



Usage Management

Overview

Sandvine's Usage Management allows you to increase revenue and achieve competitive differentiation by rapidly introducing a wide range of high-value subscriber services that leverage application visibility, real-time usage metering, quota management, and other capabilities.

No matter your access technologies, billing models, or market maturity, Usage Management can help you reach your revenue goals.

KEY BENEFITS

Usage Management delivers many important benefits for communications service providers (CSPs), including:

- **Increased Revenue:** Usage Management lets you create more services to sell, and gives you more ways to sell them.
- **Revenue Assurance:** Get paid fairly for the services you deliver thanks to deep insights from audit records, which can determine and prevent revenue leakage; plus, help manage fraud.
- **Competitive Differentiation:** Attract new subscribers by being the first or only operator in your market to offer interesting and unique subscriber services.
- **Reduced Churn:** Retain current subscribers, with unique services, timely promotions, and a superior quality of experience.
- **Unmatched Versatility:** Run circles around the competition and quickly respond to competitive threats with flexible, configurable solutions.
- **Simple integration with Sandvine OutReach:** Easily enable a subscriber engagement strategy with the power of OutReach, which leverages insights and information from Usage Management to create contextual offers and notifications (e.g., purchase confirmations, usage notifications, bill-shock prevention, upsell opportunities, etc.)

Usage Management is made up of five major functions:

- **Quota Manager** Create incredible subscriber service plans through a combination of real-time usage metering and measurement, rich configuration options, and policy control.
- **Online Charging** Delivers true layer-7 application metering, allowing CSPs to deploy rich, differentiated, real-time charging use cases.
- **Policy Enforcement** Leverages a set of 3GPP and IETF standards to implement policy enforcement use cases in multi-access, multivendor networks.
- **Application Monitoring** Detect, control and report application traffic in real-time via standard 3GPP Sd interface.ol.
- **Record Generator** Produces highly scalable usage detail/data records (UDRs) on a subscriber-basis, based on time or volume thresholds.

KEY FEATURES OF USAGE MANAGEMENT

Quota Manager

Quota Wheels: Quota Manager uses the concept of a quota wheel, which maps a subscriber's service tier or plan to an associated usage cap. To facilitate an infinitely flexible set of subscriber services, Quota Wheels have rich configuration options and features:

- Byte - (volume) or time-based volumes
- Billing cycle management (daily, weekly, monthly), with automatic reset
- Recurring (i.e., subscription) or non-recurring (e.g., prepaid or one-time data pass)
- Sliding window (rolling quota): tracks usage within a sliding time window
- **Multiple quota wheels per subscriber:** create rich plans with many separate counters
- **Shared quotas:** between multiple subscribers, devices, and radios

Quota Reservation: Enables enhanced charging accuracy when consuming usage information over the 3GPP Diameter Gx interface in PCRF deployments. With this feature, Quota Manager determines the optimum granted usage units per Gx usage Monitoring Key by managing buckets of reserved units for each quota wheel.

Real-Time Reauthorization: Control whether a 3GPP Diameter Gx Reauthorization (RAR) message is triggered due to SOAP (Simple Object Access Protocol) provisioning changes such as applying top-ups and plan changes, data rollover, or due to simple plan evaluation.

Billing Cycle Management: Operators can provision subscribers with a specific time of month, day of week, or hour of day on which quota is to be renewed, and quota automatically resets at the beginning of each billing cycle.

Time-of-Day Charging: Quota Manager can be configured to only count usage (e.g., bytes, events, time) that happens within a specific time period; usage outside of this period is zero rated.

Zero Rating: Allows for usage of particular applications, URLs, etc., or usage at designated times, to not count against a subscriber's quota. Zero rating can be a feature of a service plan, or could comprise a bolt-on/add-on purchased or enabled separately.

Quota Top-Ups: Allows subscribers to top-up their plans when their usage approaches or exceeds a quota limit; top-ups can be used multiple times in a single billing cycle, and can be configured to expire at the end of the billing cycle, at some fixed time in the future, or to not expire at all.

Event Thresholds: A level to which Quota Manager counts before triggering a designated response (e.g., apply a fair use policy, send a bill-shock prevention notification, prompt for a top-up, etc.). A single billing cycle can have multiple thresholds (e.g., notify at 50% usage, 80%, 90%, and 100%).

