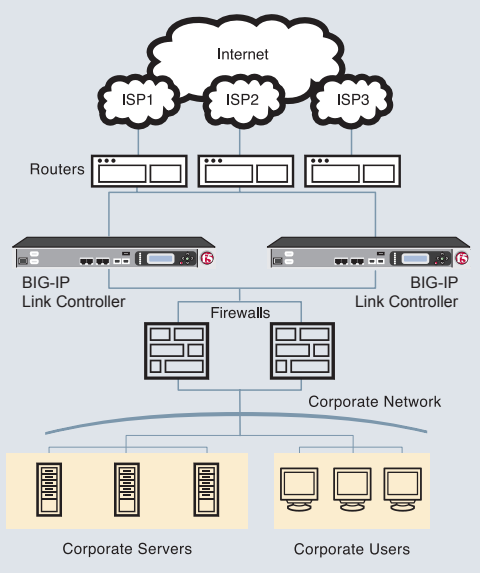


Key Benefits:

- Establishes reliable WAN connections for business-grade Internet connectivity
- Utilizes WAN link bandwidth more efficiently with Rate Shaping
- Reduces WAN link bandwidth consumption with Compression
- Dramatically improves WAN link performance with TCP/IP optimizations using TCP Express
- Ensures traffic is directed over the best possible link and ISP for the highest quality of service and speed
- Maximizes ROI for connectivity by aggregating inexpensive links
- Eliminates deployment barriers and dramatically reduces the costs of multi-homing via Border Gateway Protocol (BGP)

BIG-IP Link Controller

Next Generation WAN Link Traffic Management for Maximum Link Performance and Availability

As organizations increase their use of the Internet to deliver applications, maintaining only one link to the public network exposes a single point of failure and serious network vulnerability. The BIG-IP Link Controller seamlessly monitors availability and performance of multiple WAN ISP connections to intelligently manage bi-directional traffic flows to a site, providing fault tolerant and optimized Internet access.

Leveraging the power of F5's TMOS architecture, the BIG-IP Link Controller delivers improved link performance and high availability capabilities with the added benefits of flexible and powerful health checking, comprehensive security, and improved usability.

Reliable Network Connectivity

High Availability

The BIG-IP Link Controller detects errors across an entire link to provide end-to-end, reliable WAN connectivity. It monitors the health and availability of each connection, detecting outages to a link or ISP. In the event of a failure, traffic is dynamically directed across other available links so users and external customers stay connected.

Comprehensive Link Monitoring

The BIG-IP Link Controller gives you a comprehensive view into the health and throughput of links going through the gateway router, providing insight into the bandwidth and capacity of any given link. It also detects failures caused by ISP mis-configuration or other manual errors that might otherwise be missed.

Aggregate Multiple Monitors

Combine multiple monitors to quickly and accurately determine the health and availability of a link. If a problem is detected, the BIG-IP Link Controller can re-route traffic to other available links, maintaining client connectivity without incurring the costs of downtime.

Maximum Bandwidth and ROI

Compression Module for WAN Link Cost Savings

The BIG-IP Link Controller's optional compression module enables you to intelligently compress traffic, reduce WAN link bandwidth to lower ISP costs, and improve bandwidth bottlenecks for faster application delivery. Granular control of link bandwidth utilization for different connection types results in an improved client experience, with more efficient WAN link administration and improved productivity. You can configure the flexible and tunable compression engine based on Document type, Traffic type, and other network conditions, such as Round Trip Time.

Bandwidth Scalability

Regardless of the link type or provider, the BIG-IP Link Controller can aggregate smaller, less expensive lines to lower bandwidth redundancy costs while minimizing the amount of money spent on dark fiber or unused standby lines.

Transparent Traffic Distribution

The BIG-IP Link Controller provides the industry's most advanced link traffic distribution capabilities to meet the needs of even the busiest of sites, including:

- Round Robin
- Global Availability
- Static Persistence
- Topology
- Virtual Server Capacity
- Least Connections
- Packets Rate
- Round Trip Time
- Hops
- Packet Completion Rate
- User-defined QoS
- Dynamic Ratio
- Random
- Ratio
- Kilobytes Per Second

Link Capacity and Throughput

The BIG-IP Link Controller lets you define and control how traffic is distributed across links, based on real-time traffic flows and throughput. This increases performance and available bandwidth with line redundancy, and removes the risk of saturating any one link. When a link nears its capacity, traffic is shifted to less congested links, boosting overall site performance.

