BIG-IP Local Traffic Manager

Application Delivery with Scale, Automation, and Customization

Applications drive innovation and profitability, allowing your business to leverage cloud computing, mobility, and software-defined networking (SDN). Your organization from AppDev and DevOps teams to Infrastructure and IT Ops depends on your app services and network infrastructure running at peak performance with app-centric security to meet the challenges of today—and tomorrow.

F5® BIG-IP® Local Traffic Manager™ (LTM) delivers your applications to users in a reliable, secure, and optimized way. You get the extensibility and flexibility of application services with the programmability you need to manage your cloud, virtual, and physical infrastructure. With BIG-IP LTM, you have the power to scale, automate, and customize application services faster and more predictably.

KEY BENEFITS

Scale applications rapidly and reliably
Optimize for today's web applications with HTTP/2 to ensure that your customers and users have access to the applications they need—whenever they need them.

Automate and customize with programmable infrastructure
Control your applications—from connection and traffic to configuration and management—with F5® iRules® LX for network programmability, with Node.js language support in BIG-IP. Use the F5 Automation Toolchain for a declarative approach to efficiently provision, configure, and manage appliances.

Migrate to virtual and cloud environments
Realize operational consistency and comply with business needs across physical, virtual, and cloud environments with deployment flexibility and scalability.

Simplify deployment and management of apps
User-defined F5 iApps® and FAST templates make it easy to deploy, manage, and gain complete visibility into your applications.

Secure your critical applications
Protect the apps that run your business with industry-leading SSL performance and visibility.

APPLICATION INTELLIGENCE

Application Traffic Management
BIG-IP LTM includes static and dynamic load balancing to eliminate single points of failure. Application proxies give you protocol awareness to control traffic for your most important applications. BIG-IP LTM also tracks the dynamic performance levels of servers in a group, ensuring that your applications are not just always on, but also are easier to scale and manage.

Secure Application Delivery
BIG-IP LTM delivers industry-leading SSL performance and visibility for inbound and outbound traffic, so you can cost-effectively protect your entire user experience by encrypting everything from the client to the server. It also defends against potentially crippling DDoS attacks and provides ICAP services for integration with data loss protection and virus protection.

Application Delivery Optimization
BIG-IP LTM scales dramatically, improving page load times and the user experience with HTTP/2, intelligent caching, extensive connection optimization and management, compression, RAMCache performance, F5 TCP Express™, and F5 OneConnect™. It also makes real-time protocol and traffic-management decisions based on application and server conditions, enables rules customization and programmability, and TCP and content offloading.

Application Visibility and Monitoring
Monitor exactly how your application is performing for real users based on application response times, network conditions, and user context. F5 Analytics captures application-specific statistics, such as URL, throughput, and server latency, reported at different levels of the service. BIG-IP LTM makes it simple to integrate with your existing tools using industry standards such as sFlow, SNMP, and syslog.

IoT Protocol Visibility
BIG-IP LTM enables support of IoT clients, publishing useful information to the MQTT Brokers (servers) through the MQTT protocol. The MQTT Brokers then send information to all the subscribers of this information and MQTT support allows BIG-IP LTM to leverage MQTT traffic load balancing for customers' IoT clients.

Figure 1: F5 Analytics provides real-time, application-level statistics.
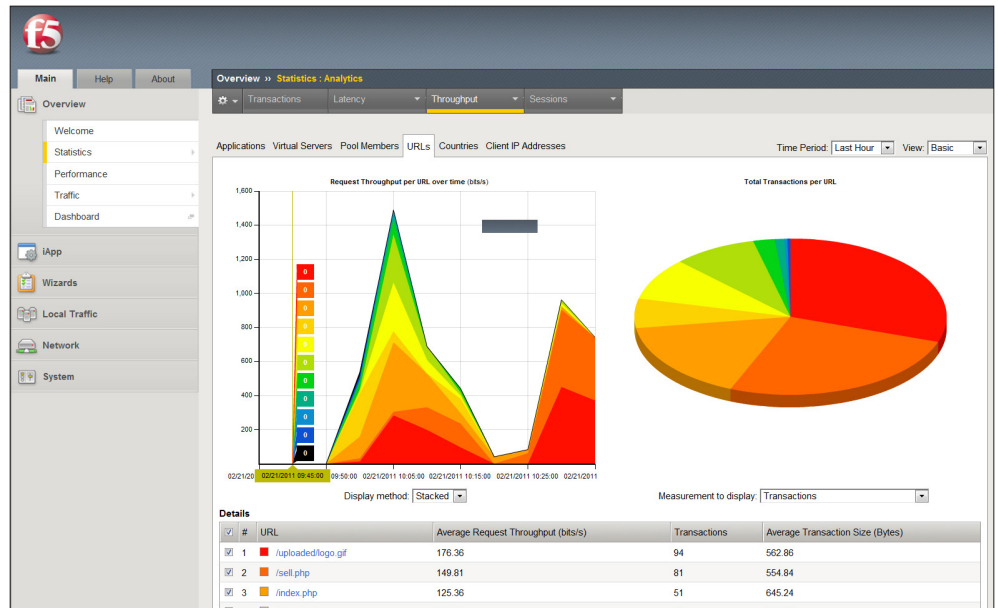
AUTOMATION AND CONTAINER INGRESS

