

BIOGRAPHICAL INFORMATION

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Senior Account Executive
NAVTEQ
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Specific Responsibilities

Recently joined NAVTEQ in July 2004 as the Senior Account Executive responsible for managing the Geographic Information System (GIS) and the Enterprise markets. Job responsibilities include working with NAVTEQ product management and our customers to ensure we create the content and data solutions needed for these key markets.

Past Experience

Tele Atlas Director GIS Markets: As executive account director for the geographical information systems markets (GIS) Parker set the business strategy for Tele Atlas and worked with their end users and partners to deploy Tele Atlas solutions. Parker has over 23 years sales and marketing experience, which includes 18 years of business development, sales, and sales management experience in the Information Systems industry. He also has extensive experience in global markets, providing enterprise solutions. Prior to joining Tele Atlas, he was with Sun Microsystems, as the worldwide business development manager in Sun's software group.

Educational Information

Received Bachelors of Business Administration in Marketing and Management from Baylor University in 1978.

Completed Coursework toward Masters in Management Information Systems at the University of North Texas.

Professional Memberships

GITA
IMTA

Dynamic Content & its Benefits to the Mobile Workforce

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ABSTRACT

With the ability today to tie real time traffic incidents and emergency weather conditions to digital map content, enterprises with mobile workforces can reap the benefits through improved response time and more efficient route planning. Real-time road conditions and weather events can be communicated digitally to workers on the field devices, and spatially referenced, so that they can take the appropriate actions to get to their destinations quickly, thereby improving service and saving time.

INTRODUCTION

“Americans waste 3.5 billion hours stuck in traffic each year, and the gridlock is getting worse faster than it can be fixed,” says Brad Hawkins of WFAA. (Hawkins, 2004)

Today there are close to 50 million mobile workers in North America. These are comprised of workers in Utilities, Energy, Telecom, Insurance, Delivery, Emergency services, etc. Great strides have been made in reducing costs by implementing ‘middleware’ solutions to tie information into back end systems such as Customer Information Systems, CRM, Outage Management Systems, etc. The benefits are sometimes seen as one-touch data input. Other cost saving advances have been including empowering the field worker with tools to help him or her be more efficient and reducing the amount of centralized dispatching personnel. The benefits of real-time service management systems utilizing wireless technologies and automated location services are becoming abundantly clear. The improved coverage and quality of wireless connections help more efficiently track and route our mobile workers. By pairing dynamic content with other technology and process enhancements, industries with large workforces are seeing significant reductions in the ‘windshield’ time of its field workers and, consequently, in time and cost associated with workforce management.

MOBILE WORKFORCE MANAGEMENT SYSTEMS

Improved Workers Tools:

With the growing mobile workforce more and more companies have provided their mobile workers with tools to make their day more productive. Tools such as laptop computers, PDA’s, tablet computers, or in some cases specific in-vehicle designed devices are tied to specific

initiatives, each with its own identified return on investment most often in the form of cost savings or improved customer service. Usually the goal is to reduce redundant handling of data or speed the gathering of this information, be it invoicing the customer or updating the central database. As the users get more sophisticated with the devices and the communication improves, additional ROI is realized by improving the transportation efficiencies of these field workers.

In the past, mobile workers have used paper maps or local knowledge to get from one point to the next. Additionally, workers often held the same position for long periods of time so time and experience on the job led to efficiencies as workers became familiar with their territory, the scheduling process and could reduce travel times and improve scheduling inefficiencies. However, our workforce today is very dynamic and often do not stay in the same position or company long enough to develop the local knowledge necessary to provide the most efficient routes.

In addition, the field is expected to handle more stops each day in order improve productivity. The amount of time a field worker spends traveling from one location to another, in industry vernacular, is called “windshield time” and it represents another area where there is potential room to create timesavings. It is especially significant since the average drive time in major metropolitan cities has increase 187% percent in the past twenty years, according to the Texas Transportation Institute’s 2004 Urban Mobility Study. (Texas, 2004) This is mostly due to increased road traffic and the static road network that does not meet the increased population. For example Dallas has grown from 2.4 million people to 4.5 million people in the past 20 years. The total road network has increased from 13,000 miles to 17,000 miles. This has caused the average delay per person per year to increase from 13 hours to 61 hours. (Hawkins, 2004) In addition, this has increased the peak congestion time from a few hours to the majority of the day due to staggered working hours and extended commutes. With these statistics as a backdrop, it is easy to see how real-time information – like traffic data – could potentially address the growing “windshield time” for mobile field forces.

Initially companies considered moving real-time traffic to dispatch centers to help mobile workers navigate to their appointments. A good idea in concept, however, most dispatch centers have little capacity to track and process generic traffic broadcasts. The forward thinking company can take advantage of mobile devices real-time traffic information – personalized to each worker’s location - to improve communication with the field, especially to help the field force navigate more efficiently and effectively to their calls – all without the involvement of the dispatcher. .

Clearly, traffic that is personalized to the field worker has a dramatic effect on the ability for this information to improve the workers’ productivity. This is even more important as companies automate the dispatching process. These improved software tools have the ability to not only route workers the most efficient direction and path to handle the workload, but they have the ability to handle real-time data feeds and dynamically reroute the worker based on current location, destination, and impediments along the route. These potential impediments can be an accident, slower traffic due to breakdowns, or road construction. Even weather related

congestion could be extrapolated into slower traffic during the day. The knowledge from this information can be used to dynamically reroute or even to reschedule appointments based on this information.

