BIG-IQ Centralized Management

Simplify Management in an App-Centric World

F5® BIG-IQ® Centralized Management provides a unified point of visibility and control for your entire F5 portfolio, ensuring your finger remains on the pulse of F5 devices, modules, and licenses and enabling you to deliver optimal application availability, performance, and security.

BIG-IQ supports F5 BIG-IP® end-to-end, including: BIG-IP Virtual Editions (VEs); BIG-IP Per-App VEs; BIG-IP iSeries® appliances, F5 VELOS platform, and; the F5 VIPRION® platform. BIG-IQ manages policies, licenses, SSL certificates, images, and configurations for F5 appliances and for the following F5 modules:

- BIG-IP Local Traffic Manager™ (LTM)
- F5 Advanced Web Application Firewall™ (WAF)
- BIG-IP Advanced Firewall Manager™ (AFM)
- F5 SSL Orchestrator®
- F5 DDoS Hybrid Defender®
- BIG-IP Access Policy Manager® (APM)
- F5 Secure Web Gateway Services
- BIG-IP DNS

ICSAlabs
CERTIFIED SSL VPN
FIREWALL-CORPORATE

Features of BIG-IQ

FLEXIBLE AND UNIFIED MANAGEMENT

BIG-IQ saves you time and money by providing a single point of management for all your BIG-IP devices—whether they are on premises or in a public or private cloud. It can manage any physical or virtual BIG-IP device so long as it can establish layer 3 connectivity for management, either by GUI or through APIs. You can run BIG-IQ on AWS and Microsoft Azure and in most private cloud architectures.

To further simplify and clarify app management, BIG-IQ represents multiple application services that support an app as a single entity. By combining services into a single application, you can visualize and manage the aggregation of these services to get a full view across multiple environments, tiers, or geographies. Yet, you can still drill down to view the individual services for more specific insights into performance and analytics.

BIG-IQ supports the creation, visibility, and management of applications deployed across multiple devices, clouds, and data centers. This allows for enhanced management capabilities of all DNS, TCP, and HTTP instances of an application deployment, including those configured with the Application Services 3 Extension (AS3). The system administrator can specify user access and management permissions to these application deployments. BIG-IQ helps teams align to the flexibility of cloud with its deep visibility into applications health and performance as well as simple, unified operations—enabling you to make data-driven decisions and quickly respond to changes in application environments which are extremely variable.

ROLE-BASED ACCESS CONTROL

Operating at the speed of innovation requires every person within an organization to do their job and do it effectively. That's why role-based access control (RBAC) is so critical, not only for security purposes but also for doing things efficiently day to day. BIG-IQ supports fine-grained, highly customizable RBAC, enabling security and application teams to manage their own application services, policies, and configurations without depending on network administrators.

Use the predefined roles and permissions configurations in BIG-IQ, or create your own, to manage who can see application dashboards and to edit and deploy services and policies for application delivery and security. You can associate roles with local users and groups, or other users and groups from remote Active Directory (AD), TACACS+, RADIUS, or LDAP servers. Additionally, as F5 releases new versions of BIG-IQ, RBAC will be extended to more workflows, dashboards, logs, and reports—ensuring every BIG-IQ user has appropriate visibility into and control of their portion of the application.

CENTRALIZED ANALYTICS LOGS, DASHBOARDS, AND AUDITING

BIG-IQ is a single, end-to-end solution for analyzing the health, performance, and availability of your F5 application delivery and security portfolio in any environment. It provides detailed analytics, logging, and auditing across devices, services, and the applications they support—making it easy to ensure consistency across hybrid and multi-cloud deployments and simplify the troubleshooting process if something goes wrong.

This holistic view is powered by deep, application-centric analytics. BIG-IQ's Data Collection Devices collect the analytics. Data Collection Devices are a no-cost, no-license component of the BIG-IQ solution. Once health and performance metrics are captured via Data Collection Device, they are displayed on BIG-IQ's highly customizable dashboards that can:

- Show a high-level "at-a-glance" status and analytics
- Provide deep application- and role-specific views of app health and performance
- Offer insights into security status, server-side round trip time, specific browser performance, and many other helpful metrics
- Extend visibility, analytics, and basic configuration controls to legacy app services (those deployed without a template or using BIG-IQ)

INTEGRATIONS

Automation

Manage your applications with the AS3—part of the F5 Automation Toolchain—and BIG-IQ. AS3 and BIG-IQ make it fast and easy to create, configure, and deploy consistent BIG-IP application services and policies. Through this integration, you can leverage a declarative model—just input the "what" or end state instead of the "how"—to create, import, and edit AS3 templates to use when deploying application services.