F5 Automation Toolchain allows network and application services such as traffic management and application security to be managed programmatically, through simple, declarative APIs versus traditional manual imperative configurations.

At the core of the F5 Automation Toolchain is the Application Services 3 Extension (AS3) which enables administrators and developers to automate layer 4–7 application services. AS3 also provides a sustainable foundation to enable F5's Infrastructure as Code (IaC) strategy and future integration with third-party orchestration, SDN, and NFV solutions.

F5 Declarative Onboarding enables initial provisioning of F5 solutions, as well as configuration of layer 2–3 objects such as route domains, routes, self IPs, and VLANs. The Declarative Onboarding Extension, like the Application Services 3 Extension, accepts a JSON declaration that defines the desired onboarding end-state via a single REST API.

The F5 Telemetry Streaming Extension is an iControl LX extension that aggregates, normalizes, and forwards statistics and events to consumer applications such as Splunk, Azure Log Analytics, AWS CloudWatch, AWS S3, Graphite, and more. This tool uses a declarative model, meaning you provide a JSON declaration rather than a set of imperative commands.

The F5 API Services Gateway is a TMOS-independent Docker container which runs F5's iControl LX framework and provides a lightweight, fast, portable, TMOS-independent vehicle for customers to leverage iControl LX.

The F5 Automation Toolchain delivers a process-driven approach to automation. Use the components of the Automation Toolchain to efficiently provision, configure, and manage the services that support your apps. The Automation Toolchain is available, free of charge, on GitHub and Docker Hub.

F5 ecosystem integrations with Ansible, Terraform, Puppet, Chef, and Cisco ACI help you simplify orchestration and configuration management across public and private clouds and on-premises, delivering software-defined networking with policy-driven automation and increasing the speed of app deployment through automated provisioning.

F5 Container Ingress Services (CIS) makes it easy to deliver advanced application services to your container deployments, enabling Ingress control HTTP routing, load balancing, and application delivery performance as well as robust security services.

Container Ingress Services easily integrates BIG-IP solutions with native container environments, such as Kubernetes, and PaaS container orchestration and management systems, such as RedHat OpenShift.

PROGRAMMABLE INFRASTRUCTURE

Local Traffic Policies
BIG-IP® local traffic policies are a structured, data-driven collection of rules created by populating tables in a web UI. The policy tables are filled using readable English; no programming skills are required. These policies allow you to inspect, analyze, modify, route, re-direct, discard, or manipulate traffic, and solve common use cases previously covered by simple iRules. For example, you might create a policy that determines whether a client is using a mobile device, and then redirect requests from mobile devices to the applicable mobile web site URL.

iRules
The F5 iRules® scripting language—F5's traffic scripting interface—enables programmatic analysis, manipulation, and detection of all aspects of the traffic in your networks. Customers routinely implement security mitigation rules, support new protocols, and fix application-related errors in real time. With robust and flexible iRules, you can easily and rapidly develop solutions that you can confidently deploy across multiple applications.

iRules LX
iRules LX is the next stage of evolution for network programmability that brings Node.js language support to the BIG-IP platform. Node.js allows JavaScript developers access to over 250,000 npm packages that make code easier to write and maintain. Development teams can access and work on code with the new iRules LX Workspace environment and the new plug-in available for the Eclipse IDE, which can be used for continuous integration builds.

