

How soon will this current traffic congestion clear? What is the latest time I can leave this morning and still avoid heavy traffic?

The INRIX® Predictive Flow traffic service anticipates conditions on specific routes for the next few minutes, hours, days, months or even a year ahead of time. It allows commuters and commercial vehicle users to save time and money by offering choices and advice.



This Seattle traffic map illustrates a sample user interface, highlighting currently slightly congested road segments in yellow and smooth flowing traffic in green. The clocks use colors to indicate, in 15 minute increments, the most likely duration of current traffic or predicted traffic. Clock slices in red and black indicate jammed segments of the highway. Yellow and green highlight the time until the adjacent road segment will most likely become jammed.

Overview

Building on the comprehensive and accurate traffic data from the INRIX Smart Dust Network, the INRIX Predictive Flow service predicts the future—anticipating conditions on specific routes for the next few minutes, days, hours or weeks. It saves commuters and commercial drivers time and money by offering useful, accurate information on the best routes to take.

Leveraging technology originally invented at Microsoft Research, INRIX employs Bayesian statistics to make predictions about future traffic conditions, determining the combination of factors that will influence future traffic patterns and uniquely developing an in-depth understanding of what traffic is like in each metropolitan area.

The technology combines input of commonly known traffic-impacting factors such as the current traffic conditions, day of the week, season, holidays and related days, current and forecast weather, accidents and road construction, as well as other events such as school schedules, sports games and concerts, and even uniquely local variables such as the legislative calendar in Washington, D.C., or the convention schedule in Las Vegas. This allows INRIX to make predictions conditioned on dynamic knowledge of current and future conditions.

Using an evolution of this technology, INRIX scientists have been successful in accurately predicting the impact of previously unseen construction, road closure and incident events on the traffic conditions in a market correctly capturing detour relationships between alternate routes, and public behavior in response to knowledge of incidents, events and construction. Such predictions result in very different information to time-of-day, day-of-week typical conditions data that can be derived from historical averages of traffic patterns.

Features of Predictive Flow

INRIX aggregates and enhances traffic data, along with other information that impacts traffic, from hundreds of sources to provide comprehensive, predictive traffic information, including:

- Estimates of traffic flow patterns every 15 minutes for up to one year in the future
- Amount of time expected (in minutes) for congestion to clear or to start within a road segment
- Drive time predictions for key routes in all metropolitan markets
- Proprietary error detection and correction of individual real-time traffic sensors with predictive traffic information significantly increases the quality of the flow reporting
- Compatible with all map databases including NAVTEQ™ and Tele Atlas™
- Support for Traffic Message Channel (TMC) referencing
- Easy implementation through XML interface for applications such as speed maps, expected congestion clear times, traffic alerts, and highly personalized traffic and navigation services

Key Benefits of Predictive Flow

With INRIX's traffic solutions, you will benefit from:

- **Quality**—Our obsessive focus on quality and our robust statistical models enable significantly better and more accurate data than what is available today, ultimately enhancing customer satisfaction
- **Innovative Predictive Technologies**—INRIX is unique in its sophisticated platform for traffic predictions, time estimation and traffic-influenced dynamic route guidance capabilities—all critical for the next generation of navigation and location-based service applications
- **Comprehensive Coverage**—INRIX provides the broadest national coverage of traffic information available including major freeways, highways, and arterials in every major metropolitan area in the U.S.

How INRIX Predictive Flow Works

The INRIX Smart Dust Network represents a traffic technology breakthrough that dramatically improves the accuracy, quality and coverage of traffic information. INRIX acquires real-time and historical sensor data from hundreds of public and private sources including anonymous, real-time GPS probe data from more than 650,000 commercial fleet, delivery and taxi vehicles; toll tag data; and occupancy and speed measurements from Department of Transportation sensor networks. Additionally, the INRIX Smart Dust Network aggregates real-time incidents and hundreds of market-specific criteria that affect traffic—such as construction and road closures, sporting and entertainment events, school schedules and weather forecasts.

