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PVSS ©
by ETM

Software Solution

— for large geographically spread design

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PVSS by ETM © **— More than SCADA!**

— **PVSS** 在石油天然气行业中的应用

— **PVSS Appliation in O&G branch**

Peter Wirzel – ETM Business Development

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Oil & gas applications

- Oil & gas Pipelines
- Gas storages
- Tank farms

- Gas fields
- Refineries
- Gas distribution networks

Customer Decision Criterias

- Event driven architecture (communication & processing)
- Time stamps and status information can be transferred from RTU / PLC
- Alarm concepts (classes, priorities, ranges, status, groups, sum alarms, …)
- Smoothing of values (driver layer & database)
- Handling of correction values
- Concept of central archiving with local backup and buffering in case of network outage
- Use for geographically distributed applications
- Data compression for low bandwidth communication (radio, V-SAT,..)
- Supported protocols: S7 TCP/IP, SINAUT, IEC 60870-5-101/104, DNP3, Modbus serial/TCPIP
- Server side hot standby redundancy, split mode and 2x2 redundancy (main & disaster recovery centre)
- Web clients for remote access (via web)
- Platform independent (operating system mix)

PVSS Add-On's – added value for client applications

- Report Generator
- Communication Center (SMS, email, speech engine)
- Integrated Video Management
- Playback Manager
- Scheduler
- E-Tool for common engineering with PLC
- Advanced Control & Command Tool Kit
- Integrated Maintenance Suite (Helpdesk, Trouble Ticketing, Checklists, etc.)
- PVSS Secure based on KERBEROS
- Integrated solution for Building Automation based on BACnet Standard
- Integrated GIS Viewer
- Various operating systems
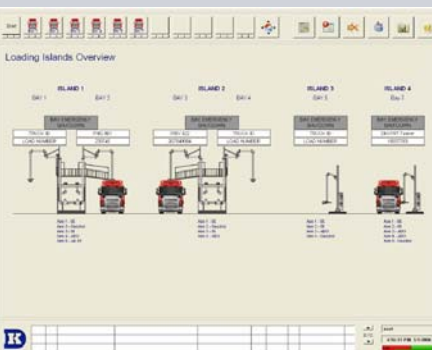- SIL 3 certified software with SIL3 Guideline

Loading- and Tankfarm Systems

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Segment: **Tankfarm**

Customer: **Diamond Key Australia**

Bayview is a product of DKI based on PVSS

Diamond Key International is a leader in providing products and services to the petrochemical industry related to the storage, transfer and distribution of bulk liquid and gas products. Their products range from specialized technical components to metering and control systems to full facility automation systems.

Requirements:

- Customizable SCADA system
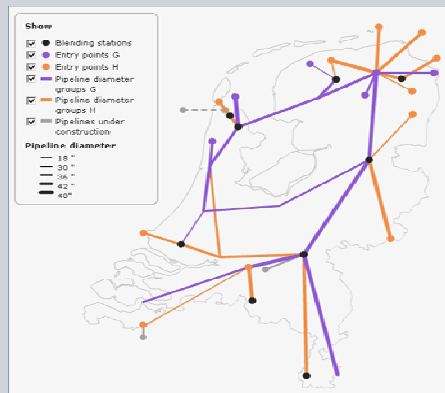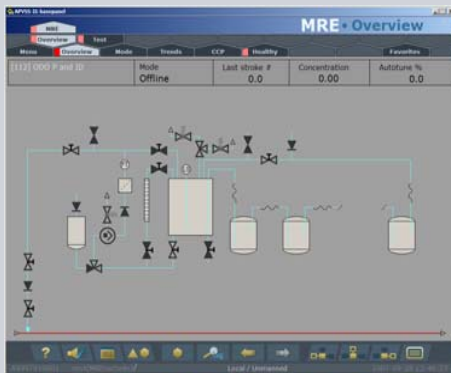- Open to various hardware components

Solution:

- Customized for the requirements of tankfarm and loading solutions
- DKI Terminal Automation Solutions based on PVSS
- Special functionalities, like: tanks-, valves-, pumps monitoring and control, loading gantry monitoring, external fire system status, external multi-product pipeline interface

Benefits:

- BayView provides an enhanced ability to monitor loading operations in real-time with full visual representation keeping informed of loading activities
- Ideally suited for modernization projects that require the user to integrate numerous hardware varieties

PVSS for gas transport networks in the Netherlands

N.V. Nederlandse Gasunie is a gas infrastructure company. Gasunie owns one of the largest high pressure gas pipeline grids in Europe, consisting of 12,000 kilometres of pipeline, dozens of installations and approximately 1,100 gas receiving stations. In 2005, gas throughput totalled more than 95 billion cubic meters.

