Volvo Trucks, FedEx Demo Platooning Tech on North Carolina Interstate

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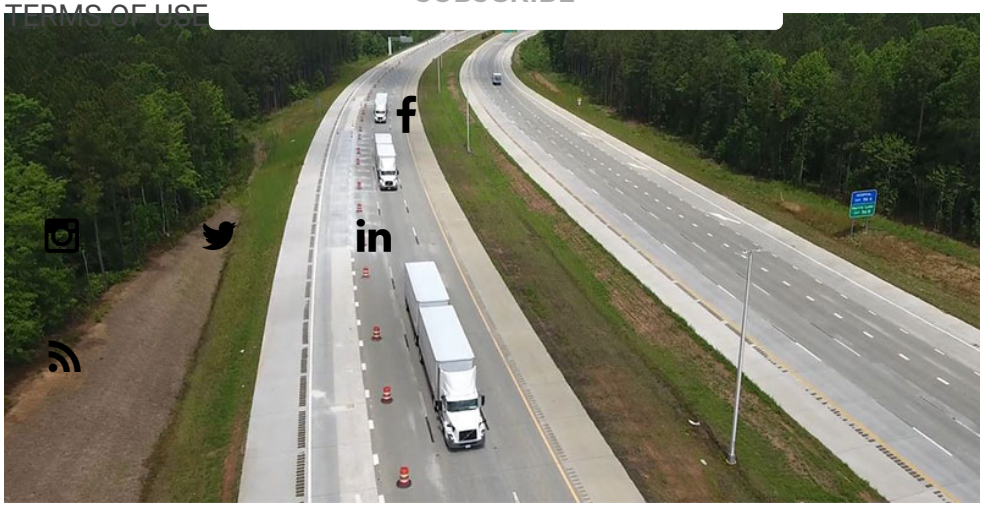


(https://www.trucks.com/wp-content/uploads/2018/06/volvo-platoon.jpg)

Volvo Trucks North America demonstrates on-highway truck platooning on N.C. 540 as part of a research collaboration with FedEx and the North Carolina Turnpike Authority. (Photo: Volvo Trucks)

From a distance, the sleeper truck rounding the ramp onto North Carolina Highway 540 looks like any other tractor-trailer in the middle of a three-truck convoy.

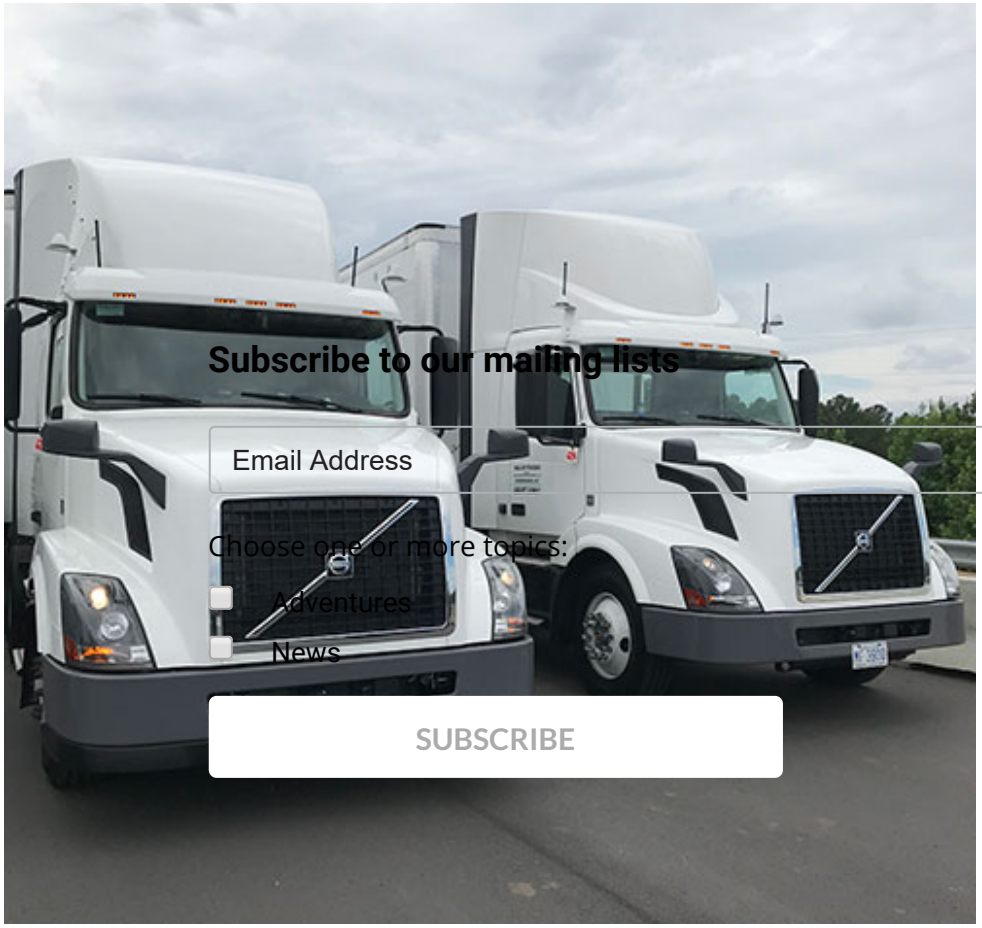
But inside, the Volvo VNL tractor (https://www.trucks.com/2017/09/12/review-volvos-vnl-class-8-trucks/) is outfitted with a bench seat instead of a bunk to make room for a bundle of wires in the back right-hand corner. Once the truck reaches the highway, the driver keeps her hands on the wheel but removes her feet from the pedals, allowing it to match speed at a safe following distance from the semi-tractor ahead.

