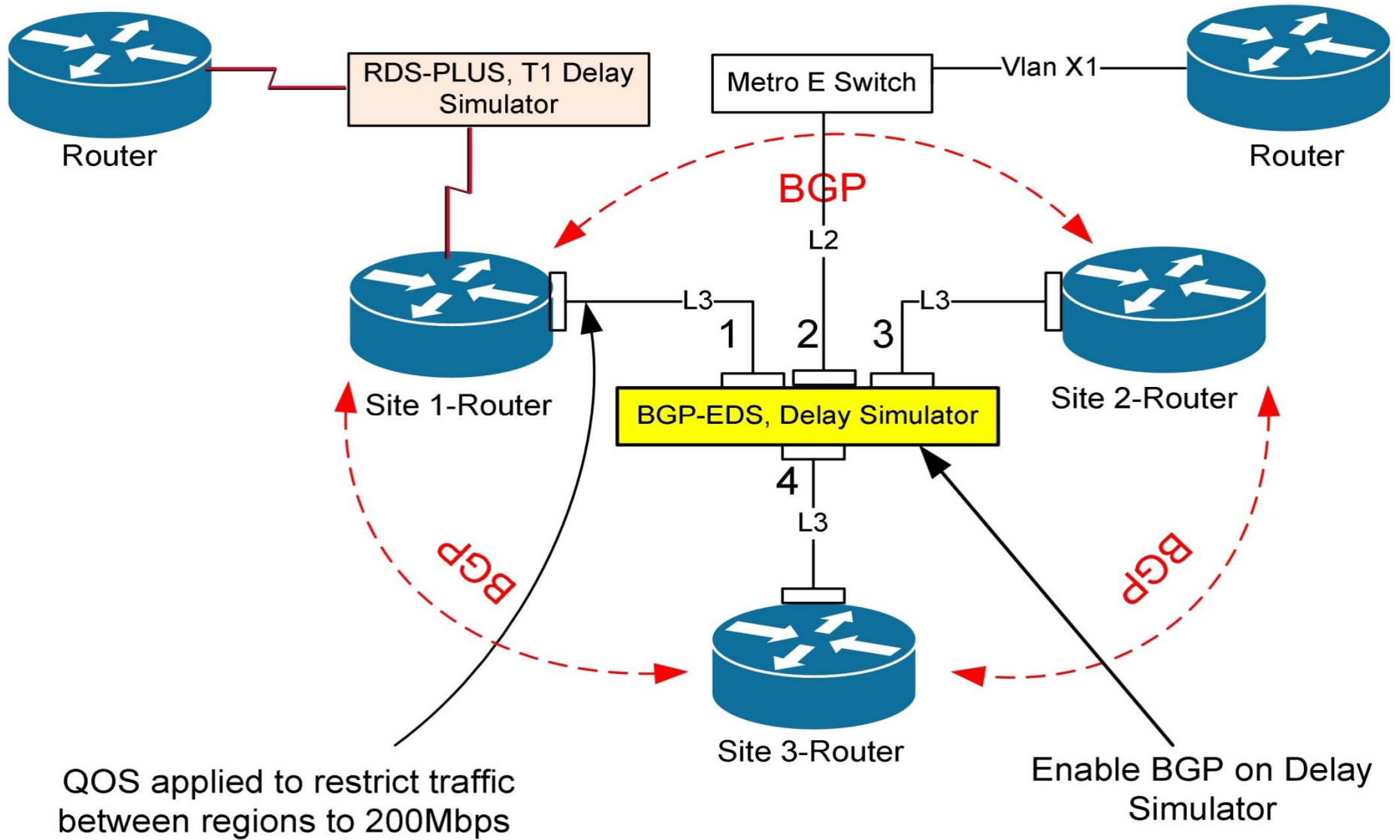
Purpose(Routing)

- Intermediate nodes can't be avoided. Performance of Networking Software also depends upon nature of Routing Path followed .
- Static Routing vs Dynamic Routing.
 - Configuration complexity increases dramatically as the network grows. Managing the static configurations in large networks can become time consuming
 - If a link fails, a static route cannot reroute traffic. Therefore, manual intervention is required to re-route traffic.
- Dynamic Routing must be configurable

