SITRAFFIC Concert solves traffic problems intelligently—throughout Europe.

Reference projects SITRAFFIC Concert

Your Success is Our Goal
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The essentials in brief: SITRAFFIC Concert is a traffic management center. That is, it gathers, bundles and evaluates traffic data from a large range of different sources before outputting it in the form of traffic information for users of various kinds. The system can also be used for direct intervention. For example, it can be set to automatically control traffic regulation systems according to precisely defined routines; or technicians start manual interventions with a click of the mouse at the control room PC. Concert is able to integrate all traffic flows (parking traffic, public transport and individual traffic) and different traffic zones (inner city, motorways, rural roads or whole industrial areas).

Good for the municipality! For the municipal authorities this means a significant optimization of operations. All information is centrally bundled, all centers can be “controlled” from one central location, if required, and data only needs to be entered once for it to be available in all of the subsystems: scheduled roadwork, holidays or major events.
The situation: The Greek capital Athens is an important traffic hub, with around 800,000 inhabitants in the city itself and nearly four million in greater Athens. Every day, people and goods reach their destinations by means of the city’s three subway lines, one tram line, countless bus lines, 15,000 taxi cabs and innumerable private cars and trucks. Naturally, their destination is often the city center where commercial and administrative activities are concentrated. Until now it was nearly impossible to keep traffic flowing in the inner city. Therefore, the city of Athens decided to commission Siemens to install a traffic management system.

The challenge: The objective of SITRAFFIC Concert is to precisely record the inbound and outbound traffic in Athens and ensure that individual traffic is optimally guided through the city. The integration of all traffic-relevant data and the optimum switching and control of all traffic signals and information media makes it possible to speed up traffic flow in Athens, resulting in less congestion and less pollution. The complex task is supported by networked cameras, independent loop detector systems, video recording systems for expressways, and dynamic displays for congestion warnings and detour recommendations, for example.

The result: Within only 17 months a future-oriented traffic concept was planned and installed for the megacity of Athens.

The implementation: In order to meet the requirements of the Athens authorities, an universal traffic management system, SITRAFFIC Concert, and a modular traffic computer, SITRAFFIC Central, were installed.
A total of seven different systems are linked up to the SITRAFFIC Concert management system. Traffic information is aggregated via an open interface. The interface definitions call for exactly the number of data required for taking strategic decisions aimed at improving traffic flow in the city.

In collaboration with the customer, Siemens ITS designed a traffic engineering concept that forms the efficient framework for the traffic management and traffic control system. All incoming information is evaluated centrally in the strategy module. The evaluation is executed on the basis of decision tables. The strategy module is responsible for selecting the correct response to the various traffic situations. The strategic information of the management system is transferred to the SITRAFFIC Central traffic computer, which combines it with its own measured values. Travel time calculations are used across the entire system: On the one hand, to generate characteristic travel time patterns for each type of day and, on the other hand, to feed the dynamic traffic information boards with expected travel time data for the road users.

The components: The subsystems connected to Concert and their functions include:

- CCTV (Closed Circuit Television); enables observation and verification of incidents.
- TMS (Traffic Monitoring System); delivers loop data from autonomous loops.
- TCS (Traffic Control System); controls the traffic signal systems installed in the Athens urban area and simultaneously delivers loop data to the Concert system. It also connects with the Siemens traffic computer and the traffic computer delivered by the company Huber.
- Internet/SMS; displays traffic situations and conditions on the internet.
- MAIDS (Motorway and Incident Detection System); detects and reports incidents on motorways so that unusual traffic conditions can be recognized and reported automatically to the operator. Video images can then be switched in to watch acknowledged disruptions.
- Video Detection; delivers video detection data.
- VMS (Variable Message Signs); display sign texts created by the Concert system.
The situation: The state of Berlin has done a lot to gradually build up an integrated and future-proof traffic management platform. One important component of this system is the new VKRZ traffic control center, which optimizes traffic flow by means of control and guidance interventions.