Bolt-On Chaining: Configure advanced use cases with chained/stacked service bolt-ons to augment existing plans and introduce new service features.

Multi-PCEF/TDF Quota Management: Consume usage from multiple PCEF (Policy Charging Enforcement Function)/TDF (Traffic Detection Function) components simultaneously for a single subscriber session. For instance, in multi-access deployments Quota Manager can consume usage over 3GPP Diameter Gx, from IPDR (IP Detail Record), from Sandvine's Rf+ interface, and other custom data sources.

Quota Management in DOCSIS Cable Environments: Multi-PCEF/TDF Quota Management can be used to provision gates on a CMTS (cable modem termination system) and to count quota using IPDR.

Multiple Provisioning Options: Quota Manager can be provisioned in a number of ways, including SOAP-based provisioning on the Sandvine Service Delivery Engine (SDE) or Subscriber Policy Broker (SPB), LDAP provisioning, auto-provisioning (i.e., derived from data present during the initial session creation), or file-based mass provisioning.

Provisionable Plans: Subscribers can customize their data quotas and threshold limits at the time of provisioning. For the CSPs, managing subscriber offerings is simplified as there is no longer the need to create identical plans that only differ by quota size or threshold.

ServiceDesigner Integration: Quota Manager easily integrates with ServiceDesigner, a graphical service creation tool within the Sandvine Control Center policy and element management interface, allowing visually driven plan creation and adjustment via a drag-and-drop logical block diagram structure.

Online Charging

Session-Based Charging: Charge for subscriber sessions via 3GPP Diameter Gy. Importantly, to ensure accurate charging and to prevent revenue leakage, Sandvine's Gy implementation is:

- **Direct:** The PTS and the OCS are connected directly (i.e., no intermediary function or element)
- **Real-Time:** Charging is processed in real-time, with no delays

Immediate Event Charging: Allows subscriber services with pay-per-click billing (e.g., for ringtones, videos, etc.). Immediate Event Charging authorizes one-time events by sending charging information to the OCS over the 3GPP Ro interface (3GPP TS 32.299 V10.10.0 and IETF RFC 4006).

3GPP Compliant: Gy component complies with 3GPP Release 10 (TS 32.399 V10.10.0) standard; Termination Action complies with 3GPP Release 11 (TS 32.299) standard.

Vendor-Specific Attribute Value Pairs (VSAs): Simplifies implementation of many use cases by manipulating attributes and values, for instance:

- Implement subscriber spending limits
- Have the OCS send price plan information to the PTS without an intermediary PCRF
- Have the OCS send the PTS dynamic parameters (e.g., promotional URLs, subscriber categories, etc.) before quota is exhausted

Subscriber Self-Activation: Enables subscribers to change their subscription plans and bolt-ons, and to top-up their data quotas through a web portal.

Dynamic OCS Selection: Allows OCS selection based on PCRF rules or based on local policies. Online Charging can interact with one or more OCS platforms and vendors, and supports more than one charging realm.

Deep Reporting KPIs for Gy: Create specific reports that examine Gy signaling and the rating and revenue collection capabilities of the OCS. Reports include a wealth of metrics in the form of SandScript functions that can be used to analyze the performance of the charging operations.

Free Basics by Facebook API: Launch Free Basics with Sandvine's standardized API. The API provides CSPs with a turnkey solution to enable Free Basics initially, and to update the list of free services available under the plan.

Google Mobile Data Plan Sharing API: Take advantage of Google's Mobile Data Plan API with Sandvine's integration, which provides simple plan management for Google-related applications and opportunities for upselling.

High-Density Rating Groups: With virtually no limit on the number of rating groups that can be created, High-Density Rating Groups offers the greatest service creation flexibility in the industry. For instance, this flexibility can enable subscriber micro-segmenting or the capability to address a large combination of groups (e.g., there could be different rating groups per MVNO, per location, per roaming partner, etc.).

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ABOUT SANDVINE

Sandvine helps network operators run world-class networks with Active Network Intelligence, leveraging closed-loop automation, machine learning and analytics to multiply the impact of their critical network initiatives.

For more information, visit sandvine.com or follow Sandvine on Twitter at [@Sandvine](https://twitter.com/Sandvine).



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