Using BIG-IQ with AS3's declarative API and templatized approach supports standardized, automated declarative app services and security policies, which enables you to accelerate application deployment, ensure consistency, and increase deployment flexibility—all without needing advanced domain expertise. AS3 declarations can be reused for many services deployments, guaranteeing repeatability and minimizing manual repetition. NetOps teams can use AS3 in BIG-IQ, leveraging an intuitive GUI, while development teams continue to use the API they know and love. The BIG-IQ and AS3 integration makes it easier than ever to automate and centrally manage advanced application services as part of the F5 Automation Toolchain.

F5 maintains an AS3 template library for BIG-IQ where you can find templates you can either use as-is or customize for your deployment environment. You can download the templates directly to your BIG-IQ system. After you download the templates, you can use them just like you would any other AS3 application template. AS3 templates work on BIG-IQ in much the same way they do on BIG-IP. For more detail on AS3 and how it works, go to "Using AS3 with BIG-IQ."
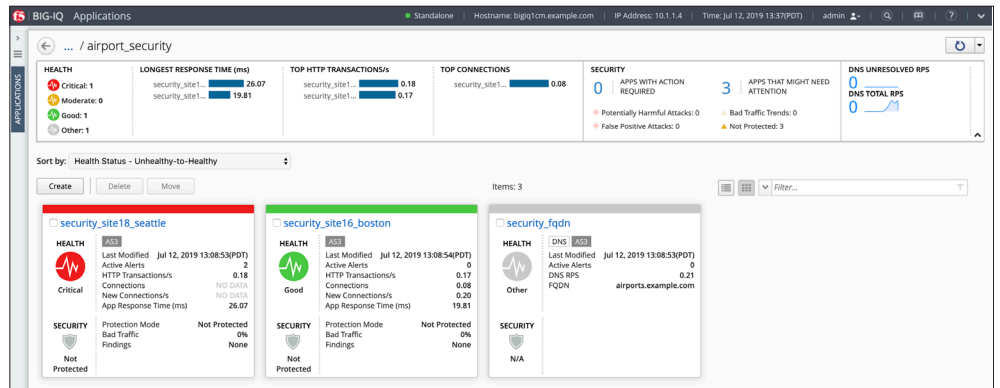
Figure 1: AS3-built app services are denoted in the app-card view. You can use the app-card view for quick insight into overall health of apps and the services that support them.

Certificate and key management

Managing Venafi and Let's Encrypt certificate requests through BIG-IQ automates traditionally laborious processes and reduces the amount of time you spend managing certificates and keys for your managed devices. In addition, you can implement and manage Venafi's token-based authentication for initial access control or configure with MFA (multi-factor authentication). From BIG-IQ, you have a centralized view into the key and certificate lifecycle for your BIG-IP devices across environments.
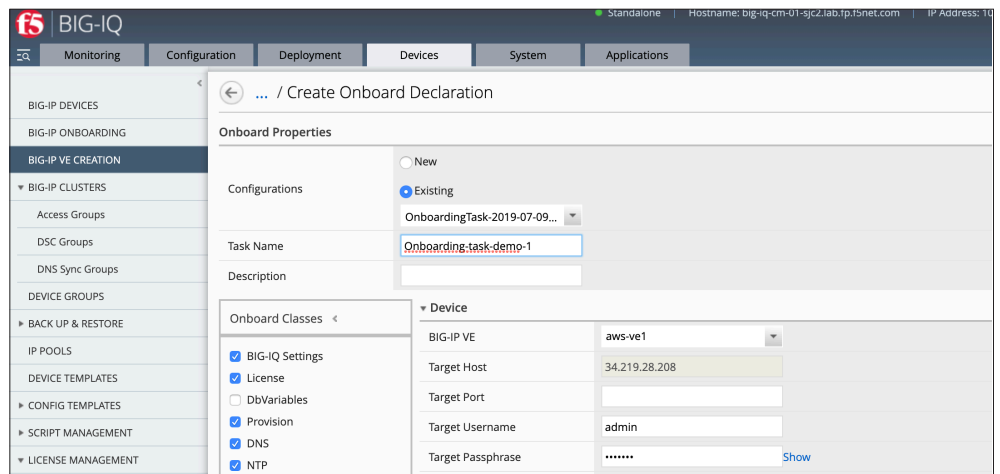

Figure 2: BIG-IQ's integration with Declarative Onboarding helps automate the provisioning and configuration of BIG-IP devices.

SaaS-based visibility and insight

BIG-IQ Centralized Management can feed crucial application performance and security telemetry into F5 Beacon—a Software as a Service (SaaS) offering—to gain an even deeper understanding of your application landscape, F5 and third-party services, infrastructure, ecosystem integrations, and other telemetry agents. F5 Beacon offers application mapping, health status, security and protection visibility, and pre-built or customizable proactive insights into your line of business.

Examples of these proactive insights include resource utilization and cost and showing which apps benefit from a WAF, risk of service disruption, average response time, and more.