The challenge: The existing 20-year-old VKRZ was to be replaced and integrated with the state traffic warning service. To this aim, the new VKRZ was moved to a newly equipped space on the Tempelhof Airport grounds, where the Berlin TMC (traffic management center) is located. The link-up of the traffic control center with the TMC (see also page 9) and intensified cooperation were to create the necessary conditions for optimum traffic control.

The result: Thanks to the updated VKRZ traffic control center, Berlin now has the most modern traffic control and information center in Europe for centrally monitoring and managing traffic for the entire area. For the first time ever, a comprehensive picture of the traffic situation on the motorways, roads and streets in greater Berlin is now available. At the same time the evaluation of current and archived traffic data forms the basis for efficient mobility management, not only in case of congestions and disruptions, but also for state visits, demonstrations and major events.

Scope of services:

- Connection of the traffic systems based on the SITRAFFIC Concert solution
- Installation of a rear-projection wall, displaying a “digital map” of Berlin including the visualization of the current traffic conditions
- Refurbishment of the VKRZ Berlin traffic control center with active network technology (active network technology connects all IP-capable components in the VKRZ)
- Complete office hard- and software equipment including workstation and operating computers, printers, scanners and office software packages
- Expansion of the national motorway video monitoring system with the video control center in the VKRZ, including its connection to the existing video system
- Equipment of the VKRZ with Elabo TaCom workstation systems
The implementation: This complex solution was implemented in two phases. Phase 1 was put into operation in January 2005, with the commissioning of phase 2 scheduled for January 2006.

Phase 1—Dismantling of the COC (central operating computer): Telematic Center UTC Light with link-up to SICOMP M/R (Concert, version 3.2)

- Provision of the operating systems for clients and servers
- Database
- Configuration of a digital map
- Creation of the central operating computer's basic functions
- Creation of the KRE server's basic functions
- Development of the software for controlling tunnel systems and traffic computers (connected to the central operating computer)
- Basic statistical functions (operating data, measured values)
- Creation of interfaces for the tunnel systems and traffic computers (connected to the central operating computer)
- Creation of remote access options for the operation of Berlin’s traffic management systems
- Transfer of malfunction reports and fire alarms from the traffic computers

Phase 2—Complete VKRZ Berlin system on UTC (urban traffic control):

- Database (complete setup)
- Connection to the traffic computer center
- Expanded logging functionality
- Expanded statistics functionality
- Expansion of the functionalities related to the state traffic warning service (primarily RDS/TMC: radio data system/traffic message channel system)
- Expansion of the message management system
- Expansion of GIS functionalities (GPS, protocol sections, VBA objects)

The 5x4m video wall with 25 rear-projection modules provides a comprehensive overview.
The situation: Berlin is not only the German capital. It is also one of the 16 German states and, with 3.4 million inhabitants and an area of almost 900 square kilometers, the largest German city by population and surface area. Correspondingly, Berlin’s traffic infrastructure and overall traffic volume are diverse and extensive.

The challenge: The state of Berlin wanted a TMC (traffic management center) based on the SITRAFFIC Concert system, in which all traffic-relevant information from diverse sources could be gathered, managed and stored for further processing. A consortium consisting of DaimlerChrysler Services AG and Siemens AG was commissioned to design and build the TMC. Later the consortium partners created the VMZ Berlin Betreiber-gesellschaft mbH to operate the system.

The implementation: The TMC consists of three principal elements: the MIT (motorized individual traffic) content platform, the PT (public transport) content platform and the service platform.

The MIT content platform collects data on individual traffic in real time, prepares and evaluates it for further use. The results of this evaluation are displayed on information boards—automatically or after manual postprocessing. In addition, the results are transmitted to the service platform.

The PT content platform processes all data and information coming from public transport authorities. This collected data is then processed accordingly and also made available on the service platform for public or individualized information services.

The service platform performs a variety of tasks. The “Service” module receives information (e.g. about congestions, car park occupancy, travel times for individual routes).

In the “Message Management” module the acquired data is reconciled with other information from traffic service authorities or automobile clubs, for example. PT information is also processed here.