iApps and FAST

F5 iApps and FAST templates are powerful tools that enable you to deploy, manage, and analyze enterprise application services as a whole rather than individually managing configuration and objects. iApps and FAST give you greater visibility into and control over application delivery—and help you deploy in hours rather than weeks. This application-centric approach aligns the network with your applications and adapts application delivery to business needs.
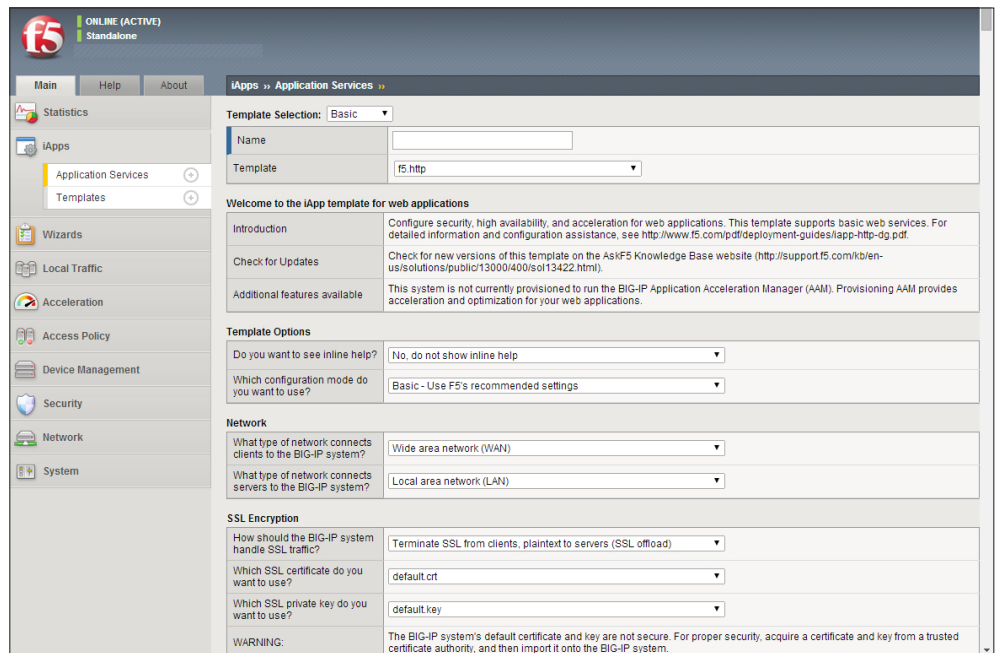
iControl

The F5 iControl® APIs and SDK allow automation and integration of custom applications into all aspects of BIG-IP LTM and other BIG-IP modules. iControl is delivered as both REST and SOAP APIs to fit the model best suited for your organization. With iControl, every aspect of BIG-IP LTM configuration, including most aspects of all BIG-IP modules—from device and application provisioning to application tuning and health and support initiation—can be programmatically automated to achieve dynamic infrastructures.

iCall

F5 iCall® is a powerful scripting framework, based on TMSH (the F5 TMOS® Shell command-line interface) and Tcl, that helps customers maintain their environment and reduce downtime by automating tasks. It monitors for events and executes scripts to resolve issues quickly and predictably. iCall enables administrators to react to specified events by executing services on the management plane, such as generating a TCP stack dump on a failure, executing a specific iApp to reconfigure application network service settings, or adjusting load balancing weights on application services based on a change in health monitoring data.

SCALABLE INFRASTRUCTURE

Cloud-Ready

BIG-IP LTM makes it easy to realize operational consistency and comply with business needs across physical, virtual, and cloud environments, removing the friction of migrating applications between traditional physical and cloud architectures. Available in public clouds and for migration across multi-cloud. Learn more in the BIG-IP Virtual Edition data sheet.

ScaleN

F5 ScaleN® technology uses the F5 VIPRION® chassis, Device Service Clusters, and the scaling capabilities of F5 Virtual Clustered Multiprocessing™ (vCMP) to enable more efficient, elastic, and multi-tenant solutions for data centers, clouds, and hybrid deployments. ScaleN moves beyond traditional infrastructure limitations and offers multiple scalability and consolidation models to help you meet your specific business needs.

Virtual Networking

The BIG-IP® SDN Services module natively supports VXLAN and NVGRE to offer gateway capabilities with BIG-IP LTM bridging virtual and traditional networks. This lets you keep things simple, applying application delivery network services across both virtual and traditional networks.

Advanced Routing

The BIG-IP® Advanced Routing™ Module allows BIG-IP LTM to provide network routing capabilities such as BGP, RIP, OSPF, ISIS, and BFD for enhanced interoperability within the network, increasing the resilience and capacity of your network.

ATTACK MITIGATION

Deploy F5 Distributed Cloud Bot Defense directly from your BIG-IP

Bots cause significant financial pain through scraping that slows performance, scalping and inventory hoarding that frustrate loyal customers, enumerating gift card codes to steal balances, creating fake accounts to commit fraud, and credential stuffing—the testing of stolen credentials—that leads to account takeovers.