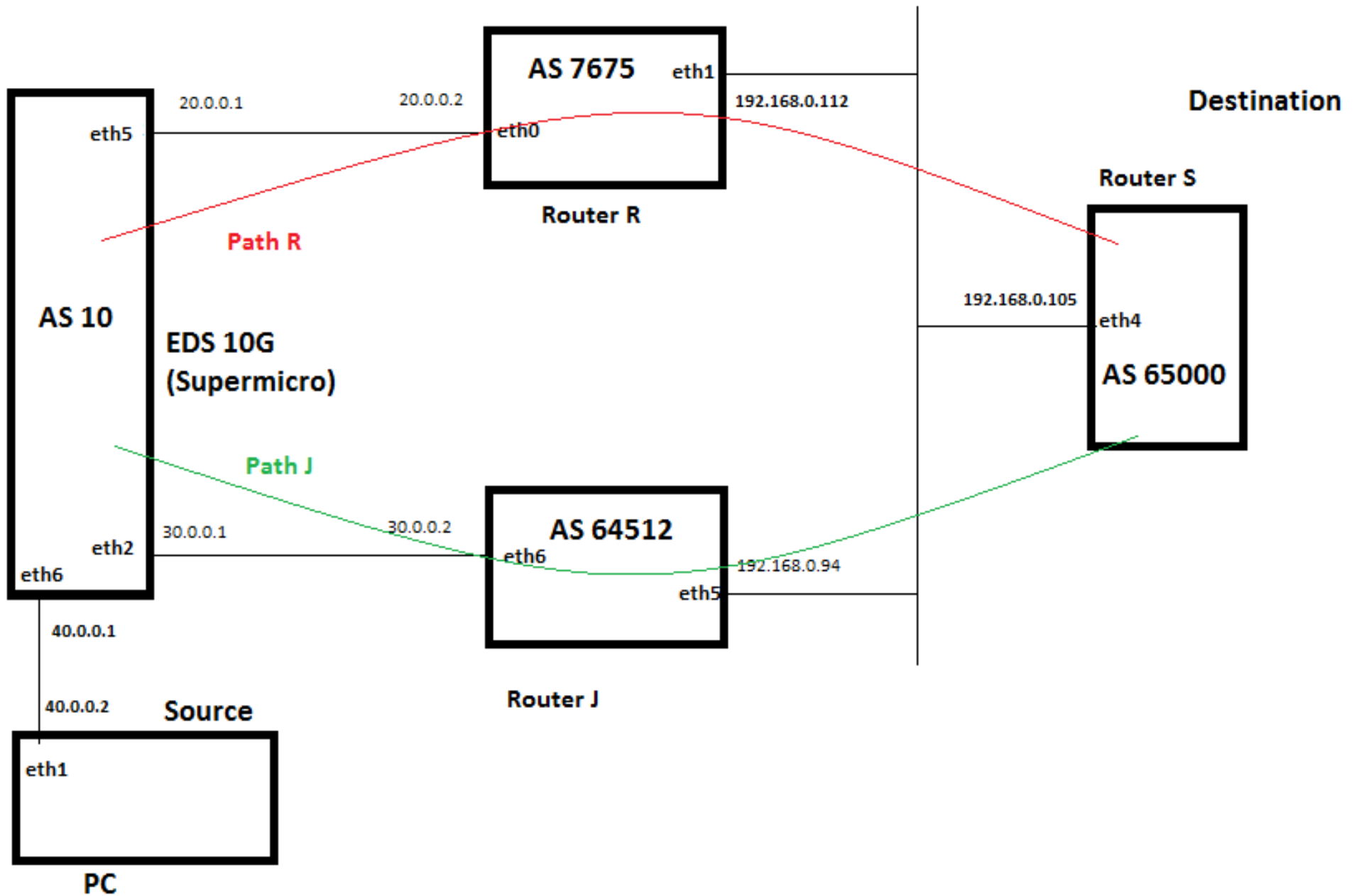
Solution

- BGP is more used as Exterior Gateway Protocol in WAN networks.
- If a Link fails, BGP reduces network-downtime to such a fraction that it is unnoticeable.
- Routes can be Prioritized in BGP.
- Less Overhead for Network Engineer for a complex network.
- Calculates Best Possible way to go from A-B regardless of Internet of Real World.
- BGP is sole choice of consumer-focussed ISPs who want to gain network stability and provide end-2-end QoS.

Network Diagram



Simplified Network Test Topology



Benefits

- Assign Router ID and Autonomous System (AS) Number.
- Adding and deleting Neighbors, Networks to and from the System
- Forwarding Packets based on routes created
- Show List of neighbors added to a BGP router
- View Routes Advertised to/by Neighbors
- Assign Preference(Weight) to a particular path
- Routing Table
 - BGP table shows list of routes discovered by BGP.
 - Kernel Table will have entry of those routes that are best selected by BGP.

