BIG-IP® Local Traffic Manager

Inefficiencies, delays, and failures in application delivery can cost millions of dollars in terms of wasted budgets, damage to company reputation, system and application downtime, legal liability, and lost opportunities.

The BIG-IP® Local Traffic Manager is an application delivery networking system that provides the most intelligent and adaptable solution to secure, optimize, and deliver applications, enabling organizations to effectively and competitively run their business.

It's the only system that features a set of unified application infrastructure services that deliver total control, vision, and flexibility into application security, performance and delivery. The result? Greater business agility and successful outcomes for the lifeblood of the organization today – the application itself.

Key Benefits

Reliability
Delivers the industry's most advanced system to ensure that applications are always available.

Accelerated Applications
Provides unmatched control to accelerate application performance by up to 3x, ensuring that priority applications are served first, and offloading expensive server cycles.

Reduced Server and Bandwidth Cost
Triples server capacity through a rich set of infrastructure optimization capabilities, and reduces bandwidth costs by up to 80% through intelligent HTTP compression, bandwidth management, and more.

Greater Network and Application Security
From DoS protection to cloaking to filtering out application attacks, BIG-IP adds critical security features than simply cannot be addressed elsewhere in the network.

Unmatched Application Intelligence and Control
The industry's only solution that delivers complete application fluency, enabling network-speed full payload inspection, and programmable, event-based traffic management to understand and act upon application flows.

Total Integration for All IP Applications
Provides a comprehensive solution that can integrate with all applications, not just Web-based protocols (HTTP/S). Provides organizations with a centralized solution for all IP applications, including legacy and emerging applications like VOIP – all in a single, unified system.

Industry Leading Performance
Delivers the industry's fastest traffic management solution to secure, deliver and optimize application performance. As a proven leader, BIG-IP sets the performance bar with best-in-market SSL TPS, bulk encryption, and the highest concurrent SSL connections available today.

Easy To Manage, Better Visibility
A new GUI greatly simplifies product configuration, offering granular visibility into traffic and box resources, as well as support for making rapid changes across large configurations.

The Powerful TMOS Architecture: Complete Application Intelligence and Network Adaptability

At the heart of the new BIG-IP is a revolutionary new architecture called TMOS that provides organizations with a unified system for optimal application delivery. TMOS enhances every function riding on top of BIG-IP, delivering total vision, flexibility, and control across all services while empowering the BIG-IP to intelligently adapt to the diverse and evolving requirements of applications and networks.

TCP Client Side — **TMOS Fast Application Proxy** — **TCP Server Side**
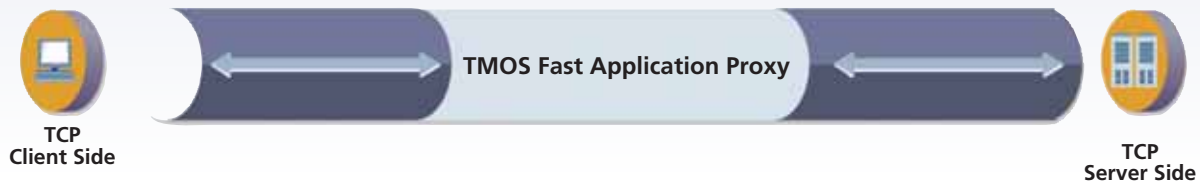
TMOS Fast Application Proxy
TMOS enables BIG-IP to efficiently isolate clients from the server-side flows and independently maintain optimal performance for each connecting device, translating communications between systems for improved application performance. Any system or IP application connected to the BIG-IP will now work more efficiently.

TCP Express
TCP Express, an industry first, is integrated into F5's TMOS. A state-of-the-art TCP stack, it offers a clientless approach for WAN optimization, delivering up to 80% performance gain for users and up to a four-fold improvement in bandwidth efficiency. Enterprises achieve higher performance, mitigate WAN-induced errors, and increase their bandwidth efficiency for their existing infrastructure.

iRules and Universal Inspection Engine
TMOS incorporates new versions of F5's customizable iRules and Universal Inspection Engine to provide unprecedented control over how to handle application traffic at any moment within the application transaction or flow. With complete payload inspection and transformation capabilities, event-driven iRules, and session-aware switching, the BIG-IP provides the most intelligent control point to address diverse application delivery issues at network speeds.

