

CEOCOR DRESDEN – SECTOR A

Paper n. 02

Mobile Access to WinKKS, GIS and SAP PM by SAP Portal Technology

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Introduction

In CP maintenance, having enfolding and up-to-date information on site is important. Maintenance activities should be carried out on a solid data pool, cost effective and dependable. Online access to an enterprise portal is an option for providing CP maintenance staff and service providers with maintenance orders, failure notifications and appropriate data, so that maintenance tasks can be accomplished technically and commercially without media disruption.

The management system for cathodic protection WinKKS holds all relevant technical data and measurements for a given protected system, whereas SAP PM (Plant Maintenance) is used for the commercial handling of CP maintenance. These systems are usually complemented by a geographical information system (GIS). Installing these systems on workstations or laptops and keeping them up-to-date can be tedious and costly. Third party service providers have to have own installations and licenses to use them, and often should not have access to the complete data or functionality. On the other hand, the elimination of unnecessary steps and media disruption in the maintenance data handling process is important for reliable information flow as a basis for repair decisions, cost assignments and maintenance interval adjustments.

This can be achieved by integrating these essential IT systems into a portal, using mySAP Enterprise Portals and SAP NetWeaver as a basic technology.

The Portal Concept

Most workflows in a technical oriented company involve more than two or three different IT systems. These systems range from individually built customer applications to common enterprise resource planning systems like SAP R/3. They all have a different user interface, and collecting the information and initiating the steps for a certain workflow can be very cumbersome. Quite often a system isn't involved even if it should be for an optimal workflow, just because application switching and login interrupts the workflow, or because the system is too complex for a user who only needs a small part of its functionality. SAP PM is such an example. It is usually not needed for the technical part of a maintenance job, so the nevertheless necessary commercial part of it is postponed or delegated to other people. This of course is a source of errors and leads to increased costs.

The general idea of the portal concept is the move from the traditional application-centric point of view to a context-centric approach. The user of a portal gets access to all information and functionalities he needs for his specific role in his company. Regardless of how many or which basic IT

systems he needs, he only has to do a single login and the parts of the systems he works with are presented under a single user interface.

There are a few portal technologies on the market today, but this paper will only consider the SAP Enterprise Portal, which is part of the SAP NetWeaver technology.

