iPartner 3.0™

Technical Architecture

Published & Reviewed: 2008

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Executive Summary

Developing excellent online catalogues requires critical capabilities in terms of technology, rich data structure, industry-specific functionalities and integration to other software systems.

Powerful electronic catalogues are fundamental to e-business strategy, and therefore should provide well-structured databases, multiple search and selection of products for a broad range of users, intuitive user interfaces, personalization, simple and quick updating, business intelligence, and connection to industry specific portals.

According to the Meta Group:

> *Organizations that can provide infrastructure for employees, partners, and clients to find the concise relevant information they require to make decisions will have a significant competitive advantage in terms of efficiencies, service, and satisfaction.*

Built on an open, scalable web-based architecture, iPartner offers a collaborative authoring and publishing environment that provides fast, accurate access to product information to customers and channel partners.

Key features include sophisticated web services to facilitate integration with enterprise applications across the Internet, allowing an organization to exchange branded and differentiated online product content.

This document outlines the technical architecture behind iPartner.

This paper describes:

- ☑ iPartner 3.0, functional and systems, architecture
- ☑ integration facilities of iPartner with other third party solutions
- ☑ detailed key features of iPartner 3.0
- ☑ advantage of partnering with Microsoft and relying on .NET technology.

iPartner 3.0 Lighting Industry Edition

iPartner Product Architecture

iPartner 3.0 is composed of three major functionalities: Product advisor and LightCalc. Each functionality is composed of a set of building blocks that are developed using Microsoft .NET technology.

iPartner Studio provides the necessary tools to manage the central product repository.

Product Advisor

Product Advisor is designed to search and evaluate the best products for the most appropriate application. The complete description of the features proposed is detailed in the coming pages. Product Advisor consists of three essential components:

- **The Generator:** The generator crawls over the SQL Server database, reading searchable products data and saving it in indexed files to be used by the Search engine component. The component could access any SQL Server database.

- **The Search Engine:** It queries the indexed files previously created by the generator to find products and product lines satisfying a criteria. The administrator can create multiple search patterns (XML files) which determine searchable parameter dependency, i.e. logical relations among them

- **The Recommendation Engine:** Based on a certain product, this engine recommends other products. The administrator can create multiple recommendation patterns (XML files). Each pattern defines a set of searchable parameters and logical operators. The Search component uses the product values of the parameters defined in a pattern to create criteria and return recommended products.

LightCalc

The LightCalc application generates photometric diagrams out of eulumdat files and performs lighting calculation. The application is developed using Microsoft Visual C++.

iPartner Studio

iPartner Studio is designed to offer an easy management of lighting product content.

iPartner Studio consists of a set of XML and web active pages that enhances the quality of the lighting data and reduces errors. iPartner Studio enables efficient administration of the iPartner components: Product Advisor.

Integrating ERP data with iPartner

iPartner 3.0 supports several techniques for integrating e-catalog to product data in ERPs. For all the proposed techniques, it is fundamental to agree that the data is owned by the ERP and it mainly concerns the product catalog.

Integrating third-party ERP data

Common techniques for integrating data on ERP:

- Batch downloads
- Real-time connectors
- BizTalk Server

The decision to adopt a certain technique depends on the requirements of the site, the availability and performance of the ERP system, and the availability of the different types of integration connectors to the ERP system.

Batch Downloads

Using a batch download is a common technique for copying ERP-managed data from an ERP system to iPartner Data Manager.

On a regular (usually nightly) basis, the subset of data that the iPartner Data Manager application needs is deleted from the iPartner application and refreshed with data from the ERP system. To accomplish this, the required data is extracted from a specific ERP system and copied to the iPartner Data Manager application. Data could be imported directly into Microsoft SQL Server tables by using the Bulk Copy Program (BCP) or Data Transformation Services (DTS) or through iPartner Product Catalog System.

Real-time connectors

Another effective technique for integrating ERP systems with iPartner applications is to use a real-time connector. To use a real-time connector, however, the ERP vendor or a third-party vendor must provide the connector software.

In general, real-time connectors wrap the programming interfaces on the ERP system with a COM+ component executed in real time. The COM+ component is essentially a proxy object that can then be instantiated and called from any ASPX page in the iPartner application.

