CSG INTEGRATED CHARGING & POLICY

INTERACTIVE SERVICE MONETIZATION AND CONTROL
The prolific uptake in smart devices and machines with embedded connectivity, paired with a surge in media-rich applications and Internet services, is creating unprecedented demands on today’s networks. And even with costly ongoing support to 4G LTE/EPC, FTTH and FMC, network operators are challenged to meet this growing demand and also quickly deliver the new services and enhanced customer experience that are needed to increase revenue and profitability.

The subscriber-focused policy and charging control capabilities of CSG Singleview Integrated Charging and Policy (ICP) orchestrate subscriber service and asset interactivity enabling operators to tap into new revenue opportunities while minimizing the associated costs.
THE PROFITABILITY IMPERATIVE

Operators worldwide are facing rapid service and profitability pressure while maintaining costly mobile and fixed network upgrades. They must sustain the hyper-growing demand of media-rich applications and internet services, fuelled by the prolific uptake in smart devices and machines with embedded connectivity.

Investments in network upgrades towards 4G LTE/ EPC, FTTH and FMC have to increase revenue while improving the customer experience. Operators have a number of options:

→ Segment access plans to target a broader addressable market, where customer willingness to spend matches usage needs

→ Redefine the mobile customer experience when interacting with over-the-top services (OTT) with attractive access options, transparent controls and service quality

→ Offer richer, network-enhanced communication services that integrate with internet applications to compete with OTT internet services that are eroding their traditional revenue streams

→ Offer consumers network-independent, ubiquitous access by seamlessly employing the most cost-effective and application-efficient networks in the background

→ Become part of the highly innovative digital services revenue chain by opening up their networks and infrastructure to internet partners for operator-enhanced public and enterprise services such as assured network quality, mobility management and service charging

Deliver
- Bill shock management & charging transparency
- Usage bundles, transparency; top-ups & bolt-ons
- On-demand service access
- Single service - multiple network
- Over-the-top service integration
- Attractive roaming options
- Ubiquitous access - any device, any network, any place
- Multiple payment options - Pre-pay and Post-pay
- 2-Sided business plans - Comms, Enterprise & Apps
- Service assurance & QoS (including Rich VoIP)
- Assured delivery-backed revenue collection
- Shared plans

Increased Profitability

Real-time IT-based monetization and control of subscriber, service, network and partners. Catalog + SPR + PCRF + OCS + OFCS + AAA + Partner + Network control functions (modular)

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Figure 1: Control and orchestrate how your subscribers interact with your asset base, for an experience-rich and profitable service offering
CSG INTEGRATED CHARGING & POLICY (ICP)

Integrated Charging & Policy (ICP) is a policy and charging control system designed to manage user experience and interactivity with data services. ICP supports services provided over mobile, fixed or partner data networks and is targeted at network operators, MVNOs and IP service providers.

ICP enables operators to become more profitable by capturing a greater addressable market with tiered plans, service integration and partnered services, while controlling underlying network resources, service access and resource selection to minimize capacity costs, ease congestion and deliver against subscriber SLA. It looks after the customer experience with timely dialogues, quality of service management and device sensitive self-care for personalization, status and advice of service.

These capabilities are delivered in a format that allows operators swift and self-reliant service change through a flexible and intuitive ‘click-to-deliver’ interface. ICP is designed to interoperate with legacy IT infrastructure that holds subscriber and service information in disparate architectures to maximize existing investments and processes.

Finally, ICP provides standard 3GPP and IETF compliant interfaces and functions alongside support of vendor proprietary interfaces to interoperate, control and orchestrate across network gateways, service platforms and partner services as shown in Figure 2 below.

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**Figure 2: Singleview ICP Architecture**
CSG ICP: BUSINESS CAPABILITIES


Service Segmentation, Personalization and Tiering. Segment, personalize and multi-tier services by marketable interests such as application, volume caps, time caps, time-bands, events, message caps, VoIP packages, roaming zones, network type, payment model, service quality and device type to target a broader market and promote loyalty.