To develop an accurate prediction of traffic speed we need to consider all of the factors that combine to affect traffic flow, and then provide a model that enables real time analysis of this data. INRIX views these causal relationships in the context of the effect that one variable has on the probability distribution of outcomes of the other. The natural way to evaluate and combine such probabilistic relationships is in the framework of Bayesian statistics, which INRIX uses as the basis for its proprietary Traffic Fusion Engine.

INRIX traffic speed prediction algorithms are the basis for several services:

- Short-term predictions (next 2-3 hours) using current traffic, weather forecasts and other metadata impacting traffic
- Medium and long-range predictions (days, weeks and months ahead) using weather forecasts, school, construction and event schedules
- As a baseline to compare 'normal traffic' with actual traffic on a given road conditioned only upon day, time and event and school schedule information
- Error detection and correction of real-time flow data

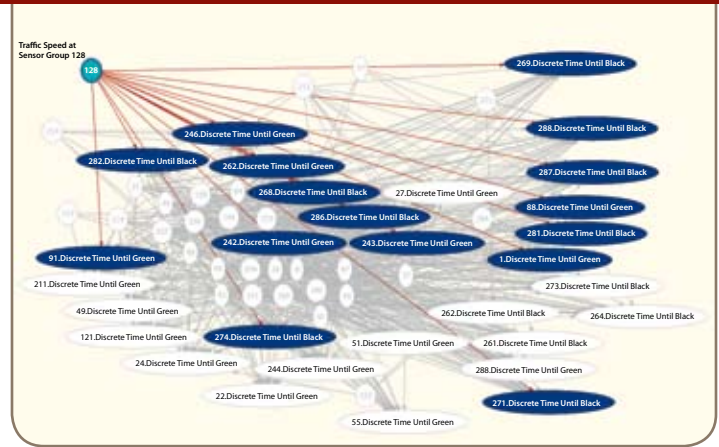
To control complexity in the modeling process, INRIX aggregates sensor data to the Traffic Message Channel (TMC) at the road segment level, independent of underlying choice of map data vendor. For each road segment, INRIX maintains a large number of local attributes which we use as inputs to the predictive modeling process, in conjunction with a series of metadata variables.

About INRIX

INRIX® is the leading provider of accurate real-time, historical and predictive traffic information nationwide, providing over 40 industry partners and customers including Tom Tom, Microsoft, TeleNav, Clear Channel Radio's Total Traffic Network, deCarta, Tele Atlas, TCS, Telmap and others with the highest quality data and broadest coverage available for personal navigation, mapping, and other location-based service applications in the car, online and on mobile devices.

INRIX Traffic Services leverage sophisticated statistical analysis techniques, originally developed by Microsoft Research, to aggregate and enhance traffic-related information from hundreds of public and private sources, going well beyond the limitations of static road sensor networks, historical-based models and cellular data aggregators, to offer customers the most sophisticated understanding of the unique system-wide traffic patterns in each metropolitan area.

To experience the traffic technology revolution behind the next-generation of navigation and location-based service applications, visit www.inrix.com.



Bayesian Network example of predicting future traffic flow in the San Francisco Bay Area. Highlighted are the road segments in which predicted traffic speed is causally dependent upon current traffic.

INRIX Predictive Flow is ideal for:

- Delivering time dependent, traffic-influenced routing and dynamic rerouting with turn-by-turn navigation for vehicle fleet planning and consumer use
- Generating 2D and 3D traffic speed maps showing forecasted traffic hot spots based upon specific dates and time of day
- Providing 1-day, 5-day or 10-day metropolitan traffic forecasts
- Analyzing traffic congestion bottlenecks for transportation and site planning
- Providing predictive travel times and travel speeds for key routes
- Developing highly personalized traffic reports and alerts

To find out more about INRIX traffic solutions, please contact us at 425-284-3800 or email to sales@inrix.com