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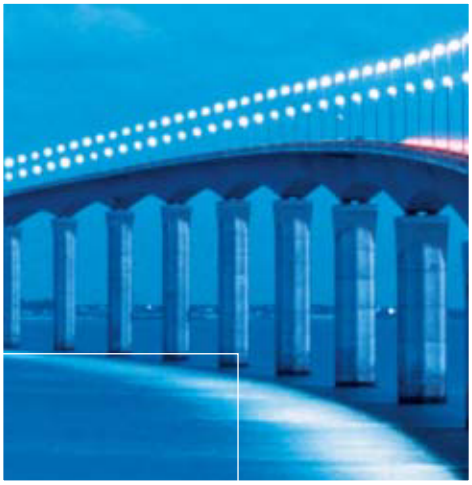
TECHNOLOGY UPDATE



Oracle for SAP is safe, reliable and scalable

– the Grid enabled platform

No. 14 Oracle for SAP, April 2005
www.oracle.com/newsletters/sap

ORACLE®

SAP & GEOXTENSION – ORACLE SPATIAL FOR SAP: POWER FOR MY BUSINESS

TOWARDS GEO-INTEGRATED BUSINESS PROCESSES

In everyday business there is an increasing demand to enhance the overall process performance. To (re)act faster and better to new requirements, to assess and anticipate situations more precisely and to improve the power to plan and act in a future-oriented way. Spatial information is a basic component to support and design such processes more effectively and efficiently. These data have the ability to create new value opportunities: Approx. 80% of all information is location based and almost all business processes have a spatial component. The incorporation of the spatial component facilitates design of complete and comprehensive workflows. This puts people in a position to do the right things in due time.

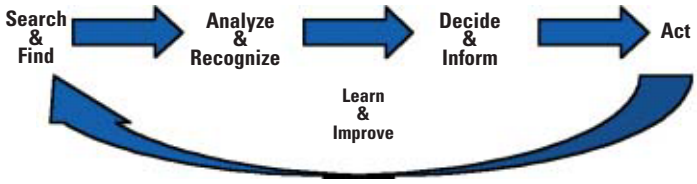
However, on the way towards geo-integrated business processes we still have to bridge a significant gap: Standard investment decisions often do not take into consideration spatial information – for various reasons. Usually spatial information is seen as an expert domain of GIS specialists, sometimes the implementation costs are overestimated. And there are only few successful and simple implementations that show short-term benefits.

FLEXIBLE WEB SERVICES

Bearing this in mind, advanced architectures and tools have to follow simple and clear principles. They have to be designed and developed efficiently and implemented at customer sites with visible benefits. The strict compliance with standards is a critical success factor to meet these demands. Most notably these are:

- SVG: For description of graphics and graphic applications in XML
- XML/SOAP: For exchanging data and services on the web
- HTTP: For data transfers on the web
- J2EE: For the development of intercompatible multi-tier company applications
- SQL: For access to the data in a relational database
- OpenGIS® Simple Feature: For open format storage of the geo-data
- BPEL: For composing services for transactional processes

Systematic use of standards allows the combination of spatial information, SAP modules and Oracle 10*g* in core business processes. WebServices connect the individual modules with well-defined interfaces and functionalities as basic components of a service oriented architecture (SOA). WebServices can be considered as "problem-solving and productivity tools". We can use them for a demand driven integration approach with a maximum effect on workflow and control structures for business processes.