Revenue-Generating Customer Dialogues. Interact with subscribers at appropriate points in usage and connectivity to advise on top-ups, service change, expiry, charges, roaming activity and bolt-on options to maximize service revenue and customer experience.

End-to-End Network Control. Define access control, enforcement and offload rules on breaches of fair-usage, service quotas and during network congestion at the subscriber, session and application level; send rules to different enforcement points in the network; edge to core to service delivery points to internet partners.

On-Demand Customers. Take advantage of transient customers such as visitors, business travelers, roamers, temporary access and backup connections by offering premium on-demand access plans.

Service Differentiation. Differentiate service policies in real-time using concepts such as inclusive Facebook.com, multi-SIM/device packages, shared accounts, device tethering options, quota rollover rules, fallback services, on-use metering, VoIP bundling, zero-charged services and on-demand QoS (and more).

Revenue Assurance and Bill Shock Management. Assure revenue and eliminate bill shock by adopting controls such as limiting access according to balance or credit limits, reserve-before and debit-on delivery, pro-rata auto-renewals for exhausted plans, subscriber personalization of balance thresholds and accounts.

Single Service Orchestration. Present multiple networks, assets and operations as a unified service offering to subscribers and partners.

Telco 2.0 Business Models. Open and enforce two-sided business models by defining services based on open-network partners, including mobile wallet and subscriber-aware digital services. Orchestrate quality of service, charge by partner pricing model and manage revenue sharing, reconciliation and settlement.
CSG ICP: FUNCTIONAL CAPABILITIES

Intuitive Subscriber Service to Infrastructure Control Modeling. Comprehensive and intuitive subscriber service, package and network policy modeling including usage caps, package and enforcement transitioning, usage rating, subscriber notifications, partner authorization and charging management.

Subscriber Dialogue Redirection and Notifications. Redirect and present subscriber HTTP sessions with service advice dialogues and/or send device sensitive messages for events such as package expiry, exhaustion or new connectivity with subscription, top-up or bolt-on options.

3GPP PCRF- and OCS-Compliant PCC Engine and Interfaces. High performance and scalable Policy and Charging Control engine capable of processing and orchestrating transactions from and across any network, service and partner node—supporting Tier 1 level subscriber volumes and service interactivity. Compliant with 3GPP PCRF and OCS standards with both standard and vendor specific Gx/Gxx/Sd, Gy/Ro, Rx, S9, Sy and Sp reference interfaces over Diameter.

Network Edge Rating and Charging. Dynamic rating and charging including VoIP numbering plans, taxation, rate determination and discount management.

On-Demand Charging Features. To facilitate complete service revenue collection, ICP offers payment gateway connectivity and voucher management including top-up, hotspot and VoIP calling cards management.

Open Subscriber Profile Repository. Integrated and open subscriber profile and usage repository. This supports account hierarchies and multiple services per subscriber. It is provisionable with optional HTML customer care interfaces.

Device Sensitive Self-Care Portal. Device sensitive captive portal providing subscribers direct control over service personalization, usage history, service top-up, bolt-on options, balance management and account choices—in a controllable and service inheritance manner.

Internal or External Balance Integration. Ability to integrate or cache with multiple external IN or balance systems or use built-in balance system with payment integration.

Embedded Active, Proxy or Passive AAA. Active, Proxy and Passive Authentication, Authorization and Accounting (AAA) with session repository to enable end-to-end session, identification and bearer management.

Subscriber Service Intelligence. Understand services, revenue and application trends and statistics using all information passing through and resident in ICP.

Edge Offload Control (including those compliant with IFOM and SIPTO standards). Intelligently control traffic-offload elements on a subscriber service level, enabling authorization, usage metering, traffic shaping and accounting to continue for services not seen by the core while also making on-loading and off-loading decisions based on application and congestion parameters.

Partner Management and Settlement. For two-sided business models and partner service integration, real-time partner interaction is provided for subscriber authentication, service authorization, subscriber charging with parallel partner account controls, revenue sharing and settlement functions.
Multi-tenant Hub Deployments. Host multiple subsidiaries and partners with a single solution with full logical separation of hosted operations, distributed network elements and simultaneous localization (for example, time-zones, multi-language and currency management).


