Cisco Service Control Solutions: Facilitate Content-Based Charging and New Business Models

When developing new charging models, broadband service providers are hampered by the basic limits of their IP infrastructure to track, monitor, and manage applications individually by subscriber or application on their IP networks. As a result, flat-fee-based pricing models continue to dominate the industry. This inability to launch innovative pricing plans prevents operators from increasing average revenue per user (ARPU). Cisco® Service Control creates an application- and subscriber-aware service layer for IP networks, offering carriers the ability to launch new service plans and granularly track usage. The advancement of new pay-per-use service valuation by application permits varied pricing schemes for truly differentiated IP service offerings.

Challenge

Flat-fee pricing models dominate broadband IP service environments worldwide because today's network infrastructure does not have the capability to differentiate and charge for different types of content running on the same transport network. Usage-based pricing has emerged in some markets, notably Australia, India, and Portugal, for example, but even in these cases it is limited to volume-based pricing. The reporting limitations of existing network infrastructure constrains the options available to service providers to adapt charging and pricing models to services so they can truly value and differentiate content-based or premium IP service offers.

Moreover, mobile operators in particular need the ability to dynamically manage charging models in real time with the added flexibility to create bundles of service offerings tailored to individual subscribers' needs. If the network were able to differentiate between types of content, value service offerings differently, or track and meter for combined usage, both mobile and broadband operators would be better able to competitively package and value content in unique ways.

Although routers can provide basic volume-based statistics garnered at Layer 3 in the network stack, there are potential performance penalties to this approach; network throughput is impacted because the router is not only performing basic routing and forwarding but also usage aggregation and reporting. Moreover, consolidated usage data must still be passed off through the mediation layer and forwarded to mediation and billing systems, adding additional steps to processing which result in delays associated with batched processing, the overhead of additional steps in the billing chain, and the overall cost of distributed collection and mediation systems.

The ability to augment this data with Level 4–7 analysis and control would give providers more innovative charging capabilities that could be implemented in real time by:

- Subscriber
- Application
- Policies designated by the operator

Pay-per-use valuation for application-based service offerings or pay-by-transaction would expand the business and revenue models that providers could use to increase ARPU, increasing profitability and maximizing overall network investment.

Solution

Cisco Service Control solutions facilitate content charging, offering carriers the ability to increase revenues and optimize their infrastructure investments by adding prepaid and postpaid content-based services to existing service offers. Taking advantage of multigigabit analysis of traffic flows and the unmatched capability to granularly control and classify traffic at the application and subscriber level, broadband operators and mobile operators can now create application quotas or enable real-time charging of traffic according to sophisticated rate plans. Cisco Service Control allows operators to simultaneously launch and charge for multiple services in a scalable and uniform manner, supporting the creation of new revenue streams in a timely fashion.

The Cisco Service Control solution creates a programmable, intelligent service layer for IP networks that uses stateful deep packet inspection at multigigabit speeds to provide detection, monitoring, and control of virtually any service application including complex Session Initiation Protocol (SIP) and Real Time Streaming Protocol (RTSP)-based applications. Cisco Service Control technology comprises both hardware and software integrated into a state-of-the-art, dedicated network device. Typically, the Cisco Service Control engine resides “in traffic” behind an IP aggregation point and can be configured redundantly to meet high-availability requirements. With this unique set of capabilities, the Cisco solution can detect specific protocol signatures and classify all traffic for any network session while offering industry-leading performance. By enhancing their networks with subscriber- and application-level awareness, operators can better understand “who” is doing “what” on their networks.

Application- and Quota-Based Billing

The granular analysis and control offered to providers by Cisco Service Control facilitates a variety of charging options such as:

- Taking specific actions based on application, content type, or policy.
- Allowing for user self-selection of chargeable options such as limited-time “turbo buttons” that boost performance for interactive applications like gaming for limited periods of time and return to normal levels after that period has lapsed.
- Quality of service (QoS)-based parameters to establish billing based on service-level agreements (SLAs) whereby voice over IP (VoIP) or video on demand (VoD) traffic would not be billed for periods interrupted by jitter.
- Time-of-day charges that allow operators to charge premiums during peak periods and lower pricing for data services during off-peak hours.
- Flexible models that dynamically change a policy by individual subscriber based on quotas that trigger events to an OSS. For example, allowing 1 GB of peer-to-peer (P2P) downloads per day after which usage would be separately metered and billed using different metrics.
- Redirecting users to portals to increment an account whenever quotas have been reached in prepaid environments.

Monthly quotas can be applied to subscribers for high-bandwidth applications such as P2P traffic or to limit the number of days a gaming service is used in a month. This amounts to a type of prepaid broadband service and is a powerful tool for:

- Providing better control of cost for end users. For example, by providing a monthly P2P application quota, subscribers can control cost and are protected from excessive file sharing that may restrict other applications and services (such as VPN, email, etc.).
- Offering an acceptable usage policy that allows subscribers to maintain a level of self-moderation, such as a limit on the total amount of days a gaming service is used in a month.
- Accounting for and reporting on TCP “good-put” or actual transmission traffic, to avoid charging for retransmissions.

