BIG-IP Local Traffic Manager
DATASHEET

Streamline Application Delivery for an Agile Infrastructure

Your network's job is to deliver applications and services, but as your business needs change and grow, it becomes more complex and more expensive for your infrastructure to keep up with these demands.

BIG-IP® Local Traffic Manager™ (LTM) turns your network into an agile infrastructure for application delivery. It's a full proxy between users and application servers, creating a layer of abstraction to secure, optimize, and load balance application traffic. This gives you the flexibility and control to add applications and servers easily, eliminate downtime, improve application performance, and meet your security requirements.

Key benefits

Easily deploy applications and ensure availability
Easily deploy and manage applications with user-defined F5 iApps™ Templates, and get complete visibility into the related statistics for those applications.

Take control over application delivery
Control your application connection, traffic, configuration, and management with F5's unique OS, which includes an open API, event-driven scripting language, and device group scalability.

Accelerate your applications up to 3x
Reduce traffic volumes and minimize bottlenecks as well as the impact of WAN, LAN, and Internet latency on app and replication performance.

Secure your apps, network, and data
Protect the apps that run your business with powerful network-level and protocol-level security and attack filtering.

Reduce servers, bandwidth, and management costs
Optimize your existing infrastructure and consolidate application delivery on a unified, simple to manage platform.

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Always Available Applications

BIG-IP LTM removes single points of failure and virtualizes the network and applications. This ensures that all applications are always on, simple to manage, and easy to scale.

Comprehensive load balancing

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

Application health monitoring

BIG-IP LTM provides sophisticated monitors to check device, application, and content availability, including specialized monitors for many applications (including various application servers, HTTP, SQL, SIP, LDAP, RADIUS, Diameter, XML/SOAP, RTSP, SASP, SMB, and many more), as well as customized monitors to check content and simulate application calls.

High availability and transaction assurance

Device Service Clustering provides flexible high availability scaling and configuration syncing of active and live application traffic among active or standby devices. This breaks the 1:1 notion of active-standby to all-active, where as many active devices as needed can share the application load, depending on resource constraints and availability, enabling true horizontal scaling.

BIG-IP LTM delivers sub-second system failover and comprehensive connection mirroring, resulting in a highly available solution regardless of system, server, or application failure. BIG-IP LTM can proactively inspect and respond to any server or application error.

BIG-IP Global Traffic Manager (add-on module)

Provides high availability, maximum performance, and global management for applications running across multiple and globally dispersed data centers.

BIG-IP Link Controller (add-on module)

Seamlessly monitors the availability and performance of multiple WAN connections to intelligently manage bi-directional traffic flows to a site—providing fault-tolerant, optimized Internet access.

BIG-IP LTM is a full proxy between users and application servers that secures, optimizes, and load balances application traffic.
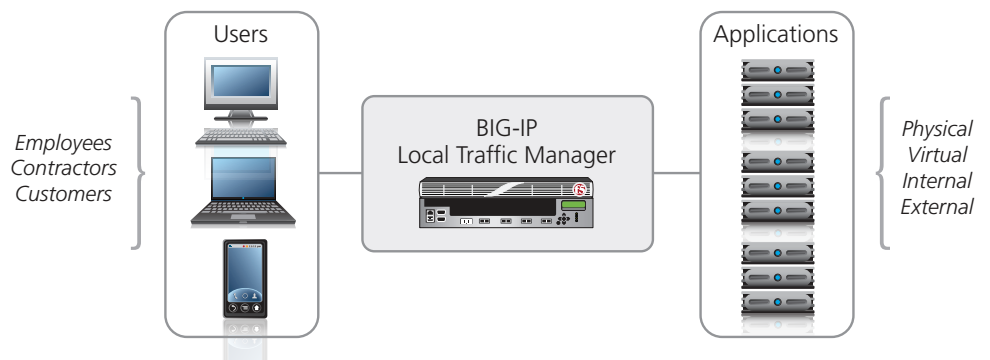
BIG-IP LTM Partner Applications