Ensuring Applications Are Always Secure, Fast, and Available

Invoked through an easy-to-manage GUI and traffic profiles or through iRules, BIG-IP's cohesive set of functionality enables organizations to more efficiently combine, target, and extend services required to improve the efficiency of each application deployment.

Available...	Fast...	Secure...
Comprehensive Load Balancing	SSL Acceleration (M)	Advanced Client Authentication (M)
Advanced Application Switching	Intelligent HTTP Compression (M)	Resource Cloaking
Session/Flow Switching	TCP Optimization	Cookie Encryption
Customized Health Monitoring	L7 Rate Shaping (M)	Selective Content Encryption
Intelligent Network Address Translation	Content Spooling/Buffering	Application Attack Filtering
Universal Persistence	Content Transformation	DoS Attack and SYN Flood Protection
Response Error Handling	Connection Acceleration	Firewall – Packet Filtering
IPv6 Gateway (M)	Intelligent Quality of Service	Packet Sanitization
Advanced Routing (M)	WAN Optimization	Application Security (M)
Intelligent Port Mirroring	Fast Cache (M)	

(M) = Available as an add-on module

Available

BIG-IP removes single points of failure and virtualizes the network and applications by providing industry-leading L7 intelligence. This ensures that all sites are always on, more scalable, and easier to manage than ever before.

Application Health Knowledge
BIG-IP provides sophisticated monitors to check device, application, and content availability, including specialized monitors for many applications (including various application servers, SQL, SIP, LDAP, XML/SOAP, and many more) as well as customized monitors to check content and simulate application calls. In addition, BIG-IP can effectively manage applications on a shared server and allow applications to proactively report on their health.

High Availability and Transaction Assurance
BIG-IP delivers sub-second system failover and comprehensive connection mirroring, resulting in a highly available solution regardless of system, server, or application failure. BIG-IP can proactively inspect and respond to any server or application error. Organizations achieve superior reliability while reducing their system load.

Comprehensive Load Balancing
BIG-IP includes rich static and dynamic load balancing methods, including Dynamic Ratio, Least Connections, and Observed Load Balancing, which tracks dynamic performance levels of servers in a group, ensuring that the best resources are always selected for improved performance and scale.

Intelligent Application Switching
Because BIG-IP has the unique ability to read all IP applications, it can switch and persist on information unique to a specific vendor's application server (BEA, Microsoft, IBM, Oracle, SUN, etc.), XML data for Web services applications or custom values indicative to mobile/wireless applications. Organizations achieve greater reliability and scalability for all of their applications thanks to deep packet inspection using iRules and BIG-IP's ability to switch, log, and persist in the payload or stream.

Comprehensive IPv6 Gateway
Organizations need a seamless strategy for staging network migration to support the growing IPv6 requirements. BIG-IP, through the IPv6 module, provides complete IP transformation and load balancing capabilities between v4 and v6 networks. This makes user migration and the pooling of mixed IPv4 and IPv6 host resources manageable, cost-effective, and possible.

Fast

BIG-IP's unequalled intelligence provides a powerful solution for organizations looking to improve their application performance, increase the capacity of their existing infrastructure, lower infrastructure costs, and accelerate their applications.

WAN Optimization and Application Acceleration
BIG-IP provides a highly targeted, centralized, and efficient means for reducing traffic volumes and minimizing the effect of Internet latency and client connection bottlenecks on their application performance. Through capabilities such as intelligent compression, BIG-IP provides rich support for compressing a variety of file types such as HTTP, XML, Javascript, J2EE applications, and many others, accelerating application performance as much as 3x while reducing bandwidth utilization by up to 80%.