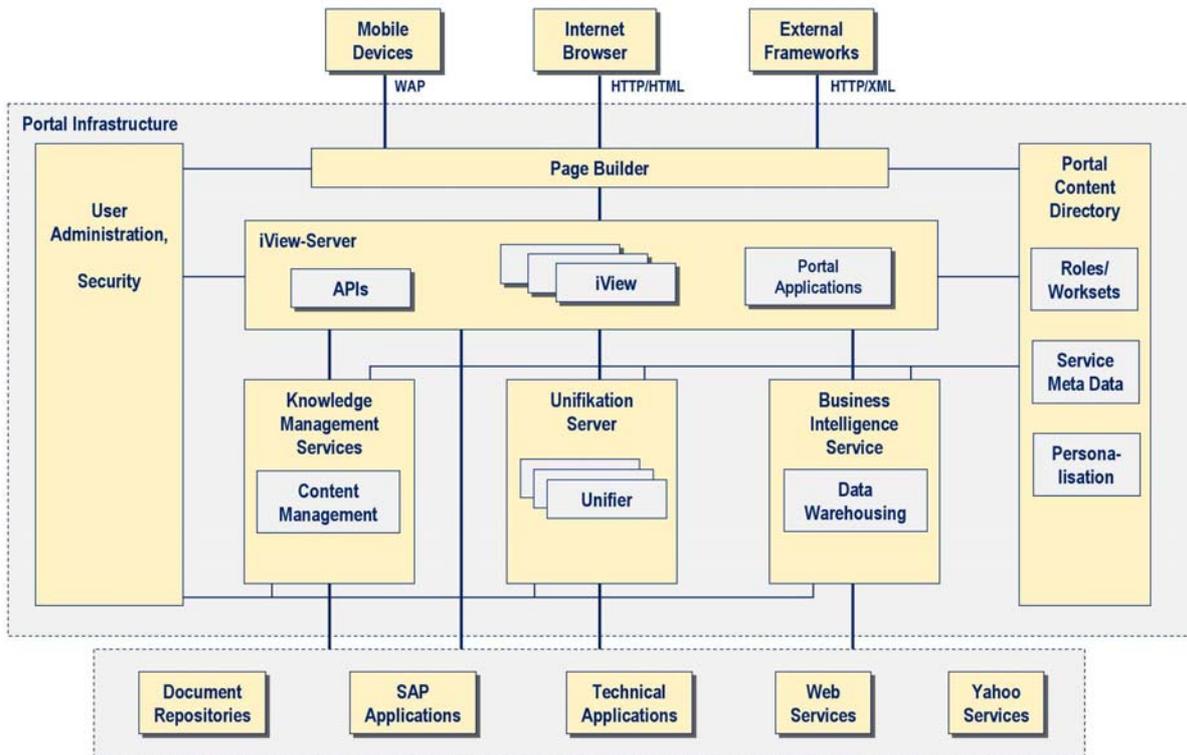


Figure 1: SAP Enterprise Portal Architecture

The user uses an Internet browser as a front-end to the portal. This means that there is no individual installation necessary and mobile access is possible (Figure 1).

The portal content that is presented to him depends on his role and the tasks he has to perform. The portal content for a given task is shown on one or more web pages. The modules, which provide the functionality and data of the basic applications, the so-called iViews, are assembled on these pages to support the given workflow ideally, leaving all the parts of a typical application behind that are of no use for a specific task and are considered as ballast by the user.

The iViews communicate with each other, so that, for example, the event of an item list selection gets known by all the other iViews on a page. Each iView decides on its own how to handle this event and what kind of related information it can provide. A GIS iView can locate the item on a map, a WinKKS iView can show additional measurement information, for example.

An iView normally serves just a single specific task like showing a list of items, providing an input mask or detail

information, for example. There are collections of iViews available for the applications mentioned in this paper. These collections are organised in worksets, which support a specific role in a company. These worksets, or just parts of them, can be assigned to a portal user group by an administrator. A user can then personalise his portal content by adding additional iViews to his page that he considers to be useful. Thus, every user has his own view at the applications.

