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Service Activation Center

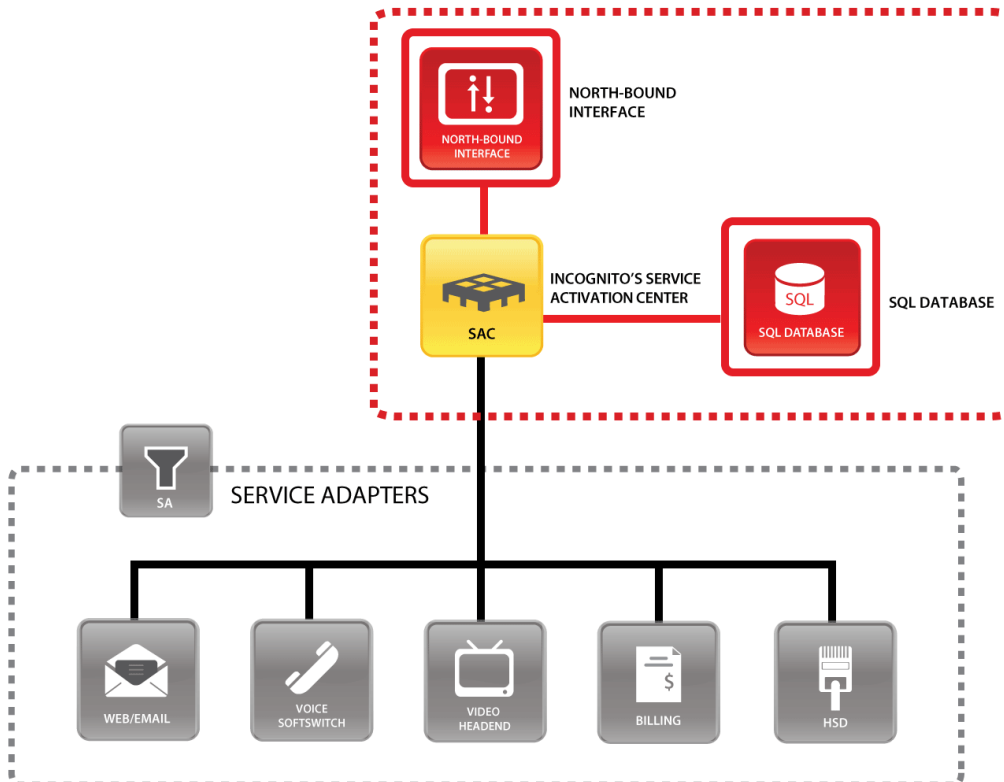
Multi-Environment Service Activation

Incognito Service Activation Center (SAC) enables operators to rapidly deploy high-speed data, telephony, TV/Video and wireless services across a host of broadband platforms and multiple network and access devices.

Service Activation Center is a suite of service activation tools that enables broadband operators to associate business and residential customers with a wide variety of service types on a per subscription basis. It takes into account the service offerings that are available to customers based on geographical and network dependencies. The suite eliminates and automates a number of steps in the complex process of service activation, increasing network efficiency and reducing operational costs.

Acting as a core mediation layer within the operator's network, Service Activation Center manages and controls the full life cycle of service events including but not limited to activate, suspend, upgrade/downgrade, add-on or remove service offering.

Figure 1. How SAC fits into a Service Provider's Network



Service Activation Center offers an all encompassing solution that is intelligent to operate on ever growing complex networks. It is responsible for provisioning the various system and network components that realize service delivery to the customer. At all times, Service Activation Center enforces the integrity of transactions across multiple platforms based on the operators defined business process rules.

Designed on a modular architecture, Service Activation Center encompasses a core high-performance provisioning engine and a set of industry standard interfaces that can be combined to create a customer activation solution to seamlessly manage today's broadband networks.

