ScadaOnWeb: Modelling and Web-Exchange of Process and Engineering Information

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1 Objectives of ScadaOnWeb

ScadaOnWeb is a project sponsored by the European Community in the Information Society Technologies (IST) programme and BBW (Bern, Switzerland) involving seven European partners. Project duration: 1st September 2001 - 31st August 2003.

ScadaOnWeb technology is planned to be a standard platform to process monitoring and control applications that are distributed over the web.

The technology

- will define meta-data that give semantics to structured numeric datasets, referencing standards for units of measure,
- will define ontologies for properties in different engineering domains.
- will support the use of off-the shelf applications for data visualisation
- will identify hazard situations using rule bases and process optimisation.

2 Consequences on ScadaOnWeb user community

- Avoid proprietary technologies for process monitoring and control applications distributed over the web
- Enable an efficient and user friendly exchange of process and engineering information based upon standards.
- Develop a generic architecture for web-based process monitoring and control, i.e. decentralised access to process information

3 ScadaOnWeb Applications

ScadaOnWeb technology will be applied to prototype demonstrators:

- A flood warning system based upon remote sensors;
- Data sharing within a balance group in the energy market;
- Flexible metering of domestic and small industrial consumers;
- Condition based maintenance of remote equipment; and
- Control of distributed wind and hydro electricity generation.

4 ScadaOnWeb modelling and ontologies

ScadaOnWeb wants to extend current technologies by defining:

- meta-data that give semantics to structured numeric datasets
- property ontologies that can be referenced by meta-data
- identification of objects that are monitored and controlled
- standard transactions templates to support process monitoring and control over the web,
- access control appropriate to process monitoring and control applications

5 ScadaOnWeb datablock

The ScadaOnWeb project will define a new type of Web multi-media - the structured data block.

- Many applications in engineering and commerce do not record values one at a time, but in blocks of many thousands or hundreds of thousands - corresponding to different times, different positions, different measuring points and different variables.
- The thousands of values could be stored one at a time in an XML document, but this is not practical - it would be equivalent to storing an image with each pixel as a separate XML document element. Instead a binary file in HDF5 format, developed by NCSA and widely used in space applications, will be 'wrapped' by meta-data in XML format to become a new type of web multi-media.
- The 'wrapping' of the binary dataset will be a link to RDF, OIL and DAML.

6 References

- ScadaOnWeb: http://www.ScadaOnWeb.com
- HDF5: http://hdf.ncsa.uiuc.edu/HDF5/
- RDF: http://www.w3.org/RDF/
- OIL: http://www.ontoknowledge.org/oil/rdf-schema/
- DAML: http://www.daml.org/