Continuous Process Optimization

THE GEOXTENSION SOLUTION

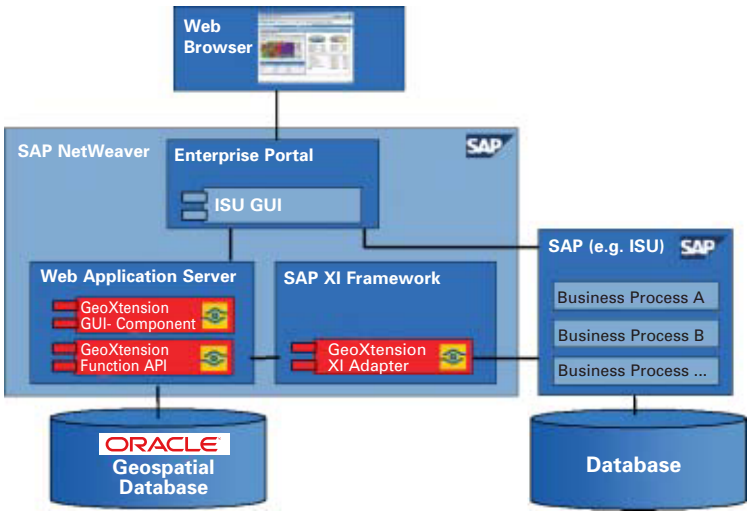
Just as a picture tells you more than a thousand words, maps improve navigation in SAP modules, e.g. for pooling orders of a specific region in SAP PM. Maps make it easier to recognize business hotspots as they allow display of certain concentrations, frequent occurrences and warning signals. A unique spatial reference also makes it easier to represent and analyze complex contents and relationships. Last but not least, the spatial information optimizes navigation without media clashes, e.g. routing to a maintenance site or accessing technical documentation through a classical GIS. The range of functionalities & features can be adapted flexibly to customer needs and available resources. GeoXtension by FICHTNER CONSULTING & IT offers proven components for this purpose:

- Navigation (Overview, QuickNavigator, StoredView etc.)
- Dynamics & symbolization (Tooltips, Animation, LifeFeeds)

- Control of map contents (ThemeSelector, AutoSelector)
- Display & Edit of attributes (AttributeMenu, MultiMenu, TabularMenu)
- Editing of geometries (DigitizeInteractors)
- Dimensions and construction (Measurements, LRS)
- Transaction management (WorkspaceManager, Versioning)
- Tracing & Routing (SQLTrace, Oracle Topology Model)

ORACLE & SAP INTEGRATION ARCHITECTURE

These components have already been used in the past to integrate heterogeneous information with spatial intelligence, e.g. for incident and damage analyses, technical optimization, Supervisory Control and Data Acquisition (SCADA) or Laboratory Information Systems (LIS). With SAP a new dimension is achieved: Full integration in business critical SAP applications such as Plant Maintenance PM, Project System PS or Financial & Asset Accounting FI/AA allows to address technical, financial and spatial aspects together. Just like the business processes incorporate the technical and the economic aspects, it is essential that the IT systems do so as well.



Oracle / SAP Integration Architecture with GeoXtension

With the introduction of NetWeaver, SAP now offers a comprehensive integration technology which – like GeoXtension – is entirely based on the J2EE architecture. This means that GeoXtension can be directly integrated in the SAP XI architecture and can take advantage of the Enterprise Portal functions (e.g. Drag & Relate for standardization, Single Sign-On for authentication, Authorization Management, etc.). SAP supports the BPEL standard for the integration and control of distributed services. GeoXtension can be integrated in standardized BPEL processes via WSDL bindings. GeoXtension is also flexible with regard to the Application Server and runs both on Oracle and SAP. This architecture enables:

- Embedding of geodata (maps) as windows (iViews) on a Portal generated with NetWeaver and a map view based on selected information from SAP for visualization of the spatial reference
- Spatial algorithms ("Geocoding") of selected SAP elements (projects, notifications, equipment, technical locations) for display of the spatial distribution
- Synchronization of SAP and Geo windows, e.g. "Show technical location" for an object selected on the map or navigation to an element selected in SAP
- Generation and visualization of thematic maps based on SAP information (e.g. map objects are colored according to SAP attribute values).

For users who have not (yet) implemented the SAP XI architecture, a spatial solution can be integrated as a sort of "Lite" version via other SAP interfaces such as RFC or iDoc, either directly or via the Business Connector.

BRINGING IT ALL TOGETHER – A MAINTENANCE SUCCESS STORY

A water utility operates a large number of facilities such as buildings, water towers, pumping stations, pipelines, all of which have been functionally recorded in SAP. Each maintenance task is created there as an order in SAP PM regardless of whether it is a routine task or it was initiated ad hoc in response to an incident notification. SAP PS is used for major maintenance projects. In addition, each facility is usually maintained in the overall asset and network documentation in a classic GIS. Alternatively it can be automatically geolocated based on a logical, administrative or functional-technical context. Thus, each maintenance order has in effect a spatial reference.

GeoXtension enables the user to "seamlessly" select one or more locations. Depending on the application either a separate context-sensitive SAP window will open or – if extended integration has been implemented – the relevant location information will be displayed in the same Browser window. This choice is not limited by technical considerations. Both may be implemented depending on the specific task.