BIG-IP LTM can intelligently intercept, inspect, transform and direct any IP application, whether it is from a major vendor, custom built, or open source. BIG-IP LTM manages hundreds of partner applications:

Microsoft

.NET Framework

Active Directory Federation Services

Application Virtualization

BizTalk Server

Commerce Server

Exchange Server

Forefront family

· Forefront management products

· Forefront platform technologies

· Forefront protection and access products

Lync Server

Opalis

Outlook Web App

Project Server

Search Server

SharePoint Server

SQL Azure

SQL Server

System Center family

· System Center Configuration Manager

· System Center Data Protection Manager

· System Center Essentials

· System Center Mobile Device Manager

· System Center Operations Manager

· System Center Service Manager

· System Center Virtual Machine Manager

Team Foundation Server

Visual Studio

Virtual Server

Windows Azure

Windows Server family

· Windows Server Hyper-V

· Windows Server Remote Desktop Services

· Windows Server Update Services

Windows Storage Server

IBM

FileNet

Lotus Domino, iNotes

Lotus Sametime

Tivoli Monitoring

Tivoli OMNIbus

Tivoli Orchestrator

Tivoli Service Automation Manager

WebSphere Server

Oracle

Applications

· Beehive

· E-Business Suite

· Enterprise Manager

· Fusion Applications

· Hyperion

· JD Edwards EnterpriseOne

· PeopleSoft Enterprise

· Siebel

Middleware

· Access Manager

· Coherence

· Identity Management

· SOA

· WebCenter

· WebLogic Server

Database

· Database Firewall

· Data Guard

· GoldenGate

· Streams

· Real Application Clusters (RAC)

· Recovery Manager

SAP

ERP

NetWeaver

Portal

Adobe

Acrobat Connect Pro

Flash Media Server

InDesign

ColdFusion

Other

CA eHealth

E-Business Suite

ANGEL Learning

Blackboard

SunGard IntelliSUITE

SunGard Higher Education

...and more.

Reduced Server Load

BIG-IP LTM provides extensive connection management as well as TCP and content offloading capabilities that optimize server performance and dramatically speed page load times.

Content transformation

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

OneConnect

F5 OneConnect™ aggregates millions of requests into hundreds of server-side connections, ensuring they are handled efficiently by the back-end system increasing server capacity by up to 60 percent.

Fast cache

Intelligent caching functionality provides tremendous cost savings by offloading repetitive traffic from web and application servers, increasing server capacity up to 9x. 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.

SSL acceleration and offload

Every BIG-IP LTM device provides hardware-accelerated SSL encryption taking the burden of SSL off of the application servers. By accelerating setup and bulk encryption, organizations can migrate 100 percent of their communications to SSL using more secure ciphers with virtually no application performance penalty or bottlenecks.

TCP connection queuing

BIG-IP LTM provides the ability to queue connection requests that exceed the connection limit for a pool, pool member, or node. Consequently, instead of connection requests being dropped, they reside within a queue in accordance with defined conditions until capacity becomes available.

Optimized Applications

BIG-IP LTM provides a highly targeted, centralized, and efficient means for reducing traffic volumes and minimizing the effect of Internet latency and client connection bottlenecks on application performance. Application-centric configuration and analytics ensure optimized application performance.

SPDY gateway*

SPDY is an emerging application layer protocol developed by Google that augments HTTP by improving the inefficiencies related to connection management and data transfer, with the goal of improved performance. It supports multiple streams within a single TCP connection, compresses the HTTP headers, and allows for prioritization of requests.

Because requests are interleaved on a single channel, the efficiency of TCP is much higher; fewer network connections need to be made, and fewer, but more densely packed packets are issued. These benefits specifically help in the mobile use case, given the typical slower mobile connection. F5 provides a SPDY gateway to convert SPDY requests to HTTP to backend web servers. This takes advantage of the optimizations without requiring disruptive and potentially costly upgrades to application infrastructure.