BGP Menu

EDS-EBS - Mozilla Firefox

Mozilla Firefox Star... x EDS-EBS x +

192.168.0.251:8080/ebs/#

Search

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EBS BGP
Ethernet Delay Simulator

Date : 27-4-2015
Time : 01:11 IST
Version : v3.0.0

Logout Shutdown

Info Setting Profile Statistics Routing Table Graph Help

Settings - BGP

2 Apply Delete BGP Neighbours Routes

Add Router Configurations

Router ID	192.168.0.251	Save
Neighbours	192.168.0.112	
	64520	Save
Networks	192.168.0.0	
	24	Save
Neighbour Weight	IP Address	
	Weight	Save

BGP Neighbors

EDS-EBS - Mozilla Firefox

Mozilla Firefox Star... x EDS-EBS x +

192.168.0.251:8080/ebs/#

Search

Date : 27-4-2015
Time : 01:15 IST
Version : v3.0.0

Logout Shutdown

Info Setting Profile Statistics Routing Table Graph Help

Settings - Neighbours

2 Apply Delete BGP Neighbours Routes

Neighbour	V	AS	Msg Rcd	Msg Sent	Table Ver	InQ	OutQ	Up/Down	State	Prx Rcd	
192.168.0.112	4	64520	0	0	0	0	0	never	Active		Edit Delete
192.168.1.121	4	64520	43	46	0	0	0	00:01:23	3		Edit Delete
192.168.3.94	4	64512	0	0	0	0	0	never	Active		Edit Delete

Showing 1 to 3 of 3 entries

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BGP Routes Recieved

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Mozilla Firefox Star... x EDS-EBS x +

192.168.0.251:8080/ebs/#

Search

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Ethernet Delay Simulator

Date : 27-4-2015
Time : 01:29 IST
Version: v3.0.0

Logout Shutdown

Info Setting Profile Statistics Routing Table Graph Help

Settings - Routes

2 Apply Delete BGP Neighbours Routes

192.168.1.121 Sent Received

Status	Network	Next Hop	Metric	Local Prf	Weight	Path
*	192.168.0.0	192.168.1.121	0		1121	64520 i
*	192.168.1.0	192.168.1.121	0		1121	64520 i
Default	192.168.4.0	192.168.1.121	0		1121	64520 i

Showing 1 to 3 of 3 entries

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BGP Routing Table

EDS-EBS - Mozilla Firefox

EDS-EBS

192.168.0.251:8080/ebs/#

Search

Date : 27-4-2015
Time : 08:30 IST
Version: v3.0.0

Logout Shutdown

Info Setting Profile Statistics Routing Table Graph Help

Routing Table - BGP

Status	Network	Next Hop	Metric	Local Preference	Weight	Path
Default	192.168.0.0	192.168.1.121	0		0	64520 i
Default	192.168.1.0	192.168.1.121	0		0	64520 i
Default	192.168.3.0	192.168.3.94	0		0	64512 i
Default	192.168.4.0	192.168.1.121	0		0	64520 i

Showing 1 to 4 of 4 entries

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Kernel Routing Table

EDS-EBS - Mozilla Firefox 8:28:34 AM eds-10g

EDS-EBS 192.168.0.251:8080/ebs/# Search Logout Shutdown

Info Setting Profile Statistics Routing Table Graph Help

Routing Table - Kernel

Destination	Gateway	Genmask	Flags	Metric	Reference	Use	Interface
0.0.0.0	192.168.0.1	0.0.0.0	UG	100	0	0	eth11
0.0.0.0	0.0.0.0	0.0.0.0	U	1004	0	0	eth2
169.254.0.0	0.0.0.0	255.255.0.0	U	0	0	0	eth2
169.254.0.0	0.0.0.0	255.255.0.0	U	1000	0	0	eth5
172.17.0.0	0.0.0.0	255.255.0.0	U	0	0	0	eth5
192.168.0.0	0.0.0.0	255.255.255.0	U	0	0	0	eth11
192.168.0.0	0.0.0.0	255.255.255.0	U	0	0	0	eth12
192.168.1.0	0.0.0.0	255.255.255.0	U	0	0	0	eth7
192.168.3.0	0.0.0.0	255.255.255.0	U	0	0	0	eth6
192.168.4.0	192.168.1.121	255.255.255.0	UG	0	0	0	eth7

Showing 1 to 10 of 10 entries

< 1 >

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Additional Features

- Able to Detect and Configure Scalable number of network interfaces
- Add, Edit and deletion of interfaces configurations.
- Separate set of Management and Router Interfaces.
- Independent configuration of each set.
- Show Live Status of connected/available Network Ports
- Show port speed, port type(management or router),MAC address, IP address of each ports and Traffic Shaping.
- Embedded User Manual
- Easy Upgrade Feature.