The features: The MIT content platform was supplied by Siemens. It continually processes and visualizes the current traffic situation for a defined area.

Direct access to all traffic-relevant information in greater Berlin, per video zoom, if necessary.
On the basis of dynamic traffic data, an advanced algorithm calculates a short-term forecast, which can then be displayed. In addition to the current traffic data and updated congestion information, the module provides mid- and long-term forecasts for the different traffic information services offered. Data from subsystems, connected sensors and other sources are also exploited to provide travel information for the dynamic information boards. A variety of messages and symbols are available for displaying this information on the boards.

Other important features are:
- Central data management and archiving
- Strategic control
- Connection and control of signs (prism signs and LED signs, variable direction signs)
- Visualization and operation

**The components**: The following systems are integrated in the TMC:
- Fully graphic LED-based variable messagesigns
- SITRAFFIC Central traffic management system
- Above-ground detectors
- Parking facilities
- Travel time forecasting system
- SITRAFFIC Monet
- GIS map
- Information management
- Web-based services
The challenge: The city of Brunswick needed an advanced traffic management solution enabling it to intelligently manage traffic flow and provide traffic information to travelers. The system would reduce congestion and increase safety.

The solution:

- Installation of loop and infrared detectors for accurate traffic situation recording
- Installation of LED information boards for the display of traffic information
- Installation of a traffic management solution that integrates existing subsystems like parking guidance systems, traffic computers, public transport control centers, roadwork management systems, etc.
- Implementation of a TMC/RDS interface for transmitting traffic information from the traffic management system to the state traffic warning service and thus to all media channels

The implementation: The project was completed in two phases. In phase 1 (August 2000 to July 2002) the center components with the operating stations were set up and linked up with the traffic computers and the parking management system. About 100 infrared detectors and 20 induction loops record the traffic in a section of the city and forward the information to the strategic control system, STRAMO. The information is then distributed via a variety of channels: two LED boards in the urban zone, e-mail, fax and the city’s website.

In phase 2 (as of April 2004) the system was expanded. 200 additional detectors ensure that traffic flow information is available for all vital arterial roads in Brunswick. Six additional LED boards and a user-friendly internet information site (displaying average traffic volumes, car park occupancy, interactive city map with aerial imagery) were also part of this second phase.
The link-up to the traffic computer is designed as a bidirectional interface so that switching recommendations can be transmitted to the traffic control computer. Via additional interfaces, incoming data from the PT control center, the roadwork management system and the pay-and-display machines control center are made available. This provides information about:

- Stops and stations (lines, departure times, delays)
- Roadworks (location, duration, description)
- Car park capacity (current occupancy and trends)

**Key component:** One highlight feature of the Brunswick system is the real-time distribution of traffic information. This was made possible by the RDS/TMC interface. So-called “location points” were defined within the relevant city section as a basis for this functionality.

LOS (level of service) values collected by the measuring stations are analyzed and provide information on traffic density and flow. During slow-moving traffic or congestion, automatic notifications are generated in this format and sent to the state traffic warning service. As soon as they arrive there they are made available to all other state traffic services, radio services, and any car navigation systems with the required capability.

**The result:** The congestion warnings on the information boards combined with the incident and action plan management considerably improve road traffic safety in Brunswick. The information services provided via internet portal, information boards and navigation systems as well as the active traffic interventions help reduce congestion or even avoid it altogether.

Real-time information on all channels

Installation of a traffic management solution for Brunswick, Germany

An online city map displaying traffic densities, the current parking situation and public transport schedule information—Brunswick’s website informs you in real time.
**The situation:** The Free Hanseatic City of Bremen is the capital of the smallest German state and has about 550,000 inhabitants. In order to effectively control the high traffic volumes, the city commissioned the installation of an intelligent traffic management system from Siemens.

**The challenge:** The city wanted a regional traffic management system to improve traffic flow. The objective was to reduce congestion and minimize the burden on the environment by providing up-to-date traffic information and intelligently influencing traffic flow by integrating all existing systems.