HIGHLIGHTS

- Automated and seamless flow through end-to-end provisioning
- Full Support of all provisioning models – self-provisioning, pre-provisioning, and installer-based provisioning
- Rapid realization of new revenue streams via ease of deployment of new services – HSD, Voice, TV, etc
- Enhanced customer experience by enabling subscriber to control their services and content via self care API
- Significantly reduces operation costs with comprehensive business automation capabilities
- Services are tracked per device and per subscriber/account

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Service Activation Center supports industry leading broadband technologies including DOCSIS, PacketCable Multi Media, SIP, WiMax, and FTTx.

SAC lowers the complexity of multiple 3rd party platform integration through SAC's Northbound Interface (NBI). SAC's NBI is a well-defined generic interface with generic definitions for services and devices allowing operators freely define new services and quickly activate new customer services. SAC industry standard APIs support the upstream and downstream transmission of information across all network elements and OSS/BSS solutions including billing and customer care. Service Activation Center also comes with a suite of out of box service adapters and management modules to effectively manage how subscribers use network services.

Integrated Management Modules and APIs

Service Activation Center's value-add management modules make proactively managing the subscriber experience simple.

Content Management API

Incognito offers the ability for operators to write their own End User Self Service Portal using the SAC Content Management API. This API is offered as a web services SOAP interface. With the integrated Content Management Module, enabling a Web Portal permits subscribers to actively manage their content and access to services.

This API offers a set of feature-rich operations that enhance how operators deploy and customers use their services.

Using the Content & Access Management API Module subscribers can:

- Add parental controls on to high-speed data services blocking access to unsuitable web sites
- Block out certain TV channels during specific hours of the day or block access to certain premium services
- Manage service content and access according to their individual preference

Increased control over their use of services ensures an optimal customer experience, helping increase customer satisfaction and loyalty.

Monitoring and Diagnostics Module

Service Activation Center enables a CSR or Administrator to check the active status of a managed customer device.

Use the Monitoring and Diagnostics Module to:

- Display current subscriber devices assigned by service
- Check status and health of assigned devices as well as ping, traceroute, snmp walk, and retrieve current Provisioning and Lease information

Product Catalogue Module

Service Activation Center's integrated Product Catalogue Module will support existing product sets and assist in the definition and maintenance of future product sets according to your specific business and market needs.

Use Product Catalogue Module to:

- Define services in terms of service type, configuration, and filtering conditions such as location and equipment
- Rapidly create and deploy highly tailored packages based on combinations of geography, network equipment and CPE equipment
- Store all information related to the specific services assigned to individual subscribers
- Retrieve subscriber information with OSS/BSS systems to allow flow-through provisionin

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Prepaid Services Module

Use Service Activation Center's Pre-Paid Services Module, to offer broadband services on a pre-paid basis where subscribers pay in advance for what they need. Tap into new customer segments that do not want to sign up for services on a long-term basis or that want to try services before committing to a long-term contract.

- There are no contracts or long-term commitments required; users simply subscribe on a pay-as-you-go basis
- Pre-paid services can be offered using different payment types including credit cards and smart card technology and can be offered in various unit types including currency and fixed number of days or hours
- Offer promotional "try and buy" services or schedule service utilization on a pre-paid basis around particular timeframes such as weekdays or evenings
- Subscribers who are using pre-paid services can easily migrate to a contract whenever they wish

Service Activation Center's Pre-Paid Service Module enables you to generate new revenue streams by adding new users and maximizing service utilization.

How Is Service Activation Achieved?

Service Activation Center's underlying architecture is designed to enable broadband operators to automate the deployment and management of each and every interactive service over their access networks.

Service Activation Center brings operational cohesion through the consistent application of business logic to define service activation processes; the result is the end-to-end integration of access network technologies, back office support systems and the end-user experience.

In order to automate the activation of interactive services, the integration of external disparate hardware and software systems is required. The solution manages the subscriber service activation flow via:

- CSR interface
- Billing Integration and Mediation
- Device Provisioning Integration for HSD, IPTV, and Voice Services
- Video Headend Integration
- Voice Softswitch Integration
- Email and Web space Integration

Service Activation Center also follows a distributed component based architectural design. The architecture composes in the following layers

- Platform: Provides systems services to other layers
- Applications: Encapsulate business processes, rules, transactions and workflow
- Services: Exposes the generic attributes and behaviour of an entity in the application
- Adapters: Support integration of services with external hardware and software systems

The platform implements a portable operating system abstraction and networking environment that aids the portability and distribution of Service Activation Center. A basic function of the platform is loading other Service Activation Center components and/or locating loaded components in a distributed Service Activation Center scenario.

