

# VAN Use Case for Factory Automation

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Let's say you want to buy a new sports car. How would you order it? In black with light colored seats, or maybe white with a silver side frame, or red with a manual transmission? The variety of consumer tastes has a major impact on industrial production, as it forces manufacturers to become more flexible and react to the growing demand for different designs. A state-of-the-art automotive paint shop today paints one body green, the next blue, and a third white. Bumpers and seats matching the vehicle color also need to be mounted. Such individualization is just one trend that's changing production processes. In other words: The time from original idea to finished product is getting shorter. This is having an impact on everyone in the production process — from product designers to production managers, suppliers, and distributors, all of whom need to access relevant product data more quickly than ever before. Production floors and offices are thus set to converge globally. It is, in short, a vision of a virtual world of communication in which data flows from the factory paint shop to the executive suite. But for this vision to be translated into reality, local partner networks need to be able to exchange data — something they can't do now because most networks have separate standards. What is needed, therefore, is a medium that communicates information across all local interfaces. This medium will be Ethernet. Ethernet is nothing new. It's been used for more than 30 years to link office computers, while Industrial Ethernet has been networking production control systems for over 20 years. Now, however, Ethernet is set to take control of individual machines in factories. Yet significant challenges remain to be overcome. One big issue is real-time data transmission. In office Ethernet systems, if a data packet has to wait a couple of seconds because the information highway is occupied, no one will notice. But that can't be allowed to happen with production machines, the control processes for which often occur in the space of milliseconds or even microseconds. Imagine a printing machine with several rollers, if just one roller fails to operate completely in synch with the others, you can throw away the result.

But not all production areas can be connected via cables, which is why wireless solutions should be employed in difficult-to-reach areas, not to mention when it comes to driverless transport systems and rotating components.

Against this background VAN will provide a universal networking solution which is able to link worldwide components in process and factory automation from the single sensor in one factory plant to remote machinery in de-centralized enterprises/sites. VAN's interoperable communication can be realized via fieldbuses, office networks and even the public communication infrastructure - wired or wireless.