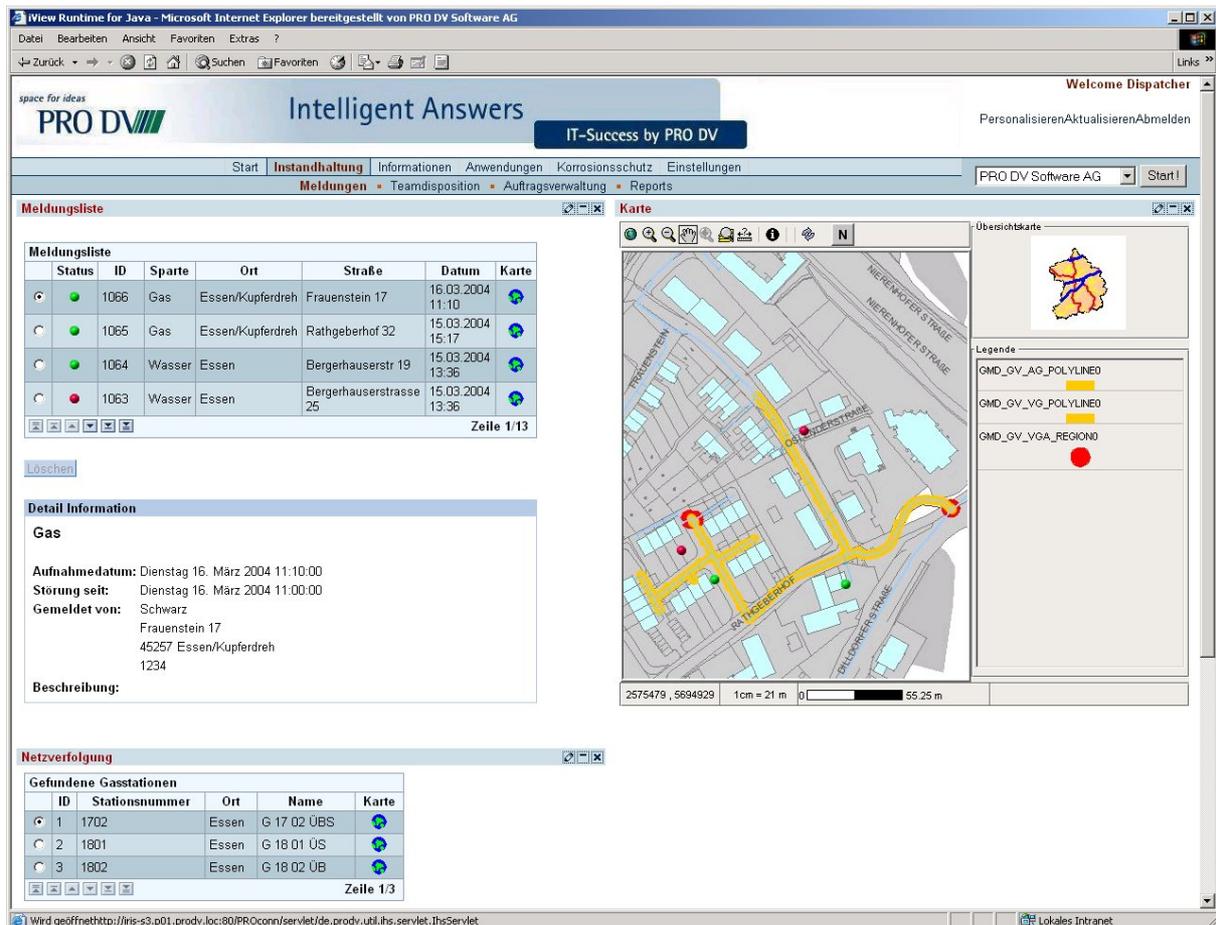


Figure 2: Portal Content GIS and Maintenance Notifications

This approach results in a new, context-centric IT concept that has many advantages. Different applications are presented in a single Look & Feel that can even be adapted to the corporate design of a company. The user can intuitively draw conjunctions between the data in the different applications. The portal is centrally installed and the requirements to the client computer are minimal. Mobile access via the Internet and GPRS or UMTS is possible and the end device can even be a PDA. One can provide a single consistent platform to employees, customers or external service providers. Thus, information that has accumulated over the years in special-purpose applications like a GIS or other technical

systems and that is collected with huge costs can be made accessible to a wide range of users for optimal work processes.

SAP NetWeaver Technology Overview

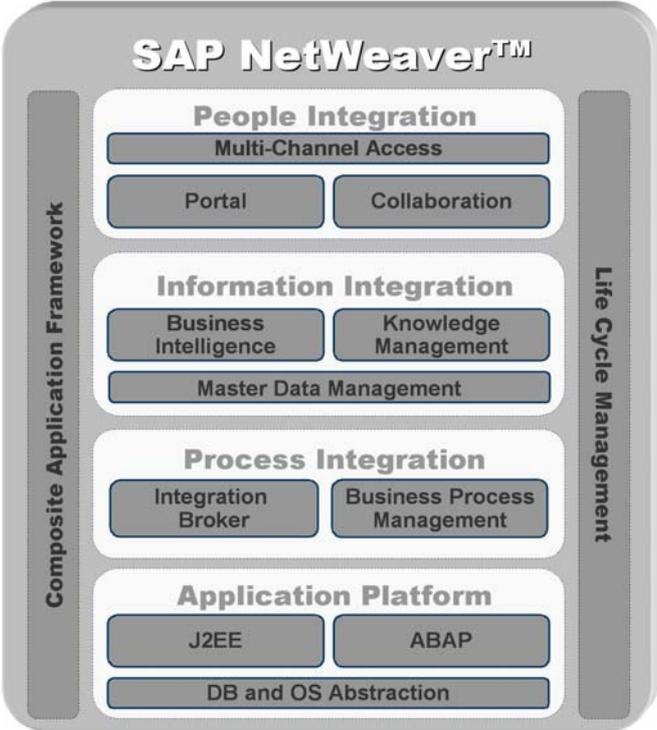


Figure 3: SAP NetWeaver Technology Structure [1]

The Enterprise Portal is a central part of the SAP NetWeaver technology. SAP introduced NetWeaver as the new technology platform of all SAP Enterprise products. The SAP R/3 system, which is commonly used by utility companies, will evolve into the mySAP ERP system that is based on NetWeaver. The NetWeaver technology provides basic functionalities to the system, like a web application server, a XI Exchange Infrastructure tier for process integration purposes or the Enterprise Portal as the user interface (Figure 3). That means that the SAP Enterprise Portal (EP) will be available to all companies that use a SAP system.