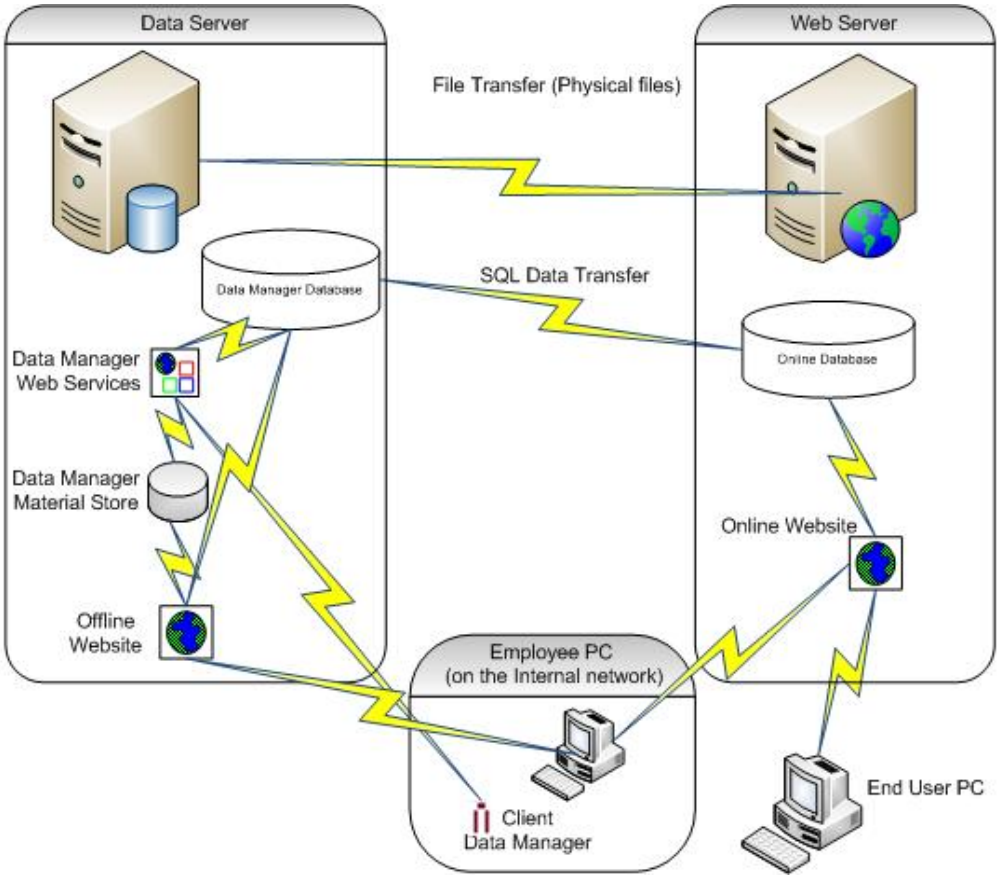
When integrating with SAP, the SAP DCOM connector is required. For access to an IBM CICS host-based system, Microsoft Host Integration Server 2000 is recommended. Support for real-time connectors from other ERP vendors varies; the availability of the connectors should be checked with the ERP vendor.

Integrating iPartner in SAP Portal environment

mySAP Technology delivers tight integration of applications and Web services from different vendors on one common, reliable, and open Web infrastructure. mySAP Technology consists of three elements: the SAP Web Application Server, the exchange infrastructure, and the portal infrastructure. All three elements enable compatibility with technologies from other vendors, including Microsoft .NET. The portal and exchange infrastructure can integrate any technology from any vendor in any technology environment.

iPartner 3.0 takes advantage of the mySAP Technology and the compatibility with Microsoft .NET to integrate seamlessly the iPartner components in the SAP Portal.

iPartner System Architecture



Software Requirements for iPartner

End User Requirements

- Microsoft Internet Explorer 6.0 and above, or Mozilla Firefox

Minimum Server Requirements

- Microsoft Windows 2000 (English edition) and Internet Information Server (IIS)
- Microsoft SQL Server 2000
- .NET Framewrok 2.0

iPartner 3.0 Key Features

Coperon Technologies has developed, and continues to develop several key features to make iPartner 3.0 the most powerful e-catalog and e-selling solution in the lighting industry. Some of these features are as follows:

Product	Key Functionalities	Description
Product Advisor	• Fast search engine based on dynamic parametric search technology	After selection of a search value, the algorithm re-organizes all other search properties and their values so that they remain compatible with the previously selected values. The algorithm also recalculates the number of results by product line and product variants.
	• View results by product line or product variants	Users can view search results, either as product lines or as product variants. The result viewing can also be automated based on the number of results for product lines and product variants. For instance, if the result of product line = 1 then only display view product variants.
	• Allows parametric search within a product line	From the view list of results (product line or product variants), the user can perform a search only restricted to a particular product line. This is similar to configuring a product line to reach the proper SKU. The system takes into account the previously selected search values when going into the product line configurator.
	• Allows sorting of results by several parameters, dynamically organized	Sorting allows sorting view results by a number of search properties that varies dynamically depending on the previously selected properties. When a search property is selected for sorting, the sorting proposed in the Active product description is highlighted to facilitate reading of results.
	• Allows comparison of 2 or more products according to author defined properties	Compare table allows users to select more than 2 products in the product view list and to create a quick side by side display of parameters of the selected products. The author will define which properties are displayed for comparison and can create several compare tables and enable access to different user groups.
	• Allows grouping of properties for better display	This feature is useful when there's a long list of searchable and displayable properties. It allows grouping those properties by groups determined by the author. Grouping will then apply on parametric search, compare tables and product datasheets.

Product	Key Functionalities	Description
Product Advisor (cont'd)	• Automatically recommends other products based on company's specifications	Recommendations are displayed on the PDS by the hyperlink indicating the number of results for each recommendation. A reverse search based on values from the PDS and properties and values defined by the author. For instance, "5 new products with similar characteristics", is the result of a reverse search based on the key searchable properties and with the value "new" set. By clicking on this link, the user will see a result list with 5 new products that have similar characteristics as the one that was looked at previously. The author can create several recommendations and prioritize them. When no products are found, recommendations do not appear. This is a useful for cross selling, up selling...
	• Ensures that a minimum number of results are displayed by showing close matches and highlighting their non compliance in the product description.	Allows author to set the minimum number of results to be displayed in a result list and to set the maximum number of search properties to drop to increase the possible number of matching results. All close results, i.e. results that come out following the release of a user selected search value are displayed as close matches. The APD of a close match highlights in a special font or color (as defined by the author), the string that correspond to the value from the released property since this value cannot be compliant with the user's search selection. The benefit is to facilitate the reading of product description of close matches by highlighting what is not compliant with the user selection.
	• Select one or several products and prepare a printer friendly document (HTML or PDF)	User can view the page in a printer friendly format according to company template. In the results list, users can select several products and then choose the print function... Several product pages will appear in one window or PDF document.
LightCalc	• Generate photometric diagrams out of Eulumdat file format	Automatic generation of 10 photometric reports such as isolux pattern, floodlight coverage... Reads eulumdat file format directly from the database.
	• Quick calculation by the utilization factor method	Lighting calculation according to the utilization factor method, reads eulumdat file format directly from the database.

iPartner Studio Key Features

iPartner Studio is the content management system, developed on top of Commerce Server 2002, that puts business users in control of content creation, contribution, and updates. It increases the value of the content published on iPartner 3.0.

Product	Key Functionalities	Description
Content Management	• Enables management of time properties such as "new", "promotion"...	Authors can manage for product lines and variants time properties ("new", "promotion"...) and assign a start date and an end date for the time property to be activated.
	• Rules to validate lighting content	iPartner Lighting Edition comes with 20 preset XML rules to validate lighting content. Examples include voltage rules, lamp rules... These rules help in reducing obvious repetitive errors. Authors can create new XML rules and can edit existing rules.
	• Multi-lingual lighting glossary enabling multi-lingual searching and product descriptions.	iPartner Lighting Edition is preloaded with a lighting glossary in English, French, Italian, German and Spanish. The glossary includes lighting terms and expressions that are found in parametric search and in active product descriptions. Authors only need to manage searchable product content in one language. Authors would still need to manage in multiple languages any free text content.
	• A familiar Excel like interface that facilitates product content management.	The grid enables the author to visualize product content in an Excel like table, facilitating the display and editing of multiple products. Authors can choose which properties they want to include for display in the grid.
	• Enables set up of properties and values characteristics and display	Authors can manage properties and values characteristics and display, for instance whether the property is a multi-select, an user input, how the values are displayed and how the property is displayed (with image and text or text only,...)
Product Advisor	• Build several search patterns using parametric search	This authoring tool enables the author to create n search patterns with different look & feel and different behavior. Example of search patterns includes a visual search by application or a details expert search with many parameters... Related tools: Dependencies and shadow properties.
	• Allow display of search properties to be dependent on other search properties	Allows author to select and define searchable properties as dependent on other searchable properties. For instance, lamps (TC-D 18W, TC-D 36W...) will be defined as dependent on lamp categories (CFL, FT...). Therefore, the lamps property will not be displayed until at least one value of the lamp categories property is selected. This is used when configuring search patterns.

