VerticalNet Solutions
A Division of VerticalNet

VerticalNet OSM Platform™

OSM Platform Overview

Preview Release

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Contents

About This Manual 1
Audience 1
Conventions 1
Code 1
Command Lines 1
Tips 1

Related Documents 3

Introducing OSM 5
OSM for Public and Consortium Marketplaces . . . 5
OSM for Private Trading Exchanges 6
Benefits 7
Adapt to Changing Market Conditions 7
Innovate in the Supply Chain 7
Optimize Business Operations 7
. 7

The OSM Approach 9
It's About Flexible Interactions 9
Key Components 10
Designed for Interoperability 11

Architecture and Component Tools 13
Overview 13
Presentation Layer 14
C2/SF: Features and Benefits 14
Business Logic Layer 15
Services Layer 15
Trading Vocabulary Management 16
Service Registry 16
Publishing Services into the Service Registry 17
Service Coordination Advisor 17

Service Select Wizard 18
Service Execution Engine 19

Sample Application -- ComponentsZone 21
Login Page 22
Home Page 22
Features 23
Inbox 24
Catalog 25
Search Product 25
Search Category by Keyword 26
Hierarchical Search 31
Parametric Search 34
The Active Bill 36
Display Suppliers 41
Manage Bills 43
View My Bills 43
Create Bill 45
Buying from Catalog 46
Purchase Execution Workflow 49
Summary 53

Glossary 55

Contacting VerticalNet 57

Index 59

About This Manual

This chapter introduces the features and organization of *OSM Platform Overview Guide*.

This document includes the following information:

1. Introduction to the OSM Platform, discussing business applications and benefits.
2. An overview ofthe approach, technical architecture, and tools that make up the OSM Platform.
3. An illustration of the OSM Platform at work, through the example of the ComponentsZone electronics components marketplace.

Audience

The *OSM Platform Overview* is intended for people who want to understand the concepts, benefits, architecture and tools VerticalNet's Open Services Marketplace Platform.

Conventions

The following typographic conventions are used in this manual to convey special types of information.

Code

Code fragments and code listings are shown as follows:

```
code {
  code appears in the courier monospaced
font
     }
```

Command Lines

Information that a user must type on a command line is represented as follows:

```
javac -switch
```

Tips

Important information about a specific topic is presented as a "tip":

> ✻ *Be sure that the java files are in the same directory as the include files!*

Related Documents

The following related documents are included in the Open Services Marketplace (OSM) documentation set.

OSM Platform Overview (this document)

Gives a basic description of the Open Services Marketplace platform. It includes an overview of the approach, benefits, tools, and applications of the OSM for public and private marketplaces.

OSM Marketplace Implementation Guide

Using this guide, a marketplace operator can describe the business processes, trading vocabularies, and rules for creating an adaptable private or public marketplace in a specific domain. Operation instructions are given for OSM's business process management tools, the E-Service Selection Wizard, the OSM B2B Service Ontology, and the OSM Service Coordination components.

Service Publisher User's Guide

Third party service providers employ Service Publisher to register descriptions of their services in OSM-enabled marketplaces.

Programmer's Reference Manual

Describes low-level programmer's interfaces for the key functional components of the OSM platform.

Ontology Builder User Guide

Describes how to use the Ontology Builder to develop and share ontologies.

Marketplace Administration Guide

Describes administration, logging and auditing tools for an OSM marketplace.

OSM Installation Guide

Describes how to install the OSM platform and tools.

OSM Platform Release Notes

Contains the latest information that is not included in any of the other documents in the documentation suite.

Chapter 1: Introducing OSM

The Open Services Marketplace (OSM) platform is an enterprise-class infrastructure for constructing public and private marketplaces using a just-in-time service integration approach. In this chapter, we will look at the motivation, benefits and applications of the OSM Platform for facilitating e-business operations.

OSM for Public and Consortium Marketplaces

The OSM Platform is brought to you by VerticalNet, a company that has maintained more than fifty industry-focused public marketplaces, some since 1995, where buyers and sellers can find tools for managing content, community, commerce and collaboration. Public or consortium marketplaces built using OSM's dynamic services approach can incorporate the following features:

