

VAN



Virtual Automation Networks

KEYWORDS:

(IT-based) Automation, Industrial Communication, Wireless, Security, Safety, Real-Time, Distributed Systems, Seamless Networking in heterogeneous networks

Introduction

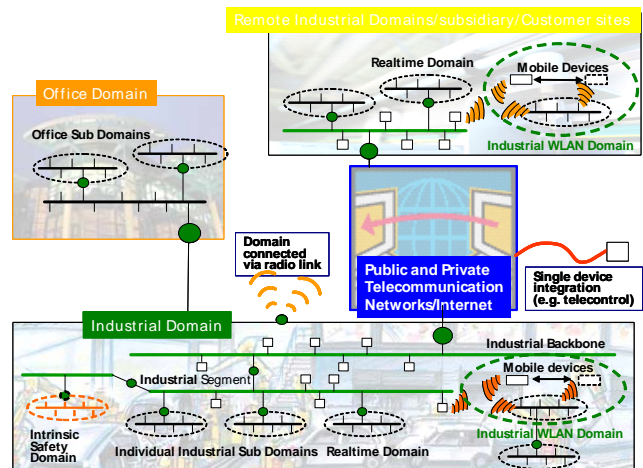
Since a few years one of the leading trends in industrial communication is its penetration by IT technologies. Due to their origin in the office world, indeed, these technologies and concepts do not reach the industrial standards in areas as security, wireless, safety, and real-time. To keep Europe's dominant market position for automation systems, the Integrated R&D-Project "Virtual Automation Networks" - which is funded by the European Union -, first, has to cope with the technical challenges which follow from this paradigm change and, second, has to avoid dependencies from the mostly non-European producers of the relevant IT technologies. Correspondingly, the objective of VAN is to adopt, modify and extend common office communication / IT solutions according to the above mentioned standards - aiming at real knowledge-based, intelligent, agile manufacturing enterprises. This implies new dimensions in the horizontal and vertical integration between office and industrial automation domains, focused on a new dimension of a uniform networking of production and manufacturing processes.

Objectives

To strengthen European leadership in industrial communication and automation the vision of VAN is an open universal, seamless multivendor 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 decentralized enterprises / sites. VANs interoperable communication can be realised via fieldbuses, office networks and even the

public communication infrastructure - wired or wireless.

Core of this approach is PROFINET, enlarged by web-services and other IT based technologies to enable VANs all-embracing communication approach. By means of a common engineering model the user may not see the single building blocks of the underlying communication infrastructure and regards the whole network as a homogeneous system. To realize this totally new concept, the VAN solution provides scalable real-time, safety and security strategies, needed to meet QoS requirements over the whole Virtual Automation Network, necessary in automation-science and -practice.



Expected Results

- an open communication architecture for embedded devices in virtual automation networks;
- adoptions of office communication / IT technologies, extended by new functionalities for automation systems;

- scalable real-time, safety and security technologies and capabilities over all levels of a (virtual) network;
- a scalable solution for the use at small and large locations;
- standardised interoperable solutions, also applicable by SMEs;
- integration concepts and guidelines for private and public Ethernet and Internet based networks;
- concepts and development of corresponding methodologies and engineering tools;
- an easy integration of the solutions and concepts into embedded systems and devices with restricted resources to reduce time to market for new devices and functions;
- a prove of interoperability of VAN technologies in reference devices, tools and applications;
- architectures, concepts and technologies for the European Leadership in easy and efficient modern knowledge-based, networked manufacturing system development;
- a plain enrichment of also service related features for automation products and processes;
- a proposal for European and International standardisation of the VAN results.

Partners and their Roles

The VAN consortium consists of a broad mixture of leading European industrial and academic partners with an excellent expertise in the field of industrial automation and a great competence to carry out R&D projects in that field. This will help to strengthen European leadership in industrial communication and automation.



This project is part of the portfolio of the

Embedded Systems Unit – G3
Directorate General Information Society & Media

For more information please check:

<http://cordis.europa.eu/ist/embedded>

VAN

FULL NAME

Virtual Automation Networks

TYPE OF PROJECT

Integrated Project – IP

PROJECT PARTICIPANTS

Siemens AG, Nuremberg / Germany
(Coordinator)

AUCOTEAM, Ingenieurgesellschaft für Automatisierungs- & Computertechnik mbH, Berlin / Germany

BUT, Vysoke Ucení Technické v Brně, Brno / Czech Republic

CARTIF, Centro de Automatización, Robótica y Tecnologías de la Información y de la Fabricación, Boecillo / Spain

Fidia S.P.A., San Mauro Torinese / Italy

Heitec AG, Berlin / Germany

Ifak, Institut für Automation und Kommunikation e.V., Magdeburg / Germany

MCM, Machining Centers Manufacturing S.P.A., Vigolzone / Italy

Phoenix Contact Electronics GmbH, Bad Pyrmont / Germany

Politecnico di Milano, Milano / Germany

Schneider Electric GMBH, Seligenstadt / Germany

TSA, Teleport Sachsen-Anhalt GmbH, Barleben / Germany

CVS, Otto-von-Guericke Universität Magdeburg, Magdeburg / Germany

FZK, Forschungszentrum Karlsruhe GmbH, Karlsruhe / Germany

CONTACT PERSON

First name: Dr. Axel Klostermeyer

Enterprise: Siemens A&D

Address: Gleiwitzer Str. 555
D-90475 Nürnberg

Telephone: +49 (0) 911 895 4306

e-mail: axel.klostermeyer@siemens.com

PROJECT WEBSITE:

www.van-eu.eu

BUDGET

Total cost: € 11.853.867

Funding: € 6.999.050

TIMETABLE

Starting date: 01/09/2005

Duration: 48 months