



Key Features & Benefits:

- Highest performing local load balancing for servers, caches, firewalls, VPN gateways, terminal servers, other specialized devices
- Available award-winning wide area load balancing and local area load balancing in a single appliance
- OneConnect™ Content Switching reduces bandwidth costs and server overhead by up to 20%*
- 99.999% uptime for both Internet and Intranet applications
- Application Aware Network – allows applications to directly control network traffic by preemptively avoiding application failures
- Wide area load balancer, content deployment appliance and cache appliance integration for comprehensive Internet traffic and content management
- SSL processing and integrated load balancing in a single appliance

Load Balancing:

- Static and Dynamic load balancing for diverse server platforms and applications
- Active/Active Controller feature for added performance, scalability, reliability, and flexibility
- Full stateful session failover from active to backup or active to active BIG-IP Controller
- Multiple modes of persistence
- Any IP Load Balancing for load balancing TCP and UDP-based traffic
- Firewall like secure device to resist common attacks
- Smart Content Determination to route requests for content to appropriate devices
- Advanced network monitoring and trending of Internet traffic with the SEE-IT™ Network Manager
- Bi-directional Secure Network Address Translation
- 2GB Memory limit – highest capacity in the industry
- Real-time performance monitoring and statistics
- Easy to install and manage
- Configuration wizards minimize configuration errors

* J. Mogul, The Case for Persistent-Connection HTTP, Proc. ACM SIGCOMM'95, August 1995.



BIG-IP® ENTERPRISE CONTROLLER

Innovative traffic management, application-aware content switching, local and global load balancing in a single appliance

The award-winning BIG-IP® Enterprise Controller brings standard layer 2-3 networking and innovative layer 4-7 traffic management together to significantly increase existing web server and network capacities. BIG-IP cost-effectively scales enterprise, managed services, and e-Business applications while delivering on the promise of 99.999% uptime. And the combined best-of-class local and wide area traffic management capability reduces rack space, power consumption, and simplifies management.

Intelligence for 99.999% Uptime

Leading-edge performance and innovation in load balancing is critical as Internet business use grows exponentially, and new types of data and applications pose increasingly complex traffic and content management challenges. BIG-IP delivers.

Beyond The Switch

BIG-IP is the only load balancer that can receive information directly from application servers (Windows 2000, Real Server, other SNMP systems) to be used in a load-balancing mode called Dynamic Ratio (patent pending). Additionally, unlike competing products designed to handle routine switching functions such as routing requests for services (HTTP, FTP, SSL and others) to specific servers, BIG-IP is capable of reading detailed information in a request header (such as the type of content requested and the IP address of the sender) and using that information to route the request to a server best able to fulfill it.

The Fastest Layer 7 Performance

Thanks to F5's proprietary FastFlow architecture, BIG-IP delivers Layer 7 performance that is three to four times faster than competing products from Cisco Systems (Arrowpoint) and Nortel Networks (Alteon).** Fast Layer 7 functionality provides network managers a cost-effective way to ensure that users will have a productive and trouble-free experience each time they transact business over the Internet or corporate Intranet.

**www.tolly.com – reference report #200204

Health Monitors

Applications and servers of any kind can and do fail. But your customers, partners, and users need never know the failure occurred. Health monitors are a collection of predefined scripts for testing the health and availability of the servers and applications that comprise your web system. Use the configuration

wizards in the web interface to customize scripts. Use the Health Monitors to check if a server is responding to WEB, FTP, LDAP, or other request – or to verify that an application (web, database, credit card verification, etc.) is operating properly before sending traffic to that server.

99.999% Reliability

To leading enterprises and their business-critical applications, web site uptime is absolutely critical. BIG-IP helps achieve near-perfect reliability and increase the return on investment for their network infrastructure.

Dynamic Server Activation

BIG-IP Enterprise lets you assign priority levels to servers in a group. If a certain number of higher priority servers ever fails in the group, a lower priority group will automatically be added to handle the load – ensuring that your site and applications are always on-line.

HTTP Redirect

BIG-IP Enterprise further enhances reliability by allowing the automatic redirection of traffic to a different server or site should a single server or all servers fail.

Fault Tolerance

BIG-IP Enterprise provides fault-tolerance by eliminating single points of failure. By distributing end user requests across a group of servers, caches, firewalls, and other devices, BIG-IP ensures that content and applications are always available. Dual controllers provide additional fault tolerance with automatic fail-over in less than a second.

