early birds

THE EARLY BIRD CATCHES ...
THE NETWORK CABLE
2 Integration of Peripheral Devices

2.1 Connecting Scanners

2.1.1 Objective

Connecting barcode or RFID scanners to software components is fundamental for many logistics-specific applications. The requirements for cloud-based applications are often different than those for in-house solutions. Cloud-based applications are often run at a remote location and this can result in longer signal propagation delays. Cloud applications also scale horizontally (see 1.1 Cloud Computing).

It also makes sense to use a standard exchange format for cloud applications, such as Logistics Mall business objects (see 1.4 Business Objects), so that the participating systems can easily communicate and exchange data with each other (see 1.5.3 Vendor Lock-In).

In order to integrate a barcode or RFID scanner into a cloud application, the application must be able to send data over the Internet. This can be done using a programmable scanner with its own operating system and network access or by attaching the scanner to a computer.

An additional proxy can be set up in the local network of the customer to handle special requirements, such as those related to security or available bandwidth. The properties of the communication are defined by a protocol so that both the sender and receiver use the same language.

2.1.2 Protocol

The Logistics Mall uses HyperText Transport Protocol (HTTP) as its communication protocol: the same communication protocol used for the Internet. Since it is a standard protocol, the existing infrastructure in a company is able to use this protocol without having to make any major modifications.

A scanner transmits a Logistics Mall business object in XML format to the application. From a technical point of view, this is the same process as saving a text document in a Web application (for example, an attachment in a Webmail program).

In order to integrate a barcode or RFID scanner into a cloud application, the application must be able to send data over the Internet. In the case of the Logistics Mall, data is received and pre-processed by a so-called proxy before it is forwarded to the application.

1 Logistics Mall

1.4 Business Objects

1.4.1 Introduction

From a technical point of view, a business object is "just" a data structure. This is why it makes sense to use the proven methods for developing data structures and for defining business objects.

Specific examples include object-oriented analysis and design (OOAD) and the standard formats for database schemas. Following these methods usually results in the avoidance of redundancies in the data.

1.4.2 Granularity

This is also legitimate in classical monolithic applications given that two decisive basic conditions apply. One is that a monolithic application is very closely linked to the data structures and the technologies they use. It is a "master" of the data structures and has complete access to them. The other is the use case where the applications are mapped to the data structures that were known at design time.

1.4.3 Data Structure

This shapes the data structure and makes it possible to use specific, case-based optimization (queries, caching,...) to efficiently resolve relations (references) between the data. These basic conditions soften in distributed environments such as cloud computing.

Distributed environments tend to have more service-oriented architecture that consists of services that are as independent and loosely coupled as possible. Business objects serve to standardize the exchange of data between the services. It is because of this principle that it is possible to combine together individual business processes in the Logistics Mall from individual, independent applications.

The services usually have their own data structure that is independent from the exchange format, the business objects, because they are often components from a formerly monolithic application.
Cloud computing has established itself inexorably in all branches and areas as a popular technology concept. Even the logistics sector has followed the trend and moved traditionally stationary software applications to the cloud. This step has resulted in a lot of confusion and questions about the imminent changes. The goal of the Usergroup »Cloud Computing for Logistics« is to make it possible for companies to take a careful step into the cloud so that they can discover the benefits, ask questions, discuss their thoughts, and define their own point of views.

What does cloud computing mean for logistics?
The benefits of cloud computing are obvious: costs are saved because companies do not need to use their own software and hardware resources or outsource to a specialized vendor. The high degree of flexibility and scalability of the cloud mean that the necessary computing power is always available, even during peak business periods. The logistics sector shows special potential for large cost savings because of the requirement that all systems continuously provide maximum performance even though often only a fraction is really needed. The performance also increases significantly if the required IT is provided by a specialist company.

