



In-Line Services on the Cisco ASR 5000: Intelligent Mobile Service Monetization

At-A-Glance

The explosion in mobile data and the growing demand for high-bandwidth mobile applications in an increasingly competitive market requires mobile operators to simultaneously increase network capacity and performance, while also delivering differentiated services that can be quickly monetized and optimized for customer attraction and retention. These often opposing forces require mobile operators to build networks in new, "smarter" ways in order to maintain profitability.

The Cisco's ASR 5000 is a proven mobile multimedia gateway platform and is one of the highest performing and most reliable and flexible packet core solutions on the market today. With integrated deep packet inspection (DPI) capabilities, the ASR 5000 also provides operators with a critical tool to better manage their networks and more quickly deliver new mobile services.

By integrating DPI for network and service intelligence along with value-added services into the ASR 5000, Cisco has created a highly efficient solution. The solution reduces capital costs through integration while at the same time allowing mobile operators to develop and quickly take to market differentiated services for rapid network monetization.

Cisco In-Line Services

Network operators must be able to monitor subscriber profiles, applications, and services and apply the appropriate service policies. With Cisco In-Line Services integrated into the Cisco ASR 5000, the network becomes session state-aware, subscriber-aware, service-aware, access-technology-aware, and location-aware. Operators can apply different subscriber service-level agreements, manage traffic flows, and introduce new services.

The benefits of In-Line Services include:

Optimization:

- **Service optimization:** Improves the quality of experience for the mobile user by optimizing network performance through traffic shaping and optimization techniques.

- **Network optimization:** Improves network efficiency and reduces network complexity with license-enabled, value-added services. Improves network planning accuracy and reduces operator costs.

Monetization:

- Enables value-added services, such as parental controls and turbo boosts, that help monetize mobile data traffic. Enables service tracking and reporting so that you can improve planning and manage service offers effectively.

Security:

- Helps protect the network and subscribers from malicious attacks and helps operators comply with regulatory requirements.

Solution Components

Deep Packet Inspection

Deep packet inspection gives operators the ability to provide subscriber- and application-level security, traffic management, and service creation.

Service Steering

Service Steering directs selective subscriber traffic flows to internal and/or external services and servers and includes load-balancing capabilities, improving service reliability and reducing costs.

In-Line Services

Enhanced Charging

Cisco In-Line Enhanced Charging provides subscriber- and application-aware billing and reporting, call detail record (CDR) generation, and quota metering. With Enhanced Charging, operators can develop and offer tiered bandwidth rate structures to increase data revenues.

Content Filtering

Cisco In-Line Content Filtering with static and dynamic analysis allows operators to easily offer parental controls and blacklisting services, as well as age verification.

Header Enrichment and Ad Insertion

Access to user and network usage data allows operators to offer targeted mobile advertising for additional revenue opportunities.

Firewall and NAT

The firewall service protects both the gateway and the subscriber from malicious attacks. The Network Address Translation/Port Address Translation (NAT/PAT) service adds security by hiding the addressing architecture and terminating sessions. It can also be used for IPv4 address conservation.

Network Traffic Optimization

- **QoS Control and Traffic Policing and Shaping:** Quality-of-service (QoS) Control allocates network resources and provides quality of service based on parameters such as volume, usage, time of day, and traffic type. Traffic Policing and Shaping allows you to manage bandwidth usage on the network and limit bandwidth allowances to subscribers. Shaping allows you to buffer excesses to be delivered at a later time.
- **Traffic Packet Optimization:** Traffic Packet Optimization (TPO) provides clientless traffic optimization for TCP and HTTP. With TPO, end users enjoy an enhanced experience with faster response times and higher throughput. TPO adapts to network conditions and resources to help ensure high-quality mobile services.

Application Detection and Optimization

The peer-to-peer (P2P) optimization service uses behavioral detection to identify specific applications. This service allows the network to appropriately manage and report on specific traffic in order to safeguard network performance and maintain service quality for all subscribers.

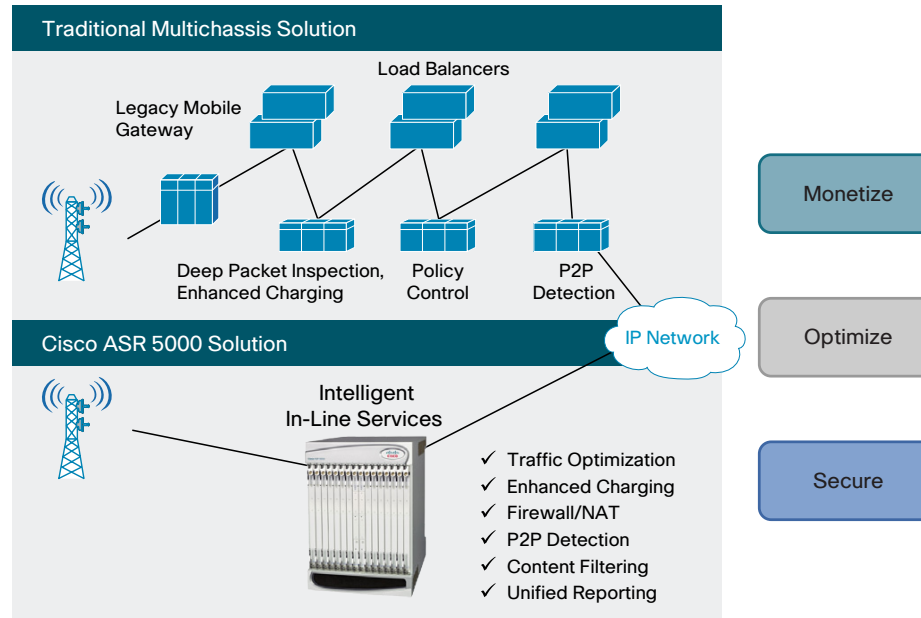
Mobility Unified Reporting

The Cisco Mobility Unified Reporting System (MURS), part of the Cisco ASR 5000 Series platform, captures real-time service, tracing, and troubleshooting information and outputs a comprehensive set of statistics, customized reports, and statistical trending. The Cisco MURS allows operators to optimize network performance, introduce targeted services, and accurately plan infrastructure investments.

Figure 1 summarizes the solution components and benefits of Cisco ASR 5000 Series In-Line Services.

Figure 1. Cisco ASR 5000 Series In-Line Services

Integrated Intelligence for the Next-Generation Mobile Network



Offer new services, shape subscriber experience, improve TTM, and reduce OpEx with a simplified network