Today's advanced, persistent bots are more sophisticated than ever. To stay ahead of attackers, F5 Distributed Cloud Bot Defense uses rich client-side signal collection, industry-leading code obfuscation, aggregate telemetry collection, and AI for unparalleled long-term efficacy and near-zero false positives while maintaining access for good bots. And because F5 defends the most targeted sites on the web—including those of the world's largest banks, retailers, and airlines, F5 is ready when these attacks target your organization.

Deploy F5 Distributed Cloud Bot Defense directly from your BIG-IP or through a connector that's right for your application, with support services tailored to your needs, from self-service to managed service.

BIG-IP PLATFORMS

Only F5's next-generation, cloud-ready ADC platform provides DevOps-like agility with the scale, depth of security, and investment protection needed for both established and emerging apps. The BIG-IP® iSeries appliances deliver quick and easy programmability, ecosystem-friendly orchestration, and record-breaking, software-defined hardware performance. As a result, customers can accelerate private clouds and secure critical data at scale while lowering TCO and future-proofing their application infrastructures. F5 solutions can be rapidly deployed via integrations with open source configuration management tools and orchestration systems.

In addition to the iSeries, F5 offers VIPRION modular chassis and blade systems designed specifically for performance and for true, on-demand, linear scalability without business disruption. VIPRION systems leverage F5's ScaleN clustering technology so you can add blades without reconfiguring or rebooting.

The F5 VELOS® platform is the next generation of F5's industry-leading chassis-based systems, which delivers unprecedented performance and scalability in a single Application Delivery Controller (ADC). You can seamlessly scale capacity by adding modular blades in a chassis, without disruption, and VELOS allows a mix of traditional BIG-IP tenants as well as next-generation BIG-IP tenants in the future.

The next-generation ADC solution, F5 rSeries, bridges the gap between traditional and modern infrastructures with a rearchitected, API-first platform designed to meet the needs of your traditional and emerging applications. The new F5 rSeries delivers unprecedented levels of performance, a fully automatable architecture, and the highest reliability, security and access control for your critical applications.

Virtual Editions (VEs) of BIG-IP software run on commodity servers and support the range of hypervisors and performance requirements. VEs provide agility, mobility, and fast deployment of app services in software-defined data centers and cloud environments.

See the BIG-IP System Hardware, VIPRION, VELOS, and Virtual Edition data sheets for more details. For information about specific module support for each platform, see the latest release notes on AskF5. For the full list of supported hypervisors, refer to the VE Supported Hypervisors Matrix.

With BIG-IQ® Centralized Management, you can manage F5 platforms with a single-pane-of-glass view, including:

- BIG-IP iSeries Appliances
- rSeries Appliances
- BIG-IP Virtual Editions
- VIPRION Chassis
- VELOS Chassis

Figure 3: Manage your BIG-IP appliance health and track CPU and memory usage of physical and virtual platforms, hardware blades, and cores with BIG-IQ. Use logging and reporting to understand overall trends and spot areas needing correction. Easily manage policies, certificates, and licensing management to push out to all BIG-IP ADCs for centralized control of app services infrastructure.
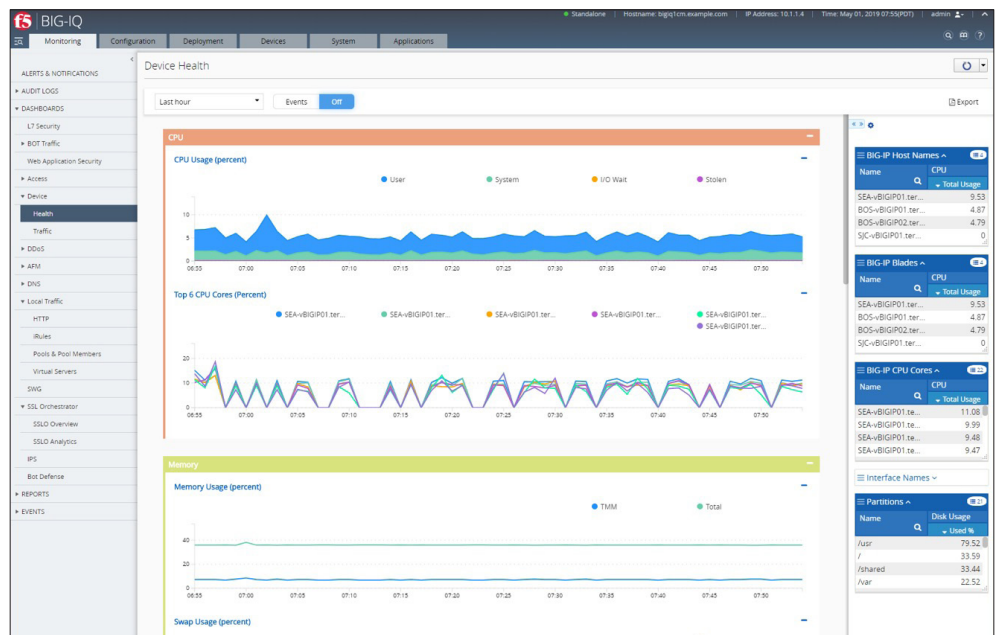
FLEXIBLE LICENSING TO MEET YOUR NEEDS

