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Autor: Zone, Doug

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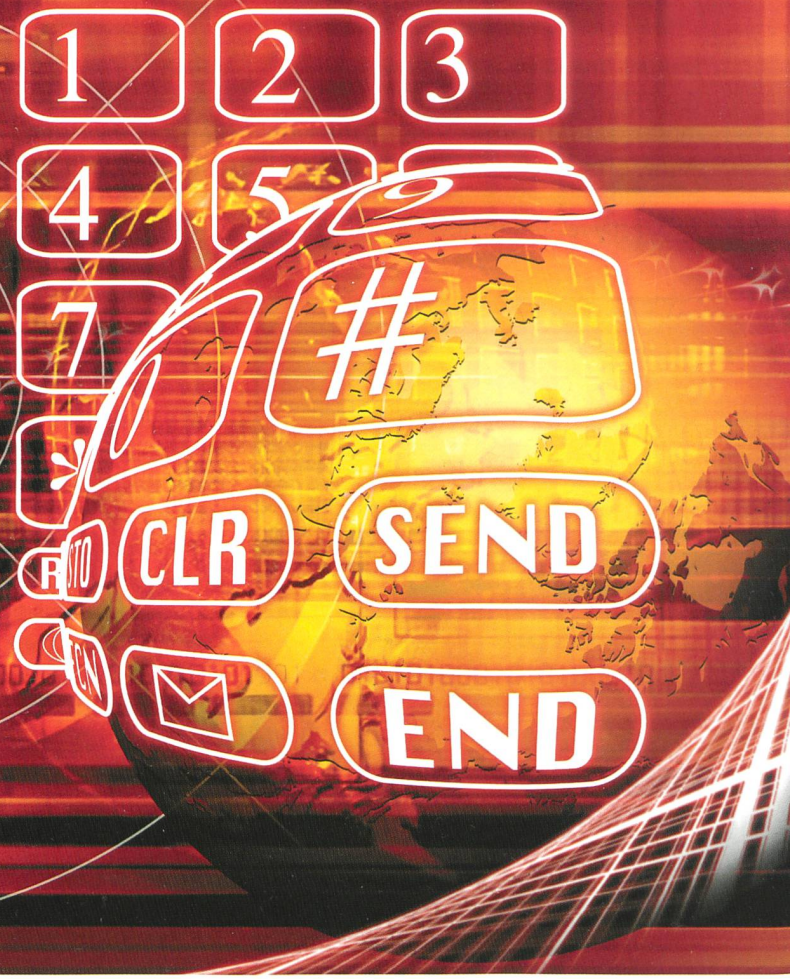
Billing

At the Heart of the Network



Sitting at the core of the operation makes the successful modelling of the business the number one challenge.

The introduction of new voice and data services and the drive towards truly convergent systems – mobile/wireline and prepaid/postpaid – are forcing the pace of development for Customer Care and Billing Systems (CCB). This article examines the challenges which a CCB system must address in such an evolutionary environment.

DOUG ZONE

Customer care and billing (CCB) plays a unique role in the telecommunications operator's enterprise, as it is central to both the front and back office functions. The challenge for customer care and billing is to provide excellence in both. That excellence should be measured by a system's ability to offer the flexibility, configurability and extensibility that the operator's business demands to effectively serve its customers and compete in tight marketplaces.

Melding of Front and Back End Offices

At first glance, it might be thought that billing is clearly the back end and customer care the front. However, the invoice, the charge dispute, the credit note, and the call detail are all central to not only the billing processes, but also the customer – i.e. the front office.

When the customer chooses a new package, changes address or terminates service, it impacts not only the customer relations function, but also support order and invoice processes – again the back office.

The operator is supporting the customer, who in turn is helping the operator to win market share. However, neither customers nor markets know the difference between the front and back end offices. For example, a cross-product volume discount, which is marketed to the consumer and the internal process which calculates the discount, are one and the same.

Customer care and billing brings two further challenges to the table: firstly the complexity of the actual business of billing and caring for your customers, and secondly making sure that you do so as quickly and accurately as possible.

With every new service and marketing plan, the process of supporting your customers becomes more and more complex: new discount choices, service plans, equipment, events, invoices, payment plans, and rates. At the same time the number of interactions with your customer, the number of queries and the number of new events seems to relentlessly increase.

Moreover, the industry requires, even demands, the flexibility of a CCB system to support true convergence (mobile/wireline, postpaid/prepaid) in a single system. It is no longer economical to support multiple CCB systems or instances individually to support a separate vertical offering. It must be handled in one system that meets the business practices in each vertical.

The unique breadth and depth of billing and customer care – the melding of front and back office ends – and the need for convergence makes unique demands on the support systems – whether they are off the shelf, integrated best of breed or custom made. So, what are the system

characteristics needed to meet these challenges?

