

In-Vehicle Communication Service

Avoiding Traffic with GIS Technology

By Wylie Burt, OnStar Project Manager

From New York to Los Angeles, the situation in every major city is the same—millions of Americans spend hours in their vehicles, moving at a snail's pace, bound by traffic gridlock. Most drivers know the feeling and have probably spent many hours stuck in the middle of some mysterious traffic jam. If only there was a way to get traffic information in real time.

Until recently, the only way to know driving conditions was to listen to area radio or TV stations as they give the traffic conditions—often for roads that aren't relevant to most drivers. More often than not, motorists are left to ponder the reason for the sea of brake lights ahead with no way of knowing if another route is clear.

OnStar figured out a way to address this mystifying dilemma. OnStar chose to use GIS technology and give drivers on-the-spot location-based traffic information when it is most useful—when drivers are right behind the wheel.

OnStar, a leading provider of in-vehicle communication services, is known for the safety, security, and convenience services it has delivered to drivers since 1996. OnStar continues this tradition with the Virtual Advisor service by giving drivers an onboard traffic advisor that allows them to keep their eyes on the road and hands on the wheel.



What Is Virtual Advisor?

Introduced in 2001, OnStar's Virtual Advisor uses a combination of cellular communication, GPS technology, voice recognition applications from General Magic, Inc., Web applications from Fry Multimedia, and GIS technology to allow subscribers to access Web-based information on demand. This Web-based information—including news and sports, financial, entertainment, and location-based weather and traffic—can be personalized to the individual driver's tastes and interests.

“More than 40 percent of OnStar customers have said that they wanted Web-based information delivered to the vehicle,” says Nick Richards, public communications manager, OnStar Communications. “And traffic was what the subscribers requested most.”



Virtual Advisor gives drivers access to this meaningful, personalized traffic information in real time through advanced speech recognition, letting drivers push one button and speak a few simple voice commands.

Using their own MyOnStar Web site, drivers personalize the information they want to hear. Then, at the press of a button, drivers can navigate the system by simply using their voice. A command such as “get my traffic,” starts the system, which delivers the requested information to the driver via the vehicle’s audio system. A unique benefit of the system lets subscribers input their normal routes to the office, and the information along those routes is relayed to the driver when he or she asks for the information.

OnStar signed agreements with Tele Atlas, an ESRI Business Partner, and Metro Networks to provide traffic incidents for each of the 69 markets Metro Networks covers. Tele Atlas offers an interface to retrieve and relay the information from all Metro Networks markets. But OnStar needed someone with advanced GIS knowledge that understood location-based services, so it turned to ESRI’s Professional Services Transportation and Logistics Group for the expertise.

OnStar was already using ArcIMS to provide maps and other services to its live advisors and ArcSDE for accessing spatially-enabled data stored in a database of more than 75 million spatially enabled geographic features. OnStar needed the technical expertise to solve the outstanding questions related to providing real-time data in a moving vehicle.

ESRI Professional Services provided OnStar with the server programming that would load incoming data from Tele Atlas and process requests from the vehicle in real time, allowing OnStar to deliver traffic information when and where the drivers needed. ESRI also provided Enterprise Java Bean programming to help the subscriber set up routes on the MyOnStar Web site developed by Fry Multimedia. The subscriber can ask for traffic information along these preset routes. A combination of customized ArcIMS and ArcSDE tools returns all relevant incidents within seconds.



The result of these companies combining their expertise is known today as the Traffic Service, provided through OnStar Virtual Advisor. This user-friendly, technically diverse product lets OnStar subscribers focus on their main responsibility—driving. Subscribers of this service will speak simple commands to the system such as “get my local traffic.” This issues complex spatial requests using advanced GIS software. In the end, OnStar uses GIS data to help drivers make their drive home a little more peaceful.

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