Cisco Mobility Unified Reporting System: Capture Real-Time Subscriber Statistics

What are the usage patterns of individual subscribers – how do they vary by time of day, subscriber group, or region? What applications are consuming the most bandwidth on your network? Are there subscriber segments ripe for new services?

As a mobile operator, you've deployed a mobile broadband network that provides subscribers with Internet access, messaging, streaming video, audio downloads, and other multimedia services.

Session, application, and network knowledge is critical to provide a superior service experience to customers. Real-time statistics and usage trends can help prevent network issues before they occur and identify customer segments for targeting new services.

Cisco Mobility Unified Reporting System captures real-time service, tracing, and troubleshooting information and outputs a comprehensive set of statistics, customized reports, and statistical trending from a single unified platform, the Cisco® ASR 5000. The solution not only provides subscriber and traffic level statistics but it also provides gateway statistics which allows you to correlate traffic information with the performance of the gateway. This is critical to planning infrastructure investments. Figure 1 shows how traffic categorization reports allow you to see connections, throughput, bandwidth, and more. Figure 2 and 3 give examples of reports that include individual subscriber-level information and subscriber usage statistics, to help optimize network performance and introduce targeted services.

Figure 1. Traffic Categorization Reports

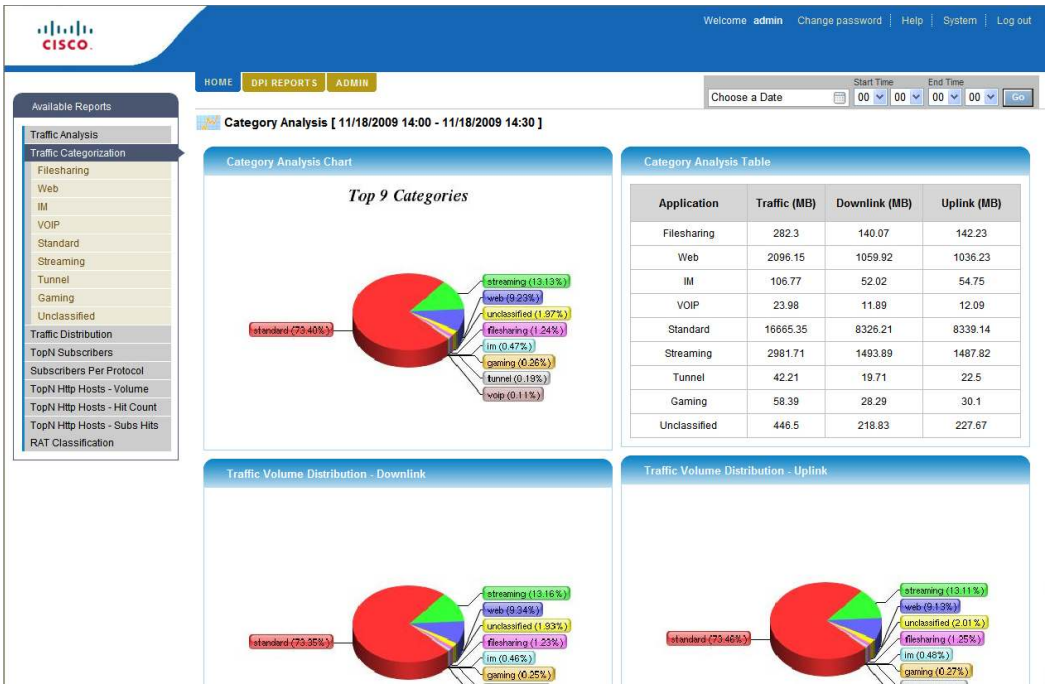


Figure 2. Reports Drilled Down by Individual Subscriber

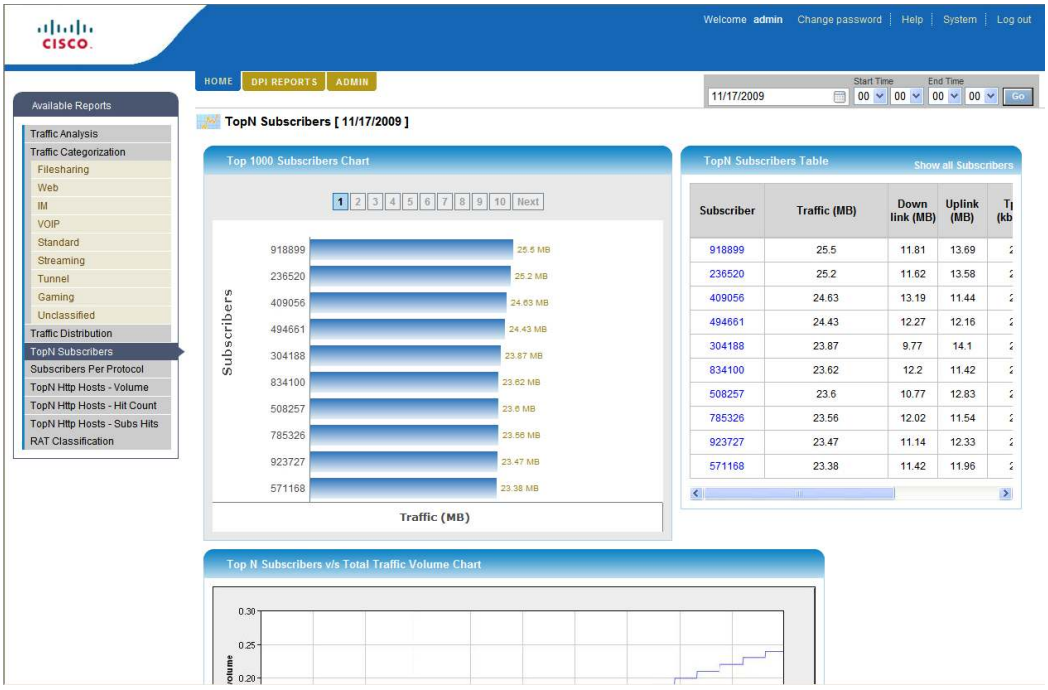
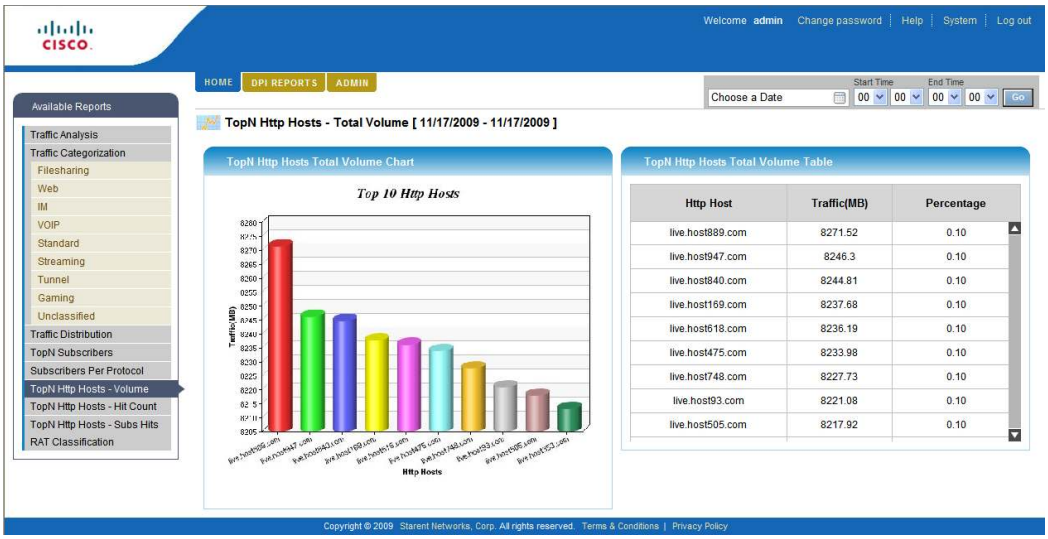


Figure 3. Ten Top HTTP Hosts Report



Cisco Mobility Unified Reporting System enables you to:

- Optimize network performance
- Introduce targeted services
- Plan infrastructure investments