The integration between BIG-IQ and Beacon means that everyone—from the CIO to application owners and everyone in between—always has the insight required to make informed decisions (Beacon) and take action from an intuitive, easy-to-use, unified central management portal (BIG-IQ).
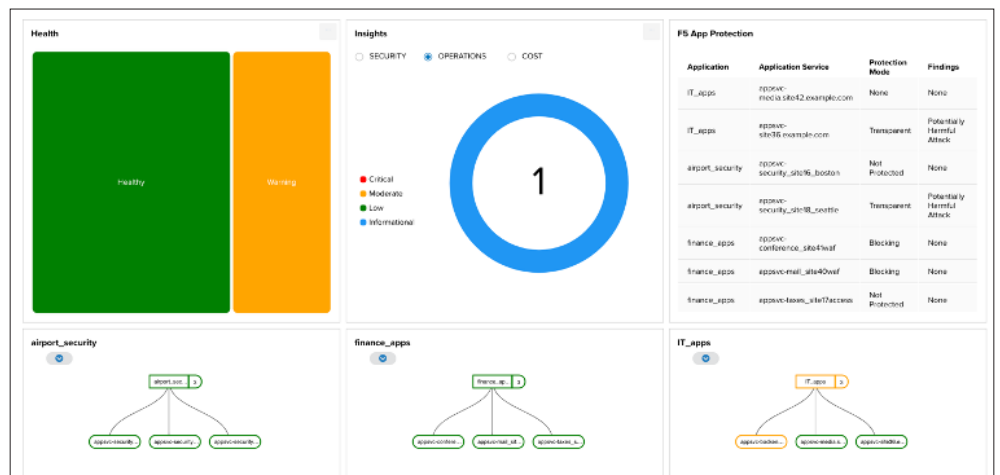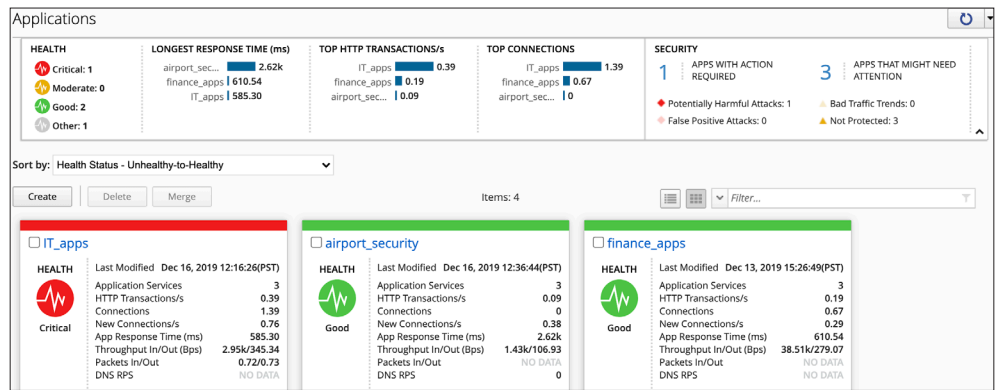
Figures 3 and 4: The BIG-IQ application dashboard provides at-a-glance information into the health and security of applications. The Beacon portal displays the same applications (exhibited by the naming) with mapping, available insights, and the ratio of healthy apps to ones that are at-risk.

- Discover and monitor all devices.

- Create VE devices directly within BIG-IQ.

- Simplify configuration of BIG-IP VEs with Declarative Onboarding.

- Push centralized software updates.

- Manage licenses, templates, configuration changes, SSL, passwords, and remote scripts.

- Easily configure, backup, and restore devices.

- Intelligently scale your BIG-IP VE instances, based on advanced analytics.

- Get support for BIG-IP device clusters.

- View reports on utility and subscription license usage.

- Get visibility into device type.

- Deploy BIG-IQ in high-availability configuration with automatic failover.

Key Use Cases

DEVICE MANAGEMENT

BIG-IQ allows you to inventory and track up to 1,500 managed BIG-IP devices as well as manage the licensing of up to 5,000 devices. Manage devices using an innovative, workflow-based user interface. This is an ideal solution for organizations looking for a comprehensive set of RESTful APIs to integrate the management of an Application Delivery Controller (ADC) into other network-management solutions. Save time and money by simplifying the often-complex task of configuring, provisioning, and updating ADCs.

Just as important, BIG-IQ increases IT agility, allowing the network to adapt automatically by seamlessly integrating the creation, deployment, configuration, and licensing of BIG-IP VEs using Declarative Onboarding—part of the F5 Automation Toolchain.