Several methods have historically been used to create scheduling and workflow efficiencies. We evaluated skill sets of workers, proximity of worker to locations, or needed parts with each worker. This is one more very important item that we can add to dramatically improve our field workforce efficiencies. Most companies are implementing Automated Vehicle Location (AVL) in their field workforce in an effort to gain efficiencies in these areas. With the AVL comes the ability to take advantage of Real Time Traffic benefits, as well as the dynamic rescheduling of work throughout the day.

REAL-TIME TRAFFIC SERVICE

Traffic Markets in USA today with Speed and Flow information: (Approximately 50% of USA by Population)



How Real-Time Traffic Works

Real-time traffic data is transmitted by multiple sources to a primary traffic data center and a secondary traffic center for processing. Traffic data sources include leading commercial traffic

data providers, government transportation departments, police, emergency services, road sensors, cameras and airborne reports.

Real-time traffic is designed for industry-wide adoption by Location Based Service providers and field service software developers. The traffic service uses Alert C format, which is part of the Radio Data System-Traffic Message Channel (RDS-TMC) international standard for traffic information. This standard has been widely adopted throughout Europe. Use of this standard enables companies to re-use traffic applications developed for Europe in their North American solutions.

Data is consolidated from multiple sources and is quality tested by the traffic integrator. Once it has processed the traffic data, the dynamic content provider sends it to broadcast provider operations. i.e. satellite radio, FM radio, or wireless carrier. If the data is received by satellite radio, the data is continuously broadcast via providers nationwide network of satellites and ground-based repeaters to ensure that workers always have the latest information.

Benefits of Traffic Navigation

Receiving real-time traffic information relative to a current location and a chosen destination enables workers to make the most informed, timesaving routing decisions. Previously, workers had to rely on broadcast traffic services, such as radio or TV, which provide regular -- but not personalized -- updates.

Traffic information is most useful to workers when it is accurate, personally relevant and timely.

Personalized Traffic data includes the following

- Unscheduled incidents, such as accidents and disabled vehicles
- Scheduled incidents, such as construction and road closures
- Traffic flow, such as speed and movement (where available)

With traffic-enabled field workforce systems, a worker leaving his job site will be able to obtain detailed information about traffic on his route before he leaves. Navigation screen icons will indicate how fast traffic is moving on major roadways. Workers will know whether congestion is due to an accident or construction, and they also will receive up-to-the-minute traffic data updates while in route. For example, if a disabled car is blocking a lane, they'll be able to make advance re-routing decisions.

The service is designed to provide clear, at-a-glance information. Workers can easily obtain information about traffic that affects them along their chosen route without needing to know the

road names. If needed, workers or software packages can quickly get alternate directions from the system so they can re-route to avoid congestion.

EXPLANATION OF TRAFFIC CODING

Traffic Coding Defined

Traffic coding provides specific locations in a database to which traffic information can be radio broadcast to a navigation system user thereby providing real time traffic updates. Coding is applied in the database as a linear feature name. Traffic coding in Europe is applied in the database as RDS-TMC codes. RDS-TMC is a trademark name. RDS is an acronym for Radio Data System. This is the system that broadcasts traffic information to specific locations along a road. The RDS system standardizes several types of information transmitted, including time and station identification. RDS, which is widely used in Europe, is similar to RBDS, which is available in North America. TMC is an acronym for Traffic Message Channel. This is the radio channel for these broadcasts. The inclusion of traffic codes in the database allows applications to receive traffic messages and communicate this information to the driver.

Implementation

Utilizing the Traffic Message Channel (TMC) each traffic event is encoded with location and time using the Alert C standard. The road network is assigned locating codes on a national level. Service centers validate, integrate, and encode the data received and provide it for broadcasting and translation to the TMC messages. A TMC equipped navigation system transparently decodes the message and instructs the worker visually or verbally. These updates are user specific allowing for real-time route adjustment.

Data Source

Sources of data include police, loops, traffic cams, and floating car data (FCD). Therefore every equipped transport acts as a source of traffic input such as speed, direction of travel, and time. With this data traffic congestion is identified, travel times calculated, and reports are instantly created.

Benefits

The mobile workforce acquires

- Real-time accurate traffic information
- Specific accidents / non-accident impediments
- Filtered immediate alternative route data
- Dependable data transmission

Advantages

The Traffic Message Channel provides a “silent” FM data channel with non-interference from scheduled broadcasts. This allows users to hear music or news at the same time, while providing a timely notification not restricted to traffic bulletin updates, as they are transmitted constantly and directly to the worker. Data is compiled from emergency services, motorist’s calls, traffic monitors and are sent to a processing center. The central information center then provides this information to the TMC service provider who sends a message according to Alert C protocol. The variety of information will usually include weather, traffic location, severity, duration, direction, and diversion advice. The TMC receivers are typically an on-board navigation system or car radio, but will include new channels such as DAB (digital radio), mobile Internet, paging, and GSM/GPRS mobile phone networks.

North America Traffic Codes

The largest providers of Digital Maps in North America formed a consortium to standardize traffic codes, which will enable traffic information linkage to digital maps for the United States. This new set of traffic codes is available on digital maps today. A standard set of traffic codes will directly enable the delivery of real-time traffic information to navigation systems and portable navigation devices – regardless of map provider - in major markets across the country. The traffic location tables and codes will be compliant with the European RDS-TMC Alert C specifications, a widely adopted traffic code format.

CONCLUSION

Maximizing ROI for the shareholders, corporations constantly seek ways to improve products, reduce costs, and efficiently manage time and resources. Industries that rely on ground transportation to provide a service, either as a source of revenue or an expense of business, critically evaluate route time. Providing digital data directly to the mobile workforce results in improved productivity, reduced costs, and strengthens customer service by optimizing critical resources.

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