Cisco Service Control technology can generate events for transaction-based billing such as “start” and “stop” signaling that enables real-time signaling. Using this capability, providers can track when gaming sessions start and send usage parameters based on transaction levels to billing systems. Moreover, by being able to identify, in real time, premium transactions and generate event billing, auditing, and prioritization of specific streams, service providers can partner with content providers to develop new services in exchange for revenue-sharing agreements.

Better Ways to Charge for Usage and More

Cisco Service Control offers unique granular analysis and control capabilities, empowering operators to find better ways to cap or charge for usage. Such approaches help broadband operators to create service offerings that match the expectations of the subscriber community while pricing them in ways that better correlate to actual subscriber usage. The result is improved business models for operators and customized services for subscribers.

As part of the Cisco broadband solution portfolio, the Cisco Service Control solution plays an important role in usage accounting, quota management, and enforcement and integrates into policy-based Cisco network architecture. Customers can easily integrate the Cisco Service Control features with existing OSSs such as authentication, authorization, and accounting (AAA), RADIUS, mediation, and billing to enable full service deployment. Additionally, through its wide range of partners, Cisco provides policy-control software systems that simplify the deployment of these network capabilities in any network and OSS environment.

Business Benefits

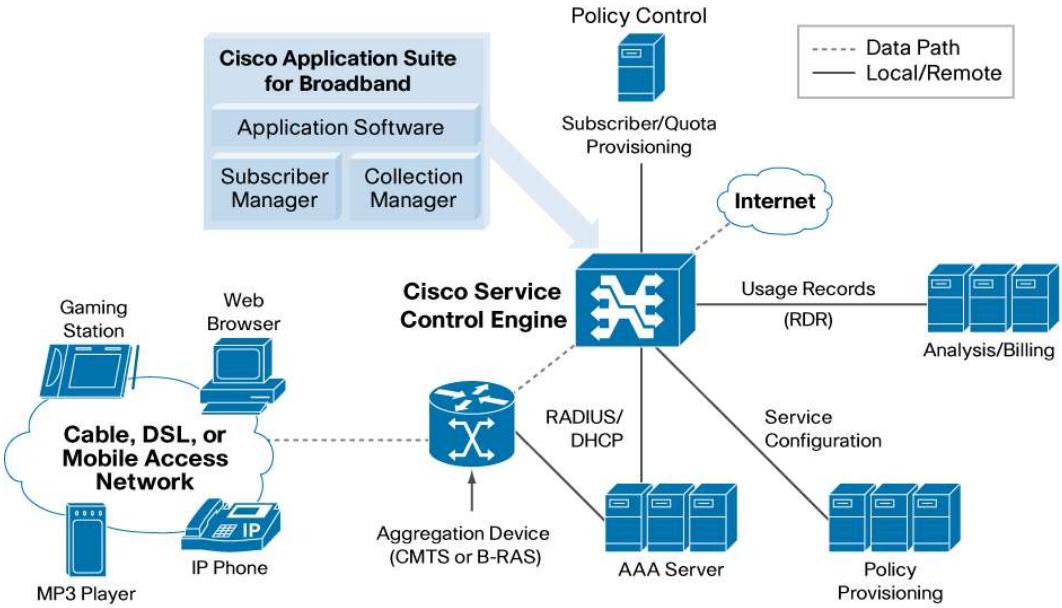
With Cisco Service Control technology providers can:

- Manage and change application-specific billing models in real time
- Test and evaluate new business models without significant incremental investment in network infrastructure
- Develop business models based on differentiated service levels
- Manage, track, and easily change business policies related to charging
- Create a multitude of charging plans from scalable plans to quota- or service-based plans

Architecture

Figure 1 shows how the Cisco Service Control solution works with existing network infrastructure, protecting network investments while enabling new billing capabilities.

Figure 1. Cisco Service Control in the Network



Products Offerings

Cisco offers the following service control products:

- Cisco SCE 1000 Series Service Control Engine
- Cisco SCE 2000 Series Service Control Engine
- Cisco SCE 8000 Series Service Control Engine
- Cisco Service Control Application for Broadband
- Cisco Service Control Collection Manager
- Cisco Service Control Subscriber Manager

Why Cisco

Cisco offers the industry's leading service control solutions, adding intelligence, multigigabit analysis, and stateful deep packet inspection to existing network infrastructure and providing worldwide technical assistance and support. Cisco is speeding the evolution of networks from generic transport systems to platforms offering higher-value, higher-margin services. Programmable, scalable, and purpose-built for the communications sector, Cisco Service Control technology accelerates network delivery of advanced IP services. The Cisco Service Control platform helps carriers identify and charge for dissimilar content applications while simultaneously managing performance requirements of different applications. The Cisco Service Control solution is deployed with more than 450 service providers worldwide.

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