BIG-IQ's integration with Declarative Onboarding offloads much of the complexity and management overhead associated with initially configuring BIG-IP VEs—all without the need for deep BIG-IP domain expertise. Declarative Onboarding—like AS3—leverages a robust, reusable set of declarative REST APIs. This declarative model means that users only need to input the desired end state or "what" for BIG-IP VEs, while Declarative Onboarding figures out the "how."

Version 7.0 and above takes management of BIG-IP devices, services, and security a step further by ensuring "always on" visibility and control with the ability to deploy BIG-IQ in a high-availability (HA) configuration with automatic failover.

Using an active BIG-IQ, an identically configured standby BIG-IQ, and a "Quorum" Data Collection Device (the deciding vote for designating the active BIG-IQ), the HA configuration of BIG-IQ ensures that you can continue managing BIG-IP devices if your active BIG-IQ loses connection or functionality—without any user intervention. More information on this feature is available on the F5 Knowledge Center.
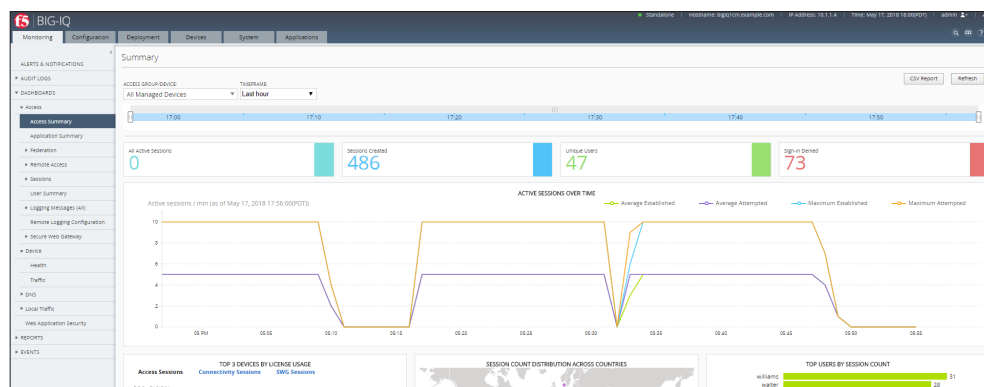

Figure 5: BIG-IQ provides flexible dashboards to help manage network access policies and events.

ACCESS SECURITY CAPABILITIES

- Enable, manage, and deploy threat campaign mitigation over managed BIG-IP devices (version 14.1 or later) running Advanced WAF.

- Import, view, edit, configure, and deploy security policies from a centralized location.

- Review granular consumption details for each VDI application.

- Search for individual users to view activity or kill sessions.

REPORTING CAPABILITIES

- View reports on any combination of discovered BIG-IP devices (and device types), access groups, and clusters.

- View detailed logs of all bot requests to managed devices.

- Share, edit, monitor, and evaluate configurations, profiles, and policies.

- Automate report scheduling for time intervals that make the most business sense.

- Generate reports on orphaned or unused security policies.

SECURITY ADMINISTRATION CAPABILITIES

- Monitor the effectiveness of security policies.

- View, analyze, and compare differential policies.

- Manage Unified Bot Defense (BIG-IP version 14.1) with real-time visibility.

- Securely manage shared objects (address lists, port lists, rule lists, policies, and schedules).

SECURITY AND ACCESS MANAGEMENT

BIG-IQ provides policy deployment, access, and administration management for organizations securing their applications and their networks with BIG-IP ASM, Advanced WAF, SSL Orchestrator, BIG-IP APM, Secure Web Gateway, and BIG-IP AFM.

Access

BIG-IQ uses RBAC to delegate operational tasks, minimize management errors, and reduce downtime. It also helps you easily manage a reliable, effective security posture across deployments, whether your applications are hosted on premises or in the cloud. With BIG-IQ, you can manage and monitor BIG-IP APM and Secure Web Gateway appliances plus Secure Web Gateway as an SSL Orchestrator service via declarative REST API-driven workflows—making the process faster, more repeatable, and aligned to modern application development and deployment practices.