But also current installations of SAP for Utilities include the EP. SAP provides iView collections (Business Packages) for free download to their customers [2]. Third-party Vendors supply Business Packages for their applications as well, and it is also possible to integrate individual applications by building appropriate iViews.

Since SAP is very widespread in the utility industry, NetWeaver is an obvious choice for an integration platform.

Management System for Cathodic Protection WinKKS

WinKKS is a management system for cathodic protection that was developed in cooperation with three prominent German utility companies. It serves as a central analysis and documentation tool as it brings measurement data, master data of network topology and maintenance information together. It supports all common CP measuring methods and features interfaces to GIS and SAP PM [3].

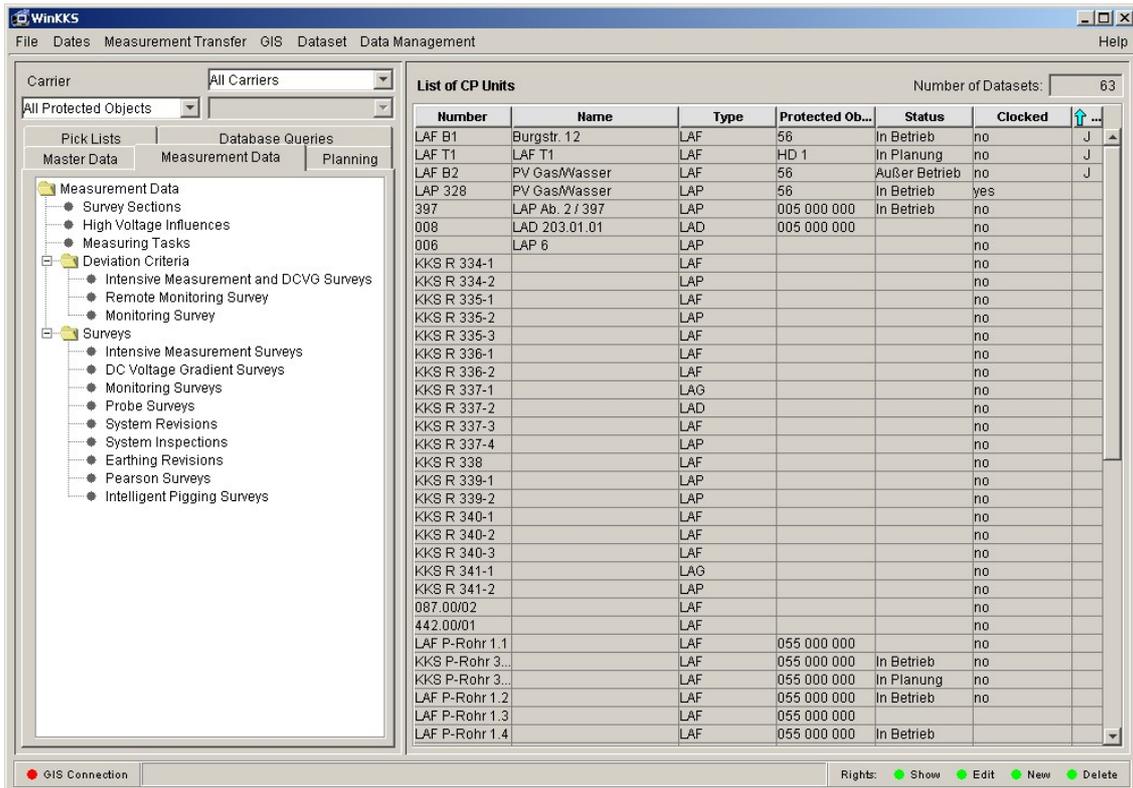


Figure 4: WinKKS Main Window

WinKKS enables comparison of different measuring methods for optimal data interpretation and supports reliably centred maintenance strategies by giving you access to the CP asset maintenance history for trend analysis and adjustment of maintenance intervals.

As a client-server based application, it allows for multi-user access to a central database, but also local databases are possible. These so-called snapshots are replicated with the master database on demand.