Product	Key Functionalities	Description
Product Advisor (cont'd)	• Create mirror properties and values without tempering database	Allows author to create a mirror property and mirror values to an existing property and values in the database without working in the database. Rules can also be applied to the values. This is particularly useful when properties are ranges or user numerical input. For instance, in the database, IP is a property and its values are 20, 44, 45, 65, 66.... But this is not particularly useful for search purpose. The author can create a shadow property to IP, which can be called Minimum IP required with its values better than 20, better than 30, better than 40, ... The author will set rules in such a way as to enable the shadow values to perform the proper search in the database. This benefit is of this system is flexibility and the fact that the authoring is not touching the database.
	• Builds multilingual product description on the fly without managing text in the database	APD is based on the principle that product description based on text should be avoided in a multi lingual database because they are hard to update. The system builds the text description based on database fields and following expression and syntax rules that can be configured. Several APD rules can be designed and in access management the author can decide which user group will see which product description based on which APD rules. For instance French sales people will see a different product description than German technical people. In addition, APD allows for text to change according to certain iPartner functionalities such as sorting or close matches.
	• Manage sorting properties in the results list.	Authors can add new sorting possibilities by selecting which searchable property can be sorted. The system will not display a sorting property if this property has been selected by the user and retained by iPartner (i.e. not dropped for finding close matches).
	• Manage display of properties in compare table.	Author can choose which properties will be displayed in the compare table.
	• Create groups of properties for search and display pages.	Author can create several groups and select which properties will appear in which groups. Those groups can be viewed on search pages, result page, compare table and PDS.
	• Create recommendations that are automatically displayed on Product Data Sheets.	Allows author to create one or several recommendations based on a selection of properties and choosing whether values should be fixed by the author or come out of the PDS. For instance, "find a similar product on promotion", a similar product is found when 5 properties including product category, mounting, lamp... correspond to the values on the PDS and a fixed value which equals "on promotion".
	• Manage new products to display on the catalog home page	Allows author to manage display of products on the home page, including position, time to remain on the home page, text, pictures....

Product	Key Functionalities	Description
Access Management	• Rights and Rules	Author can determine first define user groups and then manage users into one or several groups. Users belonging to several groups inherit access rights from all the groups they belong to. Access rights and rules affect virtually all functionalities of iPartner, product data as well as user interface.

Partnering with Microsoft

Coperon Technologies is member of the Microsoft Certified Partner Program. The Microsoft Certified Partner Program is a widely-recognized, worldwide program for independent companies that provide Microsoft-based IT services and products to corporate, government and small- or medium-sized businesses.

Being a partner encompasses a broad range of technical expertise, including specialized disciplines such as e-commerce, networking, collaboration, and more. As one of the most important resources in providing Microsoft solutions, Coperon Technologies has a commitment to emerging technology and providing excellence in customer solutions.

.NET

Coperon Technologies is committed to building software applications that are compatible with Microsoft's .NET platform.

Microsoft has created an advanced, new generation of eBusiness Solutions that will drive the Next Generation Internet. Microsoft calls this initiative .NET, and its purpose is to make information available any time, any place, on any device. The Microsoft .NET platform will fundamentally change the way companies interact with their partners and customers over the Internet.

Coperon Technologies took advantage of the vast technological opportunity offered by Microsoft. By marrying several core technologies and applications into a complete solution, Coperon Technologies everaged existing and new technologies to produce an effective solution for implementations of all sizes.

iPartner 3.0 solutions are built on a foundation of open interoperability standards and enterprise-class applications that take advantage of the following features:

- Full featured XML-based integration and business process orchestration that allows integration with an endless array of back-office applications.
- Complete e-commerce functionality including custom catalog and catalog management system, personalization, and e-commerce business analytics.
- An enterprise class database and analytics engine centered on scalable and reliable data storage and online analytical processing for business intelligence (OLAP).