*This early access feature requires separate license.

Intelligent application switching

Because BIG-IP LTM has the unique ability to read all IP applications, it can switch and persist on information unique to a specific vendor's application server (Microsoft, IBM, Oracle, SUN, and more); XML data for web services applications; or custom values indicative to mobile/ wireless applications. Your organization can achieve greater reliability and scalability thanks to the ability of BIG-IP LTM to switch, log, and persist in the payload or stream. You also have extraordinary flexibility to solve your organization's application delivery challenges using the F5 iRules® scripting language.

Intelligent compression

Compression accelerates application performance as much as 3x while reducing bandwidth utilization by up to 80 percent. BIG-IP LTM condenses HTTP traffic using industry-standard gzip and DEFLATE compression algorithms, reduces bandwidth consumption and user download times over slower/low bandwidth connections. This provides rich support for compressing a variety of file types, including HTTP, XML, JavaScript, J2EE applications, and many others.

Flexible L7 QoS Rate Shaping

You can ensure optimal application performance by allocating bandwidth for higher-priority applications, controlling traffic spikes, and prioritizing traffic based on any L4 or L7 parameter.

TCP Express

The highly optimized TCP/IP stack in BIG-IP LTM, called TCP Express,™ combines cutting-edge TCP/IP techniques and improvements in the latest RFCs with numerous improvements and extensions developed by F5 to minimize the effects of congestion, packet loss, and recovery. Since BIG-IP LTM is a full proxy device, TCP Express can shield and transparently optimize older or non-compliant TCP stacks that may be running on servers or clients. This then delivers up to a 2x performance gain for users and a 4x improvement in bandwidth efficiency, while reducing the connection load on your servers.

iSessions

As the foundation for data center-to-data center communication, iSessions secure and accelerate data traveling over the WAN. Any two BIG-IP LTM devices can be deployed symmetrically to create a site-to-site secure connection to improve transfer rates, improve bandwidth efficiency, and prioritize business-critical traffic.

BIG-IP WAN Optimization Manager (add-on module)

BIG-IP® WAN Optimization Manager™ (WOM) optimizes traffic across the WAN to accelerate data replication and back-up. BIG-IP WOM makes use of adaptive compression, data deduplication, protocol acceleration, and other technologies to effectively utilize bandwidth and maximize throughput.

BIG-IP WebAccelerator (add-on module)

The most powerful web application acceleration technology for Microsoft SharePoint, SAP, Oracle Portal, enterprise web applications, and e-commerce sites. BIG-IP® WebAccelerator™ significantly increases the performance of web applications and improves the user experience in remote office and mobile deployments. It lowers costs through server and data center consolidation, resulting in reduced software licenses, management, power consumption, and complexity. BIG-IP WebAccelerator is also the first solution to provide robust acceleration for web content via SSL.

Secure Applications

From network firewall and protocol-level security to application attack filtering, BIG-IP LTM deploys a suite of security services to protect your most precious resources—the applications that run your business.

Network firewall

BIG-IP LTM provides native network firewall services to deliver stateful packet inspection to protect data center resources. It is built on the F5 TMOS® full proxy architecture, which offers tremendous performance, scalability, and customization. Using F5's event-driven iRules, application, security, and network teams can quickly build new services that inspect, transform, and direct application traffic. BIG-IP LTM is certified by ICSA as a network firewall.

DDoS protection

BIG-IP LTM acts as an advanced Distributed Denial of Service (DDoS) defense, offering protection from more than 30 attack types, including DoS attacks, TCP, SYN, ICMP, UDP floods, SSL renegotiation, Sloworis, botnets, and other advanced attacks. Features such as SYN Check™ provide comprehensive SYN flood protection for the servers that sit behind the BIG-IP® device. BIG-IP LTM uses Dynamic Reaping, an adaptive method for reaping idle connections, to filter out the heaviest attacks while simultaneously delivering uninterrupted service for legitimate connections.