What can cloud computing mean for my company?
Cloud computing technology makes it possible for both vendors and users of logistics software to forego making large investments in their own IT infrastructure. The cloud allows these types of companies access to logistics software that they could not use before because of the high cost. Vendors benefit from the expansion of the market to include new customer groups from small and medium-sized enterprises.

How can the Usergroup help?
At the moment, taking a step into the cloud is hampered by misunderstandings and unanswered questions. To counteract these problems, the Fraunhofer Institute for Material Flow and Logistics IML and the Fraunhofer Institute for Software and Systems Engineering ISST created the Usergroup »Cloud Computing for Logistics« within the scope of the Fraunhofer Innovation Cluster »Cloud Computing for Logistics«. The purpose of this Usergroup is to answer questions and clear up misunderstandings. The Usergroup provides all companies with the opportunity to get a first impression of cloud computing and a behind the scenes look at the largest cloud computing project in the logistics sector in Germany. The Usergroup also makes it possible for all participants to network with other innovative companies, exploit synergies, and help shape the cloud of tomorrow with their own ideas and concepts and, thus, set new standards.

Fraunhofer Innovation Cluster
»Cloud Computing for Logistics«

Within the scope of the Fraunhofer Innovation Cluster »Cloud Computing for Logistics«, the Fraunhofer Institute for Material Flow and Logistics IML and the Fraunhofer Institute for Software and Systems Engineering ISST used their combined logistics and IT know-how to develop an online marketplace for logistics IT applications, services, and processes: the Logistics Mall. The applications ordered there can be run in the cloud. The Fraunhofer Innovation Cluster »Cloud Computing for Logistics« is an associated project of the »EffizienzCluster LogistikRuhr«: Germany’s largest logistics research project.
For more information visit: www.logistics-mall.de.
What does the Usergroup offer?

Logistics companies face difficult decisions. The focus and future strategy of a company are often called into question and facts and answers are few and far between. The Usergroup wants to change all of this by offering semi-annual technology transfer meetings, access to research results and technology, moderated discussion forums, and the possibility for your software to be certified. You can also emphasize your image as an innovative and sustainable company by collaborating with the world’s largest cloud computing project in the logistics sector and by exploiting synergies and jointly increasing your customer base.

What answers does the Usergroup provide?

Our research results provide answers on the integration of peripheral devices, usability, cloud readiness, cost models, user management, operational concepts, business models, process modelling, business processes, interoperability, communication standards, and business objects.

Come and join us!

For more information visit: www.logistics-mall.de/usergroup

»The future belongs to the cloud. Even in the logistics sector we will see cloud technology become the standard in the foreseeable future. We want to make our innovative applications ready for the cloud as early as possible and develop a new generation of logistics IT applications – this is why we are members of the Usergroup »Cloud Computing for Logistics«.«

Rainer Appel, Managing Director of ita vero GmbH, member of the Usergroup »Cloud Computing for Logistics« since January 2012.

early birds. Usergroup »Cloud Computing for Logistics«
Your Benefits at a Glance

C characterize yourself as innovative
L learn from the latest research results
O organize your network again
U unrivalled support for your cloud activities
D define your point of view

Application

Applications have many opportunities to use the printing infrastructure as described in Section 4.3. Use of software in the Logistics Mall.

In the simplest case, no modifications need to be made to the existing applications. The Logistics Mall printing infrastructure can also be fully integrated into an application to make it easier and faster for the user.

2.2.3 In the Logistics Mall

The Logistics Mall peripheral proxy makes it easier to configure the printer connections. The proxy provides the applications with the necessary information so that the available printers can be shown in the printer window. At the same time, the proxy also ensures that the data is encrypted when it goes through the proxy between the Logistics Mall and the customer network.

2.2.4 Application

Applications have many opportunities to use the printing infrastructure of the Logistics Mall (see 4.3.3). Use of software in the Logistics Mall.

In the simplest case, no modifications need to be made to the existing applications. The Logistics Mall printing infrastructure can also be fully integrated into an application to make it easier and faster for the user.

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