

Cellcom

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INDUSTRY

Telecommunications

KEY BENEFITS

- Compresses data volume by 40 percent
- Reduces spending by 50-70 percent
- Enables easy maintenance of cellular network components

SYBASE TECHNOLOGY

- Sybase® IQ

Cellcom, the leading Israeli cellular communication services provider, needed to develop a control system for the company's GSM (global system for mobile communications) network. Cellcom turned to Sybase IQ to create a low-cost, low-maintenance system that could generate rapid extraction of changing queries without having to build cubes or aggregate tables.

MANAGING A CELLULAR NETWORK

The Software Development and Control Systems sector in Cellcom's Engineering and Network Operation Division provides end-to-end solutions. It manages these solutions from the level of links with network components and monitored systems, as well as data reception, and through databases to the application level. “These solutions,” says Almog Zahavi, director of software development and control systems, “are designed for planning, managing and controlling all of the cellular network's components, with the main clients being Cellcom's internal customers.”

DEVELOPING A PERFORMANCE MONITORING SYSTEM

Cellcom started the project by independently developing a system for monitoring the cellular network's performance. “The independent development enabled us to tailor our report-generation system in order to meet our specific needs. All of the raw data collected by the network components are processed into indexes and presented via a wide array of reports that maintain a uniform reporting language and give the user extensive freedom of action. The performance management (PM) system plans, analyzes, manages, and controls all of the cellular network's components,” explains Almog Zahavi.

Cellcom carefully evaluated the options when deciding which solution would be the best choice for the PM project. Zahavi explains, “In order to develop a comprehensive PM solution, we considered purchasing a number of off-the-shelf items that were both very expensive and only partially suitable for our needs compared. We compared these packaged options against internally building the system, which would cost 50-70 percent less and exactly meet our needs. When conducting the evaluation, we defined our criteria: collecting performance data from the network's components, feeding the data into a central data storage facility, creating an interface that would enable quick and easy data access, generating complex reports, simplifying the data and information analysis processes, creating an infrastructure for future system development, and, of course, determining cost.”

After examining the various options, Cellcom chose to develop a system that is perfectly suited to the company's requirements. The system has three layers—a loading level, which collects the data from the network components, a database level, which is used for storage purposes, and an application level, which has a Web-based user interface.

A DIVERSE SYSTEM

Using Sybase IQ, Cellcom employed a collection of technologies to complement the Sybase solution. Almog Zahavi explains, “The application level was developed with VisualStudio.NET, the data is stored with EMC Storage, and the loading level is based on DataStage. The loading level and database level operate in the Sun Solaris 9 environment. This platform also enables the addition of further controls to the performance management system such as network performance control and alerts regarding performance anomalies. The entire system was planned and developed by the Network Control Department in Cellcom’s Technologies Division together with external vendors. The database level was developed in collaboration with Ness Technologies and SRL.”

LARGE LOADS, IMPRESSIVE COMPRESSION AND RAPID ACCESS WITH SYBASE IQ

Cellcom had many special demands for an analytics server that could be flexible with their unique needs. “We wanted the option of building tables with hundreds of fields—this would save join performance on the query level, and therefore, simplify the work involved in characterizing and developing the reports. As opposed to a standard relational database, which is effective when dealing with a small number of transactions, we were looking for a solution that could cope with the loading of huge amounts of data in a very short time,” describes Almog Zahavi. “On the other hand, we needed a solution that would enable the extremely rapid extraction of changing queries without having to build cubes or aggregate tables. We also required a lower-priced solution when it came to establishing and maintaining the system. With all of these requirements in mind, we compared various solutions and finally decided on Sybase IQ, since it answered all our needs.”

Cellcom found success in the Sybase IQ solution, “Sybase IQ allows for an extensive data structure. In fact, it does not save tables via records but rather via columns. The logic behind such a structure is that if there are queries on a limited number of fields within a table, Sybase IQ does not have to export the entire row in order to replace just the relevant columns. Furthermore, when it comes to data capacity, one of Sybase IQ’s most impressive capabilities is its ability to shrink data. By compressing the raw data in a far more intelligent fashion than other market alternatives, Sybase IQ has saved us 40 percent when it comes to data volume, including indexes,” says Zahavi.

Additionally, with this custom-made solution, Sybase IQ enables Cellcom to save time in query speed and performance. “A third significant advantage of Sybase IQ is that every database administrator knows that a lot of work is conducted when it comes to optimizing the analytics performance. One of the ways to achieve such optimization is to analyze the queries and subsequently build suitable indexes in the data store. With Sybase IQ, every column in a table includes an index that is automatically created and tailored according to its type. This leads to cost savings when it comes to the writing of indexes. As a result, we benefit from extraordinary extraction performance already at the stage when the table is created. Zahavi concludes, “This leads to great savings in maintenance costs.”