The onboard computer begins crunching numbers, using the geographic coordinates from the lead truck to calculate the following distance. It's part of a platooning test, which allows convoys to maintain a closer following distance than usual to reduce drag and boost fuel efficiency.

"In a nutshell, what we're doing here is gap management," says Volvo Trucks lead engineer George Bitar from the front passenger seat.

He's watching e that will cut in front of nstration. When the large SUV crosses over, the platooning system temporarily disengages. It automatically resumes when the Escalade changes lanes again.

The open-road platooning demo along a 20-mile loop of highway on Thursday is part of an ongoing research collaboration between Volvo Trucks North America, FedEx and the North Carolina Turnpike Authority. It marks an important step toward implementing platooning technology for commercial use.



Volvo VNL trucks used in the platooning demonstration. (Photo: Jaclyn Trop/Trucks.com)

For the past three months, the companies have paired Volvo tractors with FedEx trailers to test real-world routes and trailer loads on a stretch of N.C. 540 known as the Triangle Expressway. It's one of 10 locations nationwide designated by the U.S. Department of Transportation for testing advanced vehicle technologies.

Platooning is considered an early intermediary between traditional trucking and fully autonomous vehicles.

Using Volvo's adaptive cruise control system, the three-truck platoon on N.C. 540 can pull a typical payload of double 28-foot trailers while wirelessly sharing information on braking activity, direction, speed and potential obstacles ahead.

"We've been working with Level 1, cruise control, for many years," said Keith Brandis, Volvo Trucks North America's vice president of product planning. Thursday's highway demonstration represented the "culmination of our exam on advanced driver-assistance systems."

Based on dedicated short-range communication, or DSRC, Volvo's vehicle-to-vehicle, or V2V, technology helped the convoy hold a steady speed of 62 mph and following distance of 1.5 seconds. Volvo says that distance can shorten as the technology advances and regulatory hurdles are cleared.

The platoon uses a medley of antennae, radar, sensors and radios affixed to the truck's exterior and cabin to transmit information. "We are amassing a ton of data from the trucks," Brandis said. "The whole idea is not just to have something bolted onto the truck but to integrate it down the road."

Whether Volvo's technology will be implemented commercially depends on the regulatory climate and legal framework, but if it is platooning will provide its fleet customers with several benefits. In ac the shorter following dist and improves fuel economy across the convoy. Brandis said some fleet customers could expect fuel savings of up to 10 percent using platooning.

Both Volvo and FedEx stress the technology's safety benefits to the driver, explaining that the V2V system helps the convoy react quicker to potential obstacles in its path.

"Volvo Trucks has long supported platooning because it benefits freight companies and professional drivers alike through safer and more fuel-efficient operations," said Per Carlsson, acting president of Volvo Trucks North America.

Advances in platooning technology like Volvo's have significant implications for the future of trucking. "We see automated technology as an opportunity to improve productivity for our team members," said Gloria Boyland, corporate vice president of operations and service support at FedEx.

Some experts predict that platoons eventually will be led by a single driver, a solution to the industry's driver shortage.

Meanwhile, Volvo is not the only company accelerating toward the autonomous age. The U.S. Army, Daimler and Peloton Technology have conducted their own trials. Last year, Volvo and UC Berkeley demonstrated truck platoon technology along a busy stretch of Southern California interstate.

“I do think self-driven trailers are coming quicker than we thought,” Mike Roeth, executive director for the North American Council for Freight Efficiency, told Trucks.com. The council’s study on two-truck platooning found that it will accelerate the adoption of other advanced driver-assistance technology, including adaptive cruise control and collision-avoidance features.

The council believes that industry adoption will increase as the industry and public become more comfortable with the technology.

“Over time, as both industry and general public comfort levels concerning platooning rise, it is likely the scope and scale of platooning as an industry practice will grow,” according to NACFE.

The developm ı of manned trucks has potential to speed V2V and vehicle-to-infrastructure communications, said Steve Sashihara, president and chief executive of Princeton Consultants Inc. “The main barrier to autonomous platoons is regulatory, not technical,” Sashihara told Trucks.com.

However, it’s unlikely that fleets from different companies will team up to form a convoy in the near future. “For autonomous platooning, I am a big fan when all the vehicles and technology in the platoon are made and supported by the same” manufacturer,” he said. “I am more skeptical in scenarios where the autonomous platoon uses mixed manufacturers and/or systems, even if they share a common DSRC V2V protocol.”

In addition to labor costs, autonomous trucking could save fleets money in other areas, Sashihara said.

“It is very possible that self-driving freight trucking will cost less to insure than a single operator if the insurers believe both that they are safer and that there is one less life — the driver’s — on the line.”

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