Segment: **Gas transport networks**

End user: **N.V. Nederlandse Gasunie**

System integrator: **Several system integrators**

Realization date: **2006**

Requirements:

- One standard for controller and visualization
- The standard for the next 15 years (upward compatible, fully supported)
- Interfacing with several different PLC's

Solution:

- Up to 1.000 distributed servers & stations via network
- User Responsibility Management
- Centralized parameter-synchronization (panels, scripts)
- Bulk Import function for automatic import of application data from the controller

Benefits:

- Access to any site from any location within the Gasunie network with the same look-and-feel
- Reduced engineering time, errors, testing time and cost of training operators through to standardization

Asian largest Natural Gas Field zones in SiChuan LongGang

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Segment: **Oil & Gas**

End user: **SiChuan LongGang Gas-Field**

System integrator: **Moore China**

Realization date: **2009**

Requirements:

- Central digital management for large gas field
- Extreme short project duration
- RDB Manager with the first Oracle 10g RAC database cluster (Real time and balance data!) in SCADA system

Solution:

- Hot-Standby Redundancy in central room
- Auto Cool-Standby mode between central server and 5 distributed gas stations
- PVSS Web Server and Clients
- Connectivity via PVSS S7 (SIMATIC S7-400H PLC) & Modbus TCP driver (Motorola RTU CPU 3600 Series)

Benefits:

- Fulfill digital gas-field concept in China market
- Realize the central and high efficiency management
- As reference for future's setup and extend of whole southwest gas-field block

China Petro Company Ltd. is the largest oil/gas producer and distributor, playing a dominant role in the oil and gas industry in China. It is one of the companies with the hugest sale revenue in China, but also one of the largest oil companies in the world.

Accounting Tankfarm Organization System

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Segment: **Refinery production management & optimization**

End user: **OMV Aktiengesellschaft**

Sub contractor: **Albrecht Consulting GmbH**

Realization date: **2004**

Founded in 1956, OMV AG is Austria's largest listed industrial company and leading energy group in the European growth belt. OMV is active in 13 Central European countries as well as in Turkey in its Refining and Marketing business segment, and in 17 countries on four continents in Exploration and Production.

Requirements:

- Replacement of the existing tankfarm automation system
- Open SCADA system
- Potential for future enhancements
- Efficient and low-cost maintenance

Solution:

- Planning of production and product flow
- Order administration
- Quality control and reporting

Benefits:

- The SCADA system manages product flows and quality from crude oil pipelines to lorries which distribute refined products among the petrol stations
- All-in-one software solution with future oriented concept
- ETM's comprehensive implementation competence

Process management system for natural gas storage facility

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Segment: **Gas storage**

End user: **Rohöl Aufsuchungs AG**

System integrator: **Siemens Linz**

Realization date: **2007**

RAG is a key player in national- and international gas distribution. RAG is not only active in gas production and transport but also in gas storage. RAG covers approx. 10% of the Austrian gas consumption per year out of their own production..

Requirements:

- Integration of the new natural gas storage (in Haidach) into the existing process management system (in Puchkirchen)
- One common visualization interface, incl. authority function across the systems
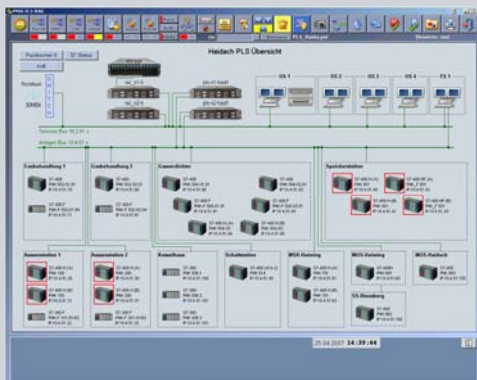- Archiving with RDB (Oracle)

Solution:

- Distributed (around 150 km) and redundant system
- Spontaneous communication (TSPP)
- Shared authority between the two natural gas storage
- Interfaces to registration and accounting system (ERP Level III)

Benefits:

- High level of performance and easy parameterization in face of a distributed and redundant system
- Smooth plant operation thanks to the easy operation and maintenance

Natural Gas West-East Pipeline in China

Segment: **Gas transport networks**

End user: **Petro China**

System integrator: **Cegelec**

Realization date: **2006**

Natural Gas Pipeline transporting gas from western gas fields to high industrialized zones in the eastern part of China.
Biggest pipeline project at that time Construction costs: about $15 – $18 US Billion Length: 4.400 km

Requirements:

- Reliable SCADA system for distributed systems
- Redundancy
- OS SUN Solaris
- RDB Oracle development

Solution:

- Main & Emergency Control Center
- PVSS installed in 39 geographically distributed station control systems
- SCADA ViewStar ICS is an OEM product from Cegelec based on PVSS

Benefits:

- The functionalities of ViewStar ICS are ideal for gas transport networks, especially Hot-Standby Redundancy and Distributed Systems

Siemens Energy – SISOG PIPE

Segment: **Oil & Gas**

End user: **Worldwide**

Siemens Energy OEM agreement

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SISOG PIPE based on PVSS:

- OGS HMI Framework
- Special Oil & Gas applications

Projects:

- ADCOP Crude Oil Pipeline Abu Dhabi
- HMEL Gas Pipeline India
- North Steam Gas pipeline Russia to Germany

Benefits:

- The functionalities of SISOG PIPE are ideal for oil & gas transport networks, especially in wide areas

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Thank you for your attention!

ZhongShi

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