**The solution:** The implemented solution allows Bremen to control its traffic from one central location. In order to provide the Siemens central computer with the necessary information, Siemens installed 150 Traffic Eye Universal devices, which precisely record the current traffic situation. From these and a number of other sensors, the system receives data on the current traffic and weather conditions.

Traffic lights, parking guidance and roadwork management systems are all networked with the central computer. The data can then be passed on to police, fire department, planning offices and other authorities concerned, and alternative route suggestions can be distributed via broadcast services and the internet.

The employees at Bremen’s roadways and traffic office can visualize the information from the connected systems on a standardized user interface and derive instructions for action.
The Siemens solution included for example:

- Delivery and installation of about 150 Traffic Eyes
- Delivery and installation of the complete traffic management solution including interfaces to the traffic computers and the parking guidance, motorway management and roadwork management systems
- Full integration of the existing parking guidance system with 130 parking and information signs
- Full integration of the existing traffic computer system

**The result:** Traffic congestion warnings on information boards increase safety; the central control of the parking guidance and traffic computer systems makes operation for all users easier; and the active traffic intervention functions enable advanced congestion management.

**The components:** The primary tasks of the traffic management center are:

- Traffic information
- Congestion warnings
- Coordination of city traffic with the traffic on surrounding motorways
- Integration of the parking guidance system
- Roadwork management
- Delivery of current data to the traffic information section of Bremen's official internet site

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**SITRAFFIC Concert Bremen system chart**

![SITRAFFIC Concert Bremen system chart](chart)

**The Bremen traffic management center offers a comprehensive overview—including video monitoring, if necessary.**
Creating new from old for Hungary’s capital

Expansion of a traffic computer solution into a traffic control and management center in Budapest, Hungary

**The situation:** 1.9 million people live in the Hungarian capital—roughly 19 percent of the country’s population. The administrative, commercial and cultural center of Hungary is battling with ever increasing traffic volumes. In many of the 23 city districts, traffic jams are standard fare. Traffic between the two halves of the twin-city, Buda and Pest, which are connected only by the bridges across the Danube, is particularly problematic. A variety of public transport options (buses, trams, subways, cog railways, ferries over the Danube) and countless cars and trucks all share the task of moving people and goods to their destinations.
The challenge: After more than 10 years in operation, the existing SICOMP traffic computers with PSM (PlusSystemManager for displaying detector data and traffic signal installations) had to be replaced and the traffic control system converted into a traffic management center as part of a comprehensive expansion project. It was particularly important to the customers that the new system would be able to work smoothly with existing systems, for example a MARABU motorway management system with sign control, an established roadwork database and a PDM center.

The implementation: The new generation of Siemens traffic computer systems including advanced control software, and the SITRAFFIC Concert traffic management system now make new options available for Budapest. As a result, not only can data from existing centers and systems be aggregated in the city’s traffic control system, but also data from additional subsystems like the parking guidance system.

In Budapest, traffic data is now significantly easier to access, process and visualize.
The situation: Covering an area of 4,400 square kilometers, Germany’s Ruhr region is home to around 5.5 million inhabitants. It is also Europe’s most important industrial region. Dortmund, with its 600,000 citizens, is located in the eastern part of this region. It is the largest city and, due to its location, the most important traffic hub in Westphalia. Ensuring the mobility of inhabitants and commuters in the entire city and region while striving to minimize the burden on the environment is a truly Herculean task for traffic planners. Diverse systems for controlling traffic and informing road users, for example parking guidance systems, have been in use for a long time already.

The challenge: The existing traffic and operating computers were to be replaced by a modern system with central monitoring and operating functionality. The primary objective was to create an open system to ensure full data communication capability across all of the various systems and install a higher-level traffic system management (TSM).

The implementation: A modern traffic computer system using standardized transmission technologies and interfaces (OCIT data model) was installed, enabling unhindered data exchange within the traffic control system. In addition, the traffic control system was complemented by a SITRAFFIC Concert traffic system management center allowing the connection of the external systems.