Unlike external deep packet inspection (DPI) solutions, Cisco integrates DPI, along with its In-line Services, into the mobile access gateway function. This integration of functions yields cost-efficiency by eliminating the need for additional platforms to provide a reporting solution. And with access to all control and data plane packets, the system can report on any attribute associated with a subscriber session.

Examples include:

- IMSI/MSISDN/APN – identify top subscribers utilizing the network based on their volume. Use Access Point Names (APNs) to view bandwidth utilization for a particular corporate group.
- Radio Access Technology (RAT) – identify if a subscriber is using a 2G network or 3G network and optimize services accordingly.

Optimize Network Performance

Engineering and operations organizations now have access to powerful statistics to help optimize the performance of the network, gauge effectiveness of traffic policies, and identify subscribers or applications that are consuming an inordinate amount of bandwidth.

Examples include:

- View total data usage per subscriber
- Protocol distribution during the day – identify the busy hour
- Top user report can highlight heavy users and the need for fair usage policy adjustments

Introduce Targeted Services

Marketing departments are now empowered with the usage patterns of individual subscribers and can identify subscriber groups or segments to target for new service offerings.

Examples include:

- Number of subscribers that like a particular service, for example, gaming
- Top URLs browsed – create a premier service bundle, for example, a sports fan package
- Subscriber quota usage – identify up-sell target if subscriber is consistently going over quota

Plan Infrastructure Investments

Mobile operators now have access to important data around application usage, gateway key performance indicators (KPIs), and subscriber behavior to more effectively plan infrastructure investments (Figures 4 and 5).