Benefits of Portal Integration for CP Maintenance

For optimal usage of WinKKS you need to install the WinKKS client and a GIS application on the user's workstation, for mobile usage you need a database installation as well. Access

to PM requires a SAP GUI or a terminal server connection. These installations are not always feasible, for example for users who only use these systems sporadically, like maintenance coordinators or third-party service providers who cannot get licenses for these applications due to cost or security reasons.

CPUnitRevision

KKS-Anlage

Status

Datum 16.10.2003

Potentialdifferenz eingebaute/aufgestellte Elektrode mV

Gesamtstrom Präzisionsinstrument A

Gesamtstrom eingebautes Instrument A

Ausgangsspannung Schutzstromgerät V

Begründung | **Wartung** | Auswertung | Schutz | Zähler

Begründung Einstellungsänderung

Instrument gewechselt

Begründung Instrumentenwechsel

Übernehmen

Figure 5: iView for CP Unit Revisions

Nevertheless, these and other user groups would benefit from direct access to some parts of the systems. Service providers, who carry out the measurements for utility companies can get their maintenance orders and deliver measuring data back without any media disruption. This eliminates sources of error and makes the work process more efficient. Maintenance coordinators or other users with management tasks can keep themselves up-to-date on CP maintenance activities and have access to the reports that WinKKS provides.

Figure 5 shows an example of a WinKKS iView for the input of CP unit revision data. The data can be entered on-site and is stored in the WinKKS database. Plausibility checks are performed and there is no danger of losing the connection between revision results and maintenance order.

Netze.Wartungsbericht

Dienstleister: Prot. Nr.:
 Meisterbereich: Datum:
 Instandhaltungsauftrag: Anlageneigentümer:
 Leitungsnummer:
 von Armaturengruppe: bis Armaturengruppe:
 Örtlichkeit: Örtlichkeit:

Arbeitsaufgabe	Tagesbericht	Mängel	Monteure/Meister
<input checked="" type="checkbox"/> Pos. 01 1. Kontrolle Betriebsw. Punkte	<input checked="" type="checkbox"/> Pos. 02 2. Kontrolle Betriebsw. Punkte	<input checked="" type="checkbox"/> Pos. 03 Kontrolle Bebauungen	<input type="checkbox"/> Pos. 04 Trassenbegehungen
<input checked="" type="checkbox"/> Pos. 05 Dichtheitskontr. Trassenabschn.	<input checked="" type="checkbox"/> Pos. 06 Flugberichtskontr.	<input checked="" type="checkbox"/> Pos. 07 Betriebs- und Sicherheitsaufsich.	<input type="checkbox"/> Pos. 08 Winterdienst
<input type="checkbox"/> Pos. 09 Funktionskontr.	<input type="checkbox"/> Pos. 10 Leitung außer Betr. (Inbetr. n. mögl.) wie Pos.1	<input type="checkbox"/> Pos. 11 Leitung stillgelegt Umfang 50% v Pos.2	<input type="checkbox"/> Pos. 12 Instandsetzung siehe Anlagen

Figure 6: iView for SAP PM Add-on (VNG Portal Feasibility Study [4])

Individual add-ons to existing systems or customer-developed applications for special purposes can be integrated into the portal as well (Figure 6). This allows for a complete paperless workflow.

In the case of a utility company that delivers CP maintenance services to other companies, an EP access to their data can be given to these customers. Thus, a customer can be easily kept informed about the condition of his grid (**Figure 7**).

