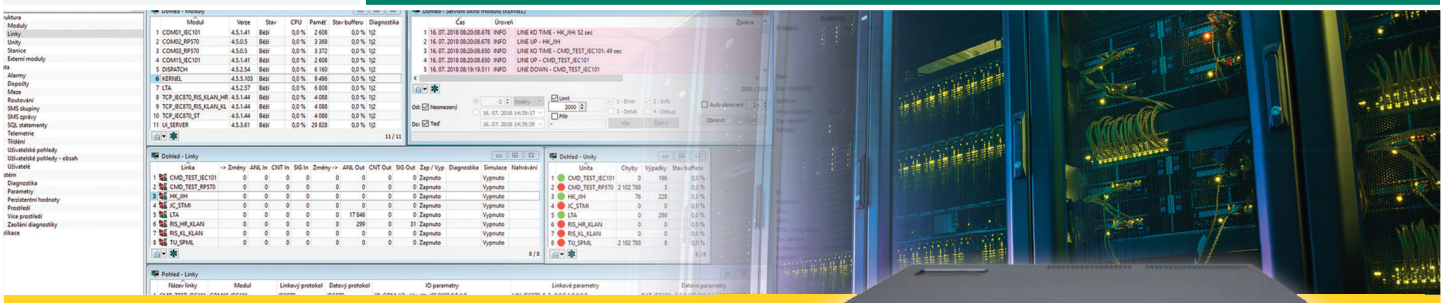
Data Concentrators

Data communication and processing



→ scalable configuration
→ high reliability
→ universal application

Data concentrators are an integral part of most applications for the collection and processing of data in real-time systems, including as an interface between these systems and general data-processing systems. They have a broad range of use thanks to support of various communication standards, including implementation of current security standards, system interfaces in the area of measuring energy and other media, technology control and exchanging data with database systems.

→ Basic Characteristics

- broad performance range, scope of information processed and reliability
- scalable configuration – single or Main/Hot Stand-by (HSB)
- available in standard and custom configurations
- number of communication protocols from the energy industry, transport, industry and telecommunications
- data and communications security according to the latest standards
- special user-defined data processing functions can be added
- SW for local and remote administration, maintenance and diagnostics
- convenient tool for setting parameters and supervision
- use of Twister application SW as a multi-platform solution for Linux operating systems (CentOS/RedHat, Debian): i386, amd64, armhf and Windows: Win32, x64
- can be supplied on a HW platform suitable for installation in distribution switchboards
- can be installed on standard server HW or a virtualized environment
- can also be delivered as an OEM SW solution for the customer's HW or Cloud solution

→ Typical Use

- data concentrator and interface for data collection systems using IoT technology and devices
- data concentrator/front end for SCADA systems for real-time monitoring and control of technology
- data concentrator/front end for production management and administration systems at the corporate level and at the level of manufacturing plants, units, production lines and individual production machines
- data concentrator for collecting data in various system types - Automatic Meter Reading (AMR), Automatic Meter Management (AMM), Advanced Metering Infrastructure (AMI)
- data concentrator and splitter for commercial metering data collection and distribution in substations, power plants and other types of transfer points for traders, distributors and other partners
- data collection solution for energy trade system supervision, monitoring and management of the purchase and sale of energy and media
- data collection for balance systems of local distribution system (LDS), industrial businesses, building owners and owners and operators of commercial and industrial parks

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→ Properties

Communication

- compliance with cyber-security requirements in all areas: development and testing per accepted standards, logging of administrator and user activity, user management linked to AD/LDAP, specific technical operating requirements, primarily in the area of communications security
- implementation of a comprehensive extension according to the IEC 62351 standard
- the ability to communicate to/from multiple interfaces and to/from multiple directions simultaneously
- individual configuration and parameter-setting of the interface and communication direction
- data storage when communication links go down
- time sync using communication protocols or an (S)NTP, SNMP server
- data exchange using files (XML, Excel, CSV)
- the ability to add older custom proprietary protocols

Data Processing and Conversion

- data processing and conversion between communication protocols
- reading data and data groups from electricity meter (measuring instrument) registers
- conversion of aggregate data (for example load profiles) into time stamped data
- merger of communication from multiple electricity meters (measuring instruments) on multiple interfaces
- splitting data to multiple interfaces and directions
- the ability to implement customer requests for data processing and conversion
- long-term data archiving in an SQL database
- broad range of functions for performing complex calculations with data (except for those explicitly specified)
- display client support

→ Communication Protocols

- network and series communication according to IEC 62056 (TCP-UDP/IP, DLMS/COSEM and other standards)
- network protocols: IEC 61850-8-1, IEC 60870-5-104, IEC 60870-6 TASE.2, IEEE c37.118, Modbus TCP, DNP 3.0.TCP, OPC, SNMP
- serial protocols: IEC 60870-5-101, Modbus RTU, RP 570, TG 809, SSI
- ODBC interface for data exchange with an SQL database

→ Selected Platforms

Embedded Solutions

A typical example of HW for installation of concentrator operation can be the ICO300:

- industrial PC, Intel® processor
- 2x Ethernet (10/100/1000 Mbps), WiFi, 4x serial interface (RS-232/422/485)
- optional mobile communication (3G/GPRS, 4G)
- installation on a 35 mm distribution board DIN rail
- dimensions 48 (w) x 155 (h) x 110 (d) mm
- 12 - 24 V DC power, 48 - 230 V AC with an external power adapter

Classical Server HW

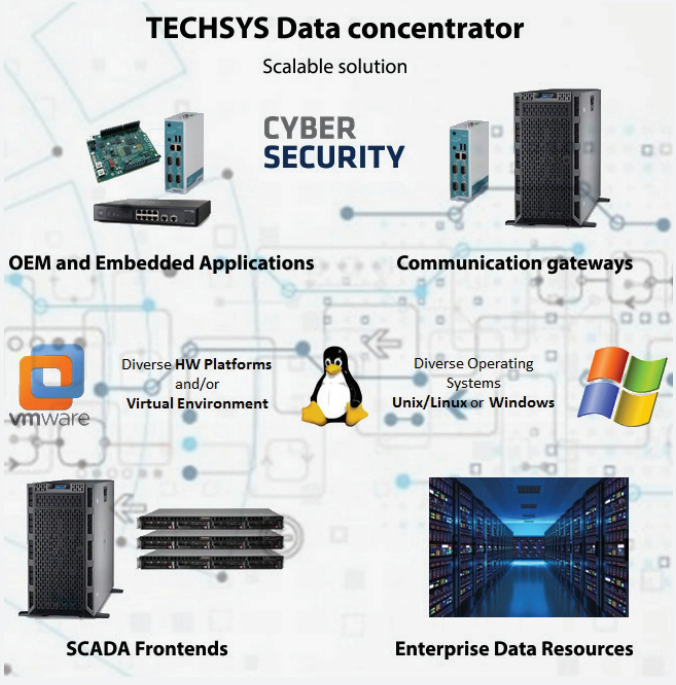
- TECHSYS concentrators are installed and operated on HW of various sizes and performance levels from traditional manufacturers

Virtual Server

- significant portion of TECHSYS concentrators is operated in a virtualized system environment. It is the ideal solution for operation of individual concentrators, groups of concentrators and concentrators operated within the scope of Cloud solutions.

Remote Communications Interface

- aside from classical serial interface HW, TECHSYS concentrators also offer support for remote serial ports (terminal servers) that allow the number of serial communication lines to be flexibly increased virtually without limit.



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