LAN Cards Connection Status

EDS-EBS - Mozilla Firefox

Mozilla Firefox Star... x EDS-EBS x +

192.168.0.251:8080/ebs/#

Search

Date : 26-4-2015
Time : 23:08 IST
Version : v3.0.0

Logout Shutdown

Info Setting Profile Statistics Routing Table Graph Help

Settings - Status

Interface	Type	Mac Address	Ip Address	Speed	Link	Traffic Shaping
eth0	[ROUTER]	a0:36:9f:1b:51:3c		Unknown!	↓	Applied
eth11	[MGMT]	00:25:90:ac:6a:c1	192.168.0.175	1000Mb/s	↑	Not Applied
eth12	[MGMT]	00:25:90:ac:6a:c0	192.168.0.251	Unknown!	↓	Not Applied
eth2	[ROUTER]	a0:36:9f:1b:51:3d		Unknown!	↓	Applied
eth4	[ROUTER]	a0:36:9f:1b:51:3e		Unknown!	↓	Applied
eth5	[ROUTER]	a0:36:9f:1b:51:3f		Unknown!	↓	Applied
eth6	[ROUTER]	a0:36:9f:35:a6:3c	192.168.3.1	100Mb/s	↑	Applied
eth7	[ROUTER]	a0:36:9f:35:a6:3e	192.168.1.1	1000Mb/s	↑	Applied

LAN Cards Connection Setting

EDS-EBS - Mozilla Firefox

Mozilla Firefox Star... x EDS-EBS x +

192.168.0.251:8080/ebs/#

Search

Info Setting Profile Statistics Routing Table Graph Help

Settings - LAN

MGMT

Add +

Interface	IP Address	Subnet Mask	Gateway	DNS Search	DNS Server	Host	
eth11	192.168.0.175	24	192.168.0.1	domain.dexceldesigns.com	192.168.0.2	eds-10g	Edit Delete
eth12	192.168.0.251	24	192.168.0.1	domain.dexceldesigns.com	192.168.0.2	eds-10g	Edit Delete

ROUTER

Add +

Interface	IP Address	Subnet Mask	
eth0	dhcp	NULL	Edit Delete
eth2	dhcp	NULL	Edit Delete
eth4	dhcp	NULL	Edit Delete
eth5	dhcp	NULL	Edit Delete
eth6	192.168.3.1	24	Edit Delete
eth7	192.168.1.1	24	Edit Delete

Showing 1 to 6 of 6 entries

< 1 >

System upgrade

EDS-EBS - Mozilla Firefox

Mozilla Firefox Star... x EDS-EBS x +

192.168.0.251:8080/ebs/# Search

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EBS BGP
Ethernet Delay Simulator

Date : 27-4-2015
Time : 01:06 IST
Version: v3.0.0

Logout Shutdown

Info Setting Profile Statistics Routing Table Graph Help

Settings - Upgrade

Choose A File To Upgrade System

Browse... No file selected.

Apply No file selected.

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Embedded User Manual

The screenshot shows a Google Chrome browser window with the address bar displaying `localhost/ebs36/ebs/#`. The browser's top navigation bar includes buttons for **Info**, **Setting**, **Profile**, **Statistics**, **Routing Table**, **Graph**, and **Help**. The main content area is titled **Help** and contains contact information for East Coast Datacom Inc. (Tel: (321) 637-9922, Email: support@ecdata.com, Business Hours: 7:00 AM to 5:00 PM EST, Website: www.ecdata.com). A **Confidential** watermark is visible in the top left of the content area, and the **EAST COAST DATA COM INC** logo is in the top right. The central text reads: **User Manual for 1G Ethernet BGP Simulator**. The browser's taskbar on the left shows various application icons, and the system tray on the right shows the time as 5:51 PM and the user name as Renold.

Thank You

Further inquiries, please contact:

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