Link Cost Load Balancing

The BIG-IP Link Controller lets you choose the lowest cost connection for all traffic to a data center:

- Directs traffic over the least expensive link, minimizing bandwidth investments
- Maximizes bandwidth across different connections, including variable cost lines to eliminate bandwidth bottlenecks while minimizing inefficient bandwidth utilization and associated costs
- Supports ISP billing models including set, fractional, and burstable
- Supports half or full duplex billing

Advanced WAN Link Management

Best Performing Link

Using Round Trip Time and line quality calculations, the BIG-IP Link Controller tests which connection will provide the best service for each user and then directs the user to that link, ensuring that they receive the fastest possible service and highest quality connections.

Targeted Traffic Control for Compression

Compressing traffic without control over specific types of users (broadband users, dial-up users, etc.) can adversely affect application performance as well as the client experience. Using Round Trip Time and line quality calculations, the BIG-IP Link Controller dynamically calculates user latency and bandwidth throughput, devoting more compression power to those users who will benefit most.

Optimized TCP Performance

TCP protocol inefficiencies can cause unnecessary chattiness that adversely affects bandwidth utilization of the link. The BIG-IP Link Controller leverages TCP Express to overcome TCP protocol inefficiencies, delivering:

- Efficient bandwidth utilization of the WAN link
- Ability to completely fill the pipe over long distances for lower bandwidth bills
- Prioritize bandwidth availability for mission-critical applications
- Improve end-to-end performance for dial-up and broadband clients over the WAN
- More agility when deploying new applications
- Reduce TCO without deploying multiple boxes

Integrated Rate Shaping

The BIG-IP Link Controller gives you a powerful way to classify and prioritize application traffic on WAN links, using bandwidth more efficiently. You can define traffic and application limits, control the rate at which those resources are allowed to spike or burst, use queuing to prioritize traffic types, and define relationships where certain traffic types can borrow from other types. The result is a boost in WAN link bandwidth savings and improved application response times.

Programmable Link Routing - iRules

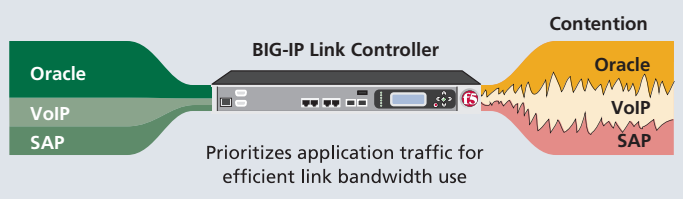
The BIG-IP Link Controller enables you to intelligently route traffic over multiple WAN links, based on TCP/IP parameters such as Source IP address, Destination IP address, and port. With iRules, you can define policies to distribute traffic over the best performing links based on Application type, Quality of Service, and client types, improving application performance and the client experience.

Traffic Prioritization: QoS and ToS

The BIG-IP Link Controller supports various traffic prioritization features. With QoS and ToS, you can identify critical traffic or applications for special handling by upstream routers. This ensures that high-priority traffic is routed first.

Topology Based Routing

Using its topology database, the BIG-IP Link Controller can accurately determine the location of users and route traffic over the desired link based on pre-defined policies. This lets you choose the best performing link to deliver a superior user experience based on location, while avoiding inter-ISP routing issues that can result in high latency and poor performance.



Configuration & Management

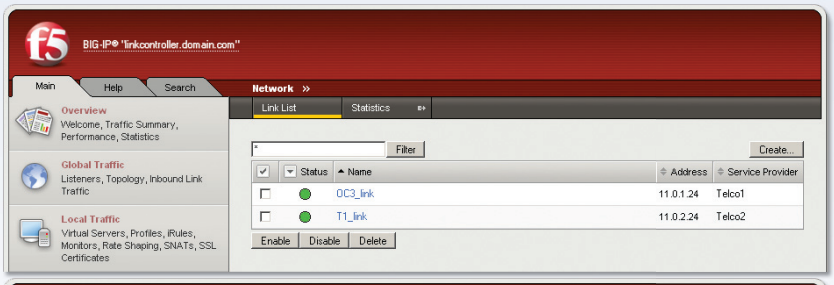
Eliminates Barriers of Multi-homing with BGP