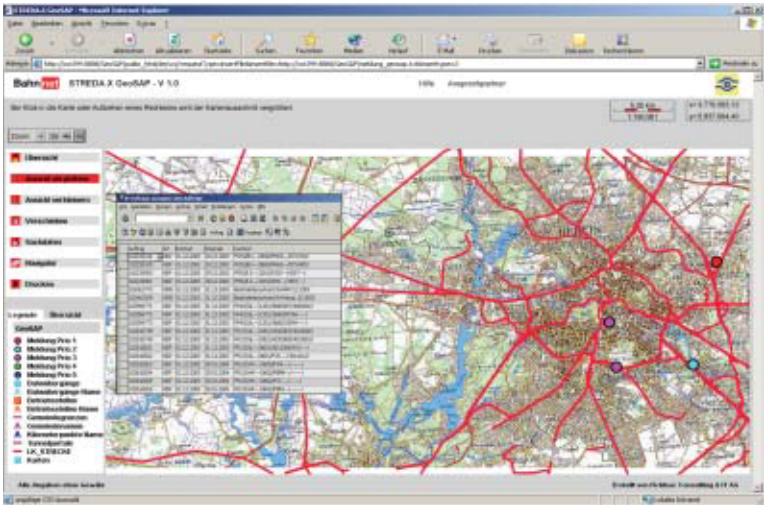
Spatial information supports the incident management process

As soon as a problem arises and an incident notification is received via SCADA, LIS or call center and its associated CRM, the responsible dispatcher creates a maintenance order in SAP and sends out a trouble-shooting team.

The team uses the spatial localization both, for navigation and to recall information on incident diagnostics (e.g. pipe status, pumping station, etc.). After trouble shooting the team can immediately finalize the documentation for later evaluation. In the future, Radio Frequence Identification (RFID) will enable even further simplification by automatic detection of the localization.

After completion of the work the dispatcher gets an optical signal on his map. All incidents and their respective status are available on the screen (categorized by risks, implications or customer relevance). This way, the dispatcher can react immediately to critical situations, delays, etc. and a field staff can be redirected immediately. The call center can inform affected customers on incidents, delays and estimated return to service. Integration with a CRM tool offers additional options by enabling functional and spatial phone number localization.

Seamless scaling of spatial entities to object, street, quarter, etc. is possible (zoom in, zoom out with automatic scaling to SAP reference). Intelligent analyses of incident causes, processes and repair, special cases such as vandalism or average down time can be performed. A standard spatial reporting can be configured, e.g. monthly reports on the maintenance status of a specific region or on local concentrations of maintenance transactions. Additional analyses provide clues for preventive measures and for overall process improvements.



German Rail is currently operating one of the largest applications integrating SAP and spatial information using GeoXtension

BUSINESS BENEFITS

Maintenance is just one example for the large number of applications that have already been implemented or are currently being implemented. All these projects show significant savings compared to classic GIS-supported environments – in terms of project costs and implementation time, hardware and infrastructure costs, licensing costs, installation/deployment of applications and upgrades, administration and operating costs.

Integrating spatial information with SAP is a logical business decision: Based on previous experience such projects pay off within 2 to 12 months.

Dr. Werner Brettreich-Teichmann, Andreas Höfler,
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Real Application Clusters & SAP
The current state and the planned release date of RAC for the individual operating system platforms are found in note 527843.
621293 (RAC information in general)
527843 (platforms for RAC)
581320 (FAQs zu RAC)

Technical Papers

Oracle:
Configuring SAP R/3 4.6D for Use With Oracle RAC, 03/2004,
http://service.sap.com/dbaora ➔ Media Library ➔ Oracle RAC

DELL:
Dell, Oracle & Linux: Your Next SAP Platform?
http://www.dell.com/downloads/global/solutions/Dell-SAP%20Aberdeen.pdf

Dell 2-Node Cluster Achieves Unprecedented Result with Three-tier SAP SD Parallel Standard Application Benchmark on Linux

http://www.dell.com/downloads/global/solutions/InfoBrief-SAP-Oracle9iRAC-Benchmark1.pdf

IBM:
Deploying Oracle9*i* RAC in IBM @server cluster 1600 with GPFS Lascu, Carastanef, Li, Passet, Pistoor, Wang, 06.10.2003,
www.redbooks.ibm.com/redbooks/pdfs/sg246954.pdf

Available Patchsets: 9*i* OSS NOTE 539921

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