rti

CUSTOMER SNAPSHOT

City of Tokyo Metropolitan Highway Line

Highly Reliable Communication System

Customer Overview

Many of today's rapid transit and highway systems face a myriad of problems communicating between central operation centers and the various stations, driver rest stops, parking areas and information kiosks that provide the latest in traffic information. The City of Tokyo Metropolitan Highway Line system consists of a central information-control center and hundreds of information kiosks and displays scattered along the highway. This allows the drivers and passengers who visit the rest stops to get information on traffic conditions, projected arrival times, alternate routes, and enforcement points where traffic is being redirected or controlled due to obstructions in the roadways caused by construction or accident.

Application

At the center of the Tokyo network is a Windows Server 2000 system backed up by a Solaris 8 system, while the kiosks are based on Windows XP. The majority of the network nodes are similarly diverse, using Cisco 3661, 3640 and 1720 routers for the backbone. The current 100 or so kiosks are served by network connections with a minimum of 256 kbit/second bandwidth. However, local conditions –humidity, nearby electrical activity and other factors – can sporadically reduce the data rate to and from the terminals down to about 64k bits/second.

Tokyo Highway Line system developers value RTI as a connectionless API, since most network configurations are heavily dependent on underlying hardware or software. Designers can adapt RTI publish-subscribe middleware to a heterogeneous system with servers and terminals based on different types of processors and running different operating systems.

Challenges

The city needed a low maintenance, highly reliable communications system that was sufficiently robust for the delivery of constant updates to the kiosks. One of the problems facing the developers was that the environment in which these connections are maintained runs the gamut: under roadways and rail lines, next to hot cabling in the transit system through a variety of soil and wetness conditions. Depending on weather conditions, the transmission capabilities of the various physical media can vary widely.

Why RTI was Selected

What appealed to the developers of the Tokyo Highway Line information kiosk network was that the publish-subscribe middleware from RTI is unlike the typical client/server link. RTI essentially provides a connectionless API.

With RTI middleware, system designers do not need to be concerned with the underlying communications protocols. The developer only needs to tell the system what the bandwidth constraints are, what information is needed at each node, what actions need to be taken, when to send it or to receive it, and what is required in response.

While current connections to the terminals are based on standard Cisco routers over copper cable, Tokyo's highway system engineers want to expand the network with a variety of other network connections: wireless, copper and optical cable, power lines, and even telephone wiring. Unlike many of the typical network protocols, the performance of which is very much dependent of the bandwidth available, publishsubscribe is much more forgiving and able to work with a minimum bandwidth.

About RTI

RTI is the real-time infrastructure software company.

RTI provides the messaging backbone for the world's most demanding real-time systems. RTI Connext™ enables applications – running on the smallest devices and the largest enterprise servers – to seamlessly share information and work together as one.

Committed to open standards, open community source and open architecture, RTI provides the leading implementation of the Object Management Group (OMG) Data Distribution Service (DDS) standard.

Our customers are in aerospace and defense, process automation, financial services, energy, automotive, health sciences and transportation. RTI is privately held and headquartered in Sunnyvale, California.

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