The Visual Policy Editor helps you understand and control access security (e.g., VPN, SSO, federation) policies. Plus, you gain extensive reporting capabilities on your SSL VPN, virtual desktop infrastructure (VDI), users, web access application usage, and Secure Web Gateway activity. In addition, you can apply access control policies across BIG-IP APM instances with import and deployment of policy configurations and enable OpenID Connect (OIDC) with session variables for verifying user identities when using HTTPS end points (BIG-IP 16.1 and higher). It also enables you to ensure policy compliance across your IT landscape.
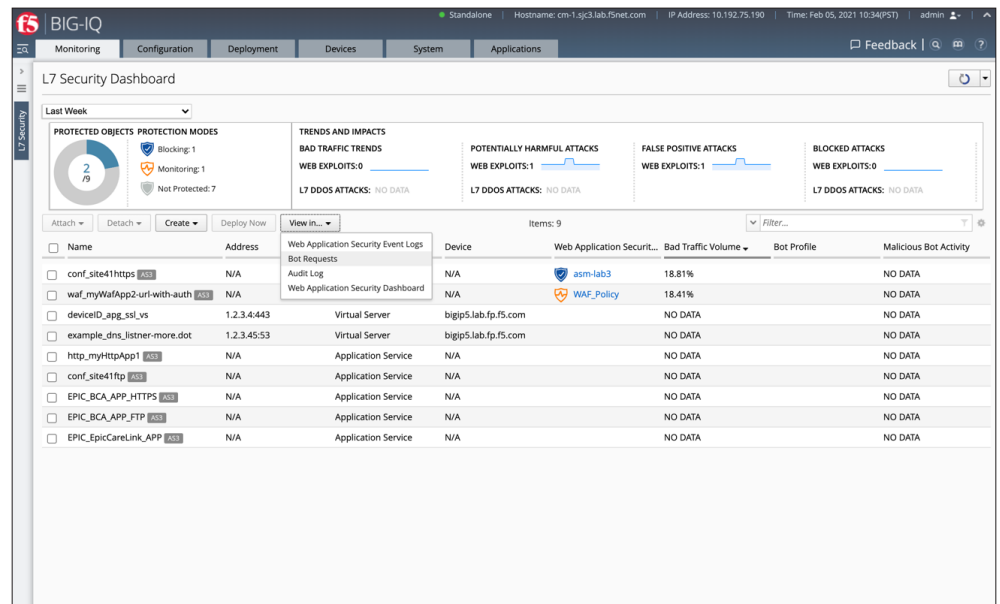
Figure 6: Ensure application security performance from BIG-IQ's L7 Security Dashboard which enables users to drill into important security events and metrics such as WAF status, malicious traffic volume, web exploits, DDoS attacks, bot traffic, and more.

Reporting

Get comprehensive security reporting and alerts for BIG-IP AFM, including reports for network firewalls, DDoS, and F5 IP Intelligence Services reports from your BIG-IP devices. BIG-IQ also creates firewall rule reports. Reporting for security posture includes device type, application, anomalies, DDoS, bot activity, differential security policies, and orphaned or unused policies. You can automatically schedule and generate these reports based on the needs of the business. Additionally, administrators can limit who sees these security-specific reports with BIG-IQ's RBAC.
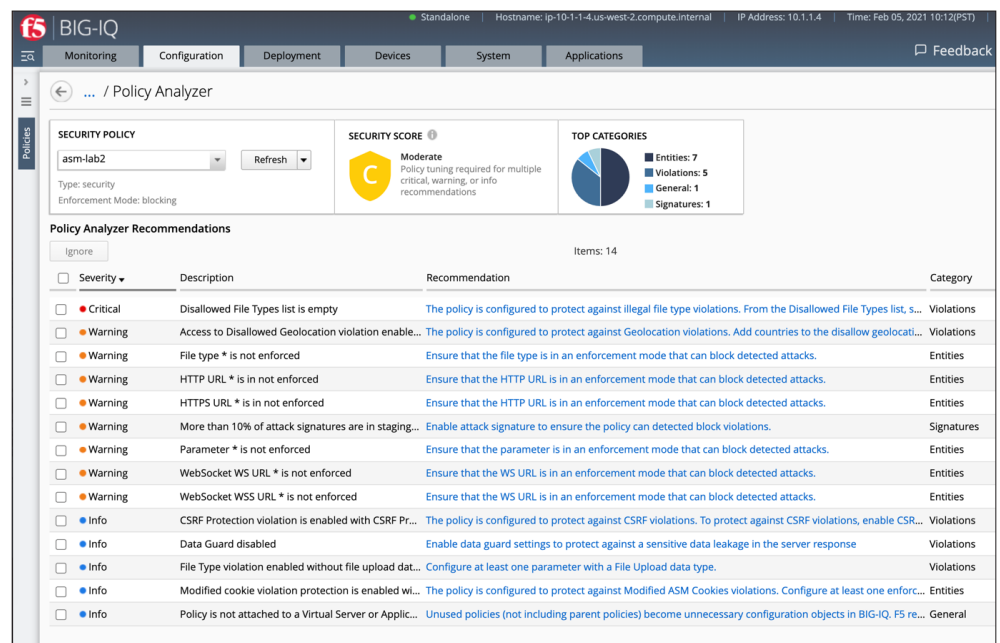
Figure 7: The BIG-IQ Security Policy Analyzer helps security pros improve their configurations and policies by scoring them and offering suggestions to enhance effectiveness.

