



Validate the performance and security of IPS/IDS, Firewall and Proxy - January 2009

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BreakingPoint Systems

- Founded September 2005

- Management track record



- Deep networking, security, & performance assurance expertise

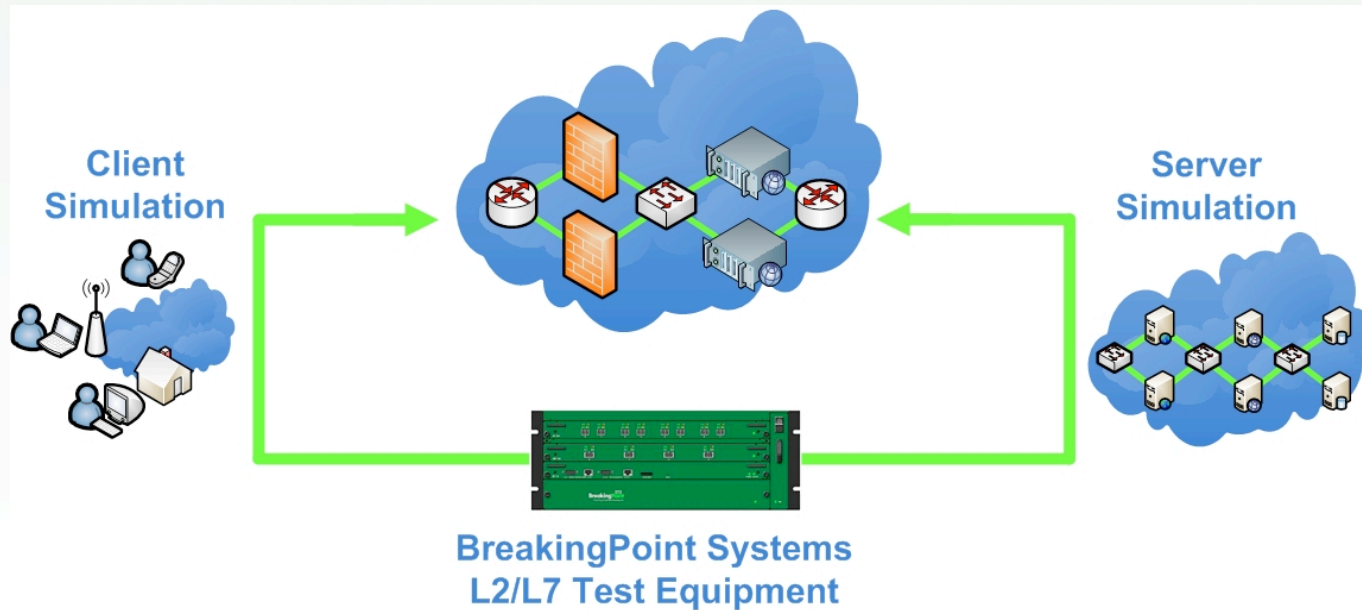
- Breakthrough, award-winning products



- Privately held and based in Austin, TX

- Sales & Support: US, Canada, UK, France, Italy, Spain, Netherlands, Belgium, Israel, China, Japan, Korea, Taiwan, Malaysia, New Zealand, Australia

What can BreakingPoint Offer ?



- BreakingPoint provides comprehensive Layer 2-7 testing for network equipment and application servers through high-performance, compact, flexible and easy-to-use products.
- BreakingPoint testing tools provide realistic performance and security results using stateful application protocols and live security strikes.

What type of tests does BreakingPoint provide ?

- Realistic Traffic Emulation: Layer 2-7



Bit Blaster - Generates Ethernet frames (L2 Tests)



Routing Robot - Generates IP packets (L3 Tests)



Session Sender - Generates valid TCP sessions (L4 Tests)



App Sim – Generates 70+ realistic application flows (L7 Tests)



Capture and Recreate - Capture & Playback PCAP

- Malicious Traffic Simulation Layer 2-7



Security Module – 3,700+ unique attacks, 80+ evasion types



Stack Scrambler – Protocol Fuzzing

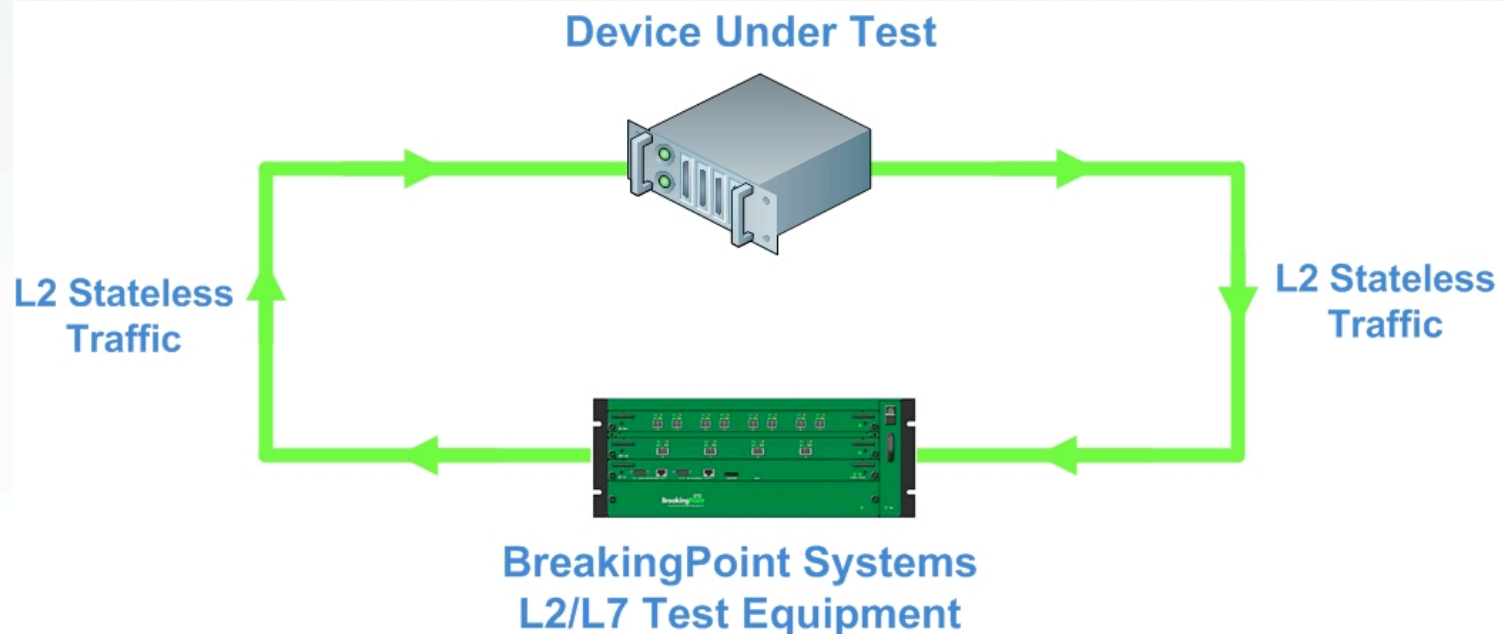
BreakingPoint Systems Key Benefits

- New Generation of Hardware Architecture optimized for Layer 2-7 Testing:
 - FPGA, Network Processor, Embedded Security Module
- High-Performance Traffic Simulation Layer 2-7:
 - 80 Gbps L2/L3 Traffic Simulation
 - 20 Gbps L4/L7 Traffic Simulation
 - 1.5 Million New TCP Connections per Second
 - 15 Million Concurrent TCP Connections
- Flexible and Easy to Use Interface
 - Drag and drop GUI to run L2, L3, L4 and L7 traffic
 - Device Under Test (DUT) automation
 - Possibility to mix in the same test on a single test port in same test
 - L2/L3 Stateless and L4/L7 Stateful traffic
 - Good and Malicious traffic

Layer 2 Test

BitBlaster Module

Layer 2 Network Performance Validation



- BreakingPoint Bit Blaster analyzes a device's ability to handle high volumes of Layer 2 traffic without corrupting or dropping packets.
- Bit Blaster can simulate Frame Size from 64 to 9216 Bytes.

BreakingPoint Bit Blaster – Layer 2 Testing

The screenshot displays the 'New Test' configuration page in the BreakingPoint Bit Blaster web interface. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test', and the system status is 'System Available'.

New Test

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

Test Status (Checked)

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network
BreakingPoint Switching

DUT Profile
BreakingPoint Default

Sent
100%

Duration
60 seconds

Type
Custom

[Save Test As](#)

Test Components:

- L2 Interface 1 to Interface 2
- L2 Interface 2 to Interface 1
- L2 Interface 3 to Interface 4
- L2 Interface 4 to Interface 3

Parameters:

Interface	Client	Server
Interface 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interface 2	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Interface 3	<input type="checkbox"/>	<input type="checkbox"/>
Interface 4	<input type="checkbox"/>	<input type="checkbox"/>

[Apply Changes](#) [Save As](#)

BreakingPoint Bit Blaster– Layer 2 Testing (cont.)

The screenshot shows the 'New Test' configuration page in the BreakingPoint Systems web interface. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test', and the system status is 'System Available'.

New Test

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

Test Status (checked)

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network
BreakingPoint Switching

DUT Profile
BreakingPoint Default

Send
100%

Duration
60 seconds

Type
Custom

[Save Test As](#)

Test Configuration

- L2 Interface 1 to Interface 2
- L2 Interface 2 to Interface 1
- L2 Interface 3 to Interface 4
- L2 Interface 4 to Interface 3

Component Presets

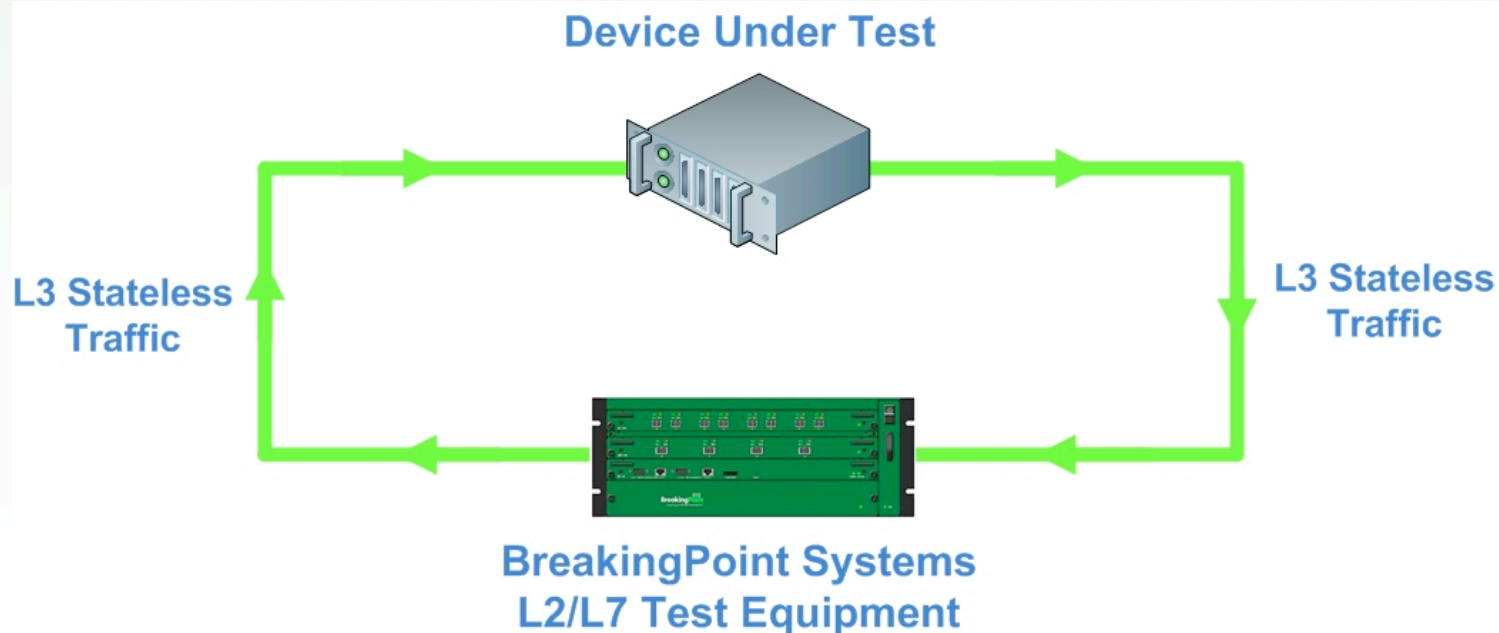
Component Presets	Description
500Mbps Bit Blaster	
10Gbps Bit Blaster	
1Gbps Bit Blaster	
5Gbps Bit Blaster	

[Save As](#)

Layer 3 Test

Routing Robot Module

Layer 3 Network Performance Validation



- Routing Robot determines if a DUT can handle high volumes of Layer 3 traffic by sending traffic from one interface and monitoring the receiving interface to see if the traffic is successfully received.
- Routing Robot can simulate Frame Size from 64 to 9216 Bytes

BreakingPoint Routing Robot – Layer 3 Testing

BreakingPoint Systems - 10.10.10.10

Control Center Test Traffic Managers Help Home> Test System Available

L3 Test - 40 Gbps

Test Quick Steps

1. [Select the DUT/Network](#)
2. [Add a Test Component](#)
3. [Define Test Criteria](#)
4. [Save and Run](#)

Test Status

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network

- BreakingPoint Switching
- DUT Profile
- BreakingPoint Default

Sent
100%

Duration
60 seconds

Type
Custom

[Save Test As](#)

Information **Interfaces** **Presets** **Parameters**

Parameter Label	Parameter Value
-- Test duration.Value	60
Data Rate.Data rate unit	Megabits / sec
Data Rate.Data rate type	Constant
Data Rate.Minimum value	10000
Data Rate.Maximum value	
Data Rate.Increment N units	0
Data Rate.Every N seconds	1
Size distribution.Size distribution unit	Frame
Size distribution.Size distribution type	Constant
Size distribution.Minimum value	512
Size distribution.Maximum value	

Test duration

* Test duration type
Seconds

* Value
60
Int (min 1) (max 1000000000)

[Apply Changes](#)

[Save](#)

BreakingPoint Routing Robot – Layer 3 Testing

BreakingPoint Systems - 10.10.10.10

Control Center Test Traffic Managers Help Home> Test System Available

L3 Test - 40 Gbps

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

Test Status

Test Information

Description: No description available

[Edit Description](#)

Category: User

[Add Category](#)

Network

- BreakingPoint Switching
- DUT Profile: BreakingPoint Default
- Sent: 100%
- Duration: 60 seconds
- Type: Custom

[Save Test As](#)

Information **Interfaces** **Presets** **Parameters**

Parameter Label	Parameter Value
IP Header Version	IPv4
Advanced Options - IPv4.TTL	32
Advanced Options - IPv4.TOS	0
Advanced Options - IPv4.Length field	Actual
Advanced Options - IPv4.Length value	Actual
Advanced Options - IPv4.Checksum field	Actual
Advanced Options - IPv4.Checksum value	Actual
Advanced Options - IPv4.Option header field	Disabled
Advanced Options - IPv4.Option header data	Disabled
Advanced Options - IPv6.Hop limit	32
Advanced Options - IPv6.Traffic class	0

IP Header Version: IPv4

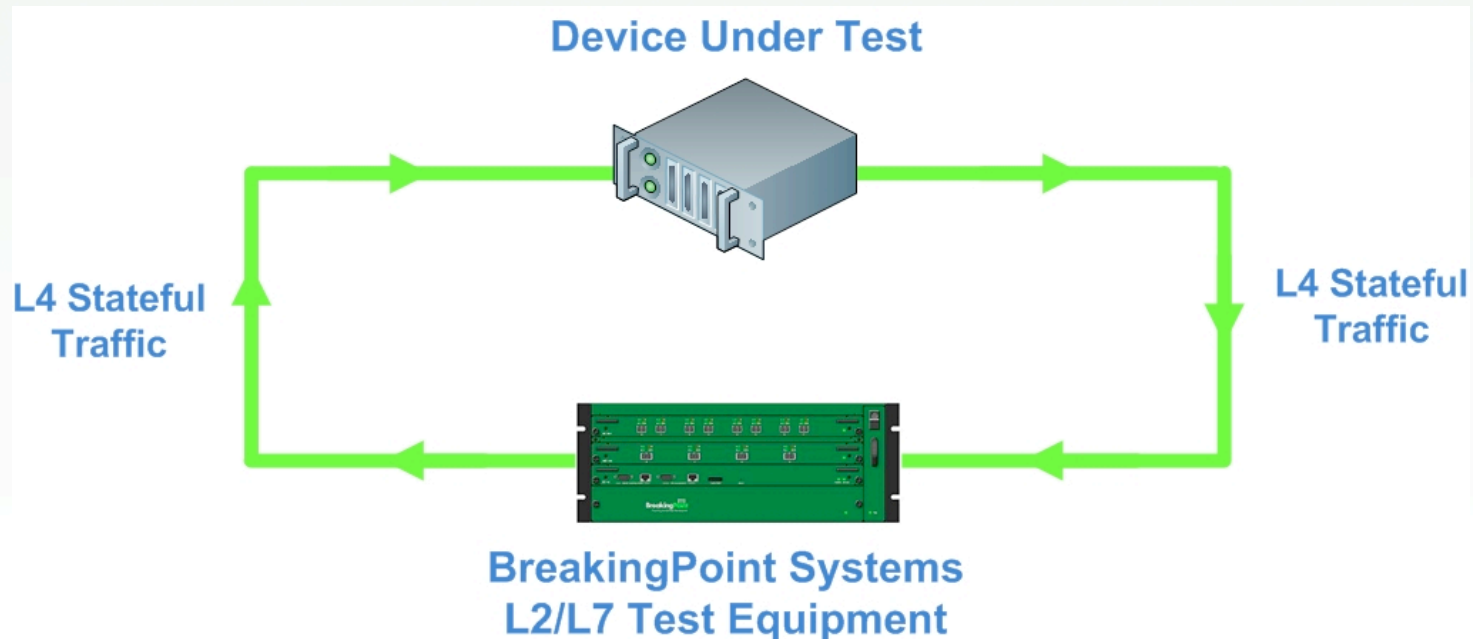
[Apply Changes](#)

[Save](#)

Layer 4 Test

Session Sender Module

Layer 4 Network Performance Validation



- The Session Sender test component measures the device's ability to handle a large number of new TCP session per second and concurrent TCP sessions
- Session Sender can simulate Segment Size until 9146 Bytes

BreakingPoint Session Sender – Layer 4 Testing

The screenshot displays the 'New Test' configuration page in the BreakingPoint Systems web interface. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test'. The main content area is titled 'New Test' and features a 'Test Quick Steps' sidebar with four steps: 1. Select the DUT/Network, 2. Add a Test Component, 3. Define Test Criteria, and 4. Save and Run. Below this is a 'Test Status' indicator (checked) and a 'Test Information' section with a 'Description' field (empty) and an 'Edit Description' link. The 'Category' is set to 'User'. A 'Network' section lists 'BreakingPoint Switching' as the 'DUT Profile' and 'BreakingPoint Default' as the 'Sent' profile. The 'Duration' is set to '60 seconds' and the 'Type' is 'Custom'. A 'Save Test As' button is at the bottom of the sidebar.

The main configuration area shows a test component 'L4 Statefull Traffic' with a status indicator. Below this is a 'Parameters' tab with a table of parameters:

Parameter Label	Parameter Value
Destination Port.Port distribution type	Random
Destination Port.Minimum port number	6
Destination Port.Maximum port number	1023
– Session Ramp Distribution.Ramp Up Behavior	Full Open
– Session Ramp Distribution.Ramp Up Seconds	10
– Session Ramp Distribution.Steady-State Behavior	Open and Close
– Session Ramp Distribution.Steady-State Seconds	40
– Session Ramp Distribution.Ramp Down Behavior	Full Close
– Session Ramp Distribution.Ramp Down Seconds	10
Ramp Up Profile.Ramp Up Profile Type	Calculated
Ramp Up Profile.Minimum Connection Rate	

The 'Session Ramp Distribution' section is expanded, showing a 'Ramp Up Behavior' dropdown menu with the following options: Full Open (selected), Full Open + Data, Full Open + Data + Close, Half Open, and SYN Only. An 'Apply Changes' button is located at the bottom right of this section. A 'Save As' button is also visible at the bottom right of the main configuration area.

