



# Optimize and Monetize the Network with BIG-IP Policy Enforcement Manager

To remain profitable, communications service providers (CSPs) must find new ways to support increased demands on their networks. Consumers are accustomed to anytime, anywhere access to resource-intensive content like streaming video and high-bandwidth apps—from their mobile devices. Consequently, data usage is growing at an unprecedented rate. F5® BIG-IP® Policy Enforcement Manager™ (PEM) helps you deliver high-quality customized services while optimizing your network by efficiently managing the explosion of data and traffic.

## Managing the Network and Providing New Services

The rapid deployment of 4G LTE networks is delivering faster network speeds—but it's also increasing the appetite of subscribers who are consuming data at a greater rate. Yet average revenue per user (ARPU) remains steady or even declines. Unfortunately, the amount of data downloaded per user each month is increasing faster than the ARPU. Thus, you're challenged to maximize network performance and generate new revenue streams while still increasing the subscriber's quality of experience (QoE).

As you incorporate value-added services to increase QoE, you need to be able to steer content from participating subscribers to experience-enhancing services such as video optimization, parental controls, or enhanced firewall or security solutions. To help you maintain services that are compelling to subscribers and also cost-effective for you, BIG-IP PEM provides intelligent Layer 4–7 traffic steering, network intelligence, and dynamic control of your network resources through subscriber- and context-aware solutions. The deep reporting capabilities of BIG-IP PEM also help you increase ARPU because you can capitalize on this data to build tailored services and packages that are based on your subscribers' app usage and traffic classification and patterns.

In addition to boosting QoE, you must also manage your networks more efficiently. For instance, rolling out a data quota plan where rate limiting is applied to subscriber traffic that exceeds certain thresholds will reduce network congestion while improving subscriber experience. BIG-IP PEM delivers the insight you need to understand subscriber behavior and effectively manage network traffic with a wide range of policy enforcement capabilities. And, with greater visibility into subscriber usage patterns, you'll also be able to create customized services and get them to market quickly.

BIG-IP PEM also provides solutions for optimizing content delivery, including caching and compression, and content inspection services that help you realize the full potential of policy control. Content inspection allows you to clearly identify the type of content that is being transported via ubiquitous protocols such as HTTP—whether it is images, text, or video. BIG-IP PEM classifies the content and applies the appropriate policies to manage the traffic.

## Key features

- **Traffic Classification**—Classify traffic into several categories of applications and protocols
- **Policy Enforcement**—Provide intelligent traffic steering, bandwidth control, and priority precedence with subscriber and application granularity
- **Traffic Reporting**—Report about activity at the per-session and per-application level and gain insight based on event-driven, flow-based records
- **Charging**—Integrate with online charging subsystems for real-time credit control and quota management for subscribers
- **TCP Optimization**—Minimize the effects of congestion and packet loss for 3G/4G networks and deliver up to 2x performance gains for subscribers and 4x improvement in bandwidth efficiency

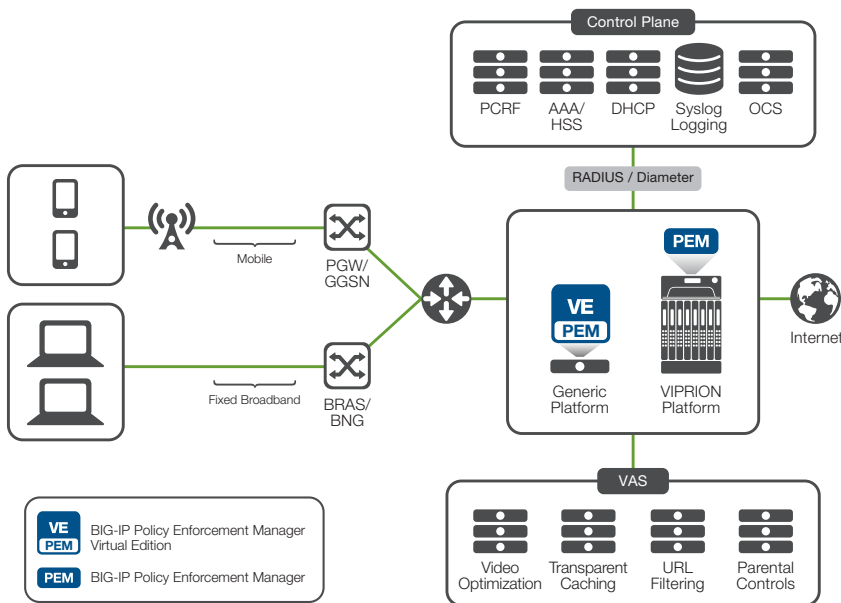
## Key benefits

- **Enable New Business Models and Services**—Add quality-enhancing and revenue-generating services
- **Optimize Network Performance**—Reduce the impact of network congestion
- **Consolidate Servers and Reduce Costs**—Design a flexible infrastructure with purpose-built hardware or as a virtualized network function (VNF)
- **Achieve Carrier-Grade Performance and Scalability**—Provide high availability and a scalable network solution

## Solution

BIG-IP PEM enables service providers to optimize and monetize the network with flexible, context-aware policy enforcement by providing:

- **Traffic classification**—Identify protocols and services including:
  - P2P: BitTorrent, Gnutella
  - VoIP: SIP, Skype, Yahoo!, Jabber
  - Web—HTTP, HTTPS, FTP, YouTube, Facebook
  - Non-TCP/UDP: IPsec, GRE, IPinIP, ICMP
- **Subscriber awareness**—Identify subscribers via RADIUS and/or DHCP and provide information such as IP address, IMSI, mobile tower information, and correlation of application context to subscriber identity for more granular awareness.
- **Intelligent traffic steering**—Take advantage of advanced Layer 7 steering of traffic based on application, subscriber identity, or a combination of the two.
- **Bandwidth control**—Manage traffic using DSCP, Layer 2 quality of service, and rate limit based on application classification and subscriber identity.
- **Detailed reporting**—Get detailed reporting about traffic on a per-subscriber and per-application level for deep insights into subscribers’ data usage patterns.
- **Charging**—Integrate with PCRF and OCS to enforce subscriber policies and manage access to data services based on rights and quotas.
- **Flexibility**—Customize traffic management and steering policies to meet specific subscriber and application requirements using F5’s iRules® scripting functionality.



F5 provides a scalable and cost-effective solution for policy enforcement management and traffic steering through an intelligent services platform.

## Learn more

For more information about BIG-IP PEM and the BIG-IP platform, please see the following resources or use the search function on [f5.com](http://f5.com).

### Product pages

[BIG-IP Product Suite](#)

[BIG-IP Policy Enforcement Manager](#)

[iRules](#)

### White paper

[Intelligent Traffic Management with the F5 BIG-IP Platform](#)

### Solution profiles

[Scaling and Securing the Control Plane](#)

[Intelligent Traffic Management](#)

### Datasheet

[BIG-IP Policy Enforcement Manager](#)

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