

XPertBilling®:

A Robust and fully featured Customer Care Billing system for the Telecoms market

“We build Telecom Billing software for the MVNO (Mobile Virtual Network Operators) and other wire-line/VoiP Telecom companies. Thanks to Firebird, we are able to supply our clients a fast, reliable and easy to install billing software solution. With Firebird, we can offer unparalleled performance, speed and reliability. Our client does not need an “in house” DBA. Installation time has become very short and simple.” — Udi Shoshan, P&A Consultants.



Company information



P&A Consultants is a Belgian company, founded in 1996. XPertBilling® is our Telecom Billing software platform, with Firebird inside. It runs out of the box and does not require a dedicated administrator or vendor support. We have used Delphi as our main programming language from the start. We used InterBase as the RDBMS until the year 2000, when we replaced it with Firebird.

Problem description



Telecom Billing systems need to gather lots of information, and generate complex invoices based on this information, fast enough to provide handle billing as many as 400,000 customers per month, quickly, accurately and reliably, while also providing usage information to individual customers through a web interface.

Solution

Our XPertBilling® software meets these requirements and more. It provides a simple solution (one executable!) that is easy to operate, easy to configure, is very reliable, works on virtually any hardware. The system remains very fast and stable even as our clients' databases grow by more than 1Gb per month.



XPertBilling® is based on Firebird because it is simple, reliable, fast, and scalable. It has great indexing and very reliable Referential Integrity rules. By using good Database structure and correct indices we can achieve excellent results. Firebird's optimistic locking and multi-version concurrency fits the needs of the Telecom billing business very well. They provide better performance without reducing to availability of the information to the Customer-Care and other third party software that are linked to the same DB.

To illustrate, here are some performance test results:

We tested with a database with 500,000 Accounts, 13 million Subscribers, and 7 million “services” to bill. (Bill calculation takes into account many parameters such as the Subscriber’s active date, the total bill amount etc.) Average bill calculation speed was only 64 milliseconds per invoice, continuously, for all 500,000 invoices.

Technical details

For the above test of 500,000 invoice calculations, we used the following hardware:

Firebird version: 2.5 64bit, running on 64 bit
Windows 7 Ultimate
Database size: 8.5 GB. (Note: in production we have clients with DBs over 70GB.)
Server Hardware: Intel XEON W3520, 6Gb RAM, RAID5 (5 disks)
Client Hardware: Intel XEON W3520, 6Gb RAM, RAID5 (5 disks)
Client OS: 64 bit Windows 7, running XPertBilling® on 32 bit Windows XP Pro in a Virtual Machine.



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