BreakingPoint Session Sender – Layer 4 Testing

BreakingPoint Systems - 10.10.10.10

Control Center Test Traffic Managers Help Home> Test System Available

New Test

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

Test Status

Test Information

Description
No description available

Edit Description

Category
User

Add Category

Network

- BreakingPoint Switching
- DUT Profile
- BreakingPoint Default

Sent

- 50%

Duration

- 60 seconds

Type

- Custom

Save Test As

L4 Statefull Traffic

Information Interfaces Presets Parameters

Parameter Label	Parameter Value
Destination Port.Port distribution type	Random
Destination Port.Minimum port number	6
Destination Port.Maximum port number	1023
-- Session Ramp Distribution.Ramp Up Behavior	Full Open
-- Session Ramp Distribution.Ramp Up Seconds	10
-- Session Ramp Distribution.Steady-State Behavior	Open and Close
-- Session Ramp Distribution.Steady-State Seconds	40
-- Session Ramp Distribution.Ramp Down Behavior	Full Close
-- Session Ramp Distribution.Ramp Down Seconds	10
Ramp Up Profile.Ramp Up Profile Type	Calculated
Ramp Up Profile Minimum Connection Rate	

Session Ramp Distribution

- Steady-State Behavior
Open and Close Sessions
- Ramp Down Behavior
Full Close
- Ramp Down Seconds

Apply Changes

Save As

BreakingPoint Session Sender – Layer 4 Testing

The screenshot displays the 'New Test' configuration page in the BreakingPoint Systems web interface. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test'. The main content area is titled 'New Test' and features a 'Test Quick Steps' sidebar with four steps: 1. Select the DUT/Network, 2. Add a Test Component, 3. Define Test Criteria, and 4. Save and Run. Below this is a 'Test Status' indicator (checked) and a 'Test Information' section with a 'Description' field (empty) and a 'Category' dropdown set to 'User'. The main configuration area is divided into tabs: 'Information', 'Interfaces', 'Presets', and 'Parameters'. The 'Parameters' tab is active, showing a table of parameters and a 'Session Ramp Distribution' configuration panel.

Parameter Label	Parameter Value
Destination Port.Port distribution type	Random
Destination Port.Minimum port number	6
Destination Port.Maximum port number	1023
-- Session Ramp Distribution.Ramp Up Behav	Full Open
-- Session Ramp Distribution.Ramp Up Secon	10
-- Session Ramp Distribution.Steady-State Beh	Open and Close
-- Session Ramp Distribution.Steady-State Sec	40
-- Session Ramp Distribution.Ramp Down Beh	Full Close
-- Session Ramp Distribution.Ramp Down Sec	10
Ramp Up Profile.Ramp Up Profile Type	Calculated
Ramp Up Profile Minimum Connection Rate	

The 'Session Ramp Distribution' configuration panel shows a 'Ramp Down Behavior' dropdown menu with options: Full Close (selected), Half Close, and Reset. The panel also includes a 'Reset' button and an 'Apply Changes' button.

BreakingPoint Session Sender – Layer 4 Testing

BreakingPoint Systems - 10.10.10.10

Control Center Test Traffic Managers Help Home> Test System Available

New Test

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

Test Status

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network
BreakingPoint Switching

DUT Profile
BreakingPoint Default

Sent
50%

Duration
60 seconds

Type
Custom

[Save Test As](#)

L4 Statefull Traffic

Information Interfaces Presets Parameters

Parameter Label	Parameter Value
IPv4 Configuration.TTL	32
IPv4 Configuration.TOS	0
- TCP Configuration.Maximum Segment Size (MSS)	1448
- TCP Configuration.Retry Quantum	250
- TCP Configuration.Retry Count	3
- TCP Configuration.Delay ACKs	false
- TCP Configuration.Initial Receive Window	5792
- TCP Configuration.Add Segment Timestamp	true
SSL/TLS Configuration.Enabled	false
SSL/TLS Configuration.Minimum Version	SSLV3
SSL/TLS Configuration.Maximum Version	TLSv1

TCP Configuration

Maximum Segment Size (MSS)
1448
Int (min 512) (max 9146)

Retry Quantum
250
Int (min 1) (max 2000)

Retry Count
3
Int (min 1) (max 7)

Delay ACKs

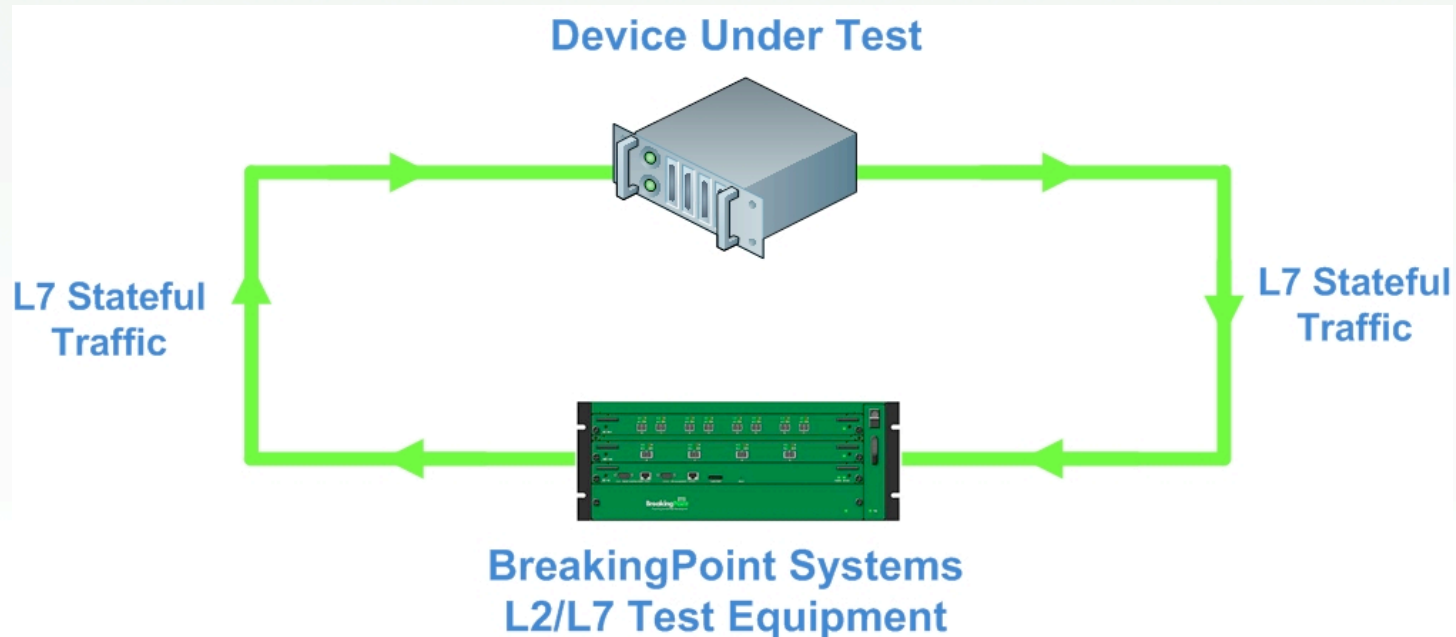
[Apply Changes](#)

[Save As](#)

Layer 7 Test

Application Simulator Module

Layer 7 Application Performance Validation



- Application Simulator allows you to define 70+ applications protocols to make complex application protocol distributions to simulate real world traffic.
- Application Simulator allows you to define in depth each protocol using advanced protocol configuration “SuperFlows”.

70+ Client and Server Protocols Supported

- HTTP
- HTTPS
- POP3
- IMAP
- Finger
- RTMP
- MAPI
- Yahoo Messenger
- Informix Database
- MSN Messenger
- Jabber ICQ
- QOTD
- Gopher
- DNS
- RTP
- SIP TCP/UDP
- SMTP
- RTSP
- SNMP
- FTP
- RLogin
- Rshell
- QQ Messenger
- RSync
- DB2 Database
- AOL IM
- BOOTPS
- DCE/RPC
- LDAP
- NFS
- NTP
- SSH
- Postgres Database
- FIX
- FIXT
- CIFS SMB
- BitTorrent
- eDonkey
- NetBIOS
- RADIUS Accounting
- RADIUS Access
- Gnutella
- Vmware Vmotion
- Telnet
- Sybase Database
- Echo
- Oracle Database
- Microsoft SQL Server
- World of Warcraft
- ...

BreakingPoint- Application Simulator – Layer 7 Testing

BreakingPoint Systems - 10.10.10.10

Control Center Test Traffic Managers Help Home> Test System Available

New Test

Test Quick Steps

1. [Select the DUT/Network](#)
2. [Add a Test Component](#)
3. [Define Test Criteria](#)
4. [Save and Run](#)

Test Status

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network
BreakingPoint Switching

DUT Profile
BreakingPoint Default

Sent
4%

Duration
118 seconds

Type
Custom

[Save Test As](#)

L7 Statefull Traffic - Mix

Information Interfaces Presets Parameters

Component Presets

- Enterprise Apps
- Max Bandwidth
- Higher Education Apps
- Service Provider Apps
- Small to Medium Business Apps
- WAN Acceleration

Description
Generate realistic application traffic flows in a distribution representative of an enterprise network.

[Apply Changes](#)

[Save As](#)

BreakingPoint- Application Simulator – Layer 7 Testing

The screenshot displays the 'Application Manager' window in a web browser. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation bar includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The main content area is titled 'Application Manager' and has two tabs: 'App Profiles' and 'Super Flows'. The 'Super Flows' tab is active, showing search filters for 'User' (Everybody), 'Last Edited' (Any Time), 'Type' (Any), and 'Max Returned' (50). A search button is present. Below the filters is a list of 'Application Profiles' with 'BreakingPoint Higher Education' highlighted. To the right, there is a table of 'Available Super Flows' and a table of 'Super Flow Name' with 'Weight'.

Super Flow Name	Weight
BreakingPoint HTTP Video	220
BreakingPoint HTTP Audio	30
BreakingPoint HTTP Text	20
BreakingPoint BitTorrent Data Transfer	400
BreakingPoint eDonkey Data Transfer	230
BreakingPoint SMTP Email	35
BreakingPoint AOL Instant Messenger	10
BreakingPoint IMAP	15
BreakingPoint NFS	10
BreakingPoint SSH	15
BreakingPoint FTP	15

BreakingPoint- Application Simulator – Layer 7 Testing

The screenshot displays the BreakingPoint Application Manager interface. The window title is "BreakingPoint Systems - 10.10.10.10". The menu bar includes "Control Center", "Test", "Traffic", "Managers", and "Help". The main interface is titled "Application Manager" and features a sidebar with "App Profiles" and "Super Flows" tabs. The "Super Flows" tab is active, showing a list of profiles with "BreakingPoint SMTP Email" selected. The main workspace is divided into three steps: "Step 1 - Define Hosts", "Step 2 - Define Flows", and "Step 3 - Define Actions".

Step 1 - Define Hosts

Manage Hosts

Step 2 - Define Flows

Client	Server	Protocol
Client	DNS Server	DNS
Client	SMTP Server	SMTP

Edit the Selected Flow

Client Client

Server Client

Step 3 - Define Actions

	Flow	Source	Action
2	DNS	Server	Response
3	SMTP	Client	Send EHLO
4	SMTP	Client	Send email
5	SMTP	Server	250 Queued
6	SMTP	Client	Send quit
7	SMTP	Server	221 closing

Create a New Action

Action Client : Send HELO

Add Action

Save Super Flow

BreakingPoint- Application Simulator – Layer 7 Testing

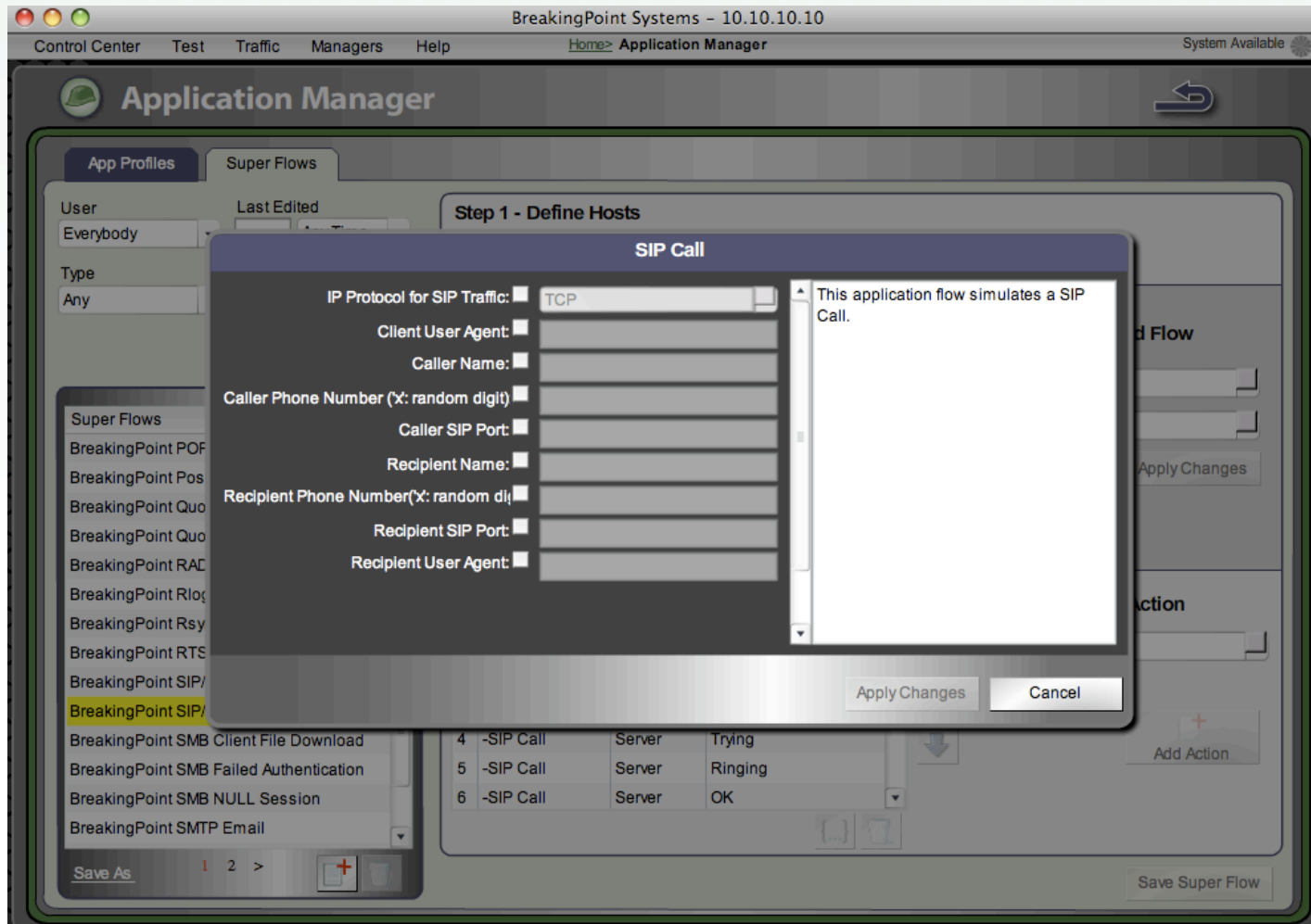
The screenshot displays the BreakingPoint Application Manager interface. The window title is "BreakingPoint Systems - 10.10.10.10". The menu bar includes "Control Center", "Test", "Traffic", "Managers", and "Help". The main area is titled "Application Manager" and contains several sections:

- App Profiles / Super Flows:** Includes filters for "User" (Everybody), "Last Edited" (AnyTime), "Type" (Any), and "Max Returned" (50). A search button is present.
- Super Flows List:** A list of profiles with "BreakingPoint SIP/RTP Simple Call" selected.
- Step 1 - Define Hosts:** A "Manage Hosts" button.
- Step 2 - Define Flows:** A table with columns "Client", "Server", and "Protocol". The second row is highlighted.
- Edit the Selected Flow:** Input fields for "Client" (Caller) and "Server" (Recipient), with an "Apply Changes" button.
- Step 3 - Define Actions:** A table with columns "Flow", "Source", and "Action".
- Create a New Action:** An "Action" input field (Client : Query) and an "Add Action" button.
- Bottom Bar:** "Save As" button, page navigation (1, 2, >), and "Save Super Flow" button.

Client	Server	Protocol
Caller	DNS Server	DNS
Caller	Recipient	SIP Call
Caller	Recipient	RTP Unidirectional Stre

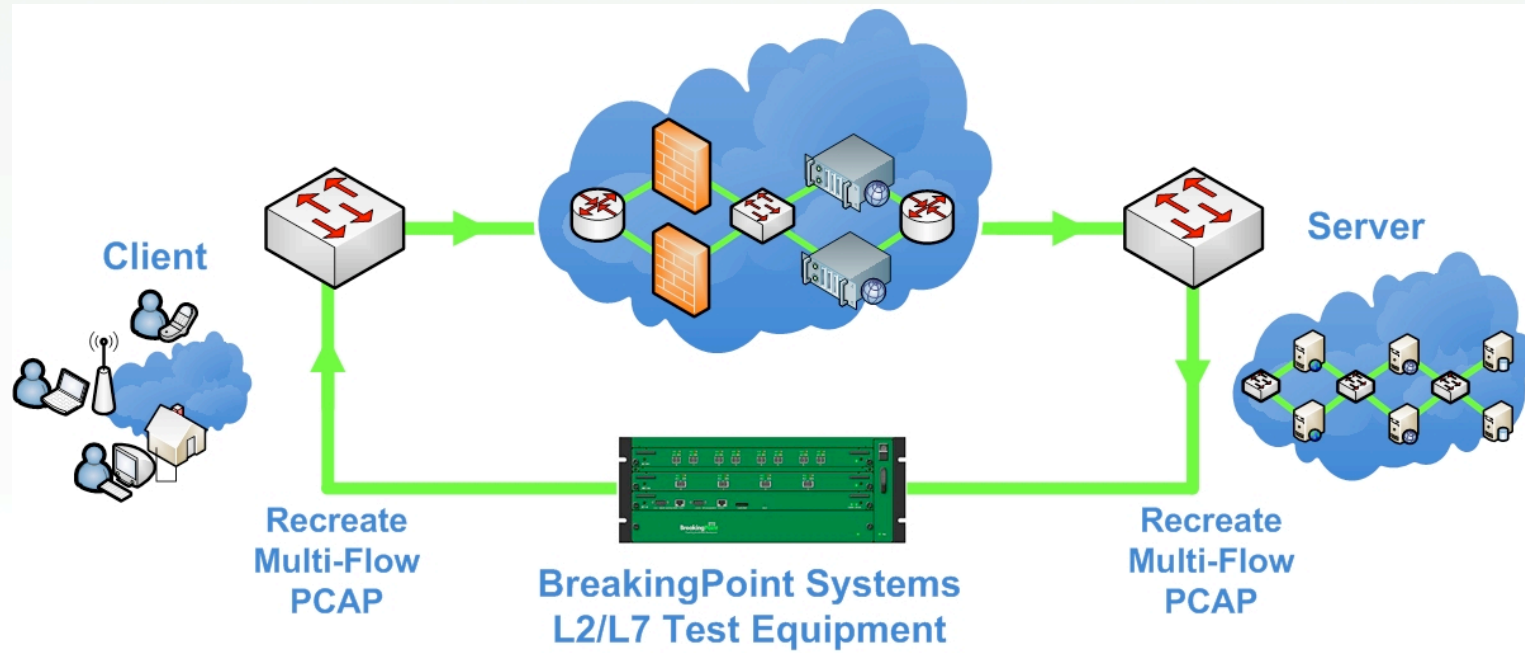
Flow	Source	Action	
1	DNS	Client	Query
2	DNS	Server	Response
3	-SIP Call	Client	Invite
4	-SIP Call	Server	Trying
5	-SIP Call	Server	Ringing
6	-SIP Call	Server	OK

BreakingPoint- Application Simulator – Layer 7 Testing



Layer 4 Replay TCP/UDP Recreate Module

Recreate Captured Traffic



- The BreakingPoint Recreate feature recreates multi-flow TCP/UDP traffic based on data from PCAP. BreakingPoint does not use a raw playback, instead it will do stateful multi-flow allowing possibility to replay stateful TCP/UDP traffic with ability to amplify.