Ensure Critical Application Performance
BIG-IP's flexible L7 Rate Shaping capabilities enable organizations to manage bandwidth to ensure that priority applications are delivered without delay. BIG-IP also provides customized control to set application-based bandwidth limits, allowable bandwidth spikes, and can even establish queuing relationships between applications.

Increased Server Capacity and Improved Site Responsiveness
BIG-IP provides extensive connection management as well as TCP and content offloading capabilities that optimize server performance and dramatically speed page load times. For example, BIG-IP's OneConnect™ can increase server capacity by up to 60% by aggregating millions of requests into hundreds of server-side connections, ensuring requests are handled efficiently by the back-end system.

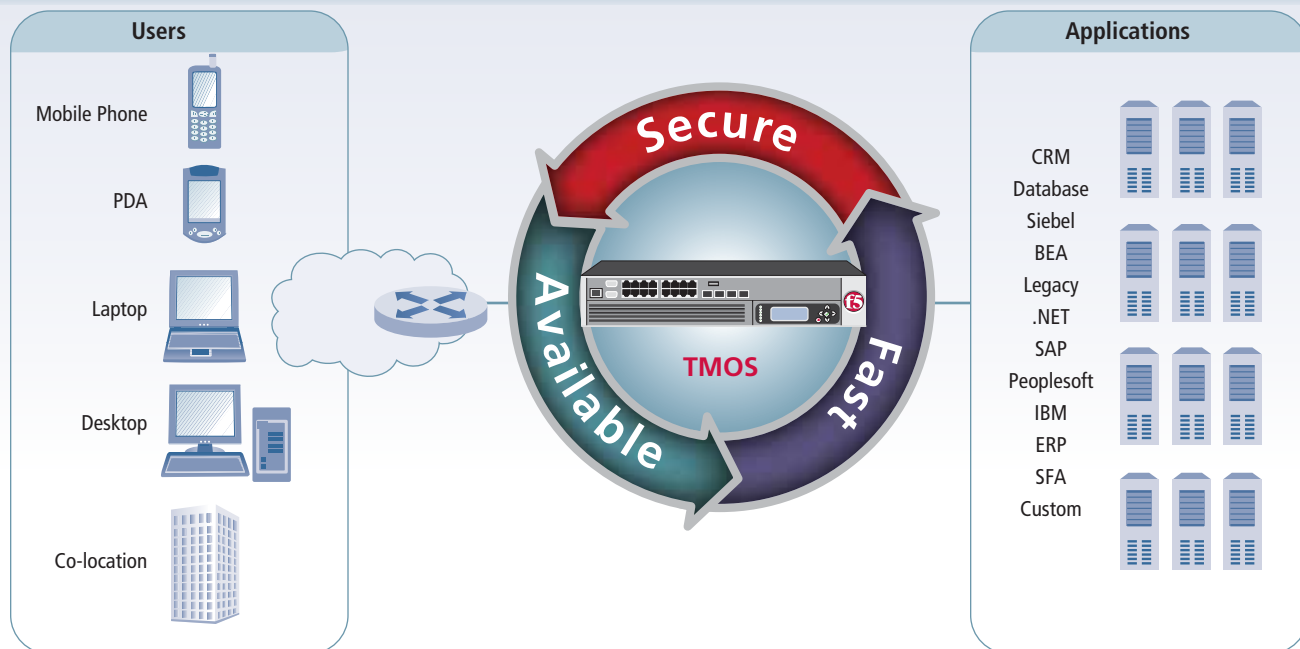### Fast Cache – Up to a 9x Boost in Server Capacity
BIG-IP's intelligent caching functionality provides tremendous scalability and cost savings by offloading repetitive traffic from web and application servers. It's also the only solution that offers multi-store caching to manage distinct cache repositories per application or department, delivering precise and intelligent control for priority applications.