Security administration

BIG-IQ simplifies verification of existing firewall policies, auditing of policy changes, and tracking policy deployments to specific network and web application firewalls and enables you to centrally manage Advanced WAF services. It consolidates L3–4 DDoS profiles, DDoS device-level configurations, profile vector enhancements, and allowlists for controlling DDoS response. Security pros can also proactively evaluate and improve their security policies through BIG-IQ's policy analyzer and gain visibility into differential security policies through the security dashboard.

- Simply and quickly create service chains of security inspection services from a pre-built catalog of partners such as Cisco, Symantec, and others via REST API.

- Centrally manage topologies and configurations (e.g., services, service chains, policies, and interception rules) for multiple inspection devices and tools.

- Manage classification metrics (e.g., domain name, IP reputation, and others) to configure dynamic service chains.

- Ensure SSL Orchestrator security policy rules have the most up-to-date Office 365 URLs with the ability to periodically fetch (from Microsoft) and update selected BIG-IPs from BIG-IQ.

SSL ORCHESTRATION

With BIG-IQ, you can orchestrate SSL and Transport Layer Security (TLS) traffic at scale by centralizing traffic decryption and re-encryption, and intelligently steering traffic to appropriate, dynamic security service chains. This allows for independent service management and monitoring through a dedicated SSL Orchestrator dashboard—all via declarative REST API. This greater visibility provides you with critical management insights into the traffic and health of configured SSL Orchestrator processes and host devices. Simplify troubleshooting by leveraging insights into traffic decryption, SSL Orchestrator services, and the health of managed SSL Orchestrator processes and host devices.
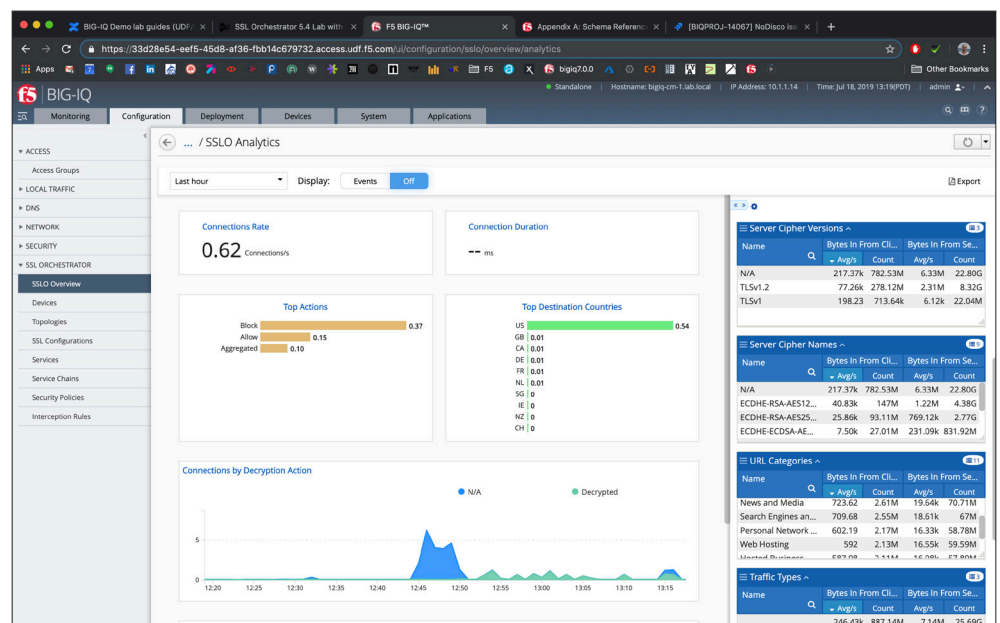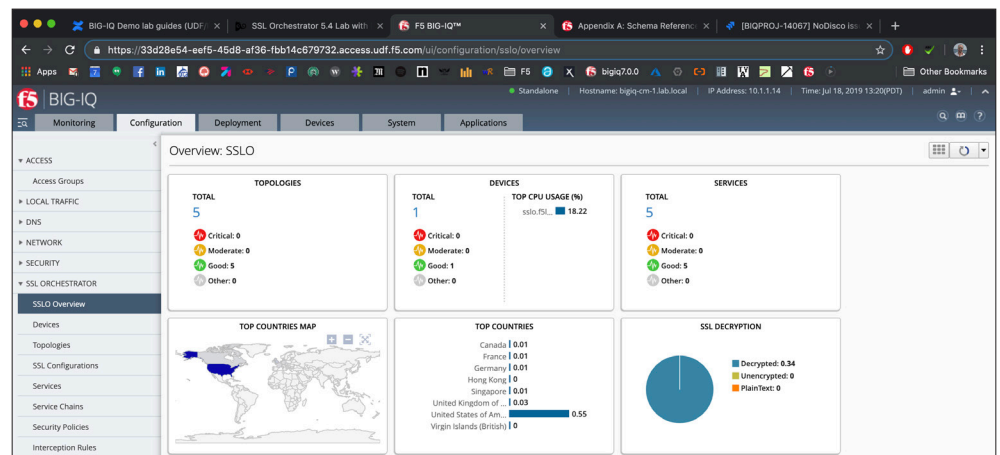
Figures 8 and 9: BIG-IQ provides both an at-a-glance and a comprehensive view of SSL traffic, topologies, devices, services, and key metrics with analytics.