Insulation from protocol attacks

BIG-IP LTM 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.

Customized application attack filtering

Full inspection and event-based policies deliver a greatly enhanced ability to search for, detect, and apply numerous rules to block known L7 attacks. BIG-IP LTM also applies secure application templates to block unknown attacks and attacks targeted at the business logic of the application. Additional layers of security protect against hackers, viruses, and worms, while enabling continuous service to legitimate traffic.

Selective encryption

BIG-IP LTM delivers the industry's most comprehensive encryption to holistically, partially, or conditionally encrypt data, enabling secure and optimized communications with a variety of different constituencies.

Advanced encryption standard and longer key length support for SSL

BIG-IP LTM supports the highest industry-standard AES algorithms with the most secure SSL encryption available on the market, at no additional processing cost. In addition, BIG-IP LTM can handle bit encryption and certificates encrypted with a 4096 length key.

SSL forward proxy

SSL traffic poses a blind spot to enterprises. SSL forward proxy provides interception of the encrypted traffic, so you gain full visibility and control to inspect outbound SSL traffic.

Cookie encryption

Cookies and other tokens transparently distributed to legitimate users are encrypted. You gain superior security for all stateful applications (e-commerce, CRP, ERP, and other business-critical applications) and a higher level of user identity trust.

Resource cloaking and content security

BIG-IP LTM 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. Sensitive documents or content are prevented from leaving your site.

BIG-IP device security

F5 ensures BIG-IP device security through various features and a rigorous development process.

The optional appliance mode feature "hardens" BIG-IP devices by removing advanced shell (bash) and root level access. Administrative access is available through the TMOS command-line interface (tmsh) and GUI.

The Secure Vault feature provides encryption of certificate passwords for enhanced certificate and key protection in environments where hardware FIPS 140-2 support is not required, but additional physical and role-based protection is desired.

The F5 design process starts with threat modeling and assessment before a single line of code is developed. The process then includes multiple code reviews, both internal and external penetration testing using industry recognized methods, and full production testing.

BIG-IP Access Policy Manager (add-on module)

This flexible, high-performance access and security solution provides policy-based, context-aware access to users while simplifying authentication, authorization, and accounting (AAA) management. It includes top-level client authentication of HTTP and other traffic types to OCSP, CRLDP, and TACACS+ directories.

BIG-IP Application Security Manager (add-on module)

This advanced web application firewall secures web applications and web services from the latest attacks and helps organizations comply with PCI and other industry security standards.

BIG-IP Advanced Firewall Manager (add-on module)

This high-performance stateful, full-proxy network firewall is designed to guard data centers against incoming threats that enter the network on the most widely deployed protocols—including HTTP/S, SMTP, DNS, and FTP. By aligning firewall policies with the applications

they protect, BIG-IP Advanced Firewall Manager (AFM) streamlines application deployment, security, and monitoring.

IP Intelligence service (optional feature)

F5 BIG-IP Global Delivery Intelligence incorporates external, intelligent services to enhance automated application delivery decisions with better IP intelligence and stronger, context-based security. By identifying IP addresses and security categories associated with malicious activity, the BIG-IP Global Delivery Intelligence IP Intelligence service can incorporate dynamic lists of threatening IP addresses into the BIG-IP platform, adding context to policy decisions.