Encryption Everywhere
As the leading solution for SSL acceleration, BIG-IP provides dramatic scalability for SSL processing with up to 2 Gbps of sustained SSL throughput. By accelerating the encryption of both bulk and setup, organizations can migrate 100% of their communications to SSL using more secure ciphers with virtually no application performance penalty or bottlenecks.

Content Transformation
BIG-IP provides a comprehensive solution to offload many burdensome or repetitive functions onto a centralized and high powered network device. Beyond SSL, Compression, and many other functions, BIG-IP provides a complete content transformation gateway to redirect, insert, or holistically transform application content for effective and efficient application integration.

Users
- Mobile Phone
- PDA
- Laptop
- Desktop
- Co-location

Secure
Available
Fast
TMOS

Applications
- CRM
- Database
- Siebel
- BEA
- Legacy
- .NET
- SAP
- Peoplesoft
- IBM
- ERP
- SFA
- Custom

Secure

It's not just about stopping attacks – it's also about simultaneously serving legitimate users. BIG-IP delivers the best of both worlds, providing a suite of security services that play a significant role in bolstering network and application security. From adding powerful network and protocol level security to filtering application attacks, BIG-IP is deployed at a critical gateway to your most precious resources – the applications that run your business.

Bolsters Application Security
- **Resource Cloaking** – BIG-IP virtualizes and hides all application, server error codes, and real URL references that may provide hackers with clues about infrastructure, services and their associated vulnerabilities.
- **Customized Application Attack Filtering** – BIG-IP's full inspection and event-based rules deliver a greatly enhanced ability to search for and apply numerous rules to block known L7 attacks while also defining policies for blocking access or disallowing commands to be run. Additional layers of security protection are provided against hackers, viruses, and worms (Code Red) while allowing continuous service to legitimate traffic.
- **Centralized Authentication** – By acting as an authentication proxy for various traffic types, organizations can provide top level authentication for applications on the BIG-IP. This allows them to push their security perimeter one level further down in the network (away from the applications), providing greater protection for their Web and application tiers.

More Protection for Critical Content
- Delivers the industry's most **selective encryption** to holistically, partially, or conditionally encrypt data. This fine-grain control enables secure and optimized communications with a variety of different constituencies.
- **Encrypts cookies** and other tokens that are transparently distributed to legitimate users. Organizations gain superior security for all stateful applications (e-commerce, CRP, ERP and other business-critical applications) and a higher level of user identity trust.

- Supports higher-standard AES **(Advanced Encryption Standard for SSL)** algorithms with the most secure SSL encryption available on the market, at no additional processing cost.
- **Content Protection** – Enables organizations to prevent sensitive documents or content from leaving their site.

Protects Against Heavy Attack Volumes
BIG-IP combines a suite of security features to provide comprehensive protection against DoS Attacks, SYN Floods, and other network based attacks. Features such as SYNCheck™ provide comprehensive SYN Flood protection for the servers that sit behind the BIG-IP device. BIG-IP acts as a security proxy that is designed to protect the entire network. Combined with Dynamic Reaping capabilities, an adaptive method for reaping idle connections, BIG-IP provides robust security to filter out the heaviest attacks while simultaneously delivering uninterrupted service for legitimate connections.

Insulation from Protocol Attacks
BIG-IP provides **Protocol Sanitization** and a **Full TCP Termination** point that independently manages client and server-side connections, protecting all back-end systems and applications from malicious attacks.

Firewalling – Packet Filtering
BIG-IP now integrates a control point to define and enforce L4-based filtering rules (based on PCAP, similar to network firewalls) to improve network protection.

BIG-IP Performance and Reliability

Ground-Breaking Performance

BIG-IP delivers the industry's fastest application traffic management solution with a specially designed architecture that merges a high performance switching fabric with individual, best-in-class hardware optimizers for SSL and L4 to completely offload system CPU. BIG-IP delivers real-world performance across all functions and provides deep packet inspection at network speeds.

System High Availability and Management

BIG-IP improves system management through critical features such as multi-boot, warm upgrades, and lights-out management. As a high availability device, BIG-IP also provides unmatched visibility into the status of all processes running under the "HA table."