BreakingPoint Recreate: Exact Replay

BreakingPoint Systems - Internet Explorer provided by Dell
http://192.168.1.20/swfs/Shell.html?1

Control Center Test Traffic Managers Help Home> Test System Available

Recreate HTTP Traffic - Mix TCP and UDP

Recreate 843

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Execute

Test Status

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network
Network Topology
DUT Profile
BreakingPoint Default

Bandwidth
10.0%

Duration
30 seconds

Type
Custom

[Save Test As](#)

Information Interfaces Presets Parameters

Parameter Label	Parameter Value
General Behavior	Use Capture File
Application Ramp Distribution.Ramp Up Seco	0
Application Ramp Distribution.Steady-State Se	30
Application Ramp Distribution.Ramp Down Sec	0
Session Configuration.Maximum Simultaneous	1
Session Configuration.Maximum Sessions Per	1
Session Configuration.Target Minimum Simult	1
Session Configuration.Target Minimum Sessio	1
IPv4 Configuration.TTL	32
IPv4 Configuration.TOS	0
TCB Configuration.Maximum Segment Size (M	1448

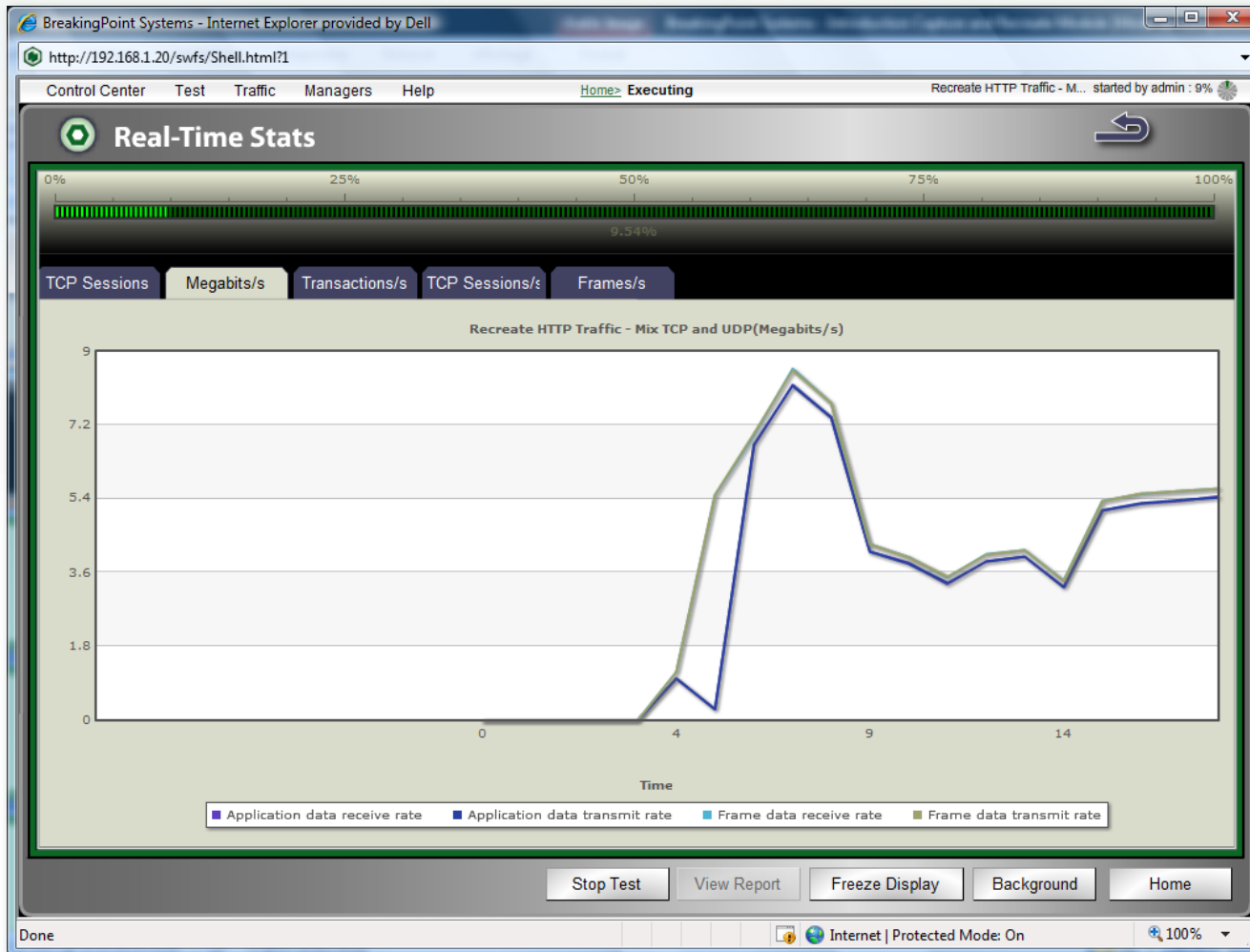
General Behavior
Use Capture File settings

Apply Changes

Save

Done Internet | Protected Mode: On 100%

BreakingPoint Recreate: Layer 4 Replay TCP/UDP



BreakingPoint Recreate: Amplify Replay

BreakingPoint Systems - Internet Explorer provided by Dell
http://192.168.1.20/swfs/Shell.html?1

Control Center Test Traffic Managers Help Home> Test System Available

Recreate HTTP Traffic - Mix TCP and UDP

Recreate 843

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Execute

Test Status ✓

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network
Network Topology
DUT Profile
BreakingPoint Default

Bandwidth
25.0%

Duration
30 seconds

Type
Custom

[Save Test As](#)

Information Interfaces Presets Parameters

Parameter Label	Parameter Value
General Behavior	Use User-specified
Application Ramp Distribution.Ramp Up Seco	0
Application Ramp Distribution.Steady-State Se	30
Application Ramp Distribution.Ramp Down Sec	0
Session Configuration.Maximum Simultaneous	10000
Session Configuration.Maximum Sessions Per	1000
Session Configuration.Target Minimum Simult	1
Session Configuration.Target Minimum Sessio	1
IPv4 Configuration.TTL	32
IPv4 Configuration.TOS	0
TCP Configuration.Maximum Segment Size (M	1448

General Behavior
Use User-specified settings

[Apply Changes](#)

[Save](#)

Done Internet | Protected Mode: On 100%

BreakingPoint Recreate: Layer 4 Replay TCP/UDP

BreakingPoint Systems - Internet Explorer provided by Dell
http://192.168.1.20/swfs/Shell.html?1

Control Center Test Traffic Managers Help Home> Test System Available

Recreate HTTP Traffic - Mix TCP and UDP

Recreate 843

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Execute

Test Status

Test Information

Description
No description available

Edit Description

Category
User

Add Category

Network

Network Topology

DUT Profile

BreakingPoint Default

Bandwidth
25.0%

Duration
30 seconds

Type
Custom

Save Test As

Information Interfaces Presets Parameters

Parameter Label	Parameter Value
TCP Configuration.Retry Count	3
TCP Configuration.Delay ACKs	false
TCP Configuration.Initial Receive Window	5792
TCP Configuration.Add Segment Timestamps	true
-- Data Rate.Data rate scope	Limit Aggregate T
-- Data Rate.Data rate unit	Megabits / second
-- Data Rate.Data rate type	Constant
-- Data Rate.Minimum value	500
-- Data Rate.Maximum value	
Filename	HTTP Traffic - Mu

Data Rate

* Data rate type
Constant

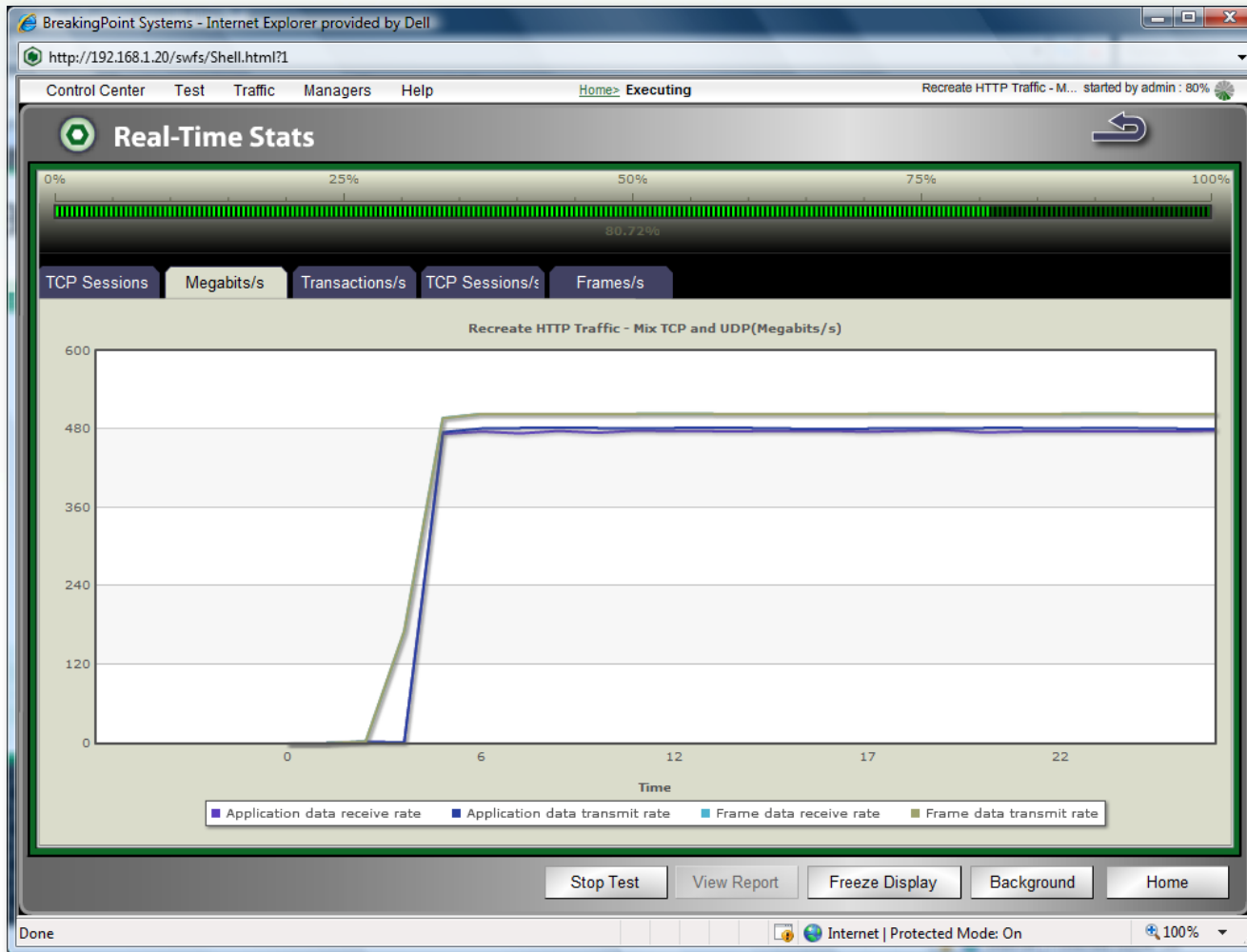
* Minimum value
500
Int (min 1)

Maximum value

Apply Changes

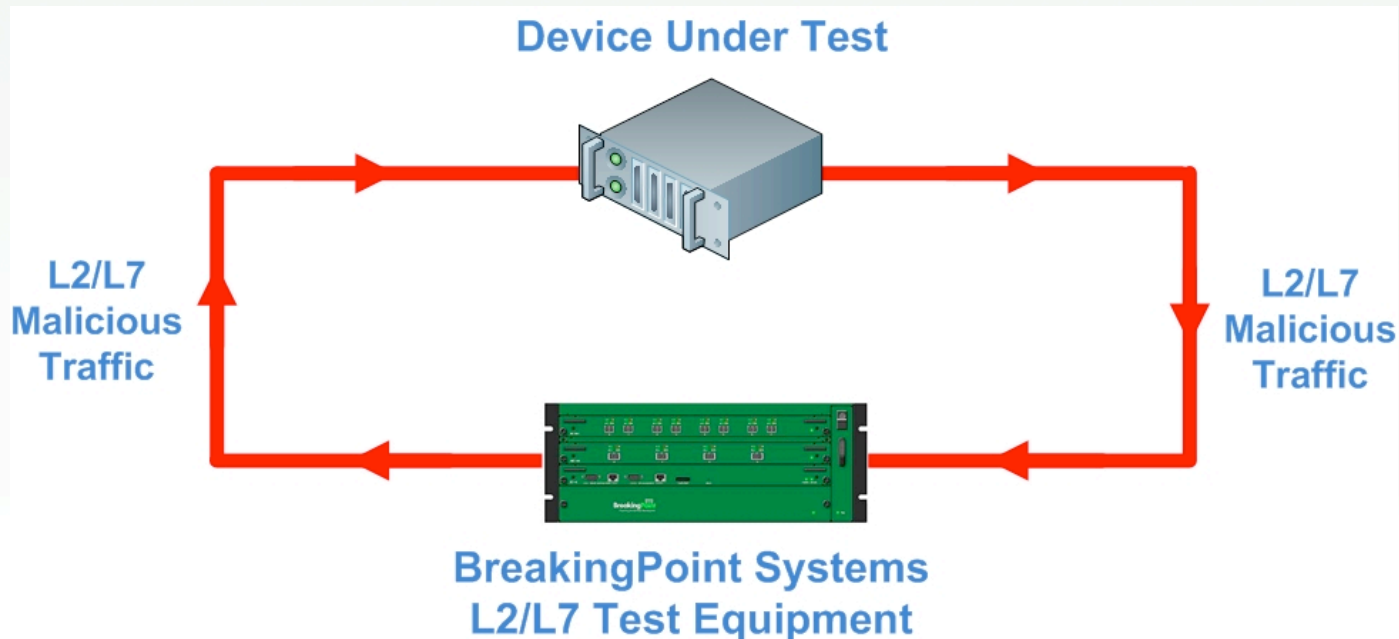
Save

BreakingPoint Recreate: Layer 4 Replay TCP/UDP



Security Test Security Module

Network Security Performance Validation



- BreakingPoint Security component can be used to test network security devices – such as IPS, IDS, VPNs, and firewalls. It measures a device's ability to protect a host by sending 3,700+ Attacks under CVE-ID, BugTraqID, OSVDB and verifying that the device successfully blocks the attacks.

BreakingPoint Security Test Component

The screenshot displays the 'New Test' configuration page in the BreakingPoint Systems web interface. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test'. The main content area is titled 'New Test' and features a 'Security Test Module' icon. A progress bar is visible at the top of the main area. On the left, there are sections for 'Test Quick Steps' (1. Select the DUT/Network, 2. Add a Test Component, 3. Define Test Criteria, 4. Save and Run), 'Test Status' (checked), and 'Test Information' (Description: No description available, Category: User, Network: BreakingPoint Switching, DUT Profile: BreakingPoint Default, Sent: 0%, Duration: 112 seconds, Type: Custom). The main area has tabs for 'Information', 'Interfaces', 'Presets', 'Parameters', and 'Overrides'. The 'Presets' tab is active, showing a list of 'Component Presets' (Security Level 1 to 5) with 'Security Level 1' selected. The 'Description' for 'Security Level 1' is: 'Security Level 1 targets high-risk vulnerabilities in services often exposed to the Internet. This includes approximately 100 strikes and usually completes in less than one minute.' At the bottom right, there are 'Apply Changes' and 'Save As' buttons.

BreakingPoint: Security Test Module

The screenshot displays the 'New Test' configuration page in the BreakingPoint Systems web interface. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test'. The main content area is titled 'New Test' and features a 'Security Test Module' icon. A 'Test Quick Steps' sidebar lists: 1. Select the DUT/Network, 2. Add a Test Component, 3. Define Test Criteria, and 4. Save and Run. Below this is a 'Test Status' indicator (checked) and a 'Test Information' section with a 'Description' field (No description available) and an 'Edit Description' link. The 'Category' is set to 'User'. A 'Parameters' tab is active, showing a table of parameters:

Parameter Label	Parameter Value
MaxAttacksPerSecond	0
MaxPacketsPerSecond	0
AttackTimeoutSeconds	0.25
AttackRetries	0
RandomSeed	0
Attack Series	BreakingPoint Str
Attack Profile	Default evasion s

The 'RandomSeed' parameter is highlighted in yellow. To the right of the table, there is a 'RandomSeed' input field with a value of '0' and a range of 'Int (min 0) (max 4294967295)'. An 'Apply Changes' button is located at the bottom right of the parameters section. A 'Save As' button is also visible at the bottom right of the main configuration area.

BreakingPoint Security Test Component

The screenshot displays the 'New Test' configuration interface in the BreakingPoint Systems web application. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test', and the system status is 'System Available'.

New Test

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

Test Status (Checked)

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network
BreakingPoint Switching

DUT Profile
BreakingPoint Default

Sent
0%

Duration
112 seconds

Type
Custom

[Save Test As](#)

Security Test Module

Parameters

Parameter Label	Parameter Value
MaxAttacksPerSecond	0
MaxPacketsPerSecond	0
AttackTimeoutSeconds	0.25
AttackRetries	0
RandomSeed	0
Attack Series	BreakingPoint Str
Attack Profile	Default evasion s

Attack Series

- BreakingPoint Strike Level 1
- BreakingPoint Denial of Service Strikes
- BreakingPoint Exploit Strikes
- BreakingPoint FTP Strikes
- BreakingPoint HTTP Strikes
- BreakingPoint NetBIOS and SMB/CIFS

[Apply Changes](#)

[Save As](#)

BreakingPoint Security Test Component

The screenshot shows the 'New Test' configuration page in the BreakingPoint Systems web interface. The page title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test'. The main content area is titled 'New Test' and features a 'Security Test Module' icon. A 'Test Quick Steps' sidebar lists: 1. Select the DUT/Network, 2. Add a Test Component, 3. Define Test Criteria, 4. Save and Run. Below this is a 'Test Status' section with a green checkmark and 'Test Information' section with 'Description: No description available'. The 'Test Information' section includes 'Edit Description', 'Category' (User), 'Add Category', 'Network' (BreakingPoint Switching), 'DUT Profile' (BreakingPoint Default), 'Sent' (0%), 'Duration' (112 seconds), and 'Type' (Custom). The 'Save Test As' button is at the bottom of the sidebar. The main configuration area has tabs for 'Information', 'Interfaces', 'Presets', 'Parameters', and 'Overrides'. The 'Parameters' tab is active, showing a table of parameters:

Parameter Label	Parameter Value
MaxAttacksPerSecond	0
MaxPacketsPerSecond	0
AttackTimeoutSeconds	0.25
AttackRetries	0
RandomSeed	0
Attack Series	BreakingPoint Str
Attack Profile	Default evasion s

The 'Attack Profile' section is expanded, showing a dropdown menu for 'Default evasion settings' with options: 'IP: Ordered 16 byte, overlapping (old)', 'IP: Ordered 24 byte fragments', 'IP: Ordered 8 byte fragments', 'IP: Out-of-order 8 byte fragments', and 'IP: Reverse order 8 byte fragments'. The 'Apply Changes' and 'Save As' buttons are at the bottom right of the configuration area.