The components: The traffic system management (TSM) is the communication center for external subsystems. Different measurement systems can be connected to the detector center integrated into the TSM. Up-to-date traffic information is made available for the city’s internet site where it is visualized on a city map or listed in table form. The data is geo-referenced and transmitted via the external interface so that it can be directly displayed on a map of the city. In addition to the traffic data “proper”, images can be transmitted as GIF or JPEG files.
Where is there still a space? The parking guidance system in Dortmund helps drivers find parking spaces faster and thus reduces traffic due to people looking for parking.

Traffic management in Europe’s most important industrial region

Installation of a traffic management system in Dortmund, Germany
The situation: Erfurt is the capital of Thüringen and with 200,000 inhabitants the largest city in this German state. The city is well integrated into the German and European road network, and traffic volume has increased continually over the last several years.

The challenge: The city’s officials wanted to implement a high-performance traffic control and information system that would fully meet the needs not only of individual traffic but also of public transport. The system’s objective was to increase traffic safety, improve overall capacity of the road network and reduce transfer times. Furthermore, the solution needed to be easily adaptable to future requirements in order to guarantee the long-term value of the investment.

The implementation: The modular SITRAFFIC Concert system was chosen because it makes it possible to keep traffic flowing even under persistently difficult conditions. This system is fully capable of handling high traffic volumes and combines public and individual traffic in an ideal way. The traffic management computer designed as management center is almost infinitely expandable and can, for example, be used to precisely anticipate and control inbound traffic heading into the city by connecting to an information display system for the surrounding areas.

The result: After the implementation of ELVIS, Erfurt now has a modern control and information system that is equipped to handle the rising requirements of the future. The targeted guidance of traffic flowing into the city already shows very positive effects.

Equipped for the future with ELVIS

Installation of the ELVIS traffic control and information system in Erfurt, Germany
The components: The Erfurt traffic control and information system performs the following tasks:

- Monitoring of all connected traffic signal systems
- Recording and archiving of operation and malfunction messages
- Acquisition, processing and archiving of traffic data
- Time-driven signal program selection
- JAUT (automatic annual switching routine) with consideration of holidays and vacation times
- Traffic-actuated signal plan selection
- Emergency vehicle route control (EFR)
- Online visualization of network, intersections, signal plan, green light synchronization (time-distance diagram)

Wherever they come from—visitors always find a fast way to their destination because the information display system is connected to the management center.
The situation: Cologne on the Rhine has about one million inhabitants, is Germany’s fourth largest city, and has a rather unique traffic hub as six motorways and seven federal highways lead through the city.

The challenge: In order to reduce travel times and pollutant emissions, a traffic management solution with an area-wide, integrated TSM (traffic system management) was created for the entire agglomeration with its four million inhabitants. The system’s objective was to integrate and network the existing individual systems in Cologne, including the traffic computers and the parking guidance, traffic control and roadwork management systems.

The goal was to create a city-wide traffic and parking situation overview as well as generate and distribute traffic information via collective media channels (pre- and on-trip).

The implementation: Based on the Concert System, the TSM was progressively set up in a space of five years. The existing eight traffic computers (Siemens M) and the parking guidance system in the inner city (Siemens PLX) were connected successively. A comprehensive strategy module now generates a city- and system-wide traffic overview. Information is then distributed to road users on a total of 20 traffic information boards.

The (strategic and tactical) traffic control modules receive their input on the traffic situation from detectors and about 30 additional Traffic Eye video cameras. For the integration of construction site information into the traffic situation overview and related information services, a roadwork management system supplied by the company CAOS was connected.

The city equipped the traffic control center with a hotline so that updated information can be sent quickly to where it is needed.

From 1998 to 2003, as part of the “stadtinfoköln” project, a network link-up with an internet server was realized, another parking guidance system for the Köln Arena was installed, and a pay-and-display machine operating center from the company CAOS was integrated.