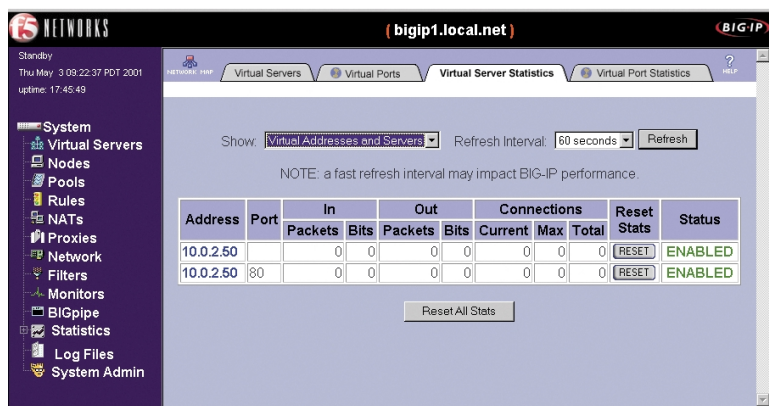
-Session State Mirroring

Redundant BIG-IP Enterprise Controllers provide seamless failover protection of connections from an active BIG-IP to a standby controller.

(Continued on next page)



BIG-IP Enterprise features an enhanced configuration UI.



Multiple Load Balancing Methods

BIG-IP Enterprise provides a comprehensive choice of load balancing algorithms, as well as multiple modes for different Virtual Server groups:

Static Modes

Round Robin
Ratio

Dynamic Modes

Least Connections
Fastest
Observed
Predictive
Dynamic Ratio (Patent Pending)

Control For Servers, Devices and Content

BIG-IP Enterprise lets you easily control and manage multiple servers, applications and network devices from a central location. With BIG-IP, you can effortlessly balance the following:

Applications

Citrix Terminal Server
Lotus/Domino Notes servers
Microsoft Application Center 2000
Microsoft Commerce Server
Microsoft Exchange
Microsoft Windows Terminal Server
Oracle 9i Application Servers
RealNetworks RealSystem Servers
Sun iPlanet Servers

Network Devices

Internet servers
Firewalls
Routers
Cache servers
Proxy servers
Multimedia servers
VPN, NFS and LDAP servers
...and others

IP Protocols

Web (http)
FTP
UDP
DNS

Streaming Audio/Video

E-Mail
LDAP
TCP
SSL
...and others

SSL Processing/Integrated Load Balancing

BIG-IP combines fast SSL (Secure Socket Layer) processing with intelligent traffic management and load balancing - giving e-Businesses SSL acceleration and secure connections with feature-rich intelligent traffic and content control. It's the single-source solution for dramatically improving the performance of your servers while providing security, speed and traffic management during business-critical online transactions.

- Active/Active Mode

Allows both controllers to simultaneously manage traffic for different virtual addresses. In the unlikely event of a failure on one of the controllers, the remaining active controller assumes the virtual servers of the failed machine.

- Network Based Failover

This can be used in addition to or in place of hardwired failover, and allows a pair of redundant controllers to be physically separated for enhanced manageability and reliability.

- Hardware Based Failover

Every BIG-IP Enterprise Controller includes a hardwired failover capability. This includes one watchdog timer card per BIG-IP and a fail-safe cable that ensures sub-second response.

Link Aggregation/Failover

BIG-IP Enterprise supports industry standard 802.3ad for link aggregation, ensuring that maximum throughput can be attained and that high reliability and availability are built into your system at every point.

Superior Return on Investment

Doing more with less is everything these days. BIG-IP reduces the need for increasingly larger and more expensive servers to accommodate increases in network traffic. It enables many inexpensive servers to function as a single, virtual server. And its intelligent features help customers reduce their total cost of ownership for their web infrastructure.

OneConnect™ Content Switching

OneConnect eliminates the need for clients to open up a separate TCP connection for each of the objects that make up a Web page - speeding page-load performance and reducing bandwidth requirements by up to 20 percent. With OneConnect, the server and network can do more work and handle more traffic, without adding more equipment.

Client Aggregation

Client Aggregation takes requests from separate users and consolidates them on BIG-IP. Consolidated traffic is then sent to

appropriate web servers - minimizing the number of connections to the server and enabling more efficient use of existing servers and network resources.

3-DNS Global Load Balancing

Add the industry's most respected global load balancer to BIG-IP Enterprise for combined server load balancing and global load balancing in a single box that simplifies management, reduces rack space requirements and lowers power consumption.

