



British Telecom Broadcast Services

- > A Versata Customer Case Study
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Introduction

British Telecom (BT) Broadcast Services is the number one provider of advanced technology, management and distribution solutions for the broadcast and multimedia industries.

As traditional analogue broadcasting evolves to digital multimedia across a wide variety of platforms and architectures, BT Broadcast Services delivers the breadth and depth of added value services that the content industry needs for this new and converged environment.

No other company offers the same level of expertise and added value resource - from digital programming and media asset management to live multi-country transmission of sports and news events.

More information about BT Broadcast Services can be found at <http://www.broadcast.bt.com>.

Requirements

As part of a larger project, BT Broadcast Services had a requirement to replace a legacy billing system, which was written in Visual Basic and C. In addition, it utilized a Tandem Non-Stop SQL back-end information store in a two-tier client/server architecture.

The new billing system is geared to support the "Telecommunications" market and specifically the "Broadcast Services" range of products, but its redesign was done in such a way that it could generically support any type of billing environment.

The legacy billing system was being replaced due to the following reasons:

- High cost of maintenance on old equipment
- Lack of upgrade ability
- Increasingly limited domain knowledge of the original application within BT Broadcast Services

The architecture of the new system would need to support:

- The J2EE Platform – BEA WebLogic Server as the chosen application server
- A thin client Interface – HTML or Java Server Pages (JSP)
- N-Tier architecture for robustness and scalability
- Integration with Oracle Financials application



Features

The new Versata-built billing system had to replace the functionality of the previous system whilst also extending it with new features including the following:

PRICING

A pricing engine with a generic core that will select a rate based on the following data driven parameters:

- Customer
- Product
- Time of Day
- Day of week
- Special Day

The prices can be in multiple currencies and the system will also accept pre-priced input and support re-pricing, cancellation charges, etc.

The screenshot shows a web browser window titled "Reporting - Microsoft Internet Explorer provided by BT Configuration D". The address bar shows "http://localhost:7001/GASBilling/Reporting". The page content includes a navigation menu for "GAS Billing Invoicing" with links for Invoicing, Routing Charges, Transport Charges, Access Charges, Credits, Invoice Control, Financials, Control, Daily Report, and Run History. The "Routing Charges" section is expanded to show "Routing Charge History".

Date Amended	User	Post Discount Price	Currency	Pre-priced
02/07/2002 11:39:25	sa	10.0000	EUR	<input type="checkbox"/>
28/05/2002 15:31:52	sa	10.0000	EUR	<input type="checkbox"/>

Navigation: << < > >> From 1 to 2 Total: 2 Return

Figure 1: BTBS Routing Billing System Screen



The generic core is interfaced with the real world via industry specific charge types, for example in the telecommunications industry the charge types that are used are:

- Routing - Intelligent network translations, DNS (domain name service) entries in the name server, router configuration in IP (Internet protocol), etc.
- Access - Private circuit, DSL (Digital Subscriber Line) connection, temporary satellite link, etc.
- Transport - Managed link, temporary inter site circuits, PSTN (public switched telephone network), phone call

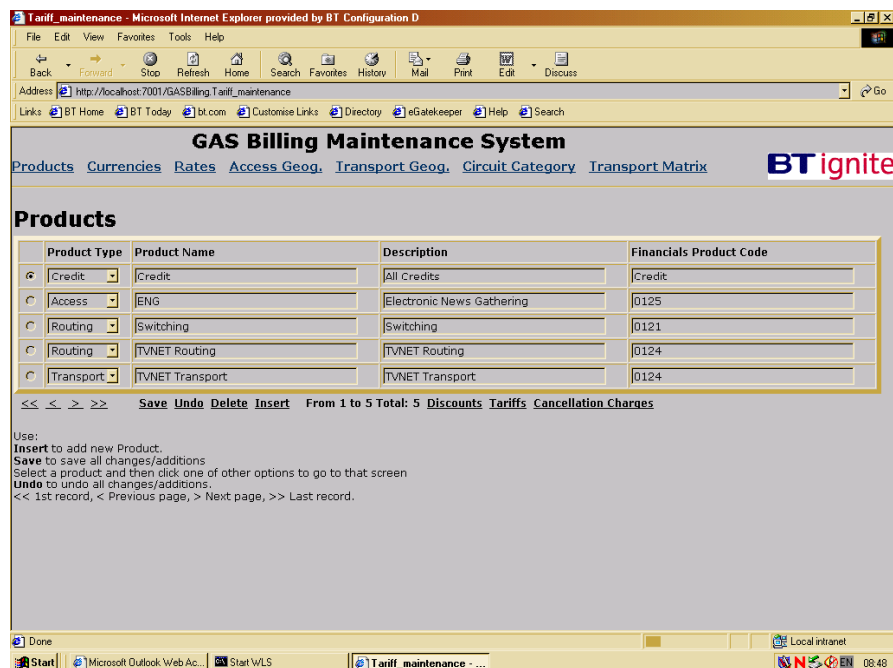


Figure 2: BT Broadcast Services Product Selection Screen

Each charge type will have bespoke (custom) parameters and new parameters can be introduced that are specific to new charge types. Existing parameters are:

- Geography (source and destination or just source)
- Circuit groupings to charge differently depending on the types of circuits being used (source and destination combination or just source or destination)

Another feature is offline charging. Once the service has been provided, it calculates the prices using the Versata modeled business rules, which result in Java Enterprise Components. Rather than using batch, it uses JMS (Java Message Service) queuing, which offers persistent durable messaging invoked via a Message Driven Bean.