Comprehensive B/OSS Integration. ICP can fully integrate with existing B/OSS systems at all levels. Integration levels with external systems cover real-time data lookups, subscriber provisioning, CRM interface integration, UDR generation and account receivables and general ledger support.

Operate as a Cloud for a Cloud. ICP can be installed as a cloud-based policy and charging solution, with remote operational interfaces, managing subscriber access and interactivity with local and cloud-based services and partners.
BUSINESS PERFORMANCE

Policy Management from Business to Network. Controlling the network is only half the story. ICP embeds network control into the wider context of orchestrating how a subscriber uses and pays for a service end-to-end across all network, service delivery and partner nodes according to business service rules. This enables operators to focus on the subscriber service not just the network service—optimizing for profitability and customer experience.

Seamless Service Convergence. Host a range of business logic designed to suit specific industry verticals (for example Mobile Broadband, DSL Access Control or WiMAX CSN) or geographical operations (for example, by country) and combine them together as these verticals converge to provide a single service. Distinct differences—such as fixed and mobile broadband subscriber identification, country language or use cases such as Usage Caps vs. Triple Play Services—can be specifically catered for as either convergent or separate verticals.

Maximize Existing Investments. Many operators have significant investments in existing network, service and IT infrastructure in an architecture supporting valuable data and system processes. ICP is an open architecture, with network and IT system adapters to integrate with not only new standards based infrastructure but legacy platforms, protocols and architectures. This includes existing balance, subscriber profile repositories and CRM/BSS systems.

Platform Pedigree. High-availability plays a pivotal role in revenue assurance and customer experience. ICP is a software platform designed from the ground-up to manage subscriber access and usage of packet services in real time. With a heritage in advanced AAA, it is highly available, supporting high loads for subscriber connectivity, linear scalability for growing TPS rates, built-in system monitoring, running on carrier-grade hardware and incorporating redundancy-based load balancing.

Low-Cost Change Velocity. The cost of business change, in terms of timelines and skills, is minimized through intuitive control of service logic via business interfaces. Instead of maintaining script-based logic, business users are able to make immediate changes to market offers risk free—lowering the cost and time to react to market needs.
DEPLOYMENT OPTIONS

CSG ICP can be delivered in modular form to suit existing ecosystems and investments. The following are common ICP product formats to suit specific system requirements:

**Policy Management.** Delivers policy and charging rules and decisions to multiple network, application and service delivery platforms based on subscriber activity, service profile and ecosystem events. It fulfills the function of 3GPP Policy and Charging Rules Function (3GPP PCRF) and 3GPP Subscriber Profile Repository (3GPP SPR) for communication, service and network providers. In addition, it includes a significant set of functionality to deliver industry-leading use cases for managing broadband data services across mobile, wireless and fixed line networks.

**Online Charging System.** Delivers the ability to real-time rate session- and event-based service transactions, authorize charging and then apply them to customer balances in pre-paid, on-demand or a post-event format. These balances may be held internally or externally. It fulfills the role of 3GPP Online Charging System (3GPP OCS), 3GPP Offline Charging System (3GPP OFCS) and 3GPP Subscriber Profile Repository (3GPP SPR).

ABOUT CSG

CSG simplifies the complexity of business transformation in the digital age for the most respected communications, media and entertainment service providers worldwide. With over 35 years of experience, CSG delivers revenue management, customer experience and digital monetization solutions for every stage of the customer lifecycle. The company is the trusted partner driving digital transformation for leading global brands, including Arrow, AT&T, Bharti Airtel, Charter Communications, Comcast, DISH, Eastlink, iFlix, MTN, TalkTalk, Telefonica, Telstra and Verizon.

At CSG, we have one vision: flexible, seamless, limitless communications, information and content services for everyone. For more information, visit our website at csgi.com and follow us on LinkedIn, Twitter and Facebook.