How dense is traffic right now on the north side of the Old Town? Thanks to “stadtinfoköln” that question can be quickly answered!
The result: Thanks to these different projects there is now precise and reliable information on the entire traffic situation, in part even down to the number of free parking spaces in individual car parks. This information is transmitted via all available channels: Internet, mobile devices such as radios and cell phones, video text, and traffic information boards. The consistent interlinking of all traffic information in greater Cologne shows: here the future has already begun!
**The challenge:** The city of Mönchengladbach with its 267,000 inhabitants and the regional transport authority NVV AG cooperated in building a collaborative traffic management system for the city. The project was to promote the environmentally-friendly use of the various transport options while taking into consideration the mobility needs of the citizens.

**The implementation:** Based on SITRAFFIC Concert, a comprehensive, intermodal management system was installed in two phases. The city's existing, scalable traffic systems were smoothly integrated into the new solution: the traffic computer including traffic signal installations, a parking guidance system and the computer-based operating control system of NVV AG.

**The result:** The new traffic management solution now provides a comprehensive traffic overview and information basis that encompasses all traffic systems and can transmit control recommendations to all connected systems. In a first step, this information is generated for the control center, which then forwards it to local radio stations and also makes it available for use on the Mönchengladbach internet server.

**The components:** The Mönchengladbach traffic management system on the basis of SITRAFFIC Concert was set up in the following order:

- Central data management and archiving
- Message management
- Connection of detectors respectively the detector center
- STRAMO strategic control
- Visualization and operation
- Street network data base
- Interface between the street network data base and the management system
- Interface with the traffic computer
- Expansion of the traffic control computer
- Interface with radio traffic bulletins via PC fax card

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The system boundaries have disappeared

Installation of a comprehensive traffic management system that integrates all existing traffic systems in Mönchengladbach, Germany
In the second phase the following components were added:

- Parking space management
  - Interface with the parking guidance system
  - Planned interface with the pay-and-display machine control center

- External interface for providing measured data to COBRA

- Connection to the internet server

- Interface with the roadwork management system

The management system in Mönchengladbach integrates all traffic modes and makes current public transport information available.
The situation: Potsdam is the capital of the state of Brandenburg and has 145,000 inhabitants. However, it is also part of the greater Berlin area with its population of 3.5 million. Traffic volumes have continued to increase significantly over the last several years.

The challenge: Potsdam wanted to get an efficient handle on city traffic by means of intelligent routing, systematic integration with the public transport systems, and real-time information services for the public.

The implementation: Within eight months a solution was realized that helped reduce the city’s traffic problems considerably. The project included:

- Installation of new video and infrared detectors
- Integration of existing detector data of the traffic computer
- Integration of parking, public transport, sign control and detector systems into a central traffic management application
- Creation of an advanced congestion management system that can actively influence traffic by means of information boards, based on the current traffic and parking situation

Valuable information services for individual and public transport are offered on the public internet site. The intelligent postprocessing of public transport data helps influence individual traffic.
The components:

- Interfaces with traffic signs: The freely programmable LED signs, some of which are in full color, are connected via the so-called ComBox.

- Interfaces with public transport: For the display of line layout and line status, the routes are manually transferred to the digital map, including all stops and stations. Via the PACOS computer, forecasted departure times are transmitted to the VSZM. These values are then prepared in the VSZM for transmission to the website.

- Interface with the parking guidance system: The parking management system collects dynamic data from the parking infrastructure, displays this data on a digital map, calculates trends, condenses information from individual parking areas and forwards the information to internal and external systems.

- Interface with the traffic computer: Loop detectors are connected via intersection controllers to the existing SITRAFFIC Central traffic computer. The data from the detectors and the current signal plan serves as input for the STRAMO strategy module.

The result: A large percentage of travelers react to the information boards. Improved overspeed monitoring and congestion warnings have led to a lower number of accidents. A noticeable increase in the use of public transport has reduced inner city traffic by five percent.
The situation: The Ruhr region is an urban sprawl encompassing about 5.4 million people, 53 cities and 13 public transport companies. Between Dortmund and Düsseldorf alone, about 1.1 million people commute daily to work. Another five million come every day from the outlying areas. This means that an extremely high number of passengers and drivers have to be accommodated every day by the over 1,200 trains, more than 70 train stations and 600 kilometers of motorway. Forecasts predict that traffic volume will increase by yet another 20 percent over the next ten years.