BreakingPoint Security Test Component

The screenshot displays the 'New Test' configuration window in the BreakingPoint Systems interface. The window title is 'BreakingPoint Systems - 10.10.10.10'. The top navigation bar includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The main content area is titled 'New Test' and features a 'Security Test Module' icon. On the left, there are sections for 'Test Quick Steps' (1. Select the DUT/Network, 2. Add a Test Component, 3. Define Test Criteria, 4. Save and Run), 'Test Status' (checked), and 'Test Information' (Description: No description available, Category: User, Network: BreakingPoint Switching, DUT Profile: BreakingPoint Default, Sent: 0%, Duration: 112 seconds, Type: Custom). The main configuration area has tabs for 'Information', 'Interfaces', 'Presets', 'Parameters', and 'Overrides'. The 'Parameters' tab is active, showing a table of parameters:

Parameter Label	Parameter Value
MaxAttacksPerSecond	0
MaxPacketsPerSecond	0
AttackTimeoutSeconds	0.25
AttackRetries	0
RandomSeed	0
Attack Series	BreakingPoint Str
Attack Profile	Default evasion s

Below the table, the 'Attack Profile' section is expanded, showing a dropdown menu with options: 'Default evasion settings', 'TCP: Ordered 1 byte segments', 'TCP: Ordered 1 byte segments, duplicate last pac', 'TCP: Ordered 1 byte segments, interleaved duplic', 'TCP: Ordered 1 byte segments, interleaved duplic', and 'TCP: Ordered 1 byte segments, interleaved duplic'. Buttons for 'Apply Changes' and 'Save As' are visible at the bottom right.

BreakingPoint Security Test Component

The screenshot displays the 'New Test' configuration interface in the BreakingPoint Systems web application. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test', and the system status is 'System Available'.

New Test

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

Test Status (Checked)

Test Information

Description
No description available

[Edit Description](#)

Category
User

[Add Category](#)

Network
BreakingPoint Switching

DUT Profile
BreakingPoint Default

Sent
0%

Duration
112 seconds

Type
Custom

[Save Test As](#)

Security Test Module

Parameters

Parameter Label	Parameter Value
MaxAttacksPerSecond	0
MaxPacketsPerSecond	0
AttackTimeoutSeconds	0.25
AttackRetries	0
RandomSeed	0
Attack Series	BreakingPoint Str
Attack Profile	Default evasion s

Attack Profile

Default evasion settings

- HTML: Unicode UTF16 (Big Endian)
- HTML: Unicode UTF16 (Little Endian)
- HTML: Unicode UTF32 (Big Endian)
- HTML: Unicode UTF32 (Little Endian)
- HTML: Unicode UTF7 All

[Apply Changes](#)

[Save As](#)

BreakingPoint Security Test Component

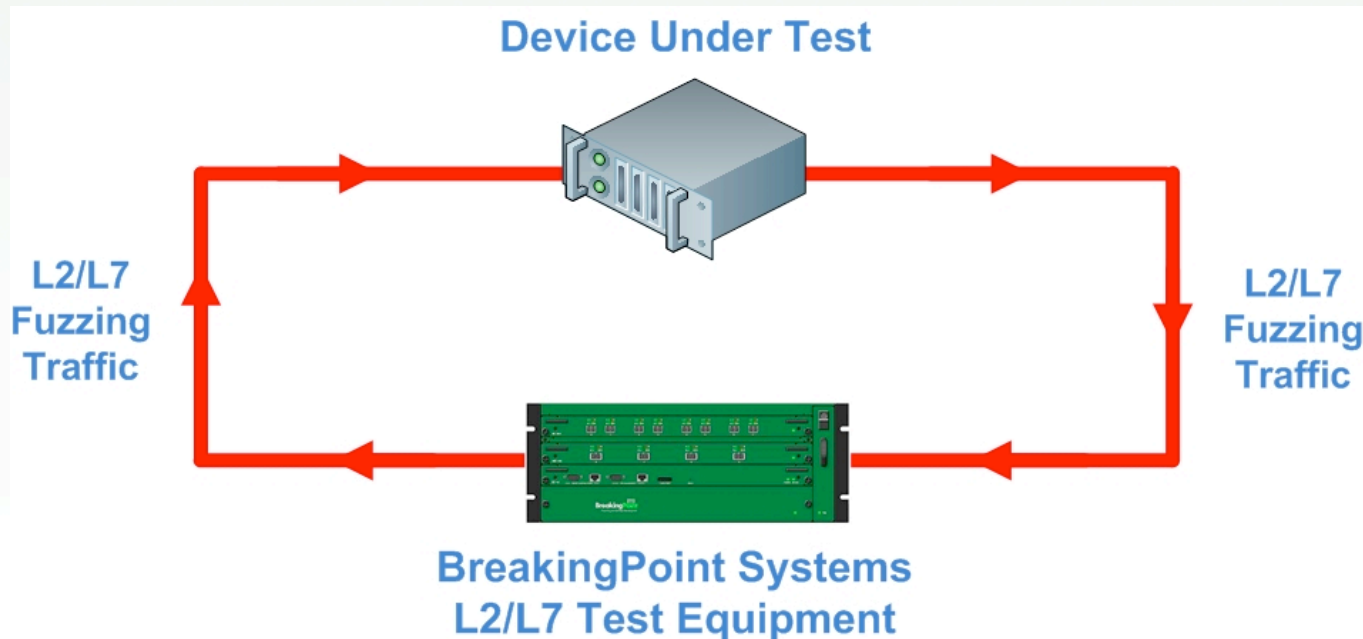
The screenshot shows the BreakingPoint Systems - 10.10.10.10 interface. The top menu includes Control Center, Test, Traffic, Managers, Help, Home, Attack Manager, and System Available. The main area is divided into several sections:

- Search Panel:** A table with columns 'label' and 'value' containing 'iis', 'ilife', 'imail', and 'imap'. To the right are fields for 'Reference', 'Max Returned' (set to 50), 'Protocol', and 'Return Type' (radio buttons for ' Strikes' and ' Strikesets'). A 'Search' button is at the bottom.
- Strikes / Strikesets List:** A list of XML files, with the first one highlighted: `/strikes/denial/ftp/iis_ftp_status_overflow.xml`. Other files include `/strikes/denial/iis/isapi_maximum_url_access_violation_dos.xml`, `/strikes/denial/iis/tilde_dll_request_4.xml`, `/strikes/denial/iis/tilde_dll_request_3.xml`, `/strikes/denial/iis/tilde_dll_request_2.xml`, `/strikes/denial/iis/tilde_dll_request_1.xml`, `/strikes/denial/iis/malformed_extension.xml`, and `/strikes/denial/iis/ms04_011_iis_ssl_dos_01.xml`. A 'Page 1 2 >' indicator is at the bottom.
- Details Panel:** A dark blue box showing details for the selected strike:
 - ID:** `/strikes/denial/ftp/iis_ftp_status_overflow.xml`
 - Name:** Microsoft IIS FTP Status Request DoS
 - Description:** This strike exploits a file globbing bug in the FTP STAT command in Microsoft IIS versions 4.0, 5.0, and 5.1.
 - References:**
 - CVE: 2002-0073
 - BID: 4482
 - OSVDB: 3328
 - CVSS: AV:R/AC:L/Au:NR/C:NI/N:A/C:B:N

At the bottom right, there are 'Add Strike(s)' and 'Cancel' buttons.

Protocol Fuzzing Test Stack Scrambler Module

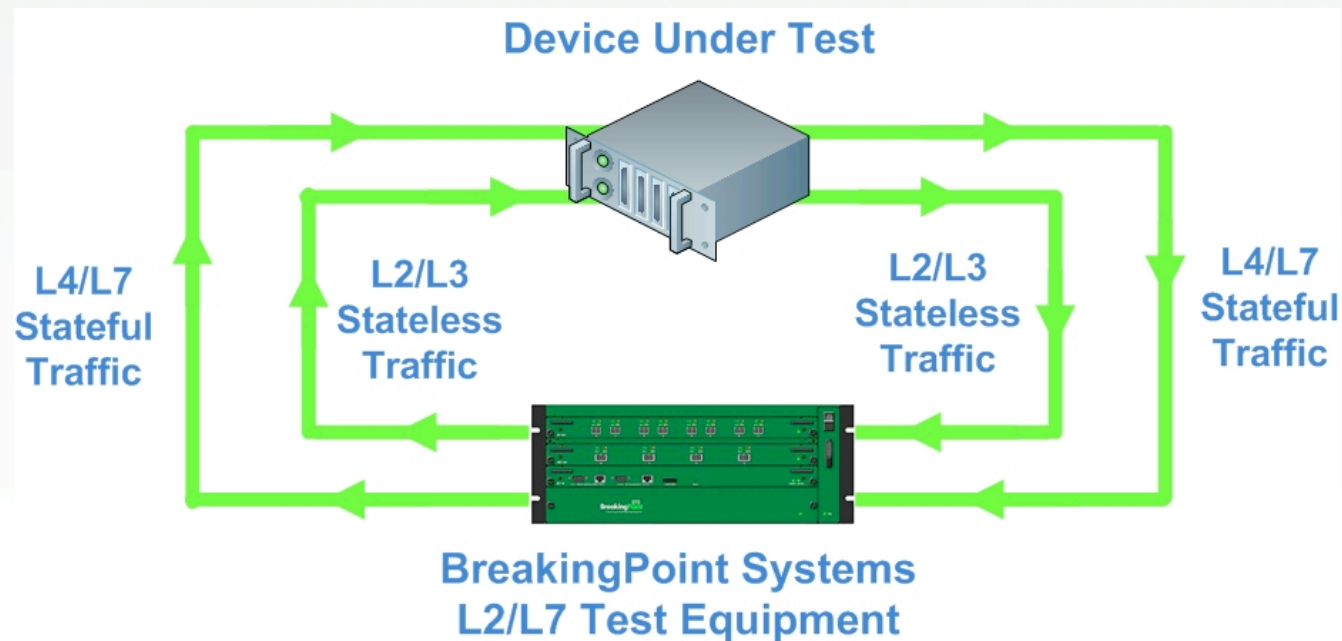
Protocol Fuzzing



- Stack Scrambler tests the integrity of different protocol stacks by sending malformed packets to the device under test. It uses a fuzzing technique, which modifies a part of the packet (checksum, protocol options, etc.) to generate the corrupt data.

Test Scenario

Mixing Layer 2-3 and Layer 4-7 Traffic



- BreakingPoint is the only solution able to send Layer 2-3 and Layer 4-7 traffic from a single test solution with single user interface on same test port.

BreakingPoint: Mixing L2/L3 and L4/L7 Traffic

BreakingPoint Systems - 10.10.10.10

Control Center Test Traffic Managers Help Home> Test System Available

New Test

Test Quick Steps

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

Test Status

Test Information

Description
No description available

Edit Description

Category
User

Add Category

Network

- BreakingPoint Switching
- DUT Profile
- BreakingPoint Default

Sent

- 5%

Duration

- 120 seconds

Type

- Custom

Save Test As

L3 Stateless Traffic

L7 Statefull Traffic

Information Interfaces Presets Parameters

Parameter Label	Parameter Value
-- Test duration.Value	120
Data Rate.Data rate unit	Megabits / secon
Data Rate.Data rate type	Constant
Data Rate.Minimum value	500
Data Rate.Maximum value	
Data Rate.Increment N units	0
Data Rate.Every N seconds	1
Size distribution.Size distribution unit	Frame
Size distribution.Size distribution type	Constant
Size distribution.Minimum value	512
Size distribution.Maximum value	

Test duration

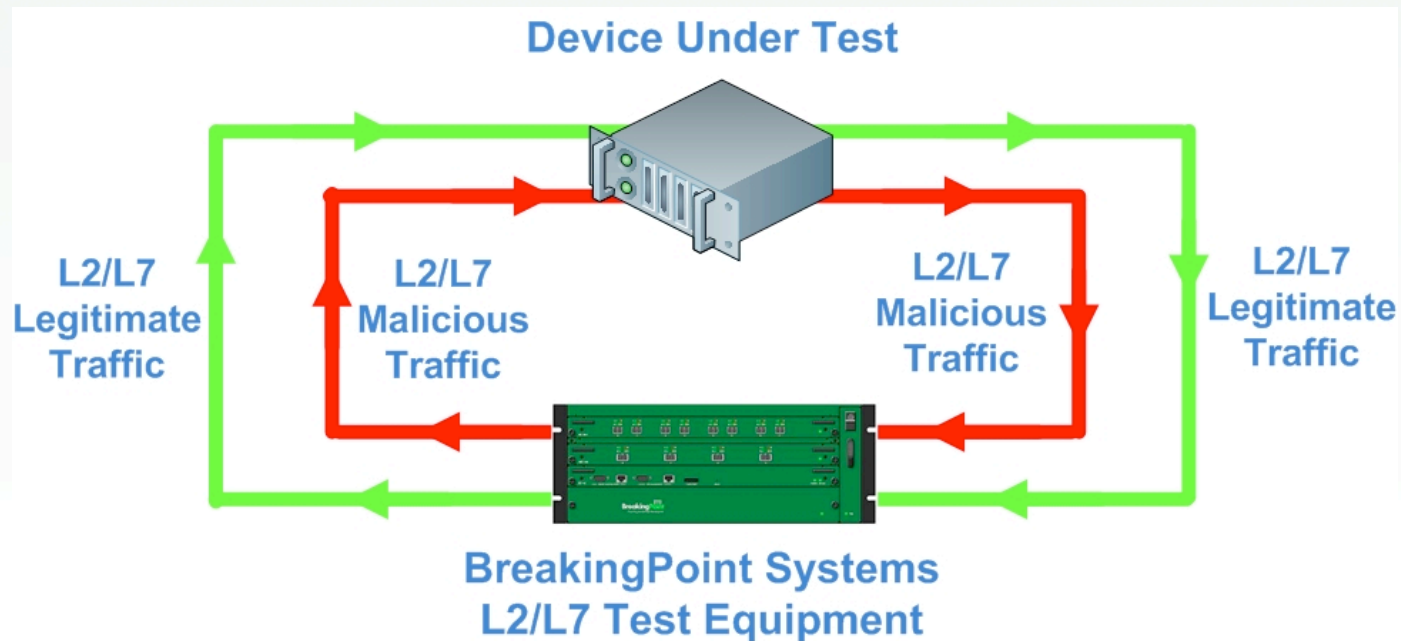
* Test duration type
Seconds

* Value
120
Int (min 1) (max 100000000)

Apply Changes

Save As

Mixing Good and Malicious Traffic



- BreakingPoint properly tests high-performance security devices with the capability to mix good traffic and malicious traffic emulating real world test scenarios.

BreakingPoint: Mixing Good and Malicious Traffic

The screenshot displays the BreakingPoint Systems web interface for configuring a new test. The browser title is "BreakingPoint Systems - 10.10.10.10". The navigation menu includes "Control Center", "Test", "Traffic", "Managers", and "Help". The current page is "Home > Test".

The main content area is titled "New Test" and features a "Test Quick Steps" sidebar with the following instructions:

1. Select the DUT/Network
2. Add a Test Component
3. Define Test Criteria
4. Save and Run

The "Test Status" is indicated as "Test Status" with a green checkmark icon. The "Test Information" section shows "No description available" and includes an "Edit Description" link. The "Category" is set to "User".

The "Network" section lists several options: "BreakingPoint Switching", "DUT Profile", "BreakingPoint Default", "Sent" (4%), "Duration" (118 seconds), and "Type" (Custom). A "Save Test As" button is located at the bottom of this sidebar.

The main configuration area shows a "Security Test Module" component. The "Information" tab is active, displaying the following details:

- Name:** Security Test Module Active
- Description:** Security Level 1 targets high-risk vulnerabilities in services often exposed to the Internet. This includes approximately 100 strikes and usually completes in less than one minute.

An "Apply Changes" button is located below the description. To the right, a "Change this component to..." panel offers alternative components: "Bit Blaster", "Application Simulator", "Routing Robot", "Recreate", "Session Sender", and "Stack Scrambler". A "Save As" button is located at the bottom right of this panel.

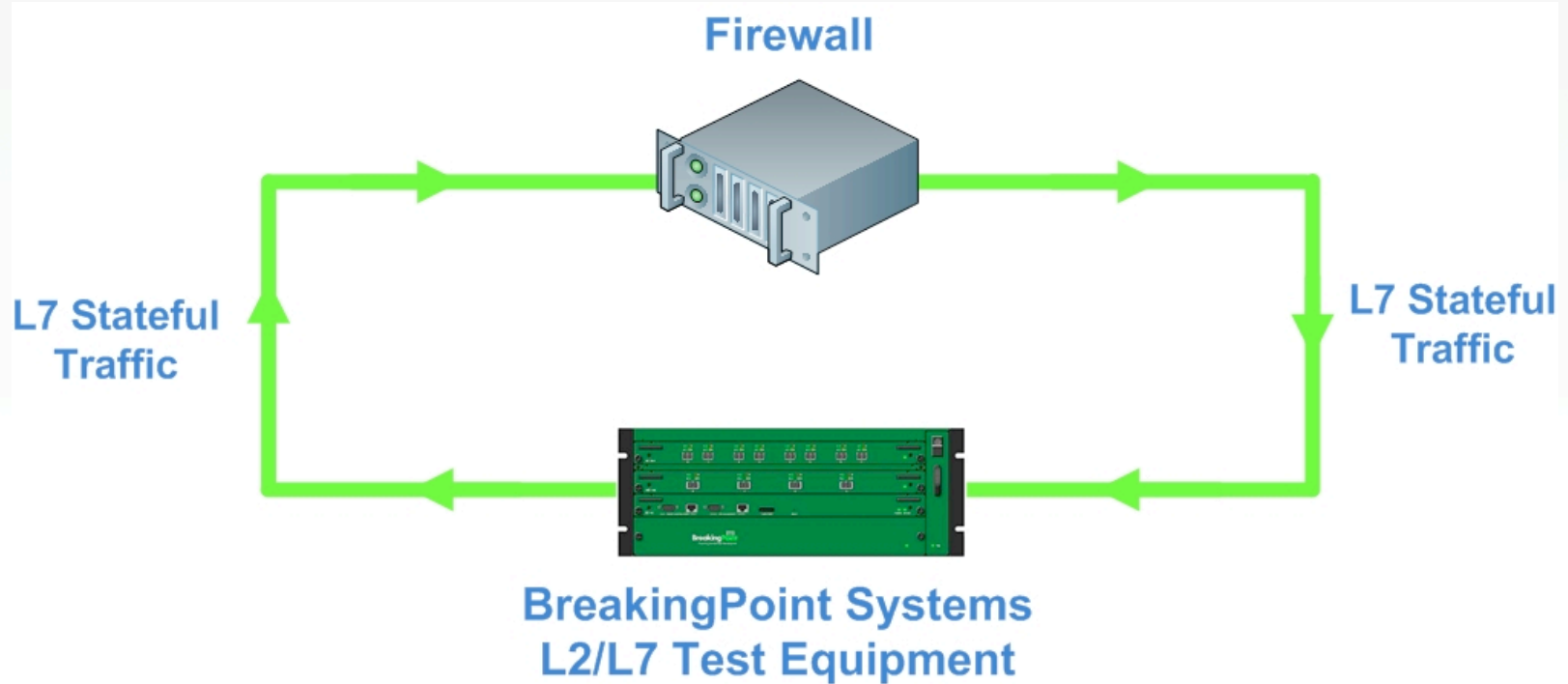
What kind of Network Equipment Validation ?