- *Deep industry knowledge*: Marketplaces can be built around deep industrial knowledge that really drives value to the professionals in that space. Using VerticalNet tools, a marketplace can quickly assemble the trading vocabularies or *ontologies* for classifying and relating appropriate products, companies, services, and business processes specific to the domain.
- *External Partner Services*: OSM makes it easy for third-party providers to register services into a marketplace, and makes it worth their while to do so. To simplify integration, OSM is working to support the widest range of interoperability standards possible, including RosettaNet, OBI, BizTalk, ebXML, E-speak, and others.
- *Business Process Libraries*: Companies or customers interacting with the marketplace will want not only to discover the processes that describe how they want to operate, but tailor them to meet their specific needs. Tailoring may involve adding or removing steps in a process, specifying constraints about the "who" and "how" of the process execution, and so forth.
- *Tight Integration*: As part of tailoring a business process flow, a company should be able to indicate how their own internal systems will participate in the execution of the process.
- *Dynamic Hyperpartnering*: OSM-powered marketplaces should be a place where service providers can dynamically discover opportunities to work with other partners that enhance their value to the community. Tools for collaboration and negotiation are provided, and coordination services to manage inter-enterprise networking.
- *Inter-market communication:* Industry-specific marketplaces set up using OSM can strategically be interconnected to leverage resources. To facilitate inter-market communication, OSM provides open interfaces for

dynamic discovery of a market's capabilities, enabling inspection of services, processes, interaction styles, and trading terms and conditions.

OSM for Private Trading Exchanges

Although it makes sense to conduct some kinds of commerce activities within the contexts of a public or consortium marketplace, analysts are beginning to emphasize the value of private trading exchanges (PTX) as a dominant model to truly serve the needs of many businesses.

Conceptually, a private exchange is an application platform on which a company builds its trading interface to both suppliers and customers via the Internet. The private exchange serves as a single integration point for trading partners and a repository for strategic commerce-enabling applications.

The most perplexing technical challenge slowing the adoption of private exchanges today is inter-enterprise integration. How will companies with different IT systems, business vocabularies, and requirements find a way to seamlessly exchange information? How much will this integration cost, and how long will it take? Historically even simple integration between back-office applications and Web-based services of public exchanges has costs millions of dollars. How can companies deploy private exchange platforms in a rapid, scalable, and cost-effective manner? Fortunately, OSM offers a solution.

For large enterprises, OSM allows multiple divisions within the company to interact with overlapping groups of customers and suppliers, creating a complex, many-to-many set of relationships that would be virtually impossible to manage with conventional systems. OSM offers a completely new approach to implementing private exchanges by providing an Internet platform for transactions designed with inter-enterprise collaboration in mind. As companies face ever-increasing global pressure to reduce design cycle times, seamless electronic collaboration with suppliers and customers will become increasingly important to streamlining and improving the efficiency of existing trading relationships, including those with resellers, distributors, and logistics providers. OSM-enabled extended enterprises can rapidly re-engineer and reconfigure what functions the enterprise wants to manage internally, which functions to expose to external companies as an extra source of revenue, and which functions are better managed by third party service providers.

For most companies, a private exchange will be the most important computer systems project they undertake in the next few years. AMR Research predicts that $5.7T in commerce will be transacted via the Internet by 2004, and expects most of this to pass through private exchanges. Even companies that did not envision operating an active online marketplace for suppliers or customers should think of a private exchange as the most effective way to take advantage of Internet-based commerce. With OSM as a partner,

companies can be ready for the many changes that will occur as this new era of online commerce unfolds.

Benefits

The OSM Platform provides numerous benefits for builders of public markets and private trading exchanges.

Adapt to Changing Market Conditions

OSM's flexible architecture accelerates the development, integration, reengineering, and customization of next generation business solutions.

Traditional hard-coded approaches to e-business software lock an enterprise into specific configurations of partner APIs and IT systems. With OSM, new trading partners and e-services can be added dynamically, enabling you to adapt your configuration to current conditions quickly and easily. In addition, OSM enables you to rapidly customize business process logic to meet your enterprise's changing needs.

Innovate in the Supply Chain

As e-service options proliferate, selecting the optimal trading partner becomes a complex task. By automating service brokering and coordination using customized business rules and domain-specific knowledge, OSM facilitates the selection of optimal trading partners. The OSM platform achieves this dynamic services interoperability through:

- An open standard for registration, shared trading languages, and data normalization.
- Customizable business processes.
- Intelligent brokering of distributed e-services.

Optimize Business Operations

After elaborating and implementing a market's business logic through OSM's flexible business service coordination technologies, a history of operations can be used to establish metrics for quality improvement. With OSM, private markets can reduce costs and improve efficiency by streamlining procurement or other marketplace operations.

In the following chapters, we will examine OSM's approach to flexible inter-business communication, explore the platform architecture and tools that come with the OSM Platform, and then describe the sample application that comes with the OSM distribution, ComponentsZone, a marketplace for buyers and sellers of electronic components.