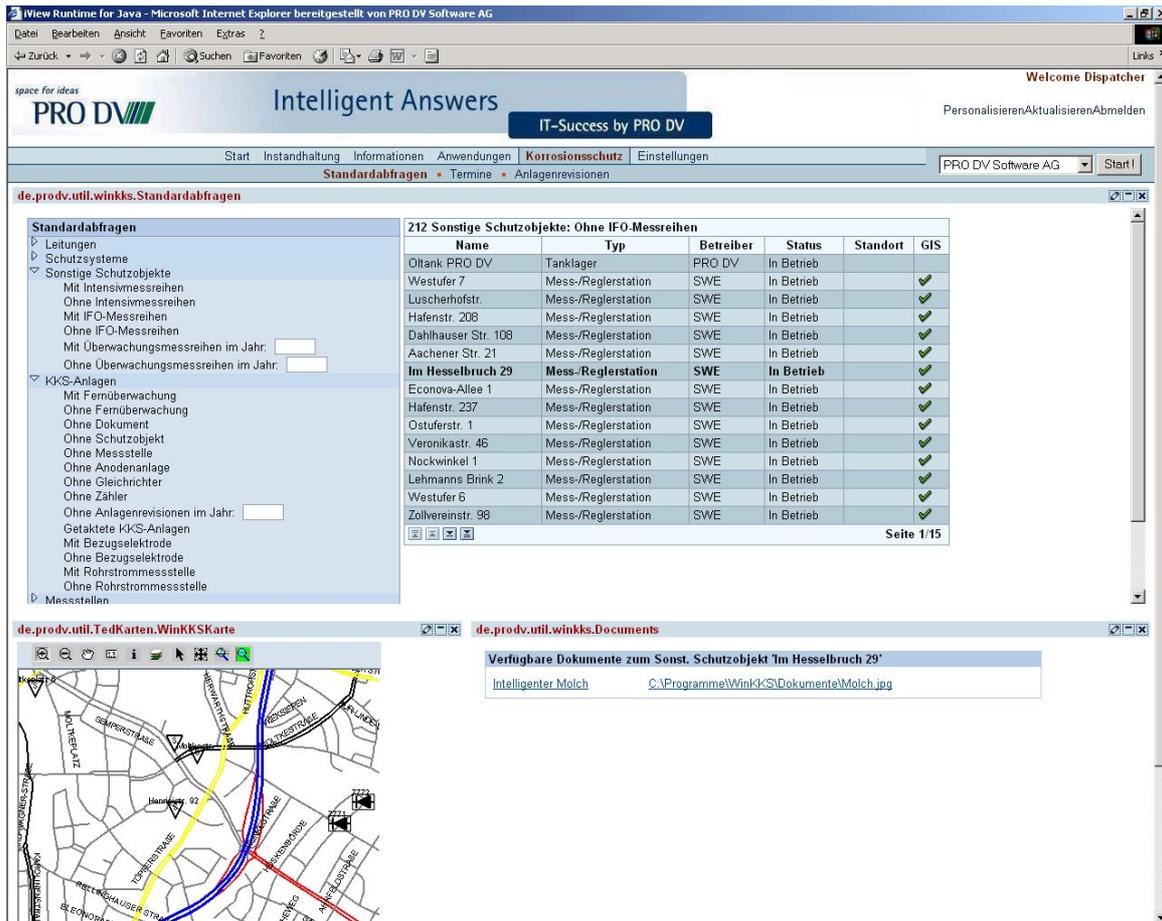


Figure 7: WinKKS Reports and GIS Viewer in the EP

For a true portal-based integration and a context-centric presentation, the data of each system have to have some form of counterpart or anchor in the other systems. Since WinKKS exchanges master data with SAP PM and GIS, this prerequisite is accomplished and the context can be established. While the usual workflow would involve starting the applications and logging in three times, the Single Sign-on technology of the EP lowers the barrier to actually use the systems and get a comprehensive overview about a certain cathodic protection issue.

Conclusion

Portal integration of WinKKS, PM and GIS delivers the general advantages described in the portal concept part of this paper, like mobile access, a common and easy to use user interface with a context-centric approach and reduced IT maintenance costs.

Additionally, one can extend the user basis to service providers as well as to service customers and provide self-service reports for management purposes.

In cathodic protection, measuring data is surveyed with much effort, and long time periods have to be taken into account for analysis. Easy access to this data and enhanced quality increases its value and optimises the maintenance process. Portal integration delivers these points, thus providing an opportunity to reduce CP maintenance costs and to increase reliability.

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- [1] Kienle, Walter G.: NetWeaver introduction lecture, SAP AG
 - [2] [Hwww.iviewstudio.com](http://www.iviewstudio.com)H
 - [3] [Hwww.prodv.de](http://www.prodv.de)H, Branches/Utilities/WinKKS
 - [4] Fröhling, Dirk: Pilotprojekt mobiles Instandhaltungsportal bei der VNG; presentation given at VNG Verbundnetz Gas AG