For example, statistics show:

- Total volume per gateway
- Total bandwidth utilized per gateway
- Total number of subscribers per gateway

Figure 4. Gateway Statistics

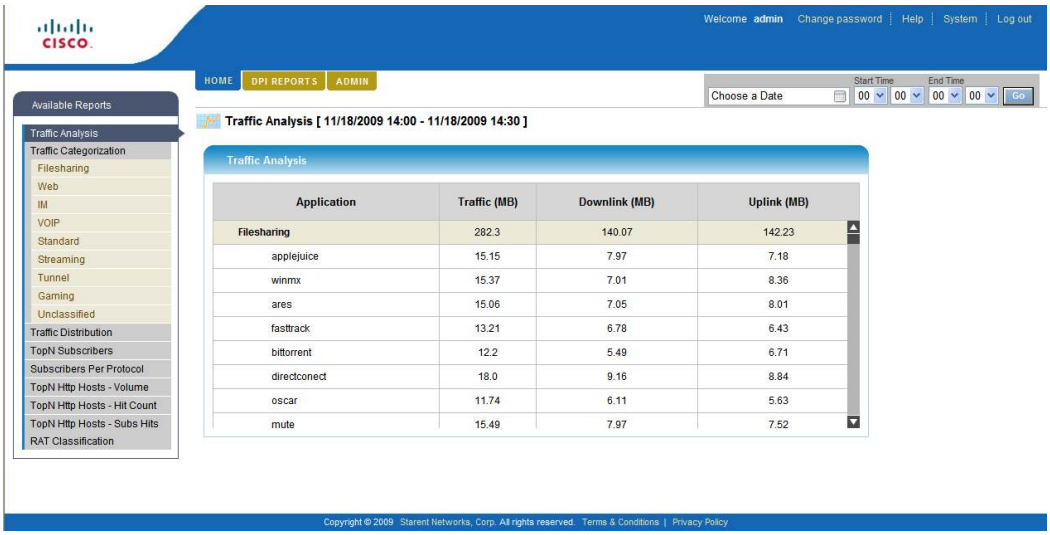
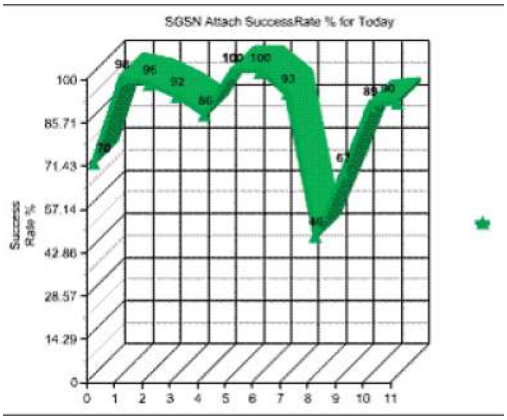


Figure 5. Key Performance Indicators



Report Type Examples

Protocol

- Per hour/day/week/month
- Global – per APN
- Volume distributions
- Sum over all subscribers

Subscriber

Data Usage

- Total volume per user for top N<1000 subscribers – by fixed intervals (minute, day, week, month)
- Total traffic versus traffic used by top N<1000 subscribers
- Per-protocol volume for unique subscriber for each of the top N<1000 subscribers

Subscriber per Protocol/Service

- Number of subscribers for each protocol type (number and percentage)

Device Type (IMEI):

- Number of subscribers for each device type

Radio Access Type (RAT)

- Provides details on traffic classified by Radio Access Type such as GERAN, UTRAN, WLAN etc

Applications

P2P

- Throughput for P2P counters
- Connections, bandwidth, and hosts by protocol
- Total bandwidth

VoIP

- Average call duration
- Calls by protocol
- Minutes by protocol
- Bandwidth by protocol

Firewall

- Total denial-of-service (DoS) attacks

Gaming

- Bandwidth and hosts by protocol
- Total bandwidth

HTTP

- Services: URLs, host names, aggregation of URLs to common services, top N by host name
- Content type: Flash video, images, plain text, compressed data

In-line Services

- Reports on content filtering In-line Services
- Reports on firewall In-line Services

KPIs

- Daily/weekly/monthly
- Serving GPRS Support Node (SGSN) attach success rates
- Inter-SGSN Routing Area Update (RAU) attach success rate
- Iu interface throughput (Mbps) and utilization
- Intra-SGSN RAU attach success rate
- Packet Data Protocol (PDP) activation success
- Gr/Gn interface throughput (Mbps) and utilization

Conclusion

As mobile broadband network subscribers expect more services, it is critical that operators have access to session, application, and network knowledge. Cisco Mobility Unified Reporting System captures the real-time service, tracing, usage, and troubleshooting information that operators need and delivers a comprehensive set of statistics, reports, and statistical trending from a single platform.

Cisco's comprehensive Mobility Intelligent Management System includes:

- Cisco Mobility Unified Reporting System – comprehensive set of statistics and customized reports
- Cisco inTracer – high-performance network troubleshooting and monitoring tool
- Cisco ASR 5000 Element Management System – protocol monitoring, session monitoring and auditing, and compilation of bulk statistics

For More Information

For more information, visit http://www.cisco.com/go/mobileinternet.

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