Application Aware Networks for Enterprise, Managed Services, and e-Business

Web applications respond to requests differently at any given time. Traditionally, load balancing has attempted to predict the ability of the server to handle the next user's request. With BIG-IP Application Performance Monitoring and iControl™, applications now have more input on how traffic is managed, since BIG-IP can take input from applications and take preemptive measures to avoid system failures.

"Akamaization" On-The-Fly

Customers using Akamai's Free Flow service can use BIG-IP Enterprise to "Akamaize" their content without having to rewrite all of their HTML code - saving countless hours of development time for dynamically updated sites, or sites with heavy amounts of content.

Superior Load Balancing and Traffic Management

BIG-IP ensures that your mission-critical Internet-based servers and other devices are continuously available and performing reliably - with load balancing capabilities that first set the standard for intelligent traffic management - and continue to do so.

ISP Load Balancing

Enterprise network environments provision multiple ISPs to build redundancy into all systems, including Internet connectivity. BIG-IP Enterprise can load balance and maintain network connectivity along multiple ISP paths, ensuring high availability and reliability in any deployment.

(Continued on next page)

Quality of Service and Type-of-Service Support

Differentiation in service levels can set your web system or service offering apart from your competition. BIG-IP further enhances web site differentiation by supporting the Quality-of-Service (QOS) and Type-of-Service (TOS) standard. With this, your site can recognize and provide differing levels of service. BIG-IP can direct traffic with different policies identified by the policy manager. These priorities can then be sent to the appropriate resources. In the reverse, BIG-IP can set the priority identifier on the traffic from specific web resources. The policy manager then can manage this traffic. In either case, your business resources can be appropriately matched to your business requirements.

nPath™ Performance

BIG-IP Enterprise includes an optional mode called nPath. This mode allows servers to bypass BIG-IP when returning traffic back to the client. A business involved in downloading streaming media, for example, can choose to engage this functionality for even faster return responses on bandwidth intensive, media-rich traffic.

The Industry's Richest Set of Persistence Features

The BIG-IP Enterprise offers a wide variety of persistence capabilities to keep users connected to the right server with the right information. Persistence modes include:

Source - a particular user's traffic destined for a specific Virtual Server will go to the same server as long as the persistence timer has not expired.

Server - a particular user's traffic will go to the same server regardless of the Virtual Server that is being used unless the persistence timer expires.

Shopping Cart Persistence - persists on any port, with the same Virtual Server and only switches servers if the Virtual Server changes.

SSL - BIG-IP Enterprise maintains session state for SSL connections based on session I.D., therefore not concentrating requests from the same IP on one server.

Cookie - Uses cookie information stored by a client to direct the client connection to the appropriate server.

Content Affinity - BIG-IP Enterprise automatically assigns and remembers where data is stored across cache arrays, eliminating frivolous duplication of content, optimizing cache memory and increasing the probability of a cache hit.

Virtual Server - a particular user's traffic destined for a specific Virtual Server will go to the same server regardless of the port that is being used unless the persistence timer expires, or the server becomes unavailable (in this case, BIG-IP Enterprise sends the connections to an available server for that Virtual Server).

Superior Management and Configuration

BIG-IP consists of F5's proprietary software on a pre-configured, industry-standard hardware platform – an appliance that doesn't require the time-intensive installation of software on your servers. It enables routine maintenance or upgrades of servers without disrupting service to the end user. And since it can be used with multiple heterogeneous hardware platforms, it allows businesses to protect investments in legacy hardware installations – as well as to integrate future hardware investments.

Secure Management

- Web-based configuration tool that uses SSL and Access Control Lists to provide secure real-time configuration.
- BIG-IP command line interface via F-Secure SSH client supports remote encrypted login and file transfer from most commercial UNIX platforms, Windows 95, NT and Mac operating systems.
- BIG-IP command line interface via a VGA or serial console with command history.

Simplified Management

BIG-IP Enterprise centralizes the management of server resources and devices such as firewalls, proxy and caches. End users are directed to a single virtual address, easing network administration and maintenance.

Easy Installation

BIG-IP Enterprise can be installed on almost any type of network. There are no internal or external interface limitations; there are just ports with features assigned. This gives the network manager more flexibility to install BIG-IP into the network, and more flexibility to easily access features on any port.

Enhanced GUI

BIG-IP Enterprise includes an intuitive and easy to use web-based GUI. Common configuration tasks are logically grouped, simplifying configuration and management while reducing the cost of implementation and ongoing maintenance of your infrastructure.