Meeting the Challenge

Any customer care and billing system (and its deployment in the business enterprise) should be judged using the following criteria. In brief the CCB package should be able to

- configure and meta-configure
- be extensible and extendible
- support abstract interfacing while providing design transparency, especially user-friendly and intuitive user interfaces
- have operable and performant processing

Configurable and Meta-Configurable

A successful CCB system must provide prebuilt business models as these enable the operator to simulate how the changes to strategy will effect the operation. Thus offering the operator systems that are easy to configure enables, for example, tariffing changes to be made by marketers rather than IT, this means that the operator is quicker to market with new discounts and services. In a competitive environment this speed offers increased customer satisfaction and decreased churn.

Most billing and customer care processes are modelled in the same way regardless of the company or region. Variances should be available with a simple, yet powerful configuration model. The percentages, the cross products, the filters on historic volumes, etc. must be configurable in the front end. The back end in turn supports the millions of possible permutations and combinations.

Any system – regardless of how it is built – needs to be evaluated by the breadth of business cases it handles and how easily it supports the innumerable varieties. The operator must ask:

- Do I have the tools to configure my cases – the GUI's, and the interfaces to catalogues?
- Do I have the processes to drive the case – the discount engines, the workflow?
- Can I run the unusual cases – the combinations of free usage, discounts, taxes that may come up?

Nevertheless, there are always cases that are not envisioned, such as the newfangled discount, the innovative tiered rate or the locality specific withholding tax; features which are unlikely to be shared by your competitors. A system must enable you to design new business processes, i.e. "configure your own configuration". This is often referred to as "meta-configuration". Any such tool must let you define the business rules, the information to process the rules and finally the output.

As with "standard configuration", meta-configuration must be supported without the need for custom development, which has its ensuing development, upgrade and regression costs.

Now in its 10th year, IIR's Billing Systems Conference and Exhibition is firmly established as the largest and most important event in the European Billing calendar. Further details by e-mail: billing@telecoms.iir.co.uk or by thewebsite: www.iir-billingsystems.comThis article has been written as part of a series of articles for Billing Systems 2003.

Extensible and Extendible

The CCB system often serves as the database of record for the operator, holding the payments, orders, customer enquiries and invoices. Customer care and billing touches almost every part of their business – making it a natural central data store. This becomes even more true as the customer becomes central to the business. Customer care and billing are inextricably linked; one can not be the central data store without the other. The customer orders, receives, pays for, upgrades and queries the operator's services in equal measure.

But, of course, there is much more to the enterprise than customer care and billing. There are many moving parts to the business process that require data with customer centric elements, for example, emergency service feeds with legislated geographical data. Though customer care and billing can not model these processes it must act as a data entry, store and be the provider of customer-linked data to these systems. The CCB system must support new attributes to its core concepts – the customer, the product, the service, the contract, the invoice, i.e. "extensions to its data model", in order to drive its central role in the enterprise.

As is true with a configurable and meta-configurable system, an extensible system must be supported without the need for customisation.

So where does customisation play a role? First, it is important to differentiate between a customisable system and an extendible system. Customisation knows no bounds – it may mean a small change in a screen or fundamental change to internal design with new tables, audit trails and performance characteristics. Customisable systems are capable of modelling many business processes but at high cost and ultimately with a loss of flexibility as the customised data model meets the limits of its design.

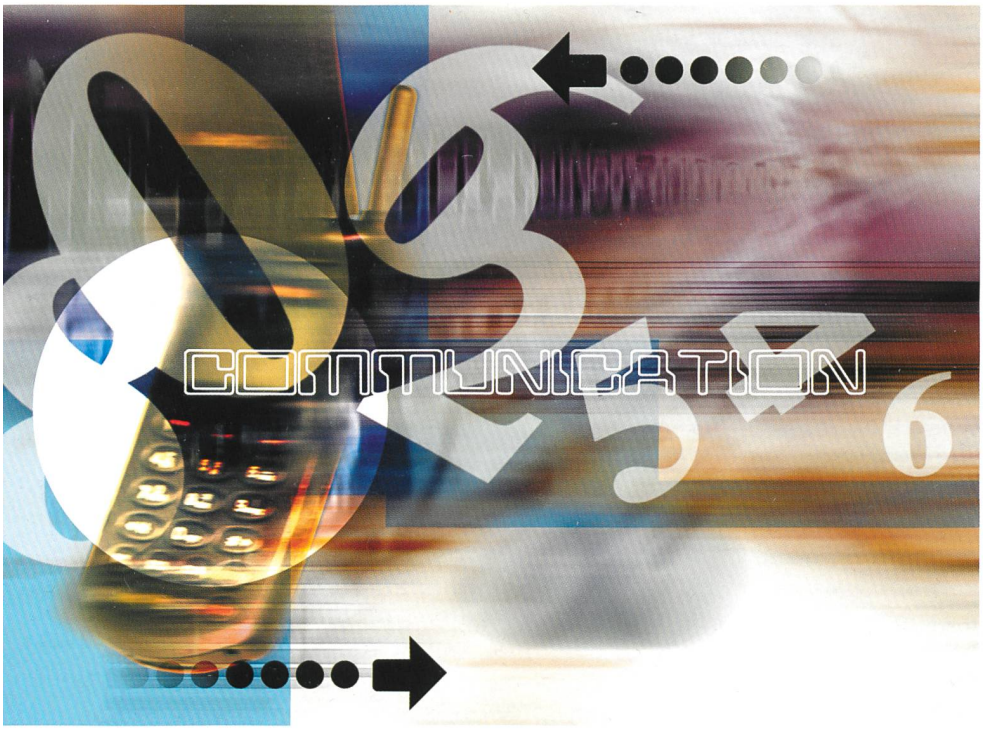
An extendible system is different – new code is packaged with tightly defined interfaces to the customer care and billing engines. Extended functions are isolated from core transaction handling and workflows. For instance, custom tax logic is better engineered as an extended module of the invoicing engine than an intrinsic part of its logic. If taxation fails, the integrity of the invoicing process is preserved. Likewise, taxation may be changed without the high cost of full regression tests on the core system.