Northbound Interface (NBI)

The SAC Northbound Interface offers a simplified API interface into SAC which external systems can use. External systems can send requests to SAC via a SAC NBI. Typical examples of external systems include billing systems, order management, CRMs, inventory systems, web servers (e.g. SAC GUI, subscriber portal, etc), etc.

The NBI decomposes a received request from an external system, transforms it to a Service Activation Center compliant message and forwards it to the Service Activation Center server. Service Activation Center will then process the request and then perform any provisioning requirements on the service provider's network.

The SAC NBI enables operators to integrate to just one API. SAC will do the rest. This lowers backoffice complexity, and removes obstacles to new service creation.

Adapters

SAC add-on modularized adapter layer supports the integration of business objects with external hardware and software systems. Adapters hide integration details for specific external entities. In this way, applications are de-coupled and isolated from specific external systems. The adapters provide a standard interface mechanism to Service Activation Center.. This standard adapter interface provides the decoupling characteristics of the adapters which allows similar types of adapters to be plugged in/out with minimal or no changes to SAC's business layer. Adapters also must participate in SAC transactions to ensure data integrity is maintained not only in SAC but also across the network

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elements and devices that have been involved during the processing of a request. In order to support transactional integrity, the adapters have built in features in order to help track its participation in transactions which also facilitate the ability to roll back network changes should the processing of a request fail at some point.

Adapters also provide a consistent queuing mechanism for asynchronous non-transactional operations to external entities. The following two tables provides a list of out-of-the-box adapters and optional adapters:

Table 1: Out-of-the-Box Adapters

Adapter Type	Application
Voice Adapter	Nortel CS2k
Voice Adapter	Cedarpoint Safari
Video Adapter	NDS CAS
Video Adapter	Nagravision CAS
Video Adapter	Scientific Atlanta DNCS
Video Adapter	Motorola DACS
Device Provisioning Adapter	Incognito MPS
Billing Adapter	GLDS
Billing Adapter	CSG

Table 2: Optional Adapters

Adapter Type	Application
Voice Adapter	Nuera
Voice Adapter	NSN hiQ
Video Adapter	OpenTV
Billing Adapter	Comverse
Billing Adapter	DST Innovis
Billing Adapter	Geneva
Application Adapter	Sendmail
Application Adapter	GoogleMail
Application Adapter	Trouble Ticketing

Billing Integration

Service Activation Center can integration with Billing systems in via the direct entry model and the billing fed 2-way model.