Simple Configuration and Management

BIG-IP LTM provides advanced tools that make it easy to deploy and manage while maintaining flexibility and control of your infrastructure.

iApps Templates

F5 iApps Templates are used to define and tie all related application services and resources to the specific application being deployed. The application service object created provides a contextual view and advanced statistics of those services. These flexible templates enable you to deploy BIG-IP LTM with optimum application-specific configurations in only a few minutes.

iApps Templates reduce application delivery deployment times from weeks to hours.
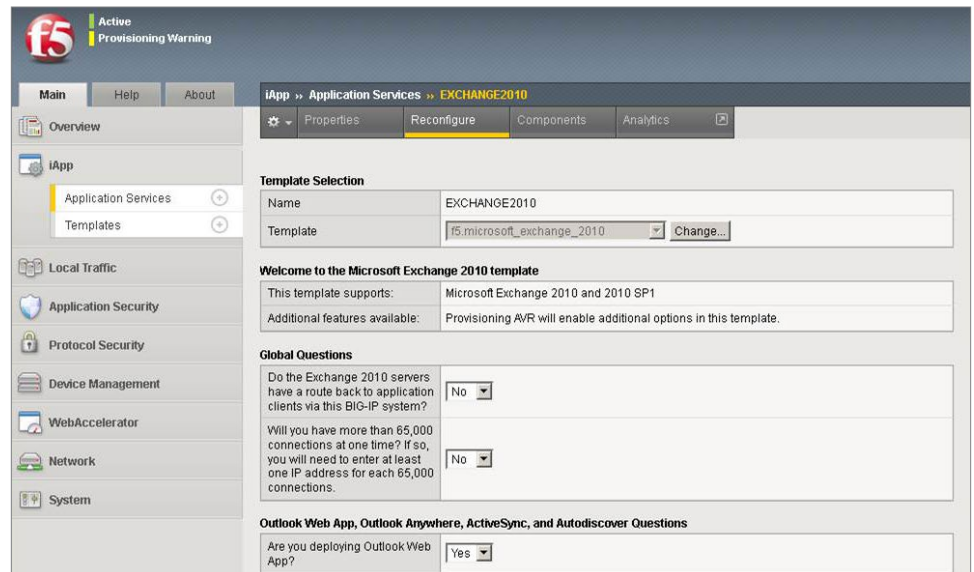
Through extensive testing with application vendors, F5 has built a vast knowledge base of best-practice deployments for most popular applications. You can use them by answering a few simple questions about your application. They can also be modified and used for ongoing management through the lifecycle of the application as your business needs change.

Advice, sharing, and official F5-developed iApps Templates can be found on DevCentral,™ the F5 community site for administrators and developers.

F5 Analytics provides real time application-level statistics, such as throughput per URL, that enable efficient troubleshooting, capacity planning, and performance optimization.

F5 Analytics

F5 Analytics captures application-specific statistics reported at different levels of the service, such as URL, throughput, and server latency, with views per virtual servers, pools, and nodes. This provides more efficient troubleshooting, application visibility for capacity planning, and performance tuning and optimization by monitoring exactly how the application is performing for real users based on application response time, network conditions, and user context.
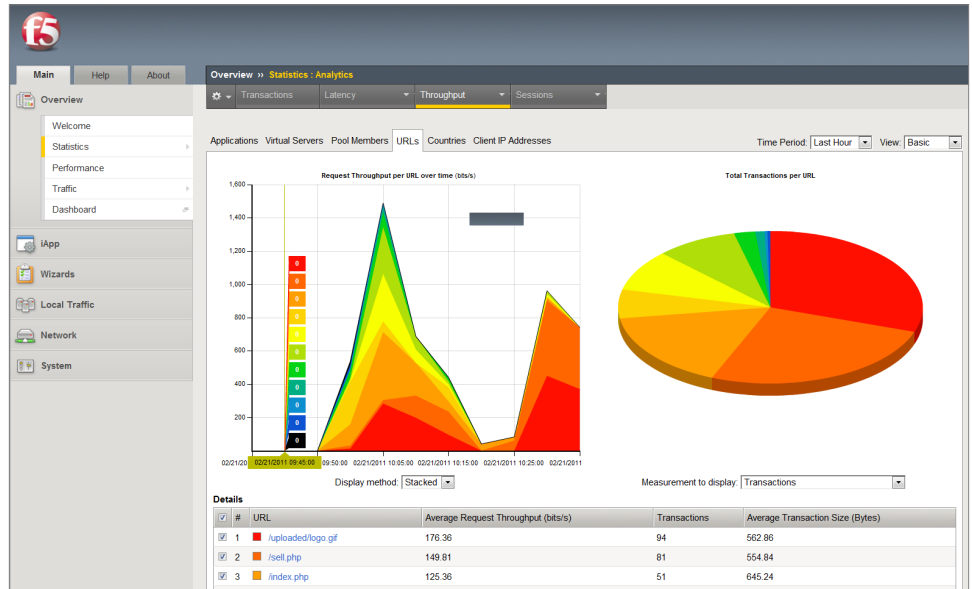
Thresholds can be set for some of the statistics, and an alert can be delivered via syslog, SNMP, or email when the threshold is exceeded. Analytics are configurable through the templates, with the option to export the data off-box to a third-party remote logging/reporting engine.