- Quickly see the configuration and performance of your DNS infrastructure and BIG-IP LTM devices.

- Create a catalog of app templates to allow customers to rapidly deploy similar applications.

- Manage key load balancing attributes such as VIPs, pools, members, profiles, and nodes.

- Create, discover, edit, and remove F5 iRules®, nodes, pools, secure network address translation (SNAT) pools, and pool members.

- Copy any monitor and most profiles from a source BIG-IP LTM, and deploy other BIG-IP LTM modules.

BIG-IP LTM AND BIG-IP DNS MANAGEMENT

BIG-IQ Centralized Management increases productivity and allows you to deliver applications more effectively. It also serves as a unified management solution for BIG-IP LTM modules, giving you greater visibility into network traffic. Gain real-time analytics and an in-depth look at network availability from one centralized dashboard.

BIG-IQ handles many ADC functions, including configuration management, health monitoring, certificate management, and large-scale configuration templating. With this solution, you provide application owners with self-service control (i.e., enable, disable, or force offline) of virtual servers and pool members.

By using BIG-IQ to manage BIG-IP DNS, you can create, retrieve, update, and delete all global server load balancing (GSLB) objects; obtain tools to deploy and rollback GSLB policies; and gain the ability to manage DNS listener and profile configurations. BIG-IQ can help you manage query responses with scalability and detect when DNS servers aren't performing optimally.
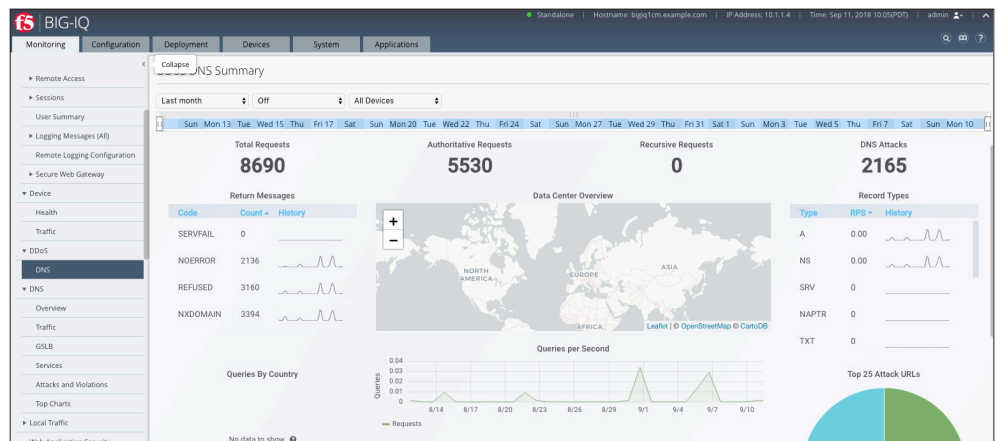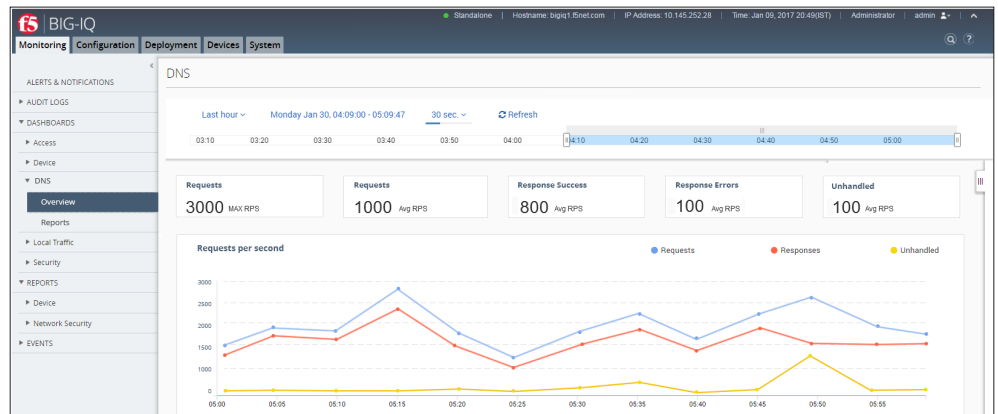
Figures 10 and 11: BIG-IQ provides a comprehensive overview of DNS traffic, services, errors, attacks, and GSLB metrics.

- Collect and aggregate detailed metrics such as transactions per second, server and client latency, request and response throughput, and sessions.