Bridging

BIG-IP Enterprise bridges packets between interfaces within the same VLAN, easing configuration and deployment of transparent devices like caches and firewalls while allowing BIG-IP to manage specialized traffic non-obtrusively and ignore the rest.

Configuration Wizards

BIG-IP Enterprise includes configuration wizards to guide administrators in configuring BIG-IP for most common tasks, making installation and implementation easier. Wizards include load balancing, e-commerce, Active/Active, virtual server and rules configuration.

VLANs and Tagged VLANs

VLANs (virtual LANs) allow networks to be administratively divided into numerous separate LANs. BIG-IP Enterprise supports the familiar VLAN architecture utilized by most modern switches, providing greater flexibility and ease in making network topology changes.

“Easy-To-Replace Cisco” Feature

With BIG-IP, traffic can cross single subnet networks without the need to reconfigure servers' IP addresses; BIG-IP will pass traffic as a standard bridge. This allows BIG-IP to be dropped into any network without costly changes – making the replacement of legacy load balancers, such as Cisco Local Director, a snap.

Cache Manageability

- Smart Content Determination

BIG-IP Enterprise intelligently determines whether content is cacheable or not, then intelligently directs only the correct content to the cache.

- Hot Content Load Balancing

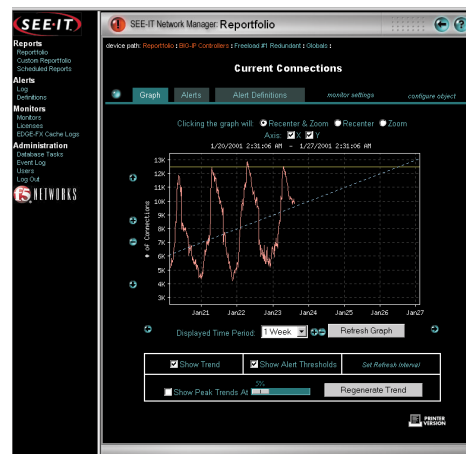
Extremely popular web objects deserve special treatment. BIG-IP Enterprise identifies this "hot content" and allows it to reside on a designated group of caches.

- Differentiated Services

BIG-IP Enterprise provides maximum flexibility and control by allowing you to create groups of caches dedicated for specific functions, enabling personalized services for unique customers.

SEE-IT Network Manager

BIG-IP Enterprise includes SEE-IT™ - the network manager that correlates thousands of pieces of information from your network and components into a centralized, single-glance location for complete traffic management and control.



Like a car dashboard, SEE-IT centralizes the current status of your network operations and all network components - speed, performance, and traffic patterns.

Advanced Security

The BIG-IP Enterprise has a number of inherent security features designed to protect against common attacks and provide added protection for your servers and network devices. BIG-IP ships, by default, in a very secure mode with these features:

Network Address Translation (NAT) - BIG-IP Enterprise uses NAT to do the following:

Can map well known ports to any ports on the servers (Port-mapping):

Well-known ports such as 80, 443, 20, 21 can be mapped to any port number on the actual servers. This provides greater security by making it difficult for intruders to identify what services are running on which port.

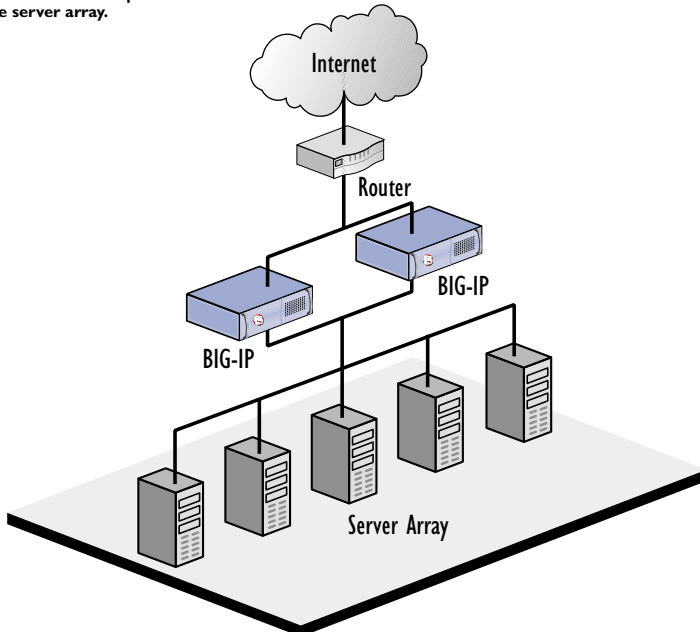
Ability to use non-publicly routed addresses for servers:

- Using BIG-IP, Internet routable IP addresses can be saved, thus reducing consumption of IP addresses
- Tight control of allowing and denying ports on Virtual IP

The BIG-IP Enterprise is a default deny device that resists common attacks. BIG-IP:

- Uses Packet filtering to limit or deny access to and from Internet sites based on monitoring the traffic source, destination or port
- Uses Secure Remote administration based on secure shell (SSH) for command line or SSL for browser-based management
- Can reap idle connections (thwarts Denial of Service attacks)

Redundant BIG-IP Enterprise Controllers are positioned between the router and the server array.