Powerful command line shell

The TMOS shell, TMSH, reduces training time and simplifies device management with tab completion, in-line help, and a tree-based structure. Automated tasks can be scripted with tool command language (Tcl). BIG-IP system users who are more familiar with other network devices' commands and syntax can use aliases to translate the shell, enabling administrators to use the syntax they are most comfortable with.

System management

BIG-IP LTM improves system management through critical features such as multi-boot, warm upgrades, and lights-out management.

Administrative domains

Administrative domains enable you to design customized partitions and assign varying degrees of administrative rights and views of BIG-IP LTM functions. Administrators can design customized views by service, application owners, or other segmentation scheme, providing management scale and organizational efficiency.

Dashboard

BIG-IP LTM provides detailed device and traffic statistics to help you better monitor all activities and resources. These statistics include global, per object, per module, TMM CPU utilization per virtual server, profile statistics per virtual server, and CPU and memory statistics per process.

The BIG-IP Dashboard provides real-time granular and historical system performance.
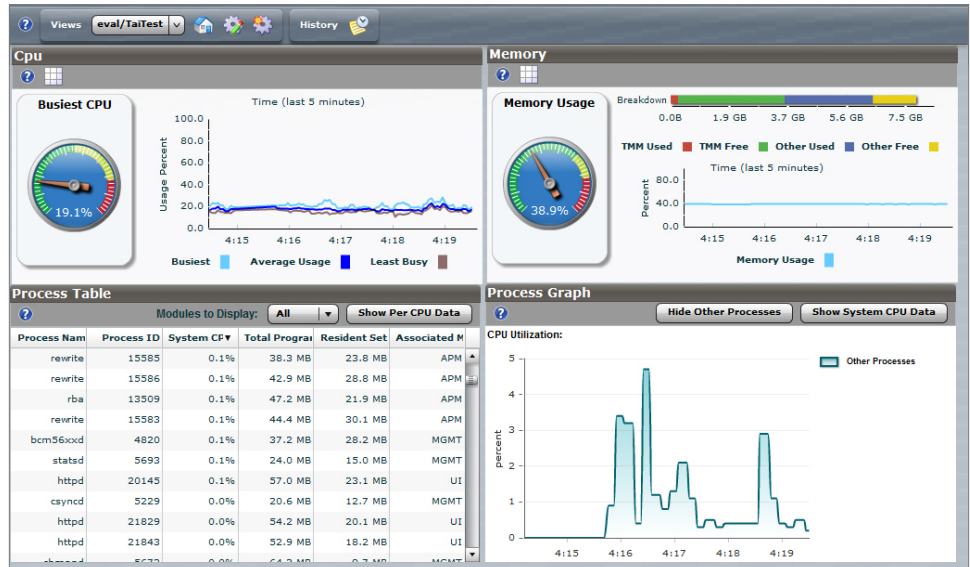
Centralized Management

F5 offers an additional product to gain control and visibility of your entire deployment of multiple BIG-IP devices.