BreakingPoint testing tools are used to validate the following network equipments:

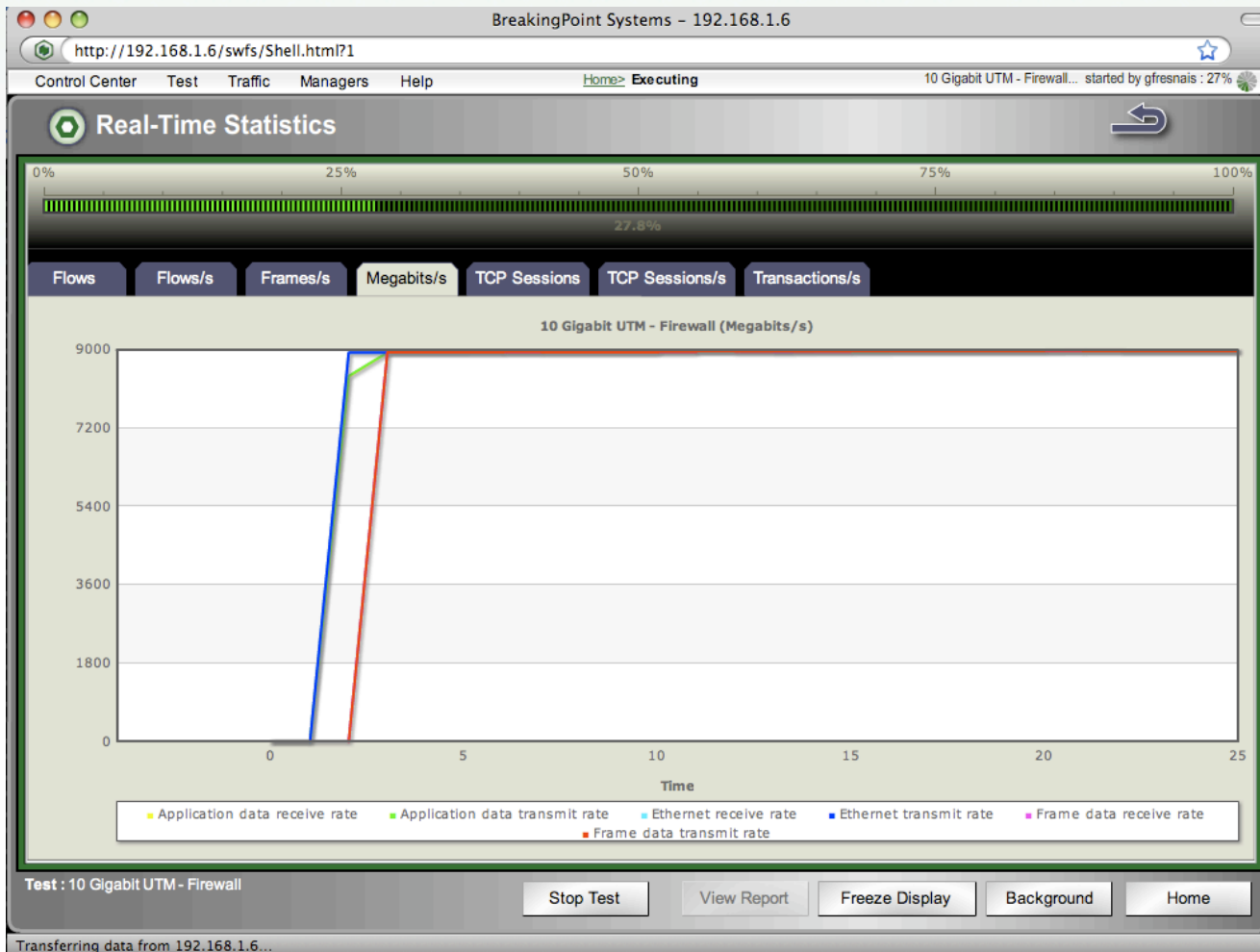
- Router
- L2 Switch
- L3 Switch
- UTM
- IDS/IPS
- QoS DPI
- Firewall
- Web Application Firewall
- Web Accelerator
- SSL Accelerator
- Traffic Shaper
- SMTP Relay
- Anti-SPAM
- Proxy
- URL Filter
- Content Filter
- Anti-Virus
- Anti-Malware
- ...and more

Validating Performance and Security of UTM, Firewall, IDS/IPS, Proxy and Anti-Virus Devices