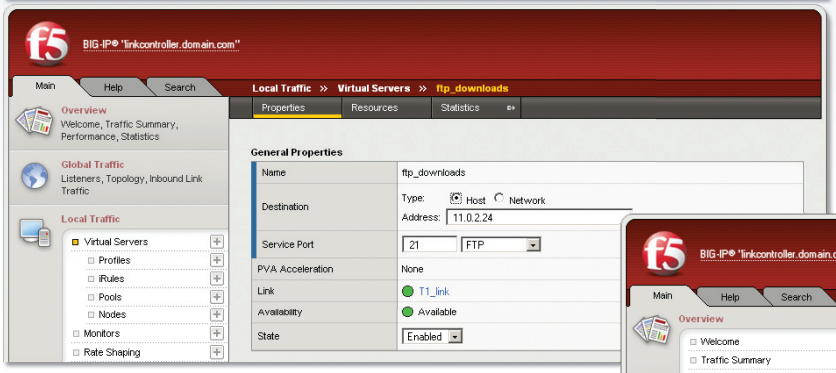
The BIG-IP Link Controller eliminates the deployment barriers and reduces the cost of multi-homing via Border Gateway Protocol (BGP). With the BIG-IP Link Controller, you can direct traffic over the best route without purchasing larger routers, coordinating with ISPs, or obtaining specialized staff and IP addressing to run BGP. The BIG-IP Link Controller improves traffic direction for multi-homed environments by providing:

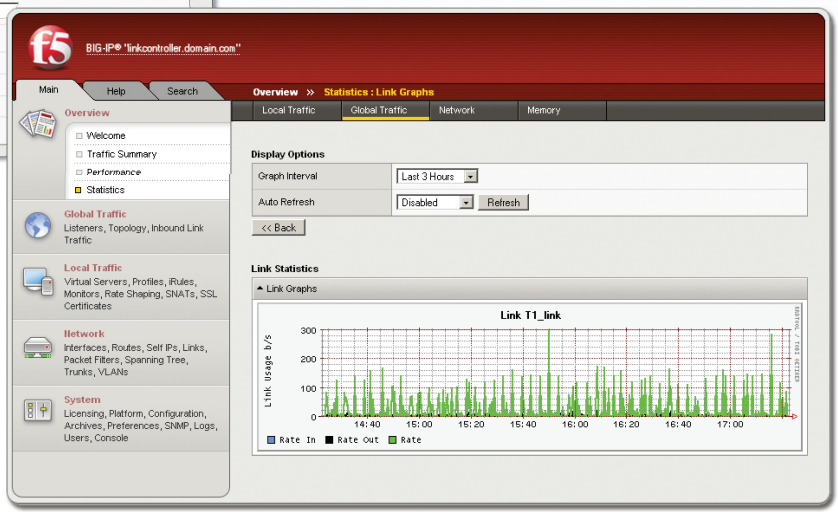
- Bi-directional traffic control for both external and internal users
- Automated, instant ISP, and link failover – no waiting for routing changes to propagate
- Traffic routing down the best path to optimize bandwidth usage
- Traffic distribution based on line capacity, resulting in greater bandwidth scalability

IPv6 Gateway

For organizations migrating to IPv6, the BIG-IP Link Controller provides a cost-effective alternative to forklift upgrades. Using the BIG-IP Link Controller and the optional IPv6 module, you can host IPv4 services while providing access to IPv6 customers, and translate between them without burdening the network.







Simple, Secure Administration

The BIG-IP Link Controller provides an intuitive user interface to manage WAN links from a single point with comprehensive visibility into link resources. Sorting and searching capabilities give you fast access to link objects for precise control. Unique naming of link objects reduces administration time and helps you build your infrastructure around business policies.

Statistics and Reporting

Real-time and historical reports evaluate site traffic patterns, relative ISP performance, and estimated bandwidth billing cycles, giving you an easy way to monitor your bandwidth resources for informed business decisions.