Enterprise Manager

Enterprise Manager™ can help you significantly reduce the cost and complexity of managing multiple F5 devices. You gain a single-pane view of your entire application delivery infrastructure and the tools you need to reduce deployment times, eliminate redundant tasks, and efficiently scale your infrastructure to meet your business needs. Enterprise Manager collects device and traffic statistics from BIG-IP LTM to provide comprehensive visibility into device health and application traffic.

Architecture

The unified architecture of the BIG-IP system gives you application intelligence and flexibility to control application delivery without creating traffic bottlenecks.

TMOS

At the heart of BIG-IP LTM is the TMOS operating system that provides a unified system for optimal application delivery, giving you total visibility, scalability, and control across all services.

Fast application proxy

With TMOS, BIG-IP LTM efficiently isolates clients from the server-side flows and independently maintains optimal performance for each connecting device, translating communications between systems for improved system or IP application performance.

ScaleN architecture

ScaleN is an F5 technology that uses horizontal clustering, virtualization, and on-demand scaling capabilities to enable more efficient, elastic, and multi-tenant solutions for data centers, clouds, and hybrid deployments. ScaleN breaks away from traditional infrastructure limitations and offers multiple scalability and consolidation models to help organizations meet their specific business needs.

This on-demand approach eliminates costly over-provisioning methods used in the past to ensure enough capacity was on hand to meet sudden spikes in demand. It also improves resource utilization to deliver a better return on investment.

F5 ScaleN uses three deployment models to give you ultimate flexibility and scalability:

- **Horizontal clustering.** Increase capacity by adding BIG-IP resources through an all-active approach. Horizontal clustering enables you to scale beyond the traditional device pair to eliminate the need for idle and costly standby resources. You get the flexibility to leverage any combination of physical or virtual BIG-IP platforms for data centers, clouds, and hybrid deployments.

  Application Service Clustering provides application-level and service-level control and failover to deliver industry-leading availability. Workloads can be moved across a cluster of BIG-IP instances without interrupting other services and can be scaled to meet the business demand.

  Device Service Clustering gives you the ability to group an array of BIG-IP devices to scale your infrastructure to up to 32 active nodes. This ensures a consistent device configuration that simplifies operations.

- **Virtualization.** Isolate and protect tenants by virtualizing your Application Delivery Controller (ADC) services with a multi-tenant architecture that supports a variety of BIG-IP versions and product modules on a single device.

  This multi-tenant architecture enables consolidation through both administrative and network isolation to support hundreds of tenants. Isolation ensures security and protects from oversubscription and inadvertent changes.

- **On-demand scaling.** Increase resource capacity with on-demand scaling, available with the F5 VIPRION hardware platform. You can simply add more power to your existing infrastructure instead of adding more devices.

  VIPRION hardware provides true linear scalability through modular blades. As blades are added for more power, they are automatically available to the system, with no configuration or changes needed.

iRules and Universal Inspection Engine

TMOS incorporates F5's customizable iRules, a TCL-based scripting language to control the behavior of BIG-IP devices, and Universal Inspection Engine to provide unprecedented control over how to handle application traffic within the application transaction or flow. With complete payload inspection and transformation capabilities, event-driven iRules, and session-aware switching, BIG-IP LTM offers you the most intelligent control point to address diverse application delivery issues at network speeds.

iControl

The F5 iControl® API and SDK help automate communications between third-party applications and BIG-IP LTM, removing the need for manual intervention. iControl supports a true publish/subscribe model, which reduces network overhead and improves the performance of applications that integrate with BIG-IP LTM through the iControl interface. For most applications, this can reduce network bandwidth and processing time on both the client and the server.