Figure 2 - Direct Entry Method for Billing Integration

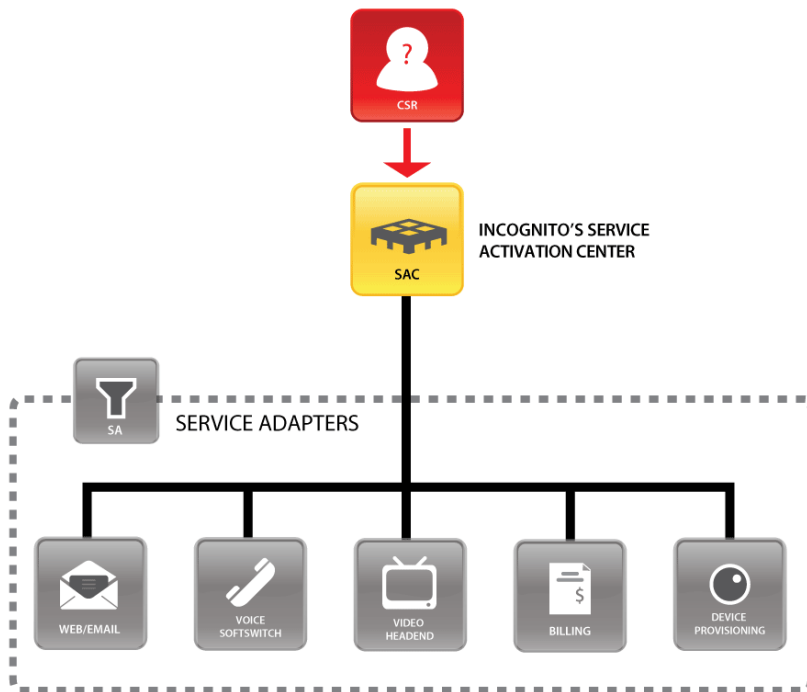
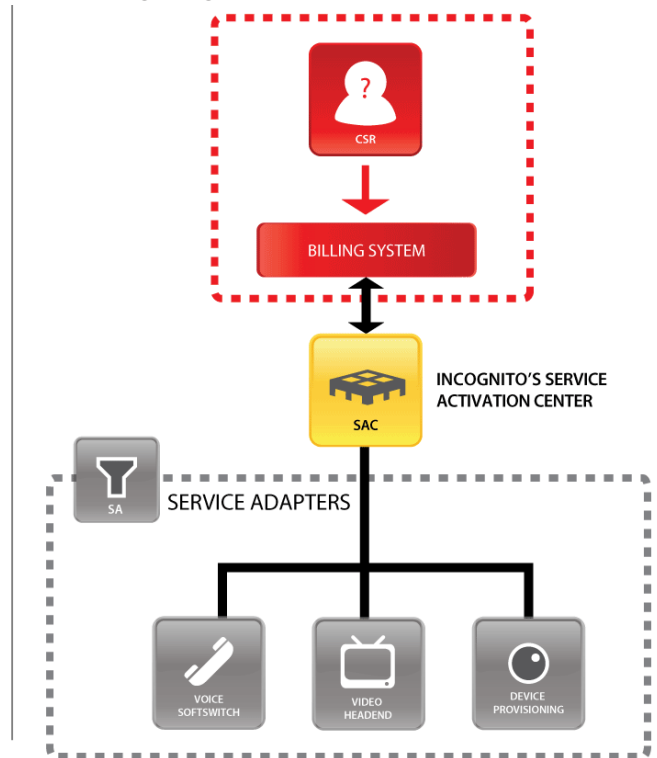


Figure 3 - Two-way Billing Fed Method for Billing Integration



In the direct entry model, Service Activation Center is upstream from the billing system. The Service Activation Center GUI will be the main interface that is used by CSRs and subscribers and Service Activation Center will initiate all messages that are sent to billing.

In the billing fed 2-way model, Service Activation Center is downstream from the billing system. The Billing system's GUI will act as the main interface that is used by CSRs and subscribers. Billing will initiate all messages that are sent to Service Activation Center. In this case, Service Activation Center's GUI is used for diagnostics purposes.

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Specifications

Software Requirements*

Database

- Oracle XE (deployments with < 30,000 subscribers on Debian Linux)
- Oracle 10g Standard Edition (deployments with < 100,000 subscribers)
- Oracle 10g Enterprise Edition

Graphical User Interface

- Web Browser (IE7 and 8, Safari 3.x and 4, and Firefox 3.x)
- Flash Player 10

Minimum Server Requirements**

SAC

CPU: SPARC: 4x core CPU @ 1.2GHz
X86: 2x dual core CPU @ 2GHz

- RAM: 2GB
- Disk Space: 10GB

Oracle 10g

- CPU: SPARC: 4x core CPU @ 1.2GHz
X86: 2x dual core CPU @ 2GHz

RAM: 2GB

Disk Space: 50GB

Web Server Requirements*

- Apache Tomcat 5.5
- Java Runtime Environment (JRE) 1.6

Operating Systems Requirements*

- Debian 4.0 Etch
- Solaris 10 (Sparc)

* Dependent on customer deployment size
**All code, libraries, and server programs necessary for SAC can be installed on one machine. The following lists the minimum recommended hardware specifications for installing and running SAC for a deployment size of less than 100,000 subscribers.