Hardened Security

Intelligent SNAT

Using the BIG-IP Link Controller's iSNAT functionality, you can conserve port resources and translate internal addresses. With iSNAT, you have the flexibility to choose from a range of translation addresses based on TCP/IP parameters such as client address and destination server port numbers, ensuring that server addresses are never exposed to the outside world. The BIG-IP Link Controller conserves port resources and protects site resources by masking internal addresses while improving operational efficiencies through better visibility into traffic types.

Network Security

The BIG-IP Link Controller is a default deny device that resists common attacks by adding another layer of security. BIG-IP Link Controller:

- Uses Secure Remote administration based on Secure Shell (SSH) for command line or SSL for browser-based management
- Reaps idle connections to thwart Denial of Service attacks
- Performs source route tracing to thwart IP spoofing
- Resists unacknowledged SYN without ACK buffers to thwart SYN floods
- Thwarts fragmentation attacks such as WinNuke, Sub7, and Back Orifice
- Protects itself and servers from ICMP attack
- Does not run SMTPd, FTPd, Telnetd, or any other attackable daemons
- Identifies any services and ports that receive illegal access attempts, including:
  - Frequency: amount of attempts
  - Port: what port(s) were hit
  - IP address: the source IP address of attacker

Integrated Traffic Management Extensibility

You can expand the BIG-IP Link Controller to meet a broad array of traffic management needs within the DMZ. By delivering integrated functionality and an upgradeable platform, the BIG-IP Link Controller is the only product on the market to provide an extensible solution, including:

- Integrated firewall load balancing for high availability to redundant firewall deployments
- Integrated L4 and basic server load balancing to distribute traffic over an array of servers
- Integrated security for added site protection against common attacks
- Upgradeable to include enhanced suite of L4-L7 local traffic management of servers (full F5 BIG-IP Application Traffic Management product capability) and advanced security filtering capabilities

A Powerful Foundation

TMOS

At the heart of the BIG-IP Link Controller is TMOS, an intelligent, modular, and scalable foundation for quickly adapting to future business challenges and streamlining management duties. TMOS enhances every function riding on top of the BIG-IP Link Controller, delivering insight, flexibility, and control while empowering the BIG-IP Link Controller to intelligently adapt to diverse and evolving WAN link challenges.

Ordering Information

The BIG-IP Link Controller is available on the 1500 platform, or as an add-on module for integration with the following BIG-IP Application Traffic Management platforms: BIG-IP 520, 540*, 1000*, 2400*, 5100, 5110, 1500, 3400, 6400, and 6800.*

**These platforms need hardware upgrades to run BIG-IP Link Controller. Please contact your F5 representative for further details.*

Optional Modules on the Link Controller:
• Compression (5, 100 Mbps) • IPv6 • Routing (BGP, OSPF, RIP)

Minimum System Requirements

Processor: *PIII 1Ghz or higher* ***System Memory:*** *768 MB RAM* ***Compact Flash (if present):*** *512 MB*

Physical Specifications

Processor: *Single CPU*

Base Memory: *768 MB*

ASIC: *None*

Gigabit Ethernet CU Ports: *4*

Gigabit Fiber Ports (SFP-GBIC Mini): *2 optional*

Traffic Throughput: *500 Mbps*

Dimensions:
17.5"w x 21.5"(OAL)/20.0" behind mounting ears x 1.75" (1U)

Weight: *19 lbs.*

Operating Temperature:
41° to 104° F (5° to 40° C) per Telcordia GR-63-CORE 5.1.1 and 5.1.2

Relative Humidity:
10 to 90% @ 40° C, per Telcordia GR-63-CORE 5.1.1 and 5.1.2

Safety Agency Approval:
UL 60950 (UL1950-3)
CSA-C22.2 No. 60950-00 (Bi-national standard with UL 60950) CB TEST CERTIFICATION TO IEC 950 EN 60950

Electromagnetic Emissions Certifications/Susceptibility Standard:
EN55022: 1998: +A1: 2000+A2: 2003
EN6100-3-2: 2000 and
EN6100-3-3:195+A1: 2000
FCC part 15B Class A
EN55024: 1998+A1: 2001+A2: 2003
EN55024 1998 Class A
FCC Part 15B Class A

Maximum Power Consumption: *300 W*

Maximum Heat Output: *1025 BTUs*

Input Voltage:
90-240VAC +/- 10%
90-132 6A
80-264 3A

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