

telematics

● *wireless intelligence for the auto industry* ●

UPDATE
MAGAZINE

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Understanding traffic services that “predict the future”



Telematics Update's **Ven Pedro** spoke with Inrix President and CEO Bryan Mistele to learn more about Inrix and their unique approach to real time and predictive traffic information



INRIX IS FOCUSED ON DELIVERING

real-time, predictive, and forecast traffic information nationwide to a broad range of service providers, device manufacturers, web sites and mobile solution providers in a hosted, business-to-business service model. Through patented technology and robust Bayesian statistical analysis, the company's services calculates current and future traffic conditions based on real-time traffic data, historical traffic patterns, weather, construction, special events and numerous other variables. The company's goal is to save time and money for individuals and businesses by literally predicting the future for them and enabling them to plan the most efficient journey possible.

Headquartered in Kirkland, Washington, Inrix was founded in July 2004 by Bryan Mistele and a group of former Microsoft and Expedia executives. Inrix

is the exclusive beneficiary of years of research and millions of dollars of development by Microsoft Research into the statistical inference of traffic patterns, predictive analysis and mobile-base visualizations of real time systems.

VP: How does predictive and forecast traffic differ from real-time traffic?

BM: Whereas real-time traffic provides people with information about current traffic conditions, our predictive services anticipate conditions on specific routes for the next few minutes or several hours. Our forecast traffic service provides traffic condition forecasts for days, weeks, and even months in advance. These services will provide people with the freedom to accurately determine how long before traffic backs up on a given route, the amount of time before congestion or an accident clears as well as determine the time of day to travel or quickest route to your destination – even if you're planning for a trip several months away.

VP: What is unique about Inrix's system?

BM: Most of today's traffic data is collected locally – primarily by radio stations from accident reports or from flow data only available in a select number of markets. However, this data is not very accurate and has limited value for time estimation and traffic prediction. Inrix takes a new approach – using state-of-the-art science, combined with the latest technology

that can detect and correct erroneous road sensor data to fundamentally improve the quality of traffic information and how it is distributed to businesses and consumers. Additionally, our unique approach allows us to deliver traffic services that literally 'predict the future' so people can accurately assess traffic conditions hours, days, even months in advance.

VP: How does your service work?

BM: Inrix acquires sensor data – occupancy and speed measurements for road segments – from Department of Transportation sensor networks and other public and private sources. Additionally, our predictive model uses “metadata” – attributes that we would expect to influence the observed sensor data both now and some time in the future – including accidents, road construction schedules, current weather conditions and forecasts, school schedules, sporting and entertainment event schedules, and other local variables, such as the legislative calendar in Washington, D.C. To make an accurate traffic prediction, we determine all factors that combine to create traffic conditions, as well as how those factors both individually and collectively influence a particular outcome – whether there is no traffic congestion, slowed conditions or gridlock. By analyzing these variables using sophisticated Bayesian statistical analysis, Inrix can calculate current and future traffic conditions with a very high degree of accuracy. Through patented technology

and robust Bayesian statistical analysis developed by Microsoft Research and exclusively licensed to Inrix, we can predict current and future traffic conditions with unparalleled accuracy nationwide.”

VP: What variables does the Inrix technology take into account when predicting traffic forecasts?

BM: Inrix aggregates data from a variety of sources including existing speed and incident data, historical data, weather forecasts, school calendars, major events, construction, holidays and numerous other local variables unique to each market.

VP: How far reaching is your service? i.e. is it nationwide, does it cover only large roads, on what systems will it be available etc?

BM: We provide real-time and predictive traffic information nationwide directly and through industry partners to consumers in a variety of ways. Our services will be accessible to drivers and passengers on mobile phones, personal navigation devices, in-car navigation systems, web portals and destination sites to name a few. For example, more than 5,000 people are piloting our technology today on smartphones to minimize and avoid traffic congestion on their daily commute.

VP: How accurate have your results been so far?

BM: Our technology and analytical approach allows us to provide real-time data to our customers that is more accurate than flow data collected directly from road sensors today. In fact, industry research shows that a combination of factors that includes low power, outdated technology and miscalibration results in road sensors reporting poor data up to 25 percent of



the time. Many companies are interested in our services because our technology can correct for these errors to provide greatly increased accuracy. In terms of our predictive and forecast data, we currently average between 85% and 95% accuracy depending on the market and time frame. What is unique about our analytical model it continues to learn and become more accurate over time as it collects, analyzes and archives more and more relevant data.

VP: Potentially, how big do you think the market is for predictive traffic?

BM: We believe that the market opportunity is significant for a service that goes far beyond real-time traffic to provide people with the ability to anticipate traffic conditions in advance and avoid congestion. Our research shows that more than 70% of automakers are planning to offer navigation systems as standard equipment and Web portals, wireless operators, portable navigation device makers and others are rapidly introducing local search and navigation services integrated with traffic information. According to market research firm Driscoll-Wolfe, the market opportunity for data aggregators & broadcasters to deliver services like real-time and predictive traffic information is expected to reach \$7 billion by 2011. In addition, we've seen significant interest from the public sector and homeland security firms who are very interested in understanding how congestion in markets may change given certain sets of scenarios and events. This is exactly the type of unique value we believe Inrix can deliver.

VP: How do you see the market developing? Do you think it will be enterprise or consumer driven?

BM: We think that it will be a combina-

tion of enterprises and consumers driving demand for traffic information. Navigation and traffic information providers are continuing to explore new ways to differentiate their offerings and drive increased revenue through better services for their customers – whether they are businesses such as fleet operators or individual consumers. As congestion continues to outpace our ability to build and improve roads, both of these audiences are increasingly demanding solutions that help them minimize and avoid down time stuck in traffic.

VP: Finally - do you think a ubiquitous predictive traffic service will have larger benefits to society as a whole?

BM: Definitely. In the U.S. alone, Americans spend more than 4.5 billion hours in traffic each year at a cost of more than \$600 per person in wasted time and fuel. Traffic congestion is a major problem for our communities and a growing problem for individuals, but it also drives increased costs for fleet operators and many other businesses. Inrix's goal is to help people and businesses save time and money by providing them with relevant and timely information that helps them plan better and avoid congestion. In doing so, we believe we're performing a valuable service for our communities that improves the quality of life for those who use our services whether its being more productive at work or creating more time in the day to spend with family and friends. ■

You can learn more about predictive traffic and Inrix's unique approach at Telematics Update's Navigation 2005 conference on November 30 in San Jose, California, where Bryan Mistele will be speaking about the future of real time traffic and dynamic data. Please visit www.telematicupdate.com/navigation2005 for more details.