The challenge: The state government’s objective was to shift more traffic to the rails while better utilizing existing roadways capacity. To this end, the “Ruhrpilot” traffic management system was launched on the initiative of the state-owned company “Project Ruhr GmbH” with the objective of coordinating and synchronizing individual traffic with public transport. Just in time for the FIFA World Cup 2006, all local rail passengers and motorists could be quickly and safely guided to the stadiums in Dortmund and Gelsenkirchen—within precisely predictable travel times.

An entire region controlled by one traffic system

Implementation and operation of the “Ruhrpilot” traffic management system in the Ruhr region, Germany
The implementation: Siemens, as leader of a project consortium comprising also PTV AG, DDG and EVAG, set up the "Ruhrpilot" traffic management center as a public-private partnership project for the Rhine-Ruhr conurbation area. For the first time ever, this region-wide traffic management system now provides a consistent overview of traffic on all national motorways, federal and state highways as well as the main municipal roads in the region. For the cities, the system also records and evaluates information on the parking situation, construction sites, events and traffic disruptions. The data required is partially retrieved from existing municipal information sources (e.g. traffic computers, parking guidance systems, traffic signal controllers, electronic schedules from the Verkehrsverbund Rhein-Ruhr) and then aggregated and processed in the Ruhrpilot center.

The traffic information system is linked up with the national motorway services and detector network. In the final extension stage, several hundred measurement stations on selected in-town streets as well as a geo-information system based on a region-wide digital map will be connected. In addition to the public transport data provided, information about available parking spaces, ongoing roadwork, accidents and major events is also fed into the system. Traffic forecasts and the corresponding recommendations are available. The system simulates traffic developments and calculates one hour in advance the load levels for roads and public means of transport as well as travel speeds and times. The data is updated in real time.

The "Ruhrpilot" provides services for radio traffic bulletins, mobile services for cell phones, internet displays of current and future traffic situations, a parking information internet site and intermodal routing information. This ensures that all traffic participants can find out in advance which will be the fastest and safest way to their destination. In the case of congestions, alternative routes and/or options for transfer to public transport modes (bus or train) can be recommended, including departure times.

The result: For the first time, a region-wide traffic system management enables a truly regional overview of traffic on all national motorways, state highways and the complete municipal priority streets network. Traffic can now be better distributed and controlled throughout the entire region in the case of major events or incidents.
The “Ruhrpilot” is an innovative, computer-supported system for intelligent traffic management that already proved its efficiency during the FIFA World Cup 2006. It provides citizens, businesses and municipalities with comprehensive, detailed mobility information and ensures:

- Efficient use of road and rail networks
- Optimal transfer options between private traffic and public transport by bus or train
- More mobility within the entire Ruhr region
- Reduction of the environmental burden and improved protection of resources
- More safety on the roads

In the Ruhr region, all traffic flows are now managed by one system—right down to the parking facilities in the cities.
What's new? The truly regional traffic overview, not to mention the sheer size of the project. In many ways, the “Ruhrpilot” project has conquered new technological territory. Its sheer scale and the data volumes required by the region’s size and the enormous traffic burden put it in a league of its own. And what is also unique is the fact that the system actually covers all modes of transport in an entire densely populated region.

This project completely integrates inter-urban traffic, regional and local public transport and individual traffic. Some figures will illustrate the scale of the project:

In the Ruhr region there are...

- 1,470 kilometers of rail tracks
- 70 train stations
- 9 InterCityExpress stops
- 10 InterCity stops
- more than 1,200 trains running per day
- 600 kilometers of motorway

- 11 autonomous cities
- four counties with 42 cities and towns
- 13 transport authorities
- 5.4 million inhabitants
- approximately 6.6 million commuters per day
The information contained in this brochure comprises only general descriptions and performance features of products and systems, which may not always apply exactly as described in every realized application, or which may be subject to change due to further development of the products. Performance features are only to be considered binding if they have been explicitly agreed in the contract.

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