New GUI and Simplified Management

A new, advanced GUI delivers easy product configuration that lowers setup and ongoing maintenance costs.
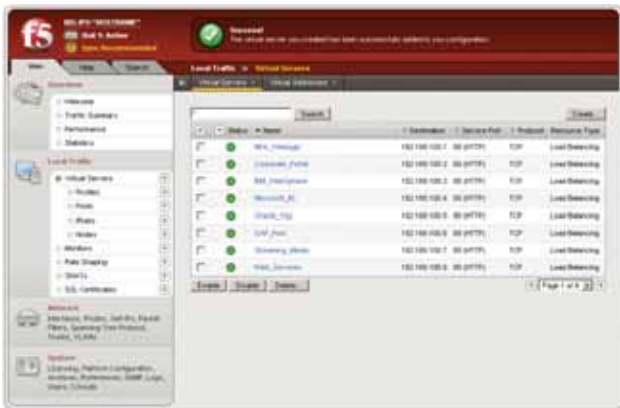
Profile-Based Configuration

New Profile Objects enable organizations to create traffic behavior templates that can be applied to different resources, reducing repetition and providing a centralized approach to changing settings.

Better Visibility

BIG-IP provides detailed system instrumentation on traffic statistics (globally and per object) to help organizations better monitor all activities and resources.

Rich User Interface

BIG-IP's new GUI provides numerous usability enhancements delivered over a secure, SSL browser-based interface. Enhancements include online help, searching and sorting, in-line creation and much more, dramatically reducing the time it takes to setup and maintain large configurations.

iControl – Creating the Application Aware Network

F5's iControl™ API and SDK helps automate communications between 3rd-party applications and BIG-IP, removing the need for manual intervention. iControl has been extended to support a true publish/subscribe model. This model reduces network overhead and improves the performance of applications that integrate with BIG-IP through the iControl interface. For the majority of applications, this can reduce network bandwidth and processing time on both the client and the server.

Networking

- *Supports STP, MSTP, RSTP*
- *Link aggregation*
- *VLAN tagging*
- *QoS/ToS*
- *3rd party MIB support: all default Net-SNMP*

BIG-IP – Scale, Secure, and Optimize

- *Apache*
- *BEA WebLogic*
- *Check Point VPN-1/FireWall-1*
- *Citrix Metaframe Presentation Server*
- *HP OpenView*
- *Lotus/Domino Notes servers*
- *IBM WebSphere*
- *Oracle:*
  - 9i Application Server
  - 10g Application Server
  - E-Business Suite 11i
  - Collaboration Suite
- *Microsoft:*
  - Application Center
  - Commerce Server
  - Exchange Sever
  - Outlook Web Access
  - Windows Terminal Services
  - SharePoint Portal Server
  - Internet Information Services (IIS)
  - Live Communications Server
  - SQL Server
  - Microsoft Operations Manager
  - Mobile Information Server
  - Internet Security and Acceleration Server
  - Visual Studio .NET
- *Siebel eBusiness Applications*
- *PeopleSoft Enterprise*
- *Macromedia ColdFusion*
- *Trend Micro InterScan*
- *Mercury Business Availability Center*
- *SAP mySAP Business Suite*
- *Netegrity SiteMinder*
- *webMethods Enterprise Services Platform*
- *Tivoli Access Manager*
- *RSA SecureID*
- *RealNetworks RealSystem Servers*
- *Sun iPlanet Servers*
- ...and many more

Available Add-On Modules

Intelligent Compression Module
Condenses HTTP traffic using industry-standard GZIP and Deflate compression algorithms, reduces bandwidth consumption, and speeds end-user download times over slower/low bandwidth connections.

SSL Acceleration Module
Dramatically improves the performance of servers while providing security, speed, and traffic management during business-critical online transactions. All BIG-IP systems include a 100 TPS license.

L7 Rate Shaping Module
Ensures optimal application performance by allocating bandwidth for higher-priority applications, controls traffic spikes, and prioritizes traffic based on any L4 or L7 parameter.

