



Scaling DNS Services with BIG-IP DNS

With network traffic growing dramatically to support new mobile users and web services, service providers need a scalable, secure DNS solution. F5® BIG-IP® DNS provides an intelligent way to respond to DNS queries, enabling you to optimize your LDNS infrastructure with lower latency—and deliver a better quality of experience, resulting in increased revenue and reduced subscriber churn.

Scaling, Securing, and Optimizing DNS

One of the core Internet technologies, DNS (Domain Name System) is also one of the most important components in your network infrastructure, as it enables users to access services. If DNS is unavailable, your services will fail to function properly.

Operators need to build an optimized and secure DNS infrastructure to better serve their users today and in the future. However, creating this infrastructure requires a tremendous amount of real-time management, stability, and room to grow. Scaling DNS rapidly becomes a critical issue when you're dealing with millions of service names and IP addresses. As you scale your control plane and look to automate the mobile core, you also need to ensure the security of subscriber and billing data, as well as the capacity to withstand attacks.

So while an efficient and secure DNS infrastructure remains a vital part of a service provider's offering, it presents serious implementation and management challenges. That's where BIG-IP DNS comes in with hyper-scale and security services.

Solution

The F5 BIG-IP® system makes it easy for operators to optimize, secure, and monetize their DNS infrastructures with a carrier-grade, secure, high-performance, and authoritative DNS-resolving solution that also includes caching and resolving capabilities.

BIG-IP DNS delivers an intelligent and scalable DNS infrastructure for faster access and web response to services for mobile users. BIG-IP DNS can load balance local and recursive DNS services, and it enables a DNS64 environment, creating a fault-tolerant architecture—optimizing network traffic and increasing the quality of your user experience.

BIG-IP DNS includes a comprehensive security solution to protect your DNS infrastructure from common DNS DDoS attacks by hyper-scaling up to 40 million query responses per second (RPS) for attack mitigation, while providing the ability to inspect, validate, and control DNS through protocol validation and rate-limiting. In addition, BIG-IP DNS helps you understand attacks with monitoring, alerting, logging, and analytics while spreading the load between synced BIG-IP DNS devices. Finally, mitigate DNS threats by blocking access to malicious IP domains with outbound domain filtering using Response Policy Zones.

Key features

- **Global DNS**—Provides distributed DNS and IP Anycast integration for scalability and optimization.
- **Authoritative DNS**—Hyper-scales responses up to 40 million RPS.
- **Service Availability**—Uses topology load balancing to deliver users to the best available service.
- **Lower LDNS Latency**—Enables caching and resolving by offloading your LDNS and back-end DNS infrastructure.
- **DNS Inline Services**—Manages network traffic with high availability to DNS and caching ENUM services.
- **IPv6 and DNS64 support**—Translates traffic for consumption by either IPv4 or IPv6 endpoints.
- **Logging, Reporting, and Analytics**—Uses detailed DNS and GSLB data, statistics, and graphs for in-depth analysis.

Key benefits

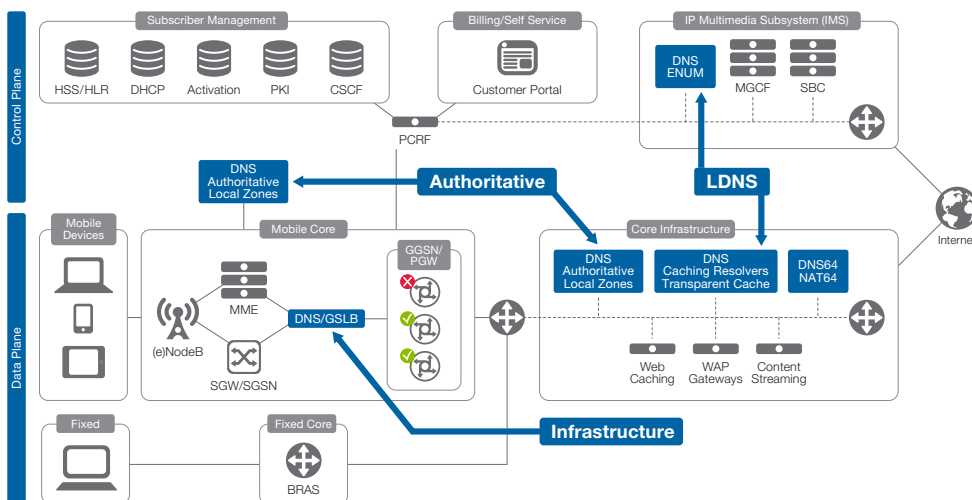
- **Higher ARPU and Lower Subscriber Churn**—Creates a fault-tolerant architecture for maximum efficiency and monetization.
- **Service Provider Scalability**—Scales to handle millions of subscribers from multiple network device types.
- **Strong Security**—Mitigates in-network attacks, while providing the ability to monitor, alert, log, inspect, and validate DNS content. Mitigates DNS threats and blocks access to malicious IPs.
- **Unequaled Support**—Keeps service operations online with 24x7 access to support.

BIG-IP DNS hyper-scales DNS services and responds authoritatively to DNS queries up to 40 million query RPS—supporting 4G/LTE subscriber growth and reducing your DNS server count. With caching and resolving, BIG-IP DNS offloads your LDNS infrastructure and back-end DNS services by responding significantly faster to subscriber queries while dramatically reducing latency. These efficiencies can result in increased ARPU and more satisfied subscribers, leading to maximum monetization.

BIG-IP DNS works with other F5 service delivery solutions for NAT64 translation; for subscriber and application awareness with policy enforcement; and for high-performance service delivery. This creates a complete service delivery infrastructure. This F5 integrated solution for service providers helps you optimize and secure your DNS infrastructure—and keeps your users satisfied.

The BIG-IP platform provides the following DNS services:

- Authoritative DNS hyper-scalability, handling millions of global name requests per second
- Pinpoint service delivery with topology load balancing service
- Consolidation and offloading of LDNS with high-performance DNS caching and resolving
- DNS delivery performance for both inline and recursive DNS
- DNS DDoS mitigation, query validation, traffic inspection and manipulation, and malicious IP blocking
- Additional BIG-IP intelligent services solutions such as global service delivery, policy enforcement, NAT64 and DNS64 translation, F5 iRules®, and health monitors
- Automation of packet gateway selection using DNS and global server load balancing services for optimized service experiences



BIG-IP DNS automates the mobile core network, hyper-scales service delivery, and secures DNS in both the data plane and control plane.

Learn more

For more information about BIG-IP DNS, please see the following resources or use the search function on f5.com.

Blog

[Mitigating Unwanted Communication on Your Service Network](#)

[F5 Intelligent DNS: Optimizing the Mobile Core](#)

Datasheet

[BIG-IP DNS for Service Providers](#)

Web pages

[Service Provider DNS Solutions](#)

[BIG-IP DNS](#)

White papers

[The Dynamic DNS Infrastructure](#)

[Mitigating DDoS Attacks with F5 Technology](#)

Videos

[Threats to Mobile Carrier Networks](#)

[Intelligent DNS for the Evolved Packet Core](#)

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