

# Tolls and More

Electronic billing system improves  
transport logistics and fleet management

**In the near future, drivers of heavy-duty trucks in Germany and other countries will have to pay tolls for highways. The international consortium "Toll Collect" has developed a system that uses satellites and mobile radio to levy such tolls completely automatically. The new system also makes it possible to provide various telematics services that help drivers and shipping companies perform their tasks more efficiently.**

It's a topic that makes truck drivers' blood boil: Many European governments are thinking about introducing highway tolls for trucks in the near future. In Germany, such tolls are to be levied beginning in January 2003. But just the thought of long lines in front of toll booths, as is the case in Italy or France, makes truckers irate.

Another question some people are asking is where space will be found on the already congested highways for the toll booths, some of which occupy huge areas. However, thanks to cutting-edge technology, the toll system planned for Germany will do without toll booths and long lines. Instead of investing in concrete and steel for new toll plazas, the German government will earmark funds for satellite navigation and telecommunications systems. That, at least, will be the case if the plans of the "Toll Collect" consortium are implemented. DaimlerChrysler Services heads the consortium, whose other members are Deutsche Telekom AG and the French company Cofiroute, which operates highways around the world.

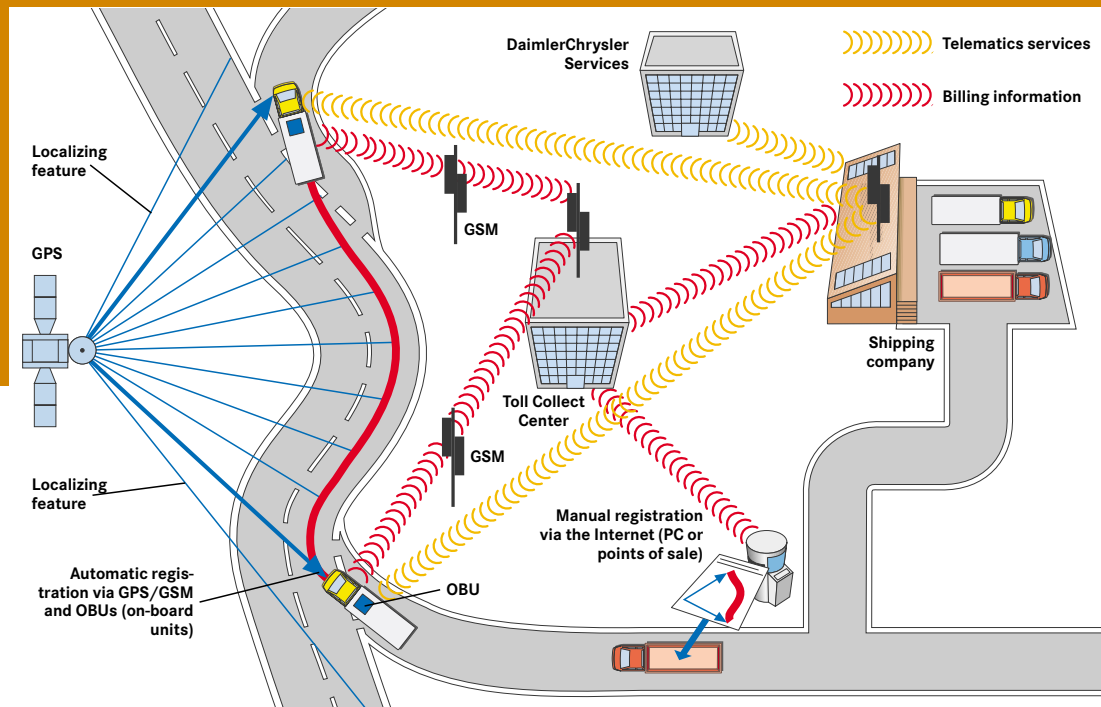
However, the consortium has more planned than just an electronic toll collection system, as its hardware and software can also be used to provide innovative telematics services for commercial vehicles. As a result, Toll Collect would greatly help shipping companies optimize their business processes.

"In the age of e-business, telematics transforms the road network into an Internet for trucks and makes the latter a key element of an integrated logistics chain," says Michael Rummel, managing director of DaimlerChrysler Services Mobility Management. "Those offering such services can help shipping companies better satisfy their customers."

#### **Successfully tested and ready for use**

The Toll Collect telematics system was successfully tested for two years and is now ready for use. It operates with the help of the exist-

Toll Collect automatically recognizes when a truck is driving along a toll road (shown in red). Trucks without an on-board unit (OBU) are registered manually. The system also transmits telematics services to drivers and shipping companies.



ing GSM mobile radio network and the satellite-based positioning system GPS (Global Positioning System). A small transceiver in the truck – the so-called on-board unit (OBU) – allows Toll Collect to combine the two proven technologies with programs that automatically calculate, transmit and invoice tolls based on distance traveled.

“Toll Collect can precisely determine whether a truck is driving along a toll highway or on a parallel toll-free road,” explains Rainer Scholz, project manager of Toll Collect. The introduction of Toll Collect will not change much in the daily lives of truck drivers whose vehicles are equipped with an OBU. The system automatically recognizes toll routes and transmits data via the mobile radio network to the Toll Collect Center, which then sends the invoice to the shipping company. Trucks that rarely drive on toll roads can be manually registered at the Toll Collect Center. Drivers will be able to do this either via the Internet or at points of sale (POS) suitably located near highway access roads. In both cases, the planned route has to be entered into the system. As soon as the driver has been billed, he or she receives a printed receipt.

#### Keeping up-to-date with the help of tracking and tracing

Once Toll Collect is set up, those among the approximately 800,000 trucks on Germany’s roads that will be equipped with the easy-to-install on-board unit (OBU) will profit from a new, uniform system for the provision of telematics services. That’s because the OBUs will not only transmit the billing information to the Toll Collect Center but also allow the shipping companies to take advantage of the telemat-

ics services developed by DaimlerChrysler Services Mobility Management. One of the basic services is “Tracking and Tracing,” which enables dispatchers to monitor on-screen where each individual truck in the fleet is located at any given moment. “And, if the transport task requires that individual items in a truckload be located, ‘Tracking and Tracing’ can be augmented by the ‘Package Tracking’ feature,” says Scholz. “With it, each article in a truckload is given its own barcode which is then entered into the system with a hand scanner. This allows the dispatcher to compare the goods that are actually being transported with the order information and immediately recognize any discrepancies.”

#### Menus courtesy of Toll Collect

The most sophisticated telematics service thus far is the “Order Management” system. It allows shipping companies to monitor the state of order processing along the whole transport chain and adjust the routes of individual trucks to accommodate any order changes.

The “Vehicle Management” service monitors the operating condition of individual trucks on the basis of transmitted vehicle data. It therefore allows vehicle service cycles to be incorporated into the order management system.

Finally, the “Driver-Related Services” module enables truckers to obtain information on individual routes as needed. This not only includes information on traffic jams and current fuel prices, but also on the meals available at the next truck stop, for example. Toll Collect is thus clearly much more than just a toll collection system. □