

# TRAFFIC MANAGEMENT FOR THE 2008 OLYMPICS GAMES WITH ORBIX®

## BUSINESS PROFILE

### BEIJING TRAFFIC MANAGEMENT BUREAU

Chinese government agency that manages and controls traffic in Beijing

### INDUSTRY

Government

### IONA PRODUCTS

Orbix 2000™

Orbix 5.1.2

### BENEFITS

- Better traffic planning ability
- Ground-breaking solution
- More efficient use of resources
- Platform for future development
- Feature-rich development tools



"The amount of traffic in Beijing is growing steadily every year. We need to build our infrastructure to keep up with the growth in volume. Part of the infrastructure development is a system that allows the BTMB to manage and control the flow of traffic. Orbix has been a major contributor to the success of the first phase of the project, and more importantly, it gives us the stable platform on which to develop the remaining system."

- Mr Thomas Brizendine, Chairman, CS&S Delineate

CS&S Delineate is a specialist software development and system integration company focusing on ITS (Intelligent Transportation Systems) and enterprise and industrial automation. It is a private company that specializes in assisting its clients in securing accurate knowledge about China and operating successfully there. It has offices in Shanghai and Beijing, a strong team of mainland analysts, and has helped dozens of Chinese and foreign businesses since its founding in 1996. CS&S Delineate partners are from the US and China, and all have some history of business in China. CS&S Delineate specializes in business-to-business and technology markets. Its services are designed to help companies realize their strategic objectives in China in the most effective manner.

The Beijing Traffic Management Bureau (BTMB) is one of CS&S Delineate's highly valued clients and partners. The 2008 Olympic Games will be hosted in Beijing. To prepare for the event, Beijing is developing its traffic infrastructure to ensure the smooth running of the enormous transport operation during the games. CS&S Delineate is working with the BTMB to develop an advanced traffic management system that will enhance BTMB's ability to manage and control traffic in the city.

## BUILDING FOR THE FUTURE

Beijing is a metropolis that is 16,800 square kilometers in size, and contains 11 million inhabitants. Based on the original chessboard-like road network, the city has been establishing a general urban road network with the integration of highways, which are mainly composed of ring roads, arterial roads, minor roads, and sideways. The BTMB is developing an overall project implementation plan based on future traffic estimates, with special emphasis given to traffic needs for large events such as the 2008 Olympic Games, state events, expos, conferences, and concerts. As part of the plan, the BTMB identified project components required for establishing a state-of-the-art traffic management system.

Car ownership in Beijing has reached 1,898,000, with over 2,947,000 drivers. Furthermore, there are currently over 11 million non-motorized vehicles, and a great deal of transit vehicles running in Beijing. There will be about 18,000 buses and 650 bus lanes by 2008, which will carry 4.5 billion passengers each year. Public transportation is expected to constitute 60% of commuter traffic, and its share of total traffic volume is estimated to rise from the current 26% to over 40%. In order to efficiently manage the planned road infrastructure and estimated increase in traffic volume by 2008, as well as the traffic generated during the 2008 Olympic Games, Beijing is developing an Intelligent Transportation Systems (ITS).

The ITS will include a state-of-the-art computerized traffic monitoring, accident-reporting, and dispatch system.

The objective of the ITS is to implement a basic framework that gathers and collates traffic data from Beijing's major ring-roads and traffic arteries. This data is then cleaned, integrated, analyzed, distributed, and stored. The overall goal of the ITS is to present the BTMB with realtime, objective traffic status information for its major roads and traffic arteries. Another objective of the project is to establish the basic framework upon which further projects can proceed in an integrated fashion.

"Obviously the 2008 Olympic Games is a major driver of the project, but we want to develop a framework that will allow us to manage our traffic for many years to come. The volume of traffic is growing significantly every year, and we needed a way to analyze the growth and manage the impact it will have on our city's infrastructure," said Mr Brizendine.

## CITY-WIDE TRAFFIC VISIBILITY

Phase one of the project is to accumulate the traffic data from around the city. CS&S Delineate has implemented this first phase of the project. The system collects, processes, analyzes, displays, and stores realtime traffic status information from a variety of independent systems. The information relates to Beijing's main roads and arteries, for control and analysis purposes. It is sent to a number of different end-users within the BTMB.

Another function of the first phase of the project is to create a basic framework upon which additional systems can be integrated as the BTMB continues to build its full ITS in advance of the 2008 Beijing Summer Olympics.

The BTMB system is built using IONA's Orbix 2000. The IONA platform provides the CORBA-compliant functionality required for transparent, system-wide data transport and integration between the various sub-systems within the BTMB. The framework, which is operational, will be expanded in several phases in the years coming up to 2008. The next phase is to bring all realtime and near realtime systems online, which will integrate data from several static data sources. Lastly, the traffic control systems will be integrated, which will give the BTMB realtime tools to manage traffic in Beijing.

As the phases of the project come online, information will become available to other city organizations such as fire, emergency response, and planning.

With Orbix controlling the information flow, the BTMB can already adjust traffic control, modify police deployments, and direct traffic police more accurately. As important as these improvements are, the real benefit of this phase of the project is the establishment of a robust, common integration platform and traffic control strategy. The framework that Orbix provides allows the BTMB to plan a wide range of high-level functionality as it progresses through the next phases of the project in the lead up to the 2008 Olympics.

"Even after just the first phase of the project, we can see real benefits from the ITS. We can already plan and deploy our resources more efficiently to relieve traffic congestion in the city. The biggest advantage, however, is that with Orbix we have a stable platform that we can use to develop the remaining system," said Mr Brizendine.

## RICH FUNCTIONALITY

IONA's Orbix supports the ITS framework. Orbix runs in the background and will be a major part of the next phase of the project when the information is made available over the Web. Orbix plays a vital role in providing a feature-rich CORBA-compliant platform on which the functionality of the system is constructed. CS&S Delineate chose IONA's platform because it is the only enterprise level, fully CORBA-compliant platform available that also provides a solid development environment and complete set of development tools.

"We are completely satisfied with the quality of the IONA product. IONA support has been a big help to us as IONA has built up its presence in China substantially in recent years. The key features that attracted us to IONA are the enterprise-compliant nature of the platform, its notification functionality, and its feature-rich development environment," said Mr Brizendine.

## GROUNDBREAKING SOLUTION

When translated from Chinese, the project is called the "Beijing Real-Time Traffic Information Collection, Processing, Analysis and Distribution System-Phase I". The system runs on a Sun Microsystems 3800 enterprise server with a matching database server

running Oracle™ 8.1.7. It stores over 100 megabytes of processed data each day. The primary application is Orbix 2000, with bridges built by CS&S Delineate for .COM and J2EE. It is the first project of its type in China, and one of very few worldwide.

"There will be other similar projects to follow this in China, both for traffic management and for transportation information platforms for major cities. In fact, through the efforts of the BTMB, the Ministry of Science, and CS&S Delineate, the CORBA standard is soon likely to become a standard for such systems in China's ITS industry," said Mr Brizendine.

## PRODUCTS

**IONA's Orbix is the most widely deployed development platform for the most demanding distributed applications in the world, combining the scalability of CORBA and the productivity of J2EE. It supports all of the major component architectures and Web services. It provides a single foundation of reliability, scalability, and security services for applications. It helps organizations capitalize on their existing operating platforms, programming language expertise, and legacy application investments to reduce the cost and complexity of building e-business applications.**

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