IPv6 Gateway (NAT64 support)

This feature provides complete IP transformation and load balancing capabilities between v4 and v6 networks. In addition to working with native IPv6 networks, F5 also supports the DNS64 and NAT64 standards for effective IPv4 to IPv6 translation. It can help you make user migration and the pooling of mixed IPv4 and IPv6 host resources manageable, cost-effective, and possible.

Layer 2 protocols

BIG-IP LTM supports basic layer 2 protocols:

• STP, MSTP, RSTP

• Link aggregation

• VLAN tagging

• QoS/ToS

• Third-party MIB support: all default Net-SNMP

High speed logging

BIG-IP LTM has the ability to pass TCP or UDP log traffic at extremely high rates. Support for both local and external (off-box) logging enables you to centralize the data in third-party logging engines and meet security and compliance requirements. High speed logging (HSL) is configurable using the GUI and supports the W3C extended log format.

Advanced Routing (add-on module)

Support for diverse routing protocols enables BIG-IP systems to share routing information with other devices for better interoperability. The following protocols are supported: Border Gateway Protocol (BGP-4, BGP-4+ [IPv6]); Routing Information Protocol (RIPv1, RIPv2, and RIPng [IPv6]); Open Shortest Path First (OSPFv2 & OSPFv3 [IPv6]); and Intermediate System—Intermediate System (IS-IS, IS-IS v6).

BIG-IP LTM Platforms

BIG-IP Local Traffic Manager and the other modules are available on hardware appliances designed specifically for application delivery. See the BIG-IP System Hardware Datasheet for details.

11000 Series

10000 Series

8900 Series

6900 Series

4000 Series

3900 Series

3600 Series

2000 Series

1600 Series

BIG-IP LTM VE

VIPRION Platforms

BIG-IP Local Traffic Manager, Global Traffic Manager, and Application Security Manager are also available on the modular VIPRION® system. This chassis and blade architecture enables simple scalability as your Application Delivery Network grows. See the VIPRION Datasheet for details.

VIPRION 4800 Chassis

VIPRION 4480 Chassis

VIPRION 2400 Chassis

VIPRION 4300 Blade

VIPRION 4200 Blade

VIPRION 2100 Blade

Virtual Platform

BIG-IP Local Traffic Manager Virtual Edition (VE) offers flexibility of a virtual BIG-IP system. Supported on several leading hypervisors and selected cloud environments, BIG-IP LTM VE can help meet the needs of your virtualized environment.

BIG-IP LTM VE

Hypervisors:	Microsoft Hyper-V for Windows Server 2008 R2 and 2012
	Citrix XenServer 5.6 and 6.0
	VMware vSphere Hypervisor 4.0, 4.1, and 5.0, and 5.1 and vCloud Director 1.5
	KVM – Linux Kernel 2.6.32 (RHEL 6.2/6.3, CentOS 6.2/6.3)

BIG-IP Virtual Edition is also available as an Amazon Machine Image for use within Amazon Web Services.

F5 Services

F5 Services offers world-class support, training, and consulting to help you get the most from your F5 investment. Whether it's providing fast answers to questions, training internal teams, or handling entire implementations from design to deployment, F5 Services can help you achieve IT agility. For more information about F5 Services, contact consulting@f5.com or visit f5.com/services.

More Information

To learn more about BIG-IP LTM, use the search function on f5.com to find these and other resources.

Datasheets

BIG-IP System Hardware

BIG-IP Local Traffic Manager Virtual Edition

White papers

Load Balancing 101: Nuts and Bolts

Load Balancing 101: The Evolution to Application Delivery Controllers

F5 iApps: Moving Application Delivery Beyond the Network

The F5 Dynamic Services Model

Achieving Enterprise Agility in the Cloud

Case studies

Rackspace Hosting Links Dedicated Servers to Cloud for Maximum Scalability and Flexibility

SaaS Provider RelayHealth Delivers Innovative Healthcare Applications with F5 Solutions

Swisscom Provides Safe Internet Access to Schools Using F5 Solutions

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