Versata's implementation of a business requirements language for designing business rules made it very easy to add new charges.



Due to the flexible design, further charge types can be added very quickly. For example, for mobile data it may be required to add the following example charge type

- Mobile Download (e.g. "Ring Tone", "Graphic", "java midlet", etc.)

One of the key benefits of the system is that it is highly configurable using Versata generated HTML screens, i.e. Rates, Tariff's, special times of the day, special days of the week etc.

BILLING OUTPUTS

Billing is flexible allowing choices of billing period, billing day, invoice product selection, customer's invoice address for, etc.

The system has been designed to interface with Oracle Financials, but it is possible to enable integration with other invoice production systems. Oracle Financials only provided a summary of charges, so the new billing system was designed to extend this to provide an itemised web page to check the bill. This powerful addition was a simple extension utilising Versata's HTML templates. Also, because Oracle Financials doesn't do all of the accruals, the system was extended to provide this functionality as well.

Output Cycle No	Date Status Changed (dd/mm/yy)	Cycle Status
1	28/05/02	complete
2	30/05/02	complete
3	30/05/02	complete
12		pending
13		pending
14	30/05/02	complete
15		pending
16	21/06/02	complete
22	21/06/02	complete
23	21/06/02	complete

Figure 3: BT Broadcast Services Oracle Financials Integration Screen



CUSTOMER MANAGEMENT

A sub-system has been designed to manage customers, accounts and the allocation of any customer specific pricing, discounting, cancellation charges, and billing requirements. It would also be possible to integrate this with a central customer management system if required.

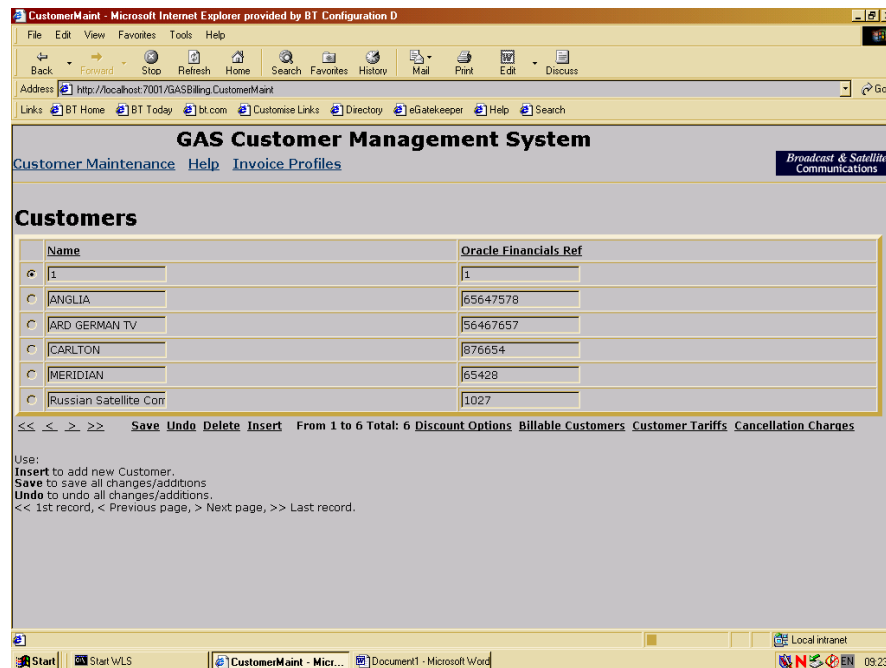


Figure 4: Customer Management Screen

REPORTING

This reporting feature allows Accruals to be monitored periodically and fed to analysis systems if required.

Other features of the system include Credits, Automatic Cancellation Charges, Manual Adjustments, and Discounts.



Why Versata?

PRODUCTIVITY

There are forty-five (45) configuration screens in total in the application. These screens have a fairly complicated validation. They took four weeks to build. As a comparison, when initial approaches were being investigated, a JSP developer took three weeks to build one screen.

- “Sheer speed of development”
– Terry Wyatt: British Telecom
Versata Consultant

FLEXIBILITY

The maintenance of the Versata developed system is very straightforward as:

- (i) Because the Billing System’s business logic is stored in an XML repository, at design time making the changing of requirements is very straightforward. The business logic statement is identified and changed.

- (ii) Versata works out any impact analysis from the changed components, and the code refactoring is performed automatically for other parts of the application.

TESTING

Testing was quicker because the focus is on the testing of the logic rather than the testing of the code – “What not how”.

DOCUMENTATION

Versata provided automatic documentation at an application and component level for all business logic contained in the system.

UML documentation was provided for the entire application by using Versata’s Rational Rose Design Adapter to reverse engineer the completed application design.

Application Statistics

Development Time for Initial Prototype:	4 weeks
Total Number of HTML Screens:	65
Total Number of Java Components:	50
Total Number of Developers:	2 (1 Part time / 1 Full time)
Development Time for Complete Application:	4 months for the first release (6 man months in total – includes Requirements Capture, Design, Build and Testing.)



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