- Leverage flexible dashboards to troubleshoot faster and more efficiently.

ADVANCED ANALYTICS AND VISIBILITY

BIG-IQ provides extensive visibility into the health and performance of your applications and the BIG-IP devices they rely on. It starts where the F5 Application Visibility and Reporting (AVR) module leaves off, collecting and aggregating statistics from your BIG-IP devices—both locally and in the cloud.
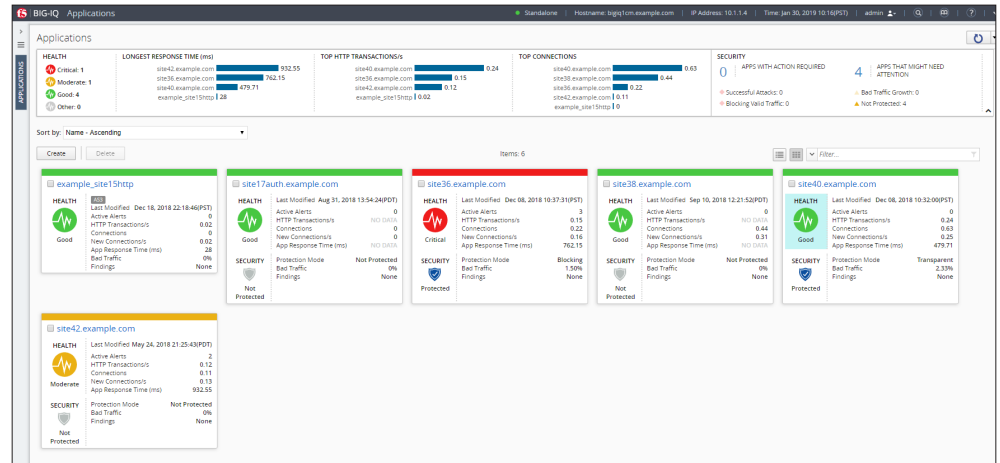
Figure 12: BIG-IQ Centralized Management provides flexible dashboards showing at-a-glance health and performance metrics on a per-application basis.
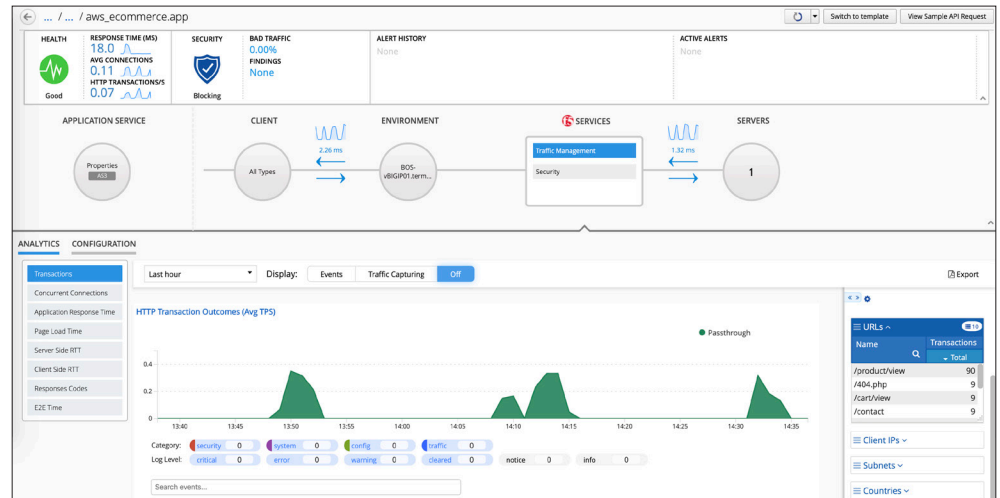
Figure 13: Detailed views for specific applications give you access to advanced analytics, alerts, and other pertinent metrics on app health, security, and performance.

BIG-IQ Centralized Management Platform

BIG-IQ Centralized Management is available as a virtual edition in an agile and flexible form factor. You will gain device management and per-app dashboards and analytics — all in software designed for use in single-, hybrid-, or multi-cloud architectures.

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.

FLEXIBLE, SIMPLIFIED LICENSING

Meeting your application service needs in a dynamic environment has never been easier. F5 provides you with the flexibility to provision advanced modules on-demand, at the best value:

- Decide what solutions are right for your application's environment with F5 Solutions.
- Specify the subscriptions you need across hybrid-cloud environments.
- Flexible umbrella licensing for any app services solution needed with Enterprise Licensing Agreements.
- Implement complete application flexibility with the ability to deploy your modules on a virtual or physical platform.

MORE INFORMATION

To learn more about BIG-IQ Centralized Management or other F5 resources, visit f5.com. You can also join the discussion about the management and orchestration of F5 solutions on DevCentral®.