Introduction

The purpose of this paper is to provide guidance in selecting an approach for use in implementing an **SAP Data Collection Solution** in industrial environments. Although some technical details are presented in support of the conclusions, intricate details of each approach are not the focus of this paper. It is not the objective of this paper to position any one approach as being the single best solution; rather the reader is provided with information for understanding why one approach might be a better fit for a given situation.

All of the technologies discussed in this paper are solutions created and maintained by SAP Labs, and are capable of creating real-time solutions for mobile devices in an SAP environment. Typical SAP host environments are SAP ERP with WM, decentralized WM and TRM, or SCM with EWM. The focus is primarily on three approaches, SAP Console, ITSMobile and Mobile Web Dynpro. This paper does not explicitly address middleware solutions or SAP NetWeaver Mobile (formerly Mobile Infrastructure). However, in the summary section, it does offer insight into why such solutions become a viable option.

SAP Data Collection Technology Overview

Throughout the last 25 years, the use of industrial mobile terminals in warehouse environments has become one of the most popular methods of increasing efficiency and eliminating errors. In general, mobile solutions can be defined and categorized by many characteristics, however, for the purposes of this paper we separate them into two categories: real-time and occasionally connected. The approaches discussed here are all real-time solutions and therefore are appropriate for industrial, mission-critical applications operating in high availability environments.

Currently there are four primary approaches for implementing an SAP data collection system. The four approaches are SAP Console, Web SAP Console, ITSMobile and Mobile Web Dynpro. Each solution was introduced for different reasons over the past 8 years, has evolved over time and provides organizations with a wide range of options. Note that moving forward, the Web SAP Console approach is no longer discussed as a viable solution due to its limited product roadmap and the emergence (and preference) of using ITSMobile..

In general, SAP Console and ITSMobile share a similar implementation model, while Mobile Web Dynpro represents a very different approach for developing mobile applications. Each technology has specific advantages and limitations, which should influence the decision making process when evaluating a data collection solution. Before examining the unique characteristics of each approach, we present a brief background of the technologies to better understand how each solution works in practice.

SAP Console

Of all approaches, SAP Console has the longest history within the SAP Warehouse Management (WM) and Data Collection domain. Introduced in 1999 as the first native SAP Radio Frequency (RF) solution, it initiated the decline of RF middleware, which had long dominated the RF market. Although lacking various capabilities inherent to RF middleware, using SAP Console for RF data collection has been embraced by the market due to its relative ease of implementation, cost, and its continued support from SAP.

SAP Console is considered both a technological and functional solution. To understand this further, an SAP Data Collection solution using SAP Console can be defined as having several primary components: 1) The SAP Console translator, 2) a Telnet Server 3) SAP Configuration (Mobile Data Entry) 4) RF transactions, which can be the Mobile Data Entry or Custom RF transactions. In practice, a solution built for use with SAP Console must have all four components, but as we will discuss in the next section, it is not the only method of using mobile terminals to access RF transactions written in ABAP.

The basic premise of SAP Console is to convert the SAPGUI screens of ABAP dialog programs into text screens, which are then accessed via industrial mobile devices through the telnet server. It was originally created to address adding RF processing capabilities to SAP Warehouse Management, and remains the only solution dedicated to that specific objective.
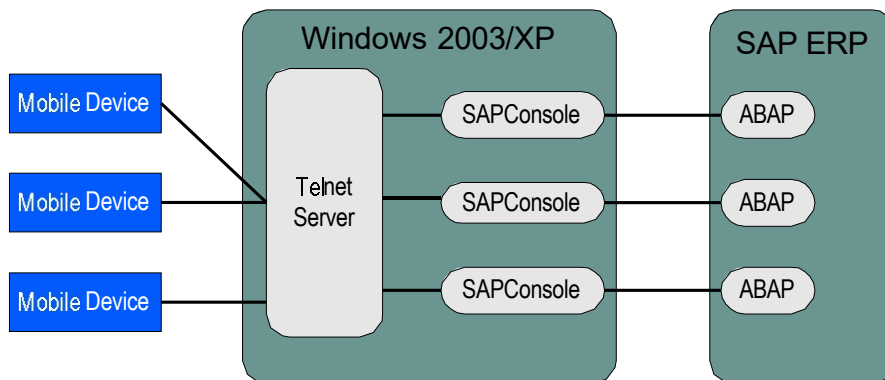

Figure 1 - SAP Console Approach

ITSMobile

ITSMobile (Internet Transaction Server for Mobile Devices) is the indirect successor to the Web SAP Console solution, which is now "in maintenance" and not recommended for use in future implementations. It is referred to as an indirect successor of Web SAP Console since it is not built from the same technology, but rather makes use of different technology to achieve similar goals. ITSMobile offers numerous advantages over Web SAP Console, which are documented in the *ITSMobile Quick Guide* and related OSS notes located on the SAP Service Marketplace.

ITSMobile, which was formally released in 2007 and essentially consists of two related components: 1) The ITS template generator and 2) the core ITS platform. Note, the core ITS platform has been in use for many years as a separate SAP product, however with the introduction of NetWeaver Basis 6.40 it became integrated with the SAP kernel (Integrated ITS). The primary objective of core ITS was to allow web-based application development within the SAP environment (on-line store, etc.). ITS was the original web-based application builder for SAP, whereas now it is possible to use ITS, Business Server Pages (BSP), Web Dynpro, the Enterprise Portal or other technology for creating these solutions.

The ITS template generator is a more recent offering, released throughout 2007 inside various support packs associated with different SAP versions. It is a utility within the ABAP development workbench (SE80) that basically converts ABAP-based screens (Dynpros) into HTML based screens, which are then accessed by mobile users connecting through ITS. As screen generation occurs at design time, the ability of enhancing the ITS screens to suit different circumstances is possible and even encouraged.

Although SAP Console and ITSMobile use very different technologies, either solution can make use of the SAP Mobile Data Entry configuration (Queues, menus, users, etc.), the RF transactions (LM01, LM02, etc.) and any other custom transactions written in ABAP for use on mobile devices. In general, ITSMobile offers greater flexibility than SAP Console, however each approach offers distinct advantages under different circumstances.
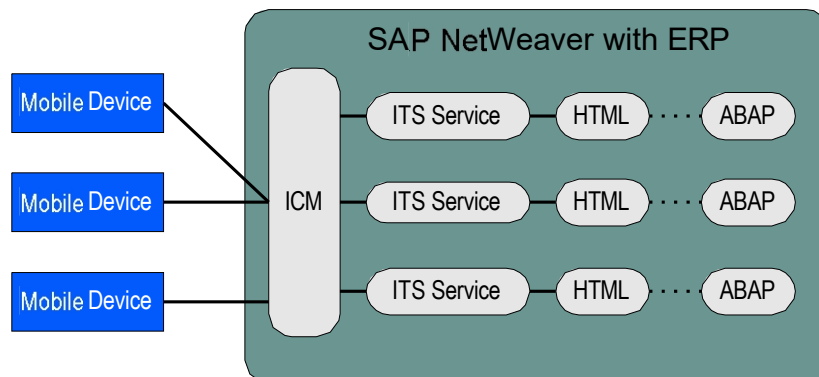

Figure 2 - ITSMobile Approach