Semantix
INFORMATION TECHNOLOGIES

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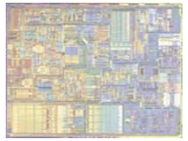
Billing and Rating



Billing and Rating

In the past, billing systems were used solely for the management of customer Billing. Today, they are considered critical tools for Marketing as well as Customer Acquisition, Customer Care & Retention, and for the implementation of New Business Models.

Semantix has a skilled team of experts that can develop customisable, scalable and low-cost rating and billing solutions for network operators, ISPs, content providers and other businesses in a variety of industry sectors.

Semantix can implement telecom billing solutions, service management software or develop network services or protocols stacks for a variety of telecommunication architectures and platforms like GSM, Intelligent Networks, Parlay/OSA, JAIN and VoIP.

Billing Systems

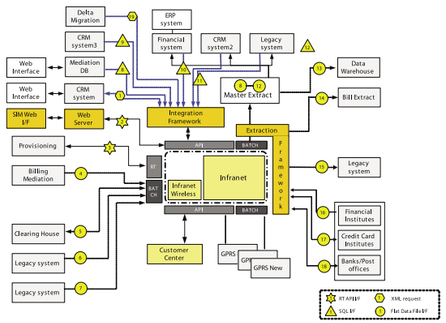
Semantix has experience developing billing systems for GSM operators using PORTAL's Infranet® platform. Our team of engineers have developed or customized code for most functional areas of a GSM billing system including desktop GUI and web-based front-ends used by CSRs, core billing functionality, implementation of product catalogues and pricing plans, calls rating, network provisioning systems, interfacing with CRM components and legacy peripheral systems, billing, invoicing, custom reports preparation and data warehousing. We have also designed, implemented and executed data-migration strategies in cases where it has been necessary to have both the legacy and the new system fully operational, constantly monitoring them and keeping them in synch, using our in-house developed STORM framework.

Integration Framework

Integration Framework is a highly configurable tool that acts as a connector or mediation device between the Infranet® billing system and any number of external, off-the shelf or in-house developed legacy systems. Essentially it is the "glue" that allows seamless integration with existing systems regardless of the communication interface they use. Its flexibility allows it to adapt to an external system and transform requests originating from it into Infranet® requests. Furthermore, it can generate responses in the format used by the external system hence achieving a two-way communication interface between the billing system and the peripheral systems.

The Integration Framework supports interfaces ranging from databases to flat data files (fixed width or delimited) and structured requests such as XML or ASN.1 encoded files. Using standard protocols such as HTTP, HTTPS and FTP, the Integration Framework can receive requests coming from external systems, process them and generate outputs. A high level of integration with Infranet® streamlines the creation of business processes that communicate with Infranet® by calling OPCODES and accessing data objects in the underlying relational database. The Integration Framework has been used to bridge Infranet® with CRM systems, custom developed systems and platforms, or external systems owned by banks or credit card institutions.

Integration Framework can be configured for connecting an external system with Infranet® by using a straightforward XML configuration file. To achieve this amount of flexibility, the Integration Framework converts all kinds of heterogeneous inputs to a unified, generic, internal data model. This approach abstracts the various physical details of the peripheral systems. Though this internal unique representation is extremely important in order to allow consistent management of diverse interfaces, it is only the first half towards the establishment of the required business process. The second half is the ability to specify the algorithms that need to be triggered upon reception of a request.



This is where the Integration Framework's scripting language comes into play. Programming complex business processes in a simple and efficient manner is made easy since the Integration Framework's scripting language provides the amenities of a modern high level language with smart pointer dereferencing, automatic memory management and loops bound checking. This coupled with the ability to have transparent access to a variety of information flows by means of the uniform internal data model facilitates the orchestration of the business logic in an effortless and compact manner, independent of the idiosyncrasies, the actual protocols or storage devices used by peripheral systems.

Performance is critical in every business application, so the Integration Framework incorporates a flexible threading model allowing data from multiple sources to be retrieved, transformed and processed in parallel in pipelines. The number of threads servicing each source can be configured independently for each source, allowing for the most efficient utilization in a multiprocessor system. Usually, pipelines are implemented using the scripting language. This enables the developer to leverage on the expressive power of a language explicitly designed to simplify the complexity of the Infranet® programming model in a convenient and abstract dialect. However, for time critical applications where a developer needs to use every optimization mechanism that the C language provides, the Integration Framework allows pipelines to also be implemented in native code and to be dynamically linked at run time.

Integration Framework acts as a connector or mediation device between the Infranet® billing system and any number of external, off-the shelf or in-house developed legacy systems.

Billing and Rating

Concluding, the Integration Framework enables the owners of heterogeneous batch processing systems to leverage on a powerful, generic processing framework to quickly develop mediation systems and processes that provide full interoperability between their systems within and across organizational boundaries.

Inter-operator tariff processing engine

Historically, rating and billing systems evolved from being process-based to table-driven and, lastly, to script-based. Semantix used the most advanced technology and implemented a script-driven IOT validation, re-pricing and re-rating engine for telecom operators. The engine is built in C++ and dynamically parses a script "rules" file interpreting the operations it prescribes at runtime. The core software is designed with an emphasis on productivity at peak performance and includes everything that is needed for a fully operational tariff validation and rating system that is integrated for maximum productivity. Complete audit trails and online drill-down to source data provide quick access to key information.