Application Security Module
Stops HTTP and HTTPS based threats both known and unknown before they can do any harm.

Advanced Client Authentication Module
Allows BIG-IP to provide top-level client authentication of HTTP and other traffic types to LDAP, Radius, TACAS and other centralized authentication devices.

IPv6 Gateway Module
Provides complete IP transformation and load balancing capabilities between v4 and v6 networks. Makes user migration and the pooling of mixed IPv4 and IPv6 host resources manageable, cost-effective, and possible.

Routing Modules
Individual networking routing modules for BGP, RIP, or OSPF.

Fast Cache Module
Improves application and server performance by offloading repetitive requests for content from the back-end infrastructure.

BIG-IP Local Traffic Manager is available on five platforms. Additional software modules and hardware accelerators can be added on demand.

8400 Series

Processor: Dual CPU
Base Memory: 2 GB
ASIC: Packet Velocity ASIC 10
Gigabit Ethernet Ports:
12 (Copper or Fiber)
10-Gigabit Fiber Ports:
2 (XFP pluggable optics)
Included SSL TPS/
Max TPS/Bulk Crypto:
(100/22,000/2.5 Gbps)
Traffic Throughput: 10 Gbps
Available Hardware Option:
 Hardware Compression*
(2 Gbps)
Input Voltage:
 90 – 240VAC +/-10%
 90 – 132 9A
180 – 264 4A

6800 Series

Processor: Dual CPU
Base Memory: 2 GB
ASIC: Packet Velocity ASIC 2
Gigabit CU Ports: 16
Gigabit Fiber Ports
(SFP - GBIC Mini):
4 (2 standard, 2 optional)
Included SSL TPS/
Max TPS/Bulk Crypto:
(100/20,000/2 Gbps)
Traffic Throughput: 4 Gbps
Available Hardware Option:
 Hardware Compression*
(2 Gbps), FIPS Processing**
Input Voltage:
 90 – 240VAC +/-10%
 90 – 132 9A
180 – 264 4A

6400 Series

Processor: Dual CPU
Base Memory: 2 GB
ASIC: Packet Velocity ASIC 2
Gigabit CU Ports: 16
Gigabit Fiber Ports
(SFP - GBIC Mini):
4 (2 standard, 2 optional)
Included SSL TPS/
Max TPS/Bulk Crypto:
(100/15,000/2 Gbps)
Traffic Throughput: 2 Gbps
Available Hardware Options:
Hardware Compression*
(2 Gbps), FIPS Processing**
(8,000 TPS and 1 GB SSL
Throughput)
Input Voltage:
 90 – 240VAC +/-10%
 90 – 132 9A
180 – 264 4A

3400 Series

Processor: Single CPU
Base Memory: 1 GB
ASIC: Packet Velocity ASIC 2
Gigabit CU Ports: 8
Gigabit Fiber Ports
(SFP - GBIC Mini): 2 optional
Included SSL TPS/
Max TPS/Bulk Crypto:
(100/5,000/1 Gbps)
Traffic Throughput: 1 Gbps
Input Voltage:
 90 – 240VAC +/-10%
 90 – 132 6A
180 – 264 3A

1500 Series

Processor: Single CPU
Base Memory: 768 MB
ASIC: None
Gigabit CU Ports: 4
Gigabit Fiber Ports: 2 optional
Included SSL TPS/
Max TPS/Bulk Crypto:
(100/2,000/500 Mbps)
Traffic Throughput: 500 Mbps
Input Voltage:
 90 – 240VAC +/-10%
 90 – 132 6A
180 – 264 3A

 The industry's first integrated hardware Compression ASIC cost-effectively centralizes traffic compression processing, improves server capacity by up to 20%, and speeds application response times for end users.

**FIPS 140-2 Level 2 Certified processing provides enhanced security for SSL keys by storing them in a hardware-secured module. Ideal for sites looking for heightened internal protection of their most sensitive content.*