To align with differing purchasing directives, BIG-IP Next may also be licensed via an assortment of consumption models. Choose the licensing model that best suits your needs, including subscription, perpetual, or the utility program:

- **Subscription**—Renewable one- to three-year subscriptions afford initial upfront savings and include access to F5 premium support.
- **Perpetual**—A one-time CapEx investment provides complete solution ownership.
- **Utility**—Pay-as-you-go model includes access to F5 premium support without the need for a long-term commitment.

F5 GLOBAL SERVICES

F5 Global 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 Global Services can help ensure your applications are always secure, fast, and reliable. For more information about F5 Global Services, contact consulting@f5.com or visit f5.com/support.

DEVCENTRAL

The F5 DevCentral® technical community is an active and engaged source for the best technical, how-to articles, discussion forums, shared code, media, and more related to programmability and Application Delivery Networking.

BIG-IP LTM FEATURES

Application Traffic Management

- Intelligent load balancing
- Application protocol support (HTTP/2, SSL/TLS, SIP, etc.)
- Application health monitoring
- Application connection state management
- F5 OneConnect
- Advanced routing (BGP, RIP, OSPF, ISIS, BFD)
- SDN services (VXLAN, NVGRE)

Application Delivery Optimization

- Symmetric adaptive compression
- RAM cache and compression
- TCP Express
- HTTP/2 gateway

Secure Application Delivery

- SSL connection and session mirroring
- Hybrid crypto services (Hardware SSL offload for BIG-IP VE)
- SSL/TLS encryption offload (hardware accelerated)
- Algorithm agility (GCM, ECC, Camellia, DSA, RSA)
- Suite B support including forward secrecy
- Internal/Network/Cloud HSM (FIPS 140-2)
- SSL visibility

Application Visibility and Monitoring

- F5 Analytics
- Performance dashboard
- High-speed logging
- sFlow

Programmable Infrastructure

- iRules and iRules LX for data plane programmability
- iCall for event-based control-plane scripting
- iApps for app-level config management and deployment
- iControl for Management API (SOAP, REST)

Automation and Container Ingress

- Automation Toolchain for declarative apps services configurations
- Application Services 3 Extension (AS3) automates Layer 4-7 services
- Declarative Onboarding for initial provisioning and configurations
- Telemetry Streaming for data stream export to 3rd party analytics
- FAST templates for declarative app services configurations
- Container Ingress Services for automation of container app services

Ecosystem Integrations

- Ansible templates for app services automation

- Terraform modules for deployment automation

- Cisco ACI and F5 BIG-IP for integrated network fabric and control

- Puppet for automation of configurations and app services

- Chef for configuration management integrations

- F5 Distributed Cloud Bot Defense for attack mitigation

ScaleN

- On-demand scaling

- All-active application clustering

MORE INFORMATION

To learn more about BIG-IP LTM, visit f5.com to find these and other resources.

Web
BIG-IP Local Traffic Manager
DevCentral

Data sheets
BIG-IP System Hardware
BIG-IP Virtual Editions
rSeries
VELOS
VIPRION

Articles and guides
State of Application Strategy 2021: Unpacking the Current and Future State of Application Security and Delivery
3 Tips for Maintaining a High-Performing App Portfolio
Choose advanced cloud solutions that will scale into the future
Load Balancing Your Applications

Case studies
Varolii: SaaS Provider Ensures High Uptime and Resiliency for Critical Customer Apps with F5
Motorists Insurance Group Gives Customers A Seamless Experience With F5 + Okta Solution
Pandora Scales to Serve Tens of Millions of Internet Radio Users with F5 Solution
MarketAxess Increases Productivity with F5 and Ansible Automation

Use cases
Deploy Consistent Policies across Any Cloud
Integrate into Container Environments
Troubleshoot App Performance Issues
Integrate into CI/CD Pipelines