In general, use of extended logic is only needed in those cases where configuration and meta-configuration can not model the complexity of the operator's business process. Customisation is the last resort – it should be avoidable if the system is designed to properly cater for configuration, meta-configuration, extensibility and extendibility.

Abstract Interfacing

A system may be able to contribute data to other systems, yet fail in communicating the data. Regardless of the design of the CCB system, it will differ in its approach in modelling enterprise data from the way the rest of the operator's systems do so. Even in the case of a system built expressly for a particular enterprise it is unlikely that it will be perfectly in sync with its older systems. The problem becomes especially acute with a combination of best of breed systems.

Customer care and billing systems must have a mechanism to "abstract" (translate) away the differences between how it models data and the way other systems model data. This is often referred to as support for "meta-data". Meta-data is made up of two parts: the native data model and the mechanism to abstract the native model to other schema. For example, meta-data would have a



Customer care and billing plays a unique role in the telecommunications operator's enterprise.

model of the billing system product catalogue and the ability to apply rules to transform it. Stand-alone meta-data systems, seen in some message brokers are capable of transforming data, but require "black box" customised adaptors (often rewritten on a project-by-project basis) to understand the business model. In general, a customer care and billing system must support abstract interfacing for back end processes (financial feeds and order fulfilment) and just as importantly, the front end (customer service and product management). The customer and customer service function must seamlessly access data from other systems as if it were native data. Often this integration of customer care and billing with third-party data is confined to CRM systems. But, as with message brokers, dedicated CRM's suffer the disadvantage of having no native understanding of the operator's data model – custom adaptors are required. A native ability to abstract and input external data in the customer care and billing process is highly advantageous.

Transparency

Configuration, meta-configuration, extensibility, extendibility and abstract interfacing form the foundation for an operator to take on the challenge of customer care and billing. Nevertheless, each activity must be designed transparently. The data, the logic, the processes and the transformations must be easily understood and above all visible. The complex business of customer care and billing can not be hidden – the customer service representatives (CSR), product managers and operators should "see" the system function: with complete process diagnostics, reporting and open and obvious audit trails. Without transparency, even a system with the most powerful ability to model your business processes will remain severely underutilised due to a lack of trust throughout the enterprise.

Often transparency suffers with integration with third-party systems, especially CRM packages. The process of error correction, synchronisation, data rollback and definition of business rules are confined to black box and poorly understood adaptors. The role of native user-friendly and intuitive user interfaces is vital.

Performance and Operability

The science and art of customer care and billing is to provide the ability to model the business – with the relentless growth in demand for new services and discounts – while keeping up with growth (organic or via acquisition) in volumes. The science is the use of state-of-the-art algorithms and rules engines, low latency memory resident relational databases and high performance messaging layers. The art is knowing where the trade-off between function and performance lies. In short, it requires an operations mindset and plain hard work with constant performance testing to ensure every sub-system stays well outside of the operation's critical path.

Finally, no matter how well the above characteristics are executed, the system must still be managed by customer service, billing, operations, marketing and IT colleagues. An operable system must provide, at a minimum, full process tracing, error tracking, recycling, full fault and disaster tolerance. More importantly, it must be easy to use – putting the process of fault management at the operator's fingertips. Moreover, due to the complexity of customer care and billing and the wide variety of possible issues that might arise, the system needs to provide intelligence to the operator – automatically handling the vast majority of issues while providing mechanisms to assist the operator diagnose and fix the rest.

Among the network's systems, customer care and billing are exceptional – being neither exclusively front-end, or back-end systems, while sitting at the core of the operation makes the successful modelling of the business the number one challenge.

Having examined some key characteristics for evaluating the capability of a customer care and billing system, how does your current system stack up? 5

Doug Zone *has recently been appointed as CTO for CSG Systems in Europe, the Middle East and Africa. With more than ten years of experience in the billing and customer care industry across EMEA, APAC as well as Central and Latin America. CSG Systems is an exhibitor at Billing Systems 2003, 13th – 16th May 2003 at Earls Court Conference and Exhibition Centre. Website: www.csgsystems.com*