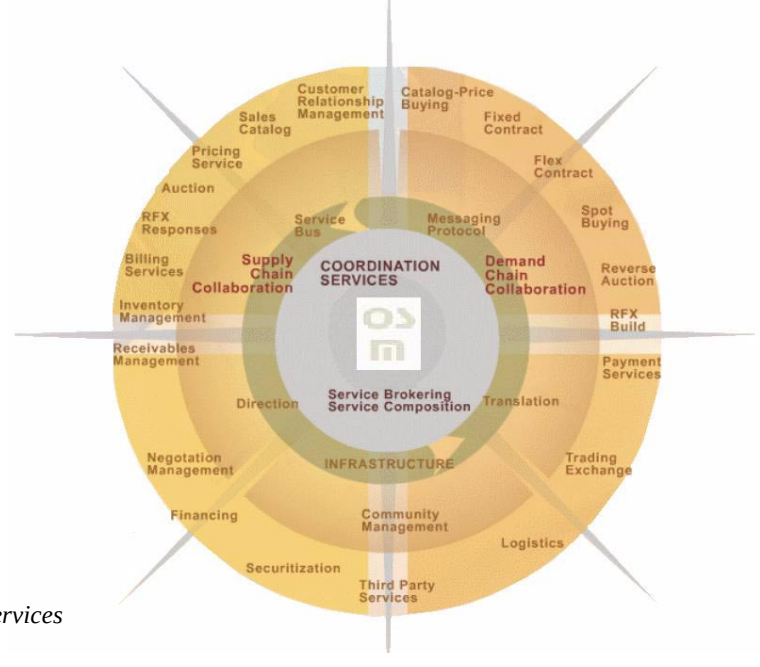
Chapter 2: The OSM Approach

In this chapter, we will look at OSM's approach and consider how OSM is different from other e-business infrastructures.

It's About Flexible Interactions

Today's e-business operations are extremely complex, involving numerous applications, information sources, services, and participants distributed throughout the extended enterprise made up of a vast network of internal and external divisions and partnerships.

Current and past approaches to cross-enterprise integration have suffered from extremely high development costs, and rigidity in the resulting system: once programmers have finished writing programs that specify the formats and the flow of EDI or XML messages to be exchanged between business partners, the brittle and directed nature of the approach make it extremely difficult to change message formats, bring in new partners, or change

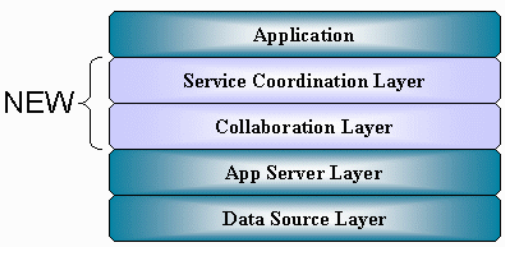


E-Business Services

the system in any way. An enterprise now finds itself locked into the choices it has initially made in building the system. As such, traditional "hard-coded" approaches to e-business software integration cannot deliver the flexibility required by complex global enterprises and marketplaces.

To address these issues, OSM's approach extends the layered approach recommended by information technology best practices with two new layers that add significant flexibility to the process.

OSM's Layered Approach



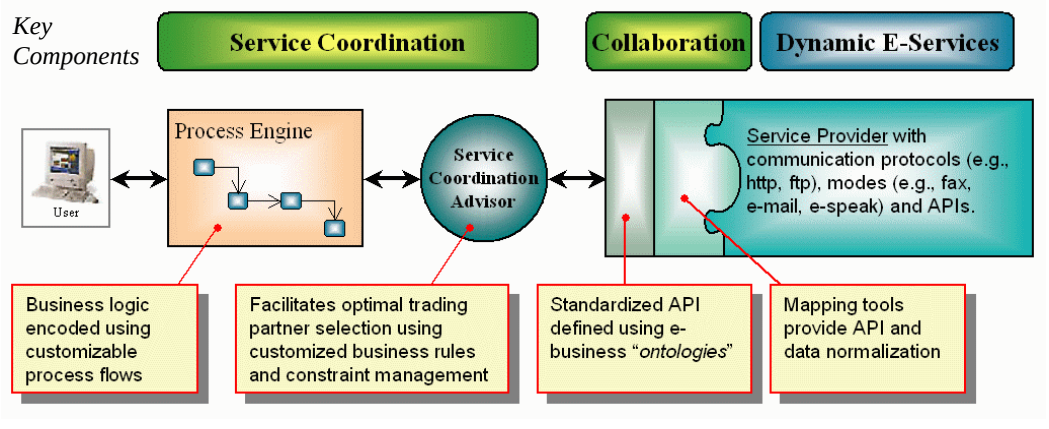
The purpose of the Collaboration Layer is to