- Can perform source route tracing (thwarts IP spoofing)
- Resists unacknowledged SYN without ACK buffers (thwarts SYN floods)
- Thwarts teardrop and land attacks
- Protects itself and servers from ICMP attack
- Does not run SMTPd, FTPd, Telnetd, or any other attackable daemons
- Uses a security tool that identifies any services and ports that receive illegal access attempts
 - Frequency: amount of attempts
 - Port: what port(s) were hit
 - IP Address: the source IP address of attacker

Interface Security and Flexibility

You can control access to the BIG-IP on any interface. By default, BIG-IP denies access unless types of specific traffic are enabled. This allows BIG-IP to be a good addition to a site's overall security.

Client Certificate Check

SSL is quickly becoming the standard for securing applications. BIG-IP Enterprise enhances your control of SSL through SSL Certificate Checking – allowing you to maintain a list of authorized Certificate Authorities. If the client doesn't present a certificate that matches the list, the client will be denied access –strengthening the security of your system.

BIG-IP 4.0 Specifications:

Server/Node Operating System Compatibility:

Any TCP/IP OS, including Windows NT, Windows 95, all UNIX platforms and Mac/OS

Internet/Intranet Protocol Support:

All TCP services, UDP and SSL; nearly all IP-based protocols

Administrative Environment Support:

DNS proxy, SMTP, F-secure SSH, SNMP, dynamic/static network monitoring, scheduled batch job processing, system status reports and alarms event notification

Network Management & Monitoring:

Secure SSL browser-based interface, remote encrypted login and file transfer using F-secure SSH monitor; BIG-IP system network monitoring utilities and additional contributed software; SNMP gets and traps

Dynamic Content Support:

ASP (active server pages), VB (visual basic script), ActiveX, JAVA, VRML, CGI, Cool Talk, Net Meeting, Real Audio, Real Video, Netshow, Quick Time, PointCast, any HTTP encapsulated data

BIG-IP Device Redundancy:

Watchdog timer card, fail-safe cable (primary & secondary)

Web Server Application Compatibility:

Any HTTP server

Routing Protocols:

RIP, OSPF, BGP

BIG-IP Enterprise Physical Specifications:

F35 Platform

Dimensions:

7"H x 19"W x 17.8"D (per unit) 4U Industry standard rackmount chassis

Weight:

36.5 lbs. (per unit)

Processor:

Intel Pentium III 933

Network Interface:

10 BASE-T, 100 BASE-TX (selectable), Optional Gigabit Ethernet

Hard Drive Capacity:

30 GB

RAM:

1GB, optional upgrade to a total of 2GB

Operating Temperature:

32° to 122° F (0° to 50° C)

Relative Humidity:

10 to 96% @ 40° C, non-condensing

Power Supply:

320W ATX | 110/220 VAC 7.5/4.8A AUTO Switching

Thermal Characteristics:

983.355 B.t.u./hr (per unit) Maximum

(SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTIFICATION)

The Leader in Internet Traffic and Content Management

F5 Networks, Inc.
401 Elliott Avenue West
Seattle, WA 98119

(206) 272-5555 Voice
(888) 888BIGIP Toll-free
(206) 272-5556 Fax
www.f5.com
info@f5.com

**F5 Networks,
Japan K.K.**
4F Pola Ebisu Building
3-9-19 Higashi, Shibuya-ku
Tokyo, Japan 150-0011

+81-3-5766-5511 Voice
+81-3-5766-5512 Fax
info@f5networks.co.jp

**F5 Networks Ltd
EMEA Headquarters**
Clarke House
65 High Street
Egham
Surrey TW20 9EY
United Kingdom

+44 (0)1784 497210 Voice
+44 (0)1784 497211 Fax

**F5 Networks,
APAC Headquarters**
6 Battery Road
#26-04/05
Singapore, 049909

+65-533-6103 Voice
+65-533-6106 Fax
info.asia@f5.com



NETWORKS