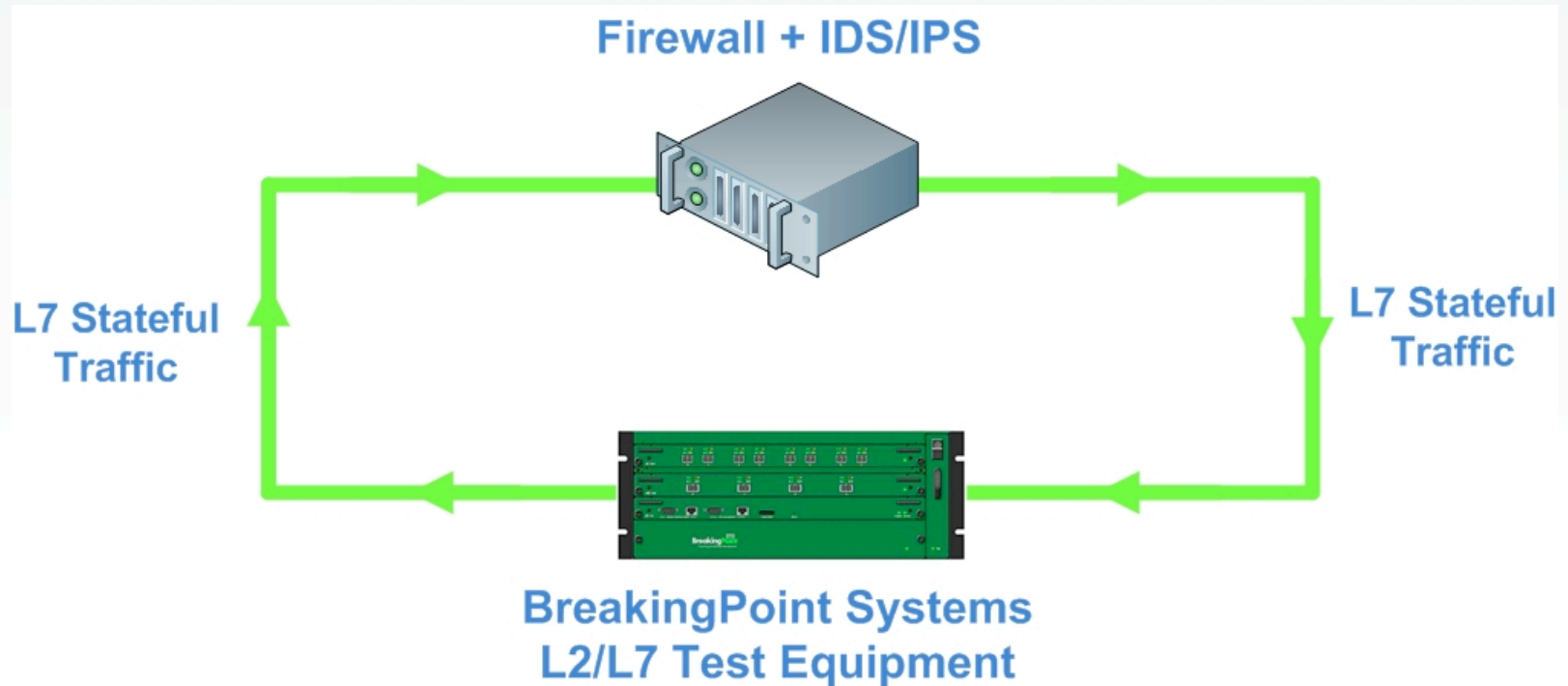
Firewall Test



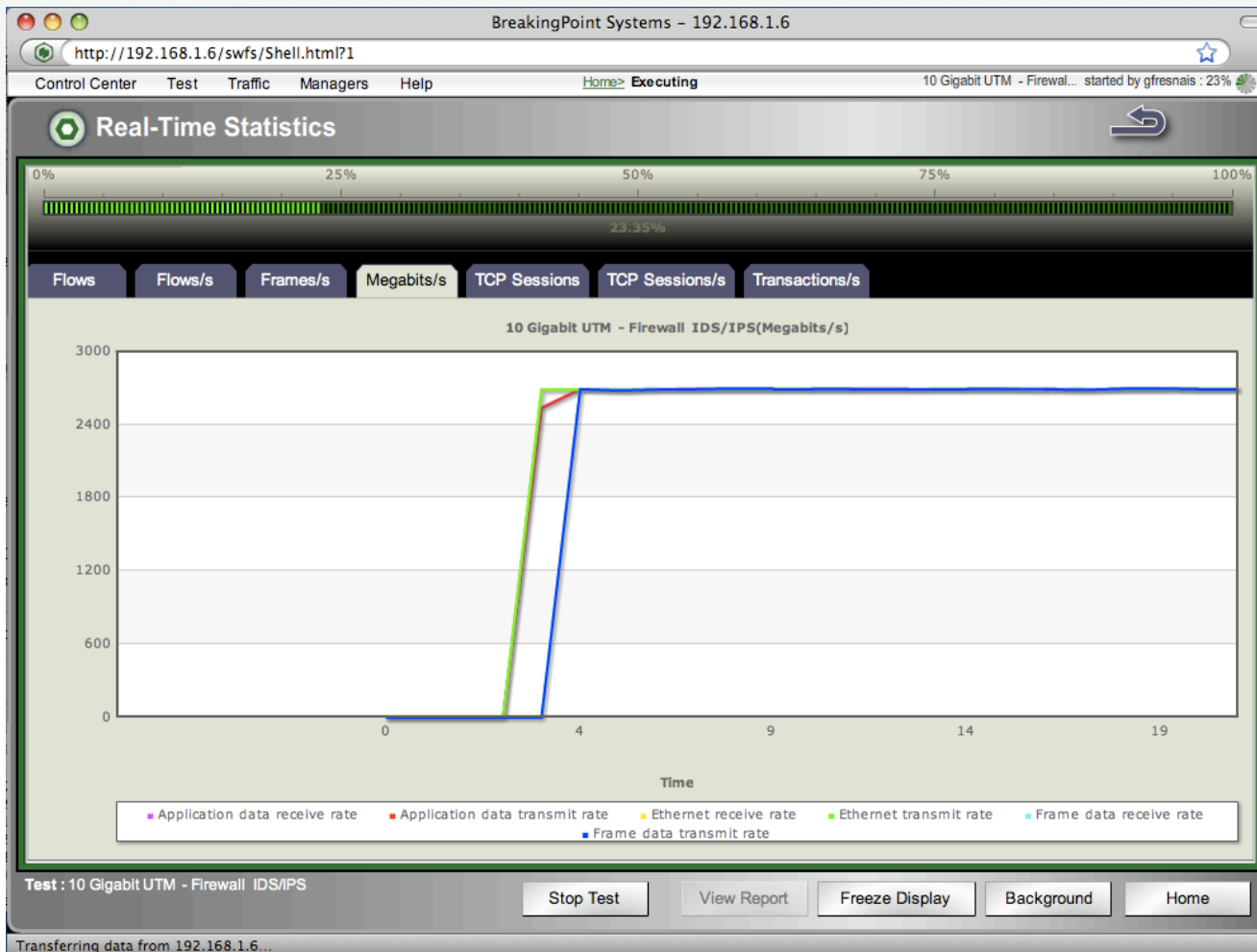
Firewall Test - 8.9 Gbps



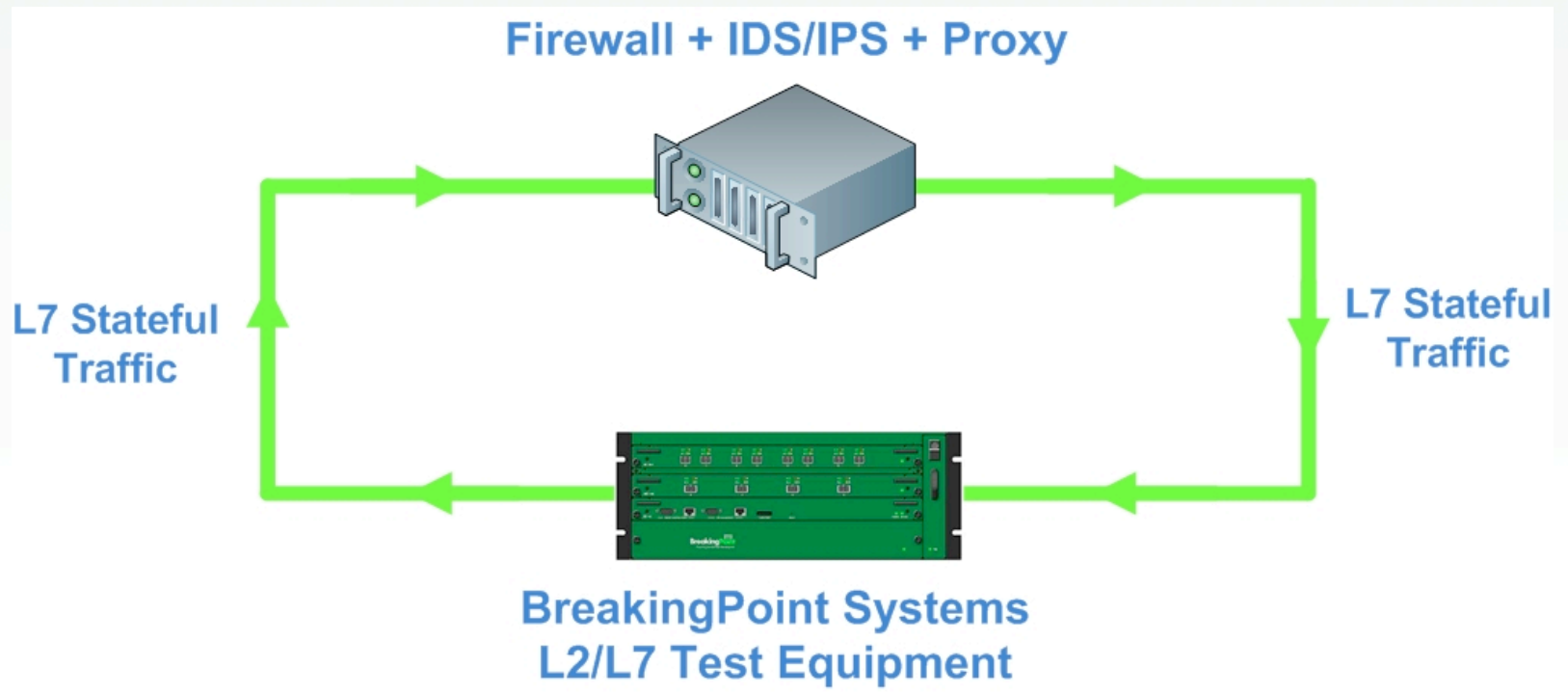
Firewall + IDS/IPS Test



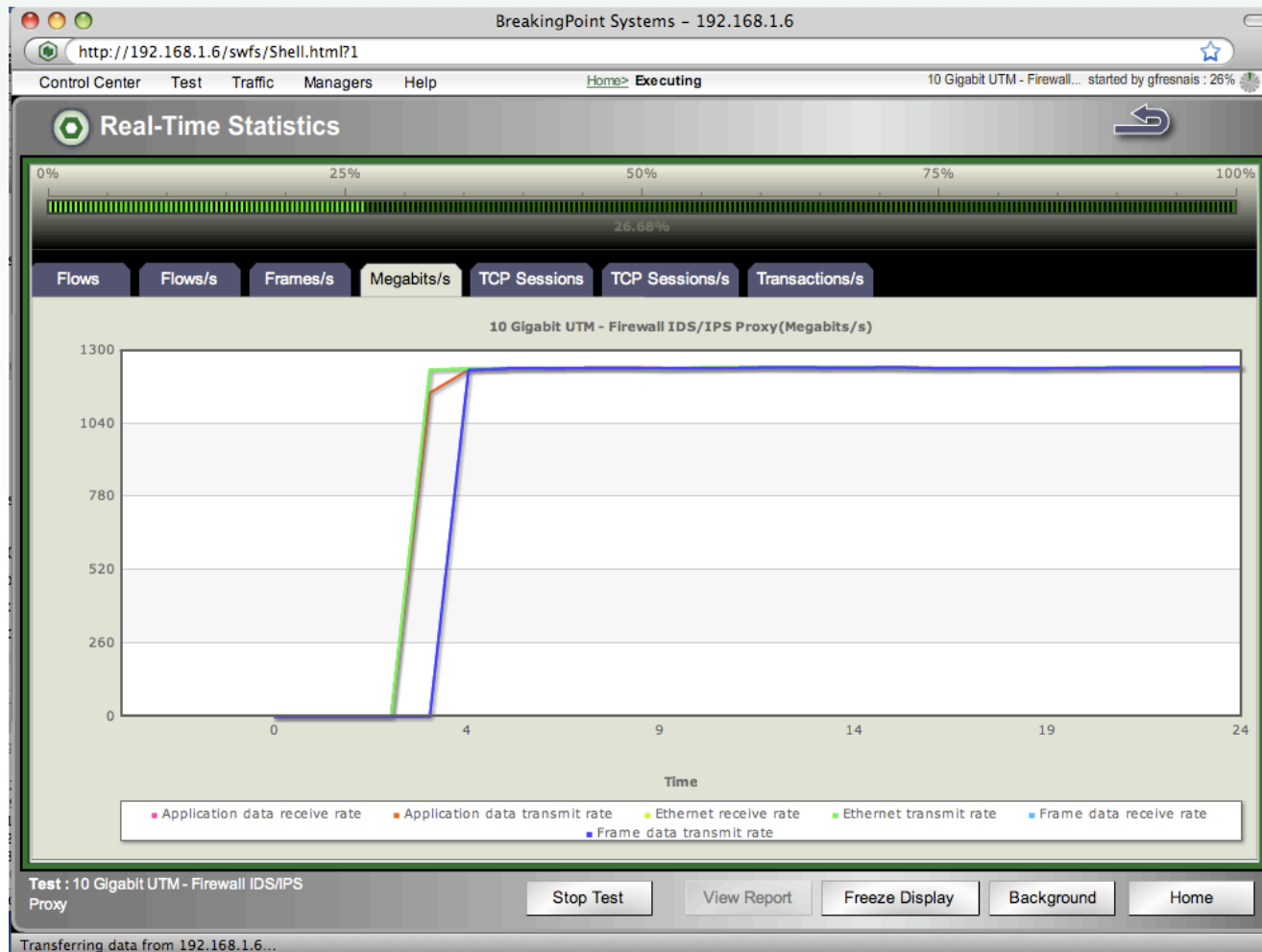
Firewall + IDS/IPS – 2.6 Gbps



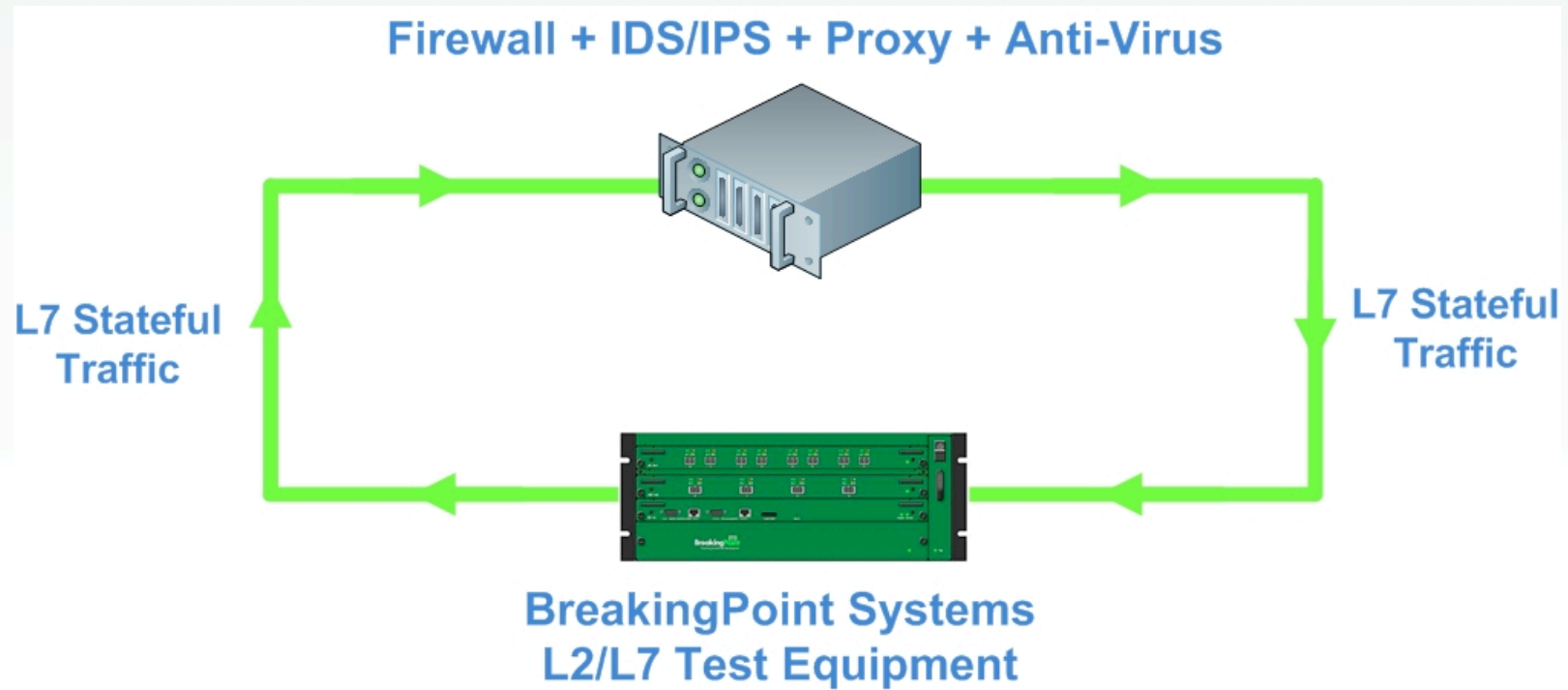
Firewall + IDS/IPS + Proxy Test



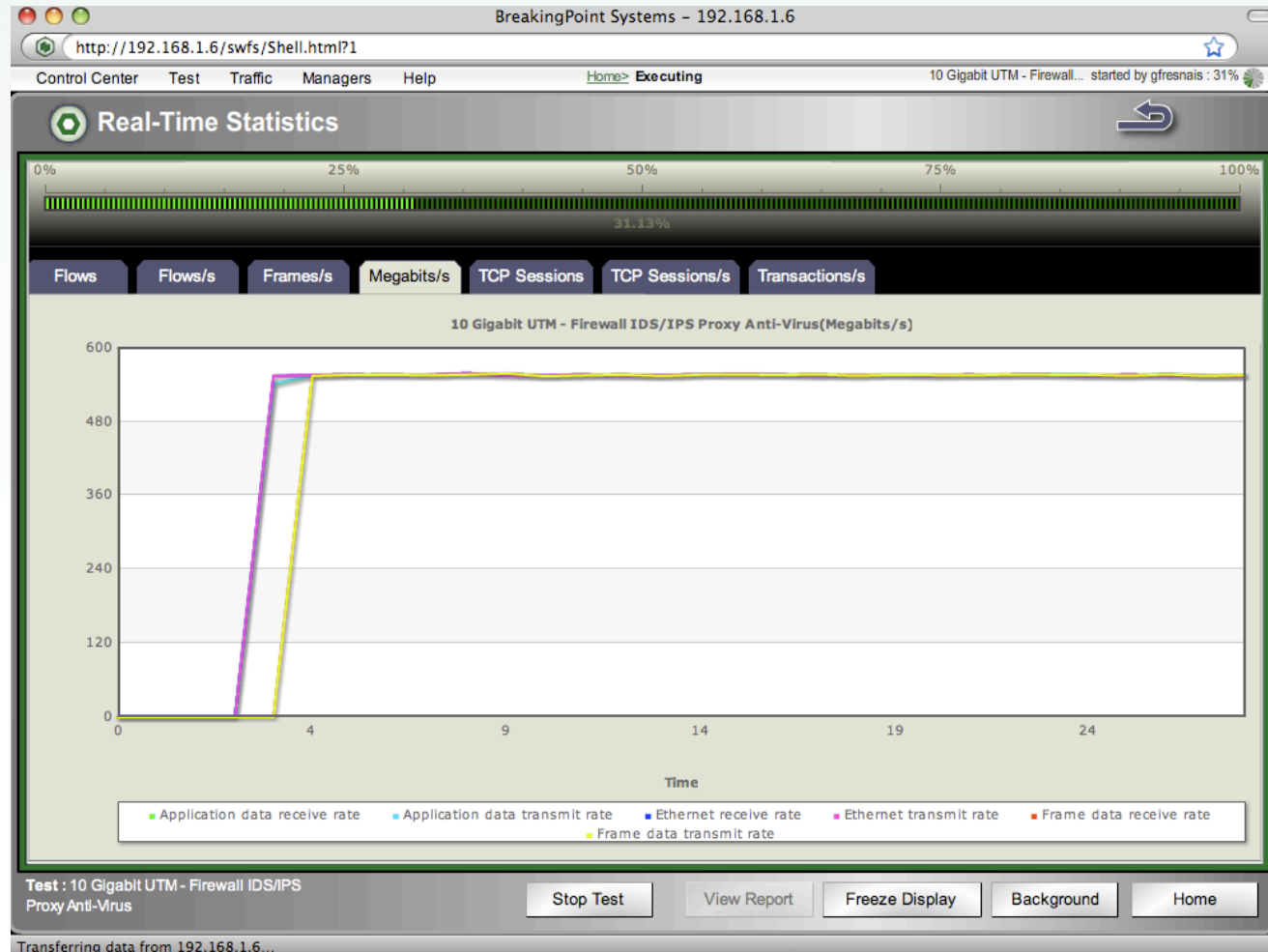
Firewall + IDS/IPS + Proxy – 1.2 Gbps



Firewall + IDS/IPS + Proxy + Anti-Virus



Firewall + IDS/IPS + Proxy + Anti-Virus – 558 Mbps



Israel – Imperva



Type:

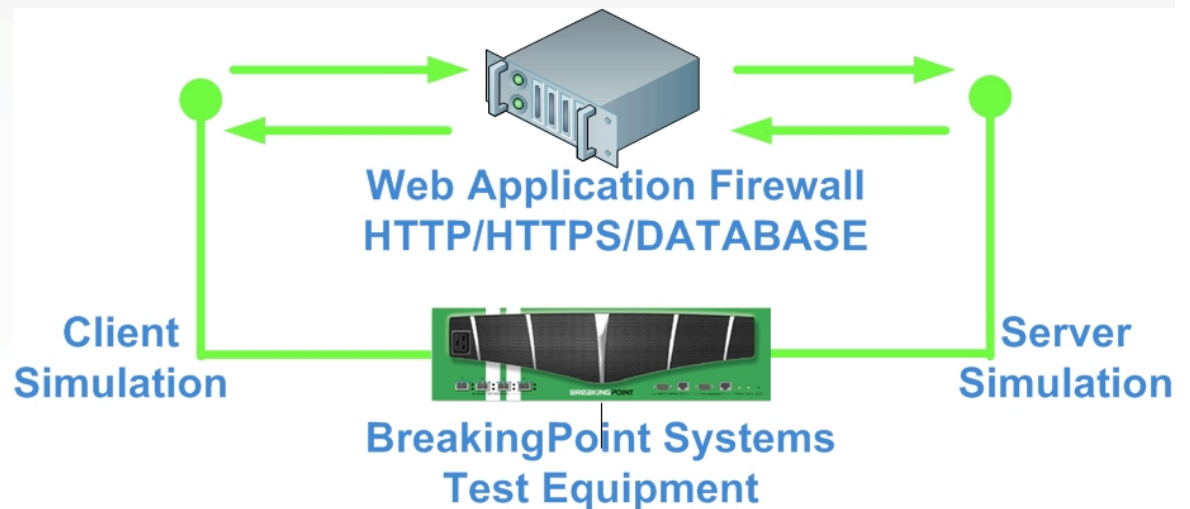
Network Equipment Manufacturer

Market Segment:

Application Firewall (HTTP/HTTPS/
Database Protocols)

Customer Test Scenario:

Imperva protects online web applications and databases against sophisticated application-level attacks like SQL Injection and cross-site Scripting. Additionally, Imperva provides reporting for PCI-DSS and monitor user privilege for Sarbanes-Oxley compliance.



Sweden – Procera Networks



Type:

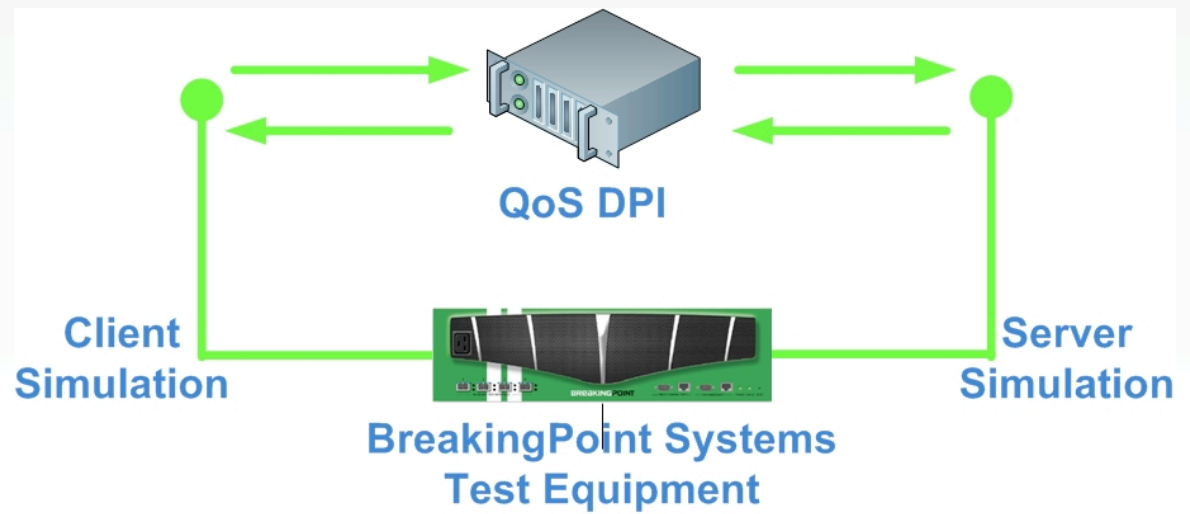
Network Equipment Manufacturer

Market Segment:

QOS DPI

Customer Test Scenario:

Procera Networks provides deep packet inspection (DPI) capabilities that allow accurate identification of network traffic such as BitTorrent, YouTube, Skype and more, allowing accurate management and optimization of bandwidth.

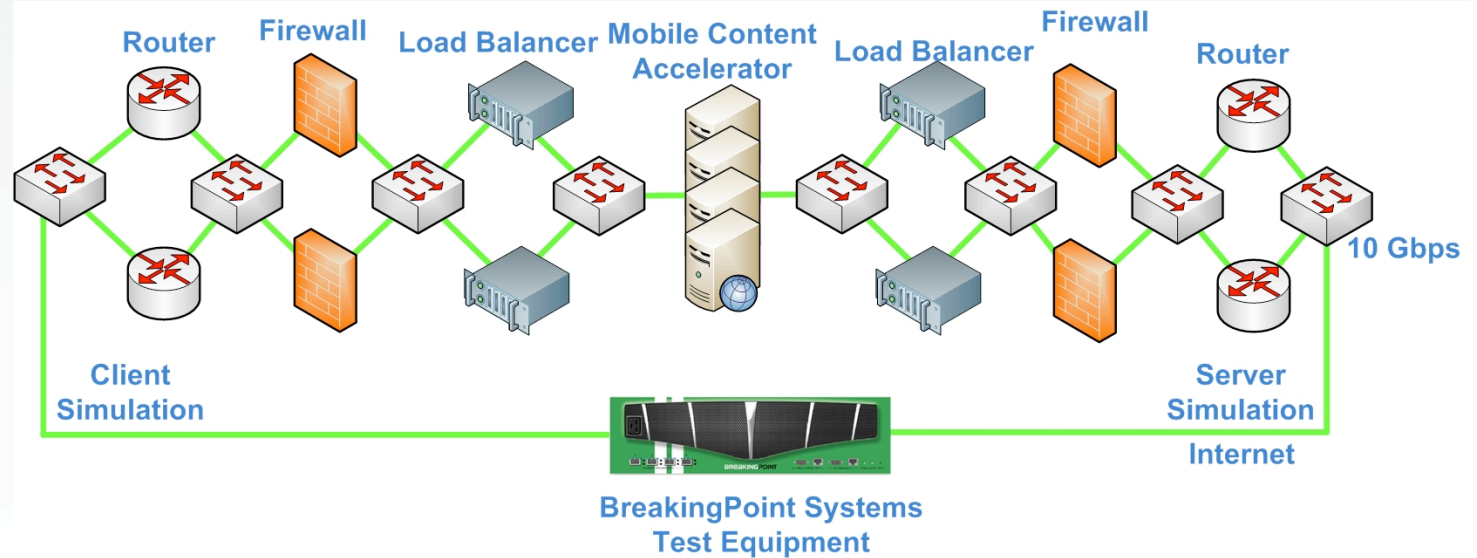


UK/Germany – T-Mobile International



Type:
Service Provider

Market Segment:
Mobile

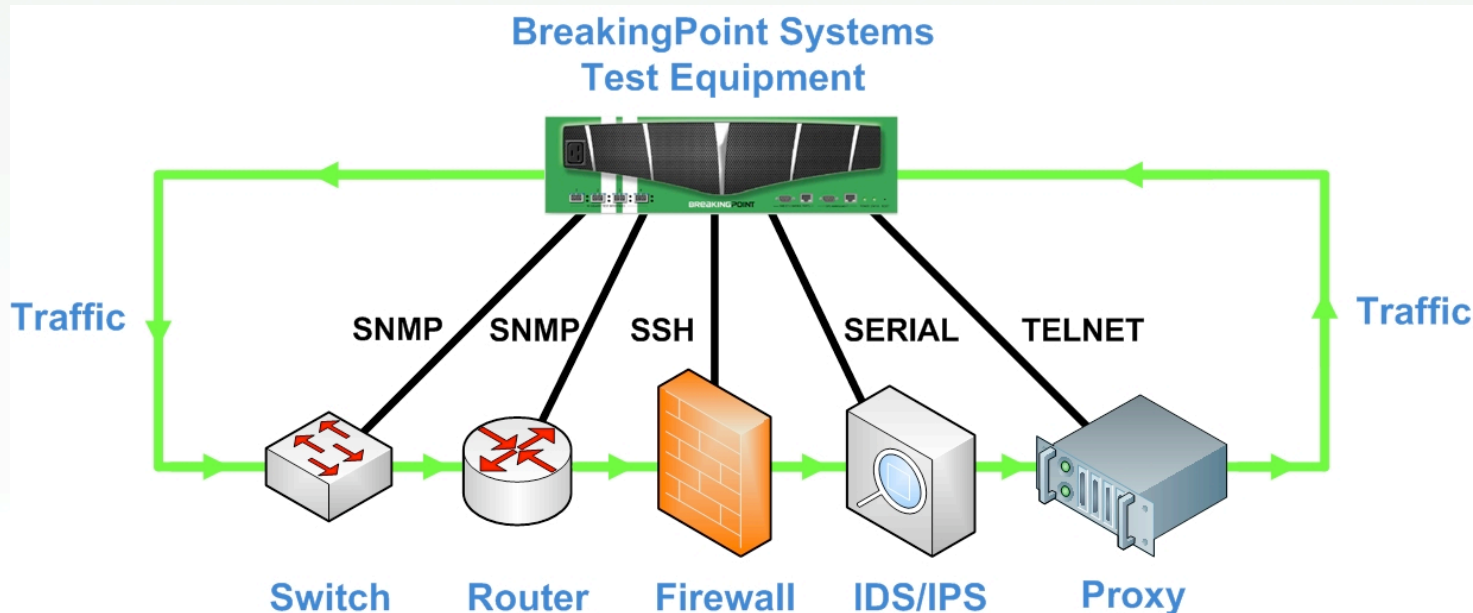


Customer Test Scenario:

T-Mobile validate performance of different network element radius server, router, firewall, load balancer, mobile content accelerator with composed 10 Gigabit Mobile Silos between GGSN and Internet Services.

Device Under Test (DUT) Real-Time Monitoring

Real-Time Device Under Test Monitoring



- BreakingPoint offers the ability to connect to a DUT via Telnet, SNMP, SSH, or Serial to monitor the status of a DUT offering the ability to check CPU, Memory, New TCP connections per Second, Concurrent TCP Connections, Bandwidth and Packet per Second. Eliminates manual power-cycle reboots.

Device Under Test Monitoring

The screenshot shows the 'Device Under Test' configuration page in the BreakingPoint Systems web interface. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Device Under Test'.

The main content area is titled 'Device Under Test' and contains several sections:

- Profile Name:** A list of profiles with 'BreakingPoint Default' and 'DUT Monitoring' (highlighted). Below the list is an 'Edit Name' button.
- Device Selection:** A dropdown menu set to 'Generic'.
- Connection Type:** A dropdown menu set to 'SSH'.
- Settings:** A table with the following data:

Name	Value
Host	10.10.10.10
Port	22
Login ID	gfresnais
Local IP	mgmt
- Global Scripts:** A table with columns 'Active', 'Scripts', 'Time Event', and 'Created By'. It contains one entry: 'Check Uptime' (Active:) by 'gfresnais' with a 'Time Event' of 'On Start'. Below the table are '+', '-', and trash icons.
- Script Name:** A text input field containing 'Check Uptime'. Below it are radio buttons for 'On Start' (selected), 'On Stop', 'Periodic', and 'After Start'. There are also time interval input fields.
- Script:** A table with columns 'Commands' and 'Text' for defining script content. Below the table are '+', '-', and trash icons, and an 'Auto Create' button.

At the bottom of the interface are buttons for 'Test Script', 'Save Script', and 'Save DUT'.

Device Under Test Monitoring

The screenshot displays the BreakingPoint Systems web interface for monitoring a Device Under Test (DUT). The browser window title is "BreakingPoint Systems - 10.10.10.10". The navigation menu includes "Control Center", "Test", "Traffic", "Managers", and "Help". The current page is "Home > Device Under Test".

The main content area is titled "Device Under Test" and features a central terminal window. The terminal output shows the following:

```
Trying to connect...
Warning: Permanently added '10.10.10.10' (RSA) to the list of known hosts.
gfresnais@10.10.10.10's password:
BreakingPoint Systems, Inc.
bps> uptime
Current Time: 12:24:26 Up for 1 hour 40 minutes 12 seconds
bps> exit
```

The interface includes several sections:

- Profile Name:** A list with "BPS Terminal", "BreakingPoint Default", and "DUT Monitoring" (highlighted). An "Edit Name" button is below.
- Device Selection:** A dropdown menu currently set to "Generic".
- Settings:** A section with fields for "Name", "Host", "Port", "Login ID" (highlighted), and "Local IP".
- Script Name:** A field for "Check Uptime".
- On Start:** Radio buttons for "On Start", "On Stop", and "Periodic".
- After Start:** Radio buttons for "After Start".
- Buttons:** "Create", "Save Script", and "Save DUT".

Device Under Test Monitoring

The screenshot shows the 'Device Under Test' configuration page in the BreakingPoint Systems web interface. The page is titled 'Device Under Test' and includes a navigation menu with 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The main content area is divided into several sections:

- Profile Name:** A list of profiles with 'DUT Monitoring' selected.
- Global Scripts:** A table listing scripts with columns for 'Active', 'Scripts', 'Time Event', and 'Created By'. The 'Check Uptime' script is highlighted.
- Script Name:** A dropdown menu showing 'Check Uptime' and radio buttons for 'On Start', 'On Stop', 'Periodic', and 'After Start'.
- Device Selection:** 'Generic' selected in the dropdown.
- Connection Type:** 'SSH' selected in the dropdown.
- Settings:** A table with columns 'Name' and 'Value':

Name	Value
Host	10.10.10.10
Port	22
Login ID	gfresnais
Local IP	mgmt
- Script:** A table with columns 'Commands' and 'Text':

Commands	Text
Expect	gfresnais@10.10.10.10's password: \$
Send	gfresnais\r
Expect	bps> \$
Send	uptime\r
Expect	bps> \$
Send	exit\r

Buttons at the bottom include 'Auto Create', 'Test Script', 'Save Script', and 'Save DUT'.

Automation using Drag and Drop GUI

GUI Automation: Run Multiple Layer 2-7 Tests

The screenshot displays the 'Test Series' configuration page in the BreakingPoint Systems GUI. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', and 'Help'. The current page is 'Home > Test Series', and the status is 'System Available'.

The main interface is titled 'Test Series' and features a search filter section with the following fields:

- User:
- Last Edited:
- Max Returned:
- Category:
- Type:
-

The 'Test Series' list on the left contains the following entries:

- BreakingPoint IPS Test - Attack Evasion IP Fragmentation
- BreakingPoint IPS Test - Attack Evasion TCP Segmentation
- BreakingPoint IPS Test - FTP Attack Evasion
- BreakingPoint IPS Test - HTTP Attack Evasion
- BreakingPoint IPS Test - RPC Attack Evasion
- Test Series - L2 to L7** (highlighted)

The 'Test Series Category' section on the right has a dropdown menu set to 'Any' and an [Add Category](#) link.

The 'Associated Tests' list on the right includes:

- L2 Test - 40 Gbps** (highlighted)
- L3 Test - 40 Gbps
- L4 Test - 10 Gbps
- L7 Test - 10 Gbps
- Security Test

At the bottom of the main panel, there is an [Edit Name](#) link and icons for document, add, and delete actions.

Global Reporting of Layer 2-7 Test Series

BreakingPoint Systems - 10.10.10.10

Control Center Test Traffic Managers Help Home> Reports System Available

Reporting

User: Everybody Type: Any Result: Any Last Run: Any Time Max Returned: 50 Search

Name	Test Type	Pass / Fail	Iteration	Duration	User	DUT	Started At	Ended At
Security Test	Test	failed	1	0:00:28.036	gfresnais	BreakingPoint Default	Jun 6, 2008 7:08:58 AM	Jun 6, 2008 7:09:26 AM C
L7 Test - 10 Gbps	Test	passed	1	0:02:02.311	gfresnais	BreakingPoint Default	Jun 6, 2008 6:55:27 AM	Jun 6, 2008 6:57:30 AM C
L4 Test - 10 Gbps	Test	passed	1	0:01:04.052	gfresnais	BreakingPoint Default	Jun 6, 2008 6:43:12 AM	Jun 6, 2008 6:44:16 AM C
L3 Test - 40 Gbps	Test	passed	1	0:01:02.093	gfresnais	BreakingPoint Default	Jun 6, 2008 6:28:52 AM	Jun 6, 2008 6:29:54 AM C
L2 Test - 40 Gbps	Test	passed	1	0:01:02.054	gfresnais	BreakingPoint Default	Jun 6, 2008 6:10:09 AM	Jun 6, 2008 6:11:11 AM C

View Refresh Delete

(Disable popup blocking to view reports)

Automation using Script

Automation using Script

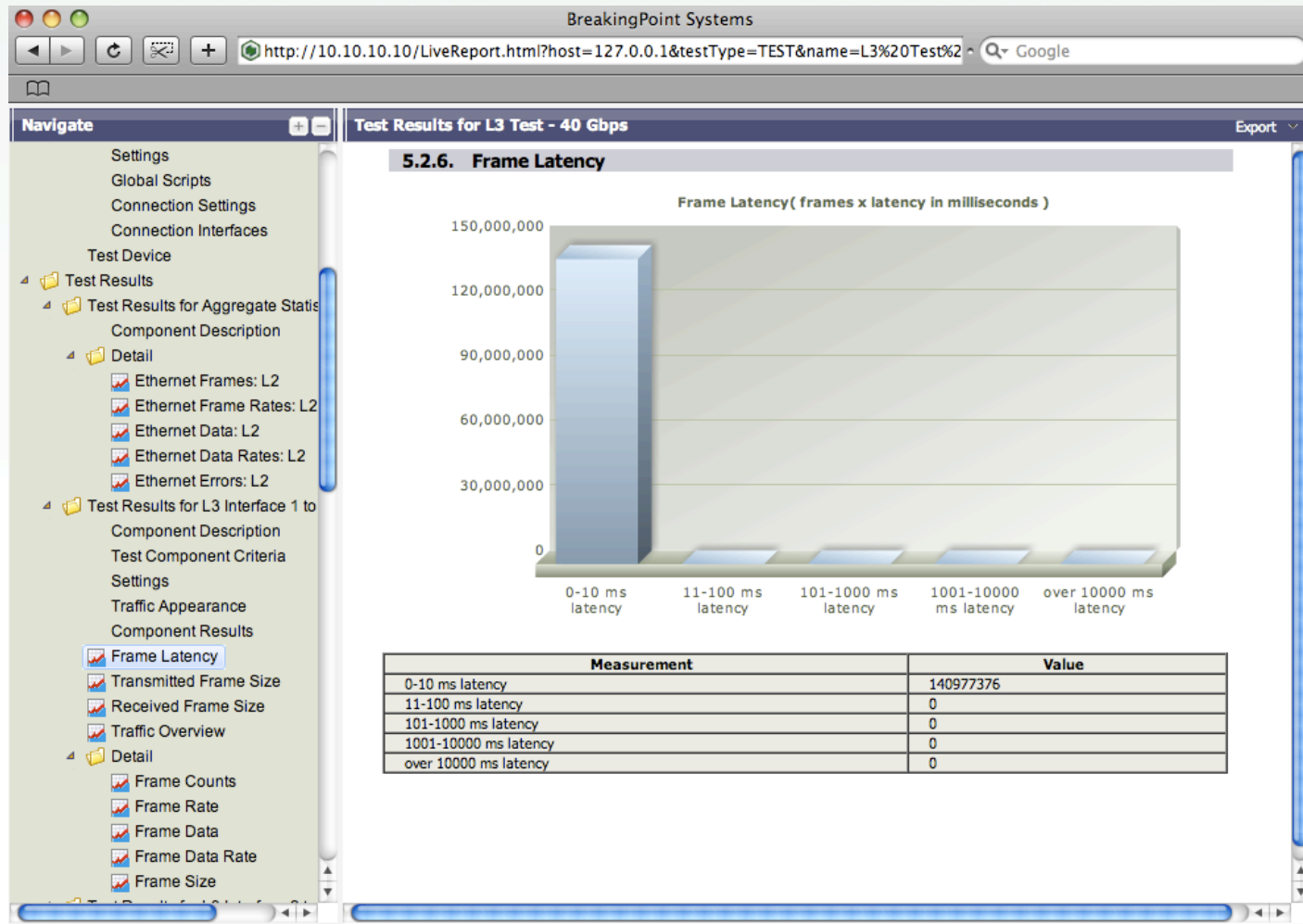
- Tcl Library Available for the Windows, UNIX, and MAC
 - Define a Test
 - Define DUT Profile
 - Run Tests
 - Generate Test Report

Reporting

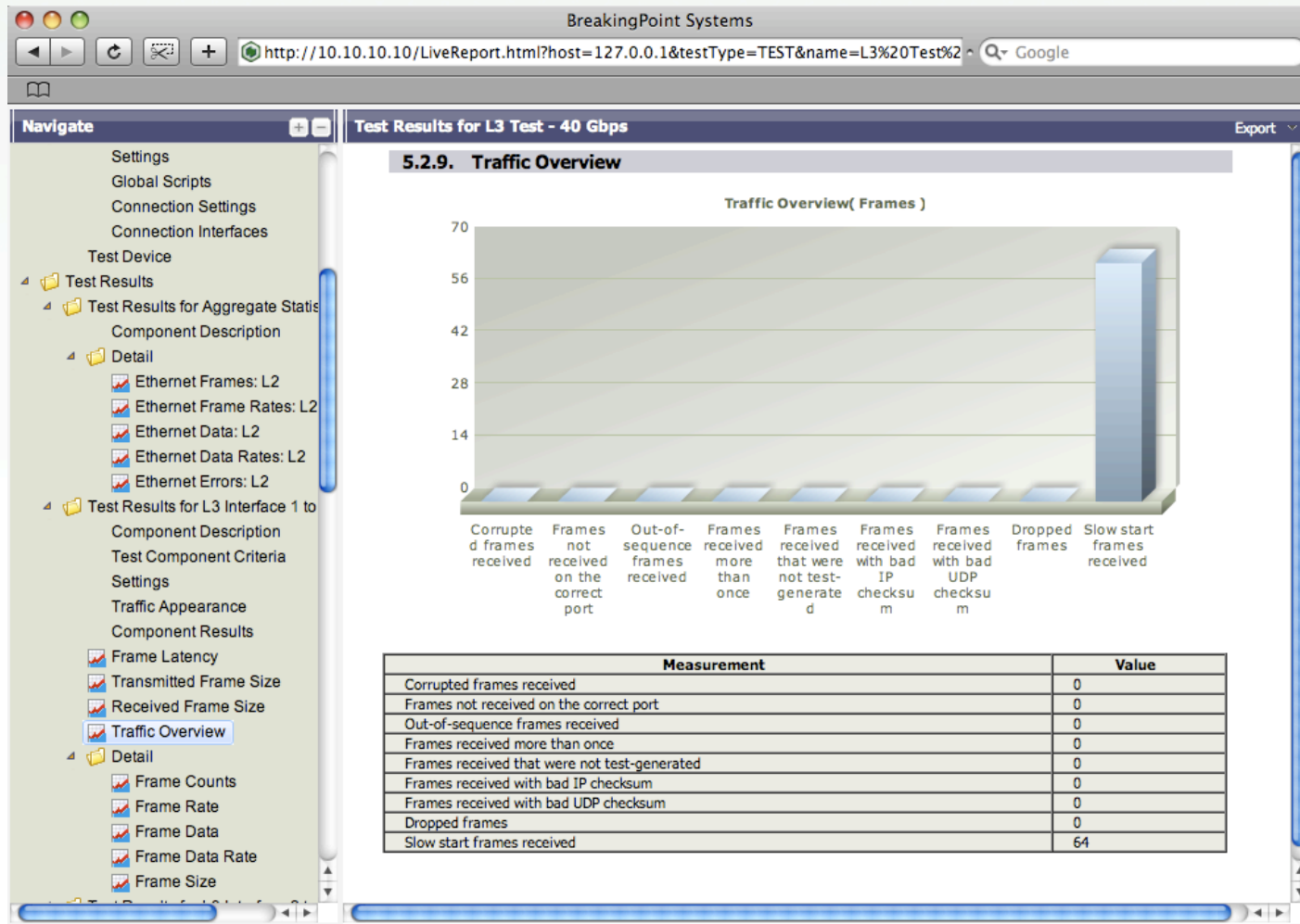
Reporting Possibility

- BreakingPoint reports provide detailed information about each test including the testing environment, the purpose of the test, interface address information, and the results of the test
- Test Report can be exported in PDF, HTML, RTF, XLS, CSV and ZIP
- Test results can be e-mailed upon the completion of a test. Results will be sent to the e-mail configured for the user account. The format in which the test is sent depends on the format that is selected for the Default Report Format option.

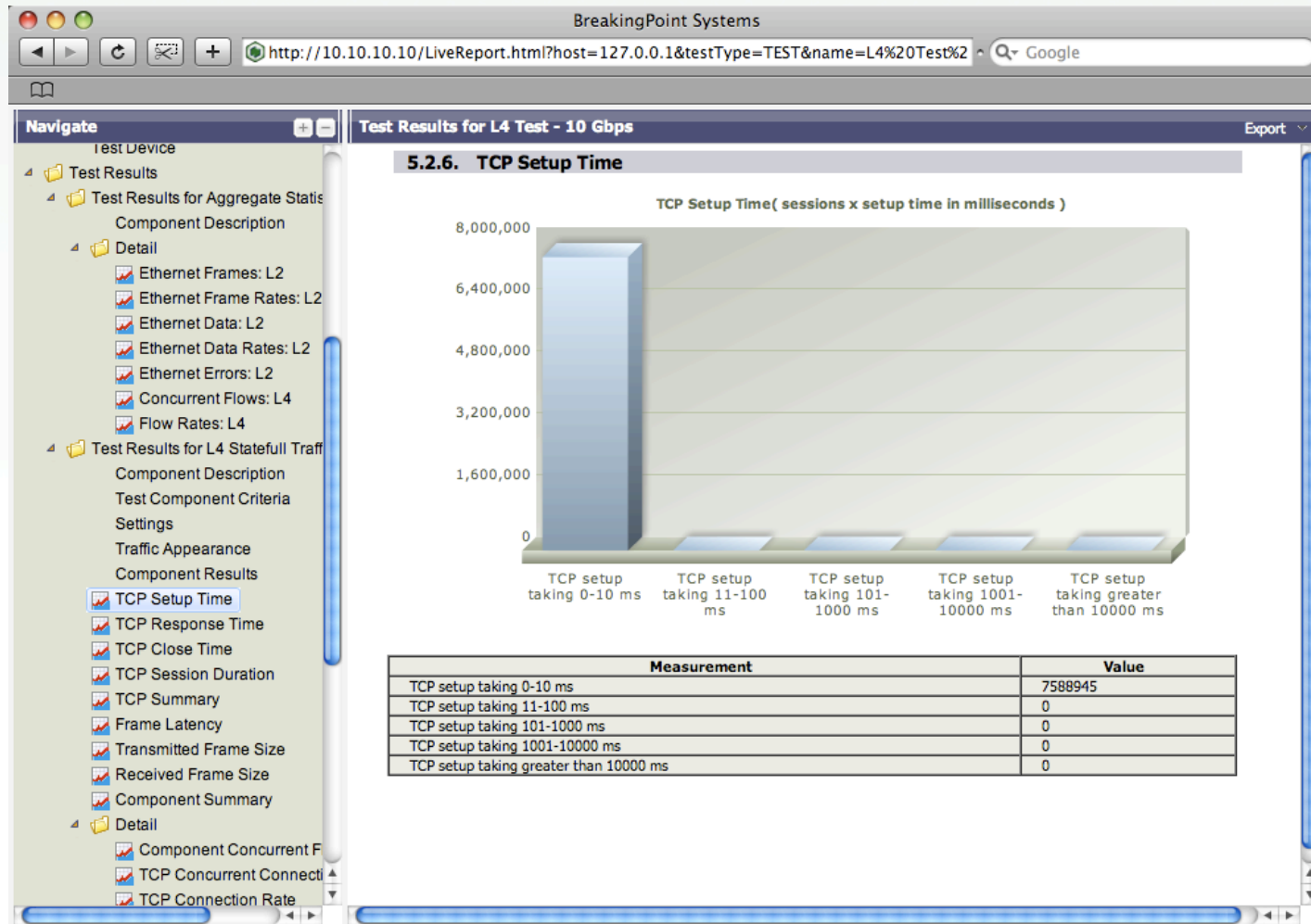
Layer 2-3 Test Report: Latency



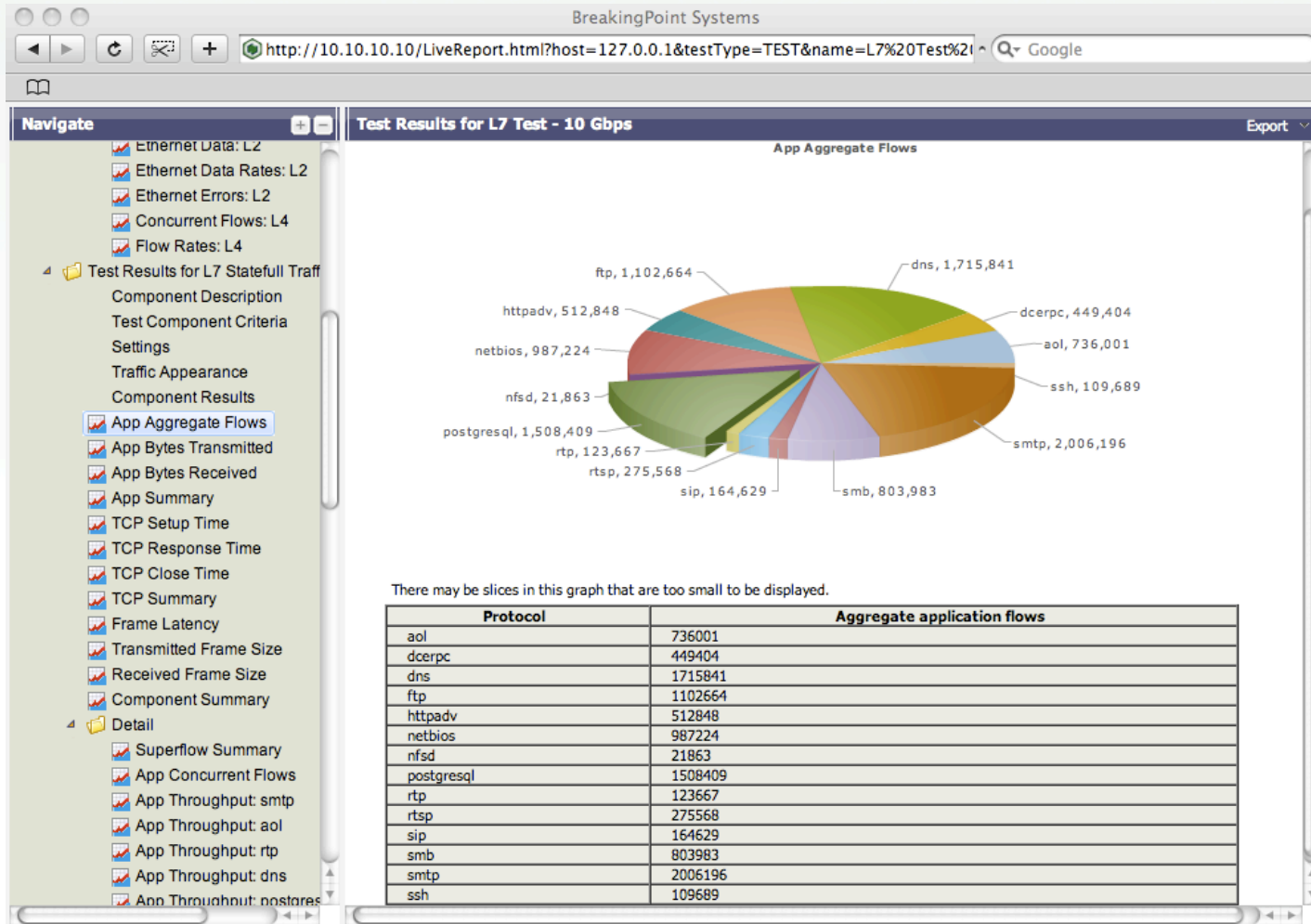
Layer 2-3 Test Report: Drop/Corruption



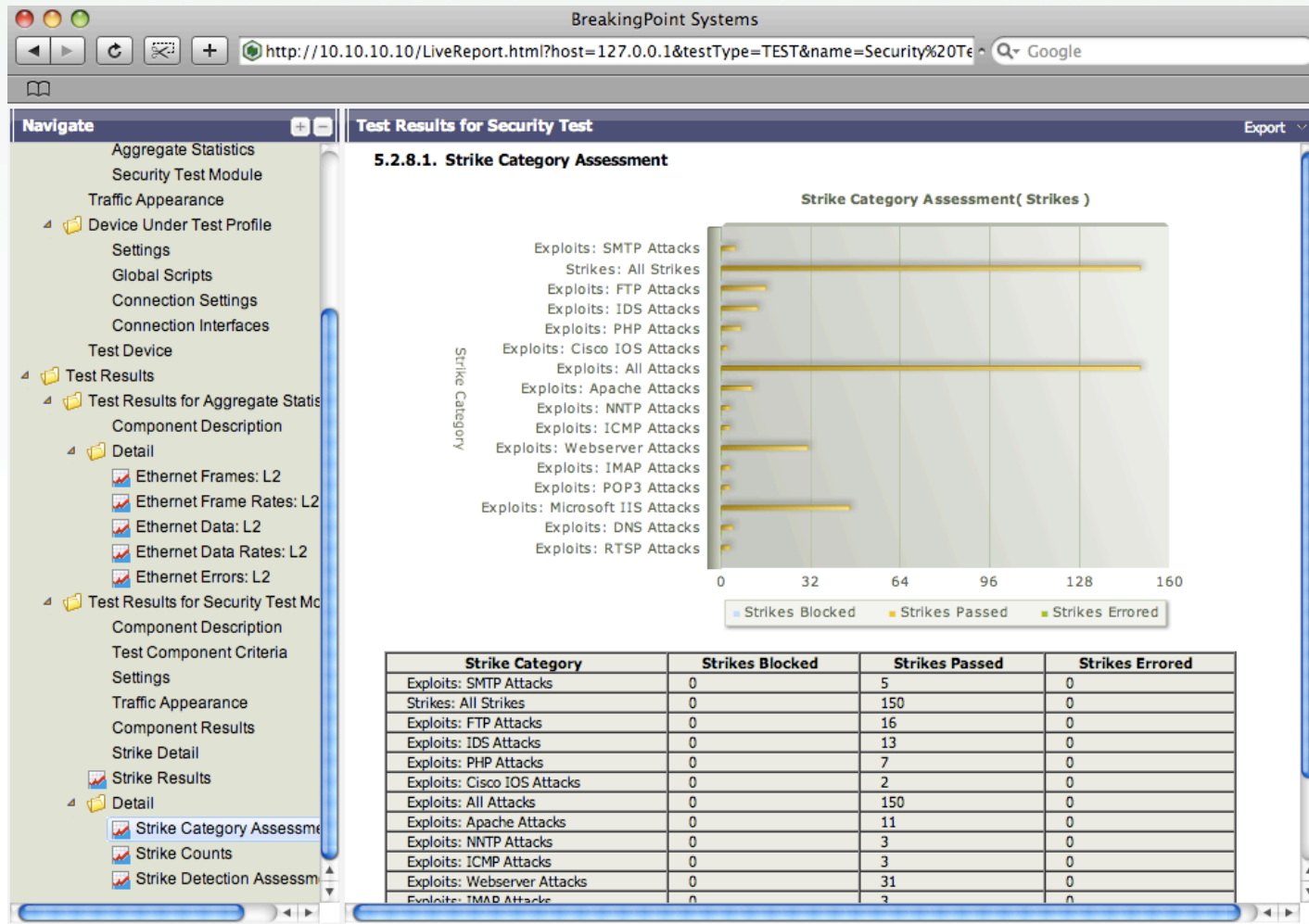
Layer 4 Test Report: TCP Response Time



Layer 7 Test Report: Mix Protocols



Security Test Report: High Level



Security Test Report: Details

BreakingPoint Systems

http://10.10.10.10/LiveReport.htm?host=127.0.0.1&testType=TEST&name=Security%20T... Google

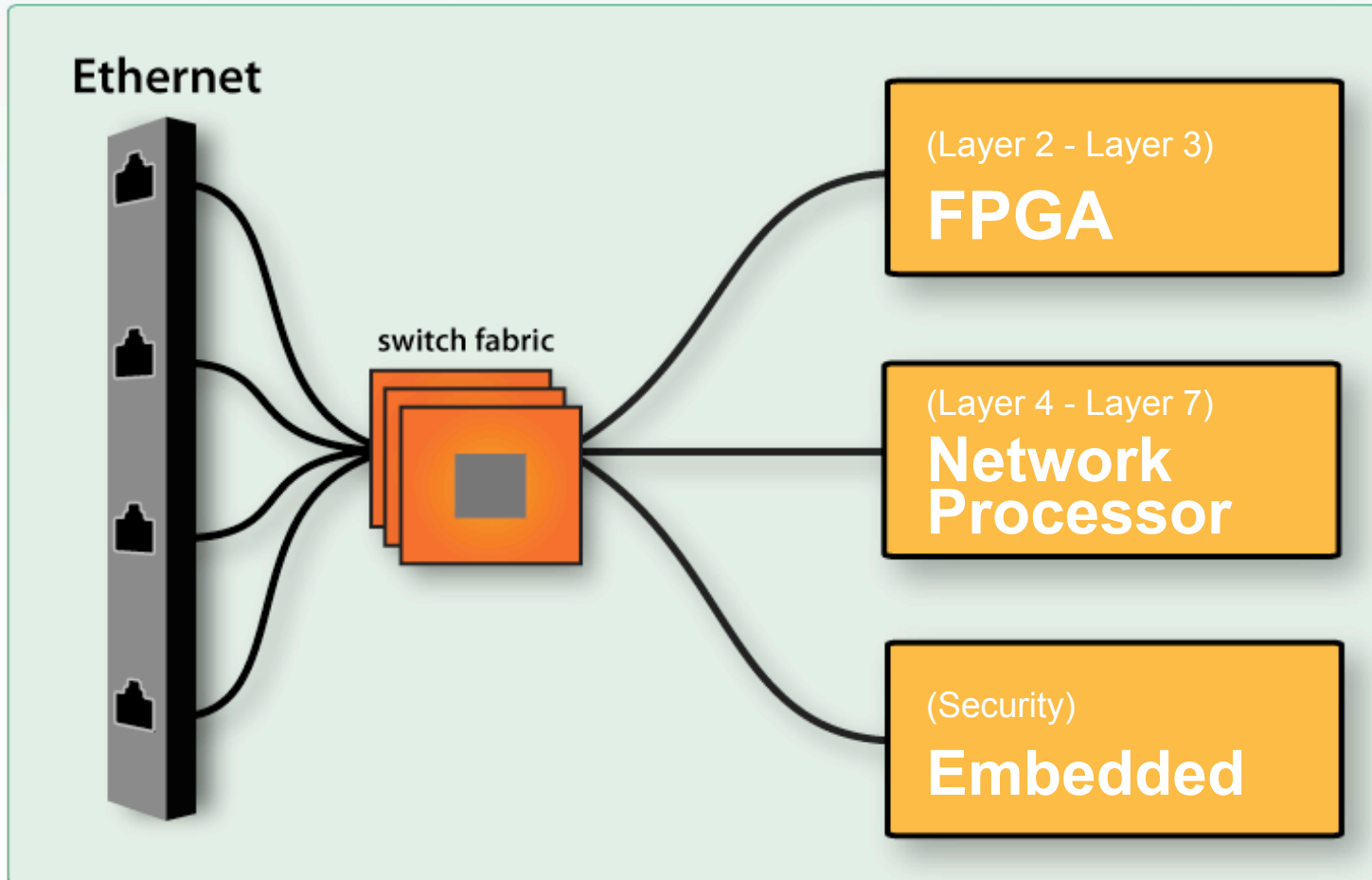
Navigate + - **Test Results for Security Test** Export

Aggregate Statistics
 Security Test Module
 Traffic Appearance
 Device Under Test Profile
 Settings
 Global Scripts
 Connection Settings
 Connection Interfaces
 Test Device
 Test Results
 Test Results for Aggregate Statistics
 Component Description
 Detail
 Ethernet Frames: L2
 Ethernet Frame Rates: L2
 Ethernet Data: L2
 Ethernet Data Rates: L2
 Ethernet Errors: L2
 Test Results for Security Test Module
 Component Description
 Test Component Criteria
 Settings
 Traffic Appearance
 Component Results
 Strike Detail
 Strike Results
 Detail
 Strike Category Assessment
 Strike Counts
 Strike Detection Assessment

Strike Result	Failure Stage	Strike Tuples	Strike Reference
Allowed		• TCP 1.1.134.105:9734->1.2.18.64:80	<ul style="list-style-type: none"> CVE-2003-0245 BID-7723 OSVDB-4340 CVSS-AV:R/AC:L/Au:NR/C:N/I:N/A:C/B:N
Allowed		• TCP 1.1.94.89:33443->1.2.223.46:80	<ul style="list-style-type: none"> CVE-2003-0245 BID-7723 OSVDB-4340 CVSS-AV:R/AC:L/Au:NR/C:N/I:N/A:C/B:N
Allowed		• TCP 1.1.176.11:14968->1.2.4.149:80	<ul style="list-style-type: none"> CVE-2006-0150 BID-16177 OSVDB-22301
Allowed		• TCP 1.1.166.239:23116->1.2.168.16:80	<ul style="list-style-type: none"> CVE-2002-0392 BID-5033 OSVDB-838 CVSS-AV:R/AC:L/Au:NR/C:P/I:PIA:C/B:N
Allowed		• TCP 1.1.46.125:45124->1.2.20.216:80	<ul style="list-style-type: none"> CVE-2002-0392 BID-5033 OSVDB-838 CVSS-AV:R/AC:L/Au:NR/C:P/I:PIA:C/B:N
Allowed		• TCP 1.1.36.239:22881->1.2.105.70:80	<ul style="list-style-type: none"> CVE-2002-0392 BID-5033 OSVDB-838 CVSS-AV:R/AC:L/Au:NR/C:P/I:PIA:C/B:N
Allowed		• TCP 1.1.219.7:2657->1.2.123.80:80	<ul style="list-style-type: none"> CVE-2002-0392 BID-5033 OSVDB-838 CVSS-AV:R/AC:L/Au:NR/C:P/I:PIA:C/B:N
Allowed		• TCP 1.1.192.21:13146->1.2.191.235:80	<ul style="list-style-type: none"> CVE-2007-0774 BID-22791
Allowed		• TCP 1.1.144.42:56838->1.2.72.125:80	<ul style="list-style-type: none"> CVE-2002-0840 BID-5847 OSVDB-862 CVSS-AV:R/AC:L/Au:NR/C:P/I:PIA:P/B:N
Allowed		• TCP 1.1.146.42:22473->1.2.177.92:80	<ul style="list-style-type: none"> CVE-2002-0061 BID-4335 OSVDB-769 CVSS-AV:R/AC:L/Au:NR/C:P/I:PIA:P/B:N
			<ul style="list-style-type: none"> CVE-2002-0661 BID-5434

Hardware Platform

Hardware Platform



BreakingPoint BPS 1K: Gigabit Test Solution



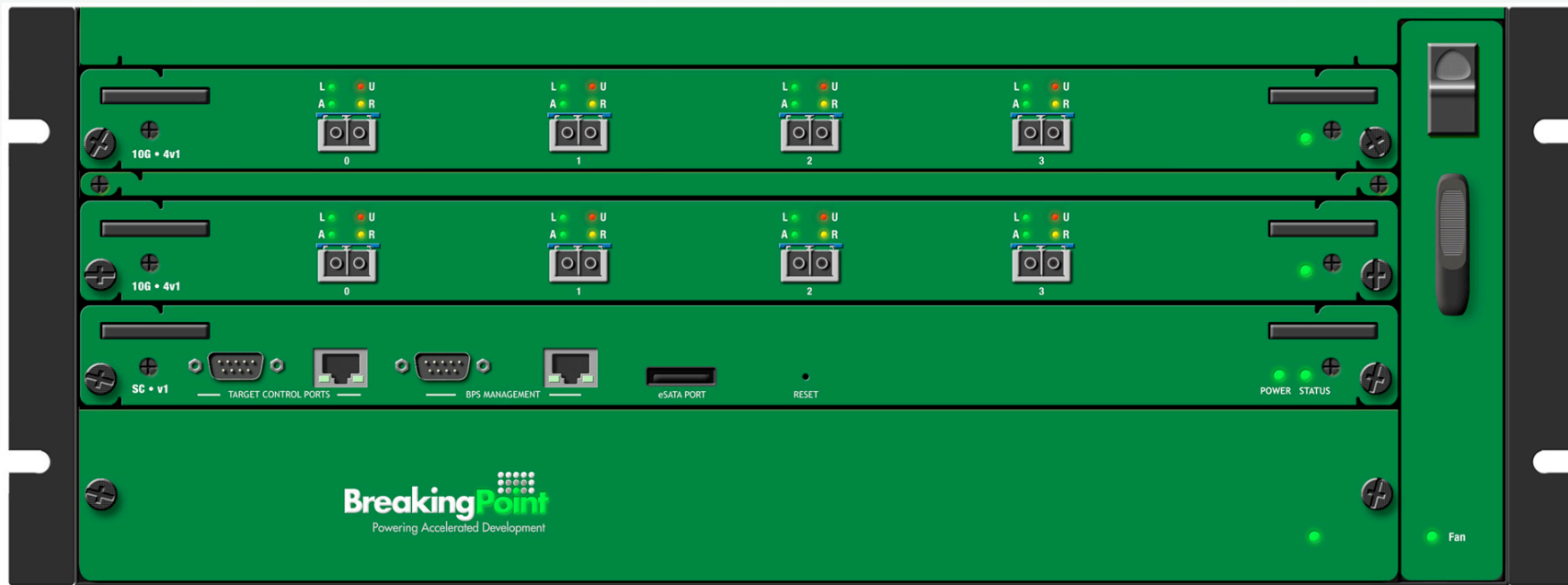
- Hardware Information
 - 4x Gigabit Ports Copper / 4x Gigabit Port SFP
 - 1x Controller with Management Port and DUT Monitoring Port

BreakingPoint BPS 10K: 10 Gigabit Test Solution



- Hardware Information
 - 4x 10 Gigabit Ports XFP SR or LR
 - 1x Controller with Management Port and DUT Monitoring Port

BreakingPoint Elite: 8x 10 Gigabit Ports



- Hardware Information
 - 2x Blades of 4x 10 Gigabit Ports XFP
 - 1x Controller with Management Port and DUT Monitoring Port

BreakingPoint Systems Hardware Test Possibility

	BreakingPoint BPS 1K	BreakingPoint BPS 10K	BreakingPoint Elite
Nb of Interface	4x 1 Gigabit	4x 10 Gigabit	8x 10 Gigabit
Type of Interface	4 Copper / 4 Fiber	4x XFP	8x XFP
L2 Test	Yes	Yes	Yes
L3 Test	Yes	Yes	Yes
L4 Test	Yes	Yes	Yes
L7 Test	Yes	Yes	Yes
Nb of L7 Protocols	70+ Protocols	70+ Protocols	70+ Protocols
Security Test	Yes	Yes	Yes
Nb of Attacks	3,700+	3,700+	3,700+
Fuzzing Test	Yes	Yes	Yes
Recreate PCAP	Yes	Yes	Yes

BreakingPoint Systems Hardware Performance

	BreakingPoint BPS 1K	BreakingPoint BPS 10K	BreakingPoint Elite
L2/L3 Packet/Sec	6 Millions	60 Millions	120 Millions
L2/L3 Bandwidth	4 Gbps (64 Bytes)	40 Gbps (64 Bytes)	80 Gbps (64 Bytes)
L4/L7 TCP/SEC	500,000	750,000	1,5 Millions
L4/L7 TCP OPEN	5 Millions	7.5 Millions	15 Millions
L4/L7 Bandwidth	4 Gbps	10 Gbps	20 Gbps

Software Update

Software Updates

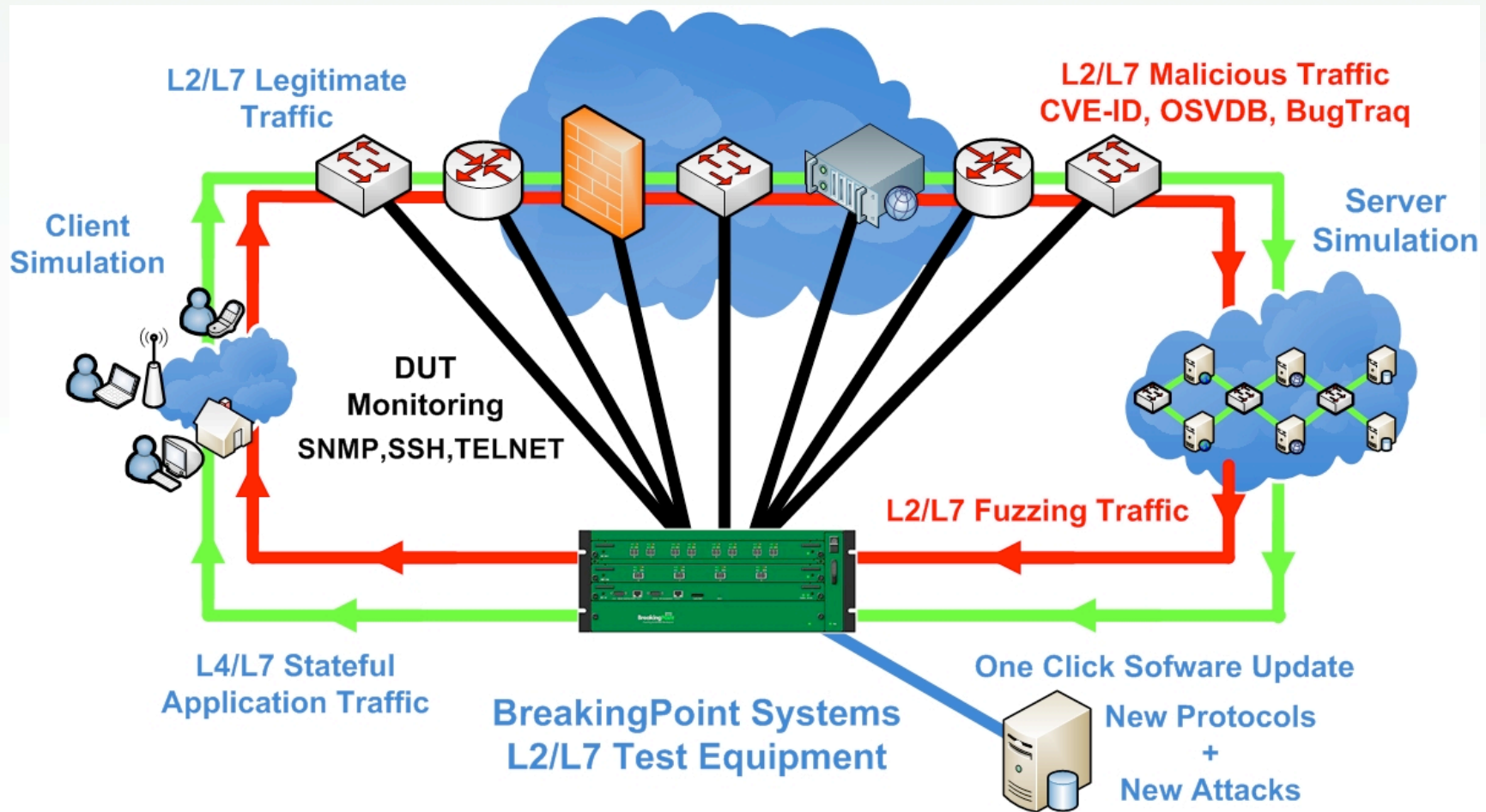
The screenshot displays the 'Administration' page of the BreakingPoint Systems web interface. The browser title is 'BreakingPoint Systems - 10.10.10.10'. The navigation menu includes 'Control Center', 'Test', 'Traffic', 'Managers', 'Help', 'Home > Administration', and 'System Available'. The main content area is titled 'Administration' and contains several panels:

- System Information:** A table with the following data:

Label	Value
BreakingPoint Systems Type	10K
BreakingPoint Systems Version	1.2
Product Build	27688
Strike Build	27688
IP Address	10.10.10.10
Previous Product Build	27285
Previous Strike Build	27272
Currently logged in as	gfresnais
- System Functions:** Buttons for 'Factory Revert', 'Soft Reboot', 'Free System', 'Previous Revert', and 'Restart'.
- System Date and Time:** Fields for 'Time' (12:22), 'Time Zone' (Factory), and 'Date' (6 Jun 2008), with an 'Apply' button.
- System Updates:** A section with two sub-sections:
 - System Updates:** A checked checkbox 'Automatically notify and download software updates', a 'check every 24 hours' field (max 168), and an 'Apply' button.
 - StrikePack Updates:** A checked checkbox 'Automatically notify and download StrikePacks', a 'check every 24 hours' field (max 168), and an 'Apply' button.
- StrikeCenter Account Information:** A warning icon and text: 'ID and Password must be entered to enable automatic updates.' Below are input fields for 'ID' (gfresnais) and 'Password' (masked with dots), with an 'Apply' button.

Summary of BreakingPoint Systems Testing Products

Summary of Test Possibilities



BreakingPoint Service & Support

- New Application Protocols Each Month
- Security Updates from the Industry's Top Security Researchers
- Product Releases, Enhancement Requests, and Exclusive Downloads
- Convenient Technical Support Options
- Technical Training, Test Plan Assessments, and Onsite Visits
- Education
 - Online Tutorials: Screencast tutorials demonstrate how BreakingPoint products can be used to accelerate time to test.
 - Test Methodologies: BreakingPoint test methodologies are provided in both video and text formats, and integrated into the product.
 - Custom Training: Onsite, hands-on training helps your staff understand how to apply advanced testing techniques in your specific environment without endless classroom training and certifications

For more information contact Gregory Fresnais: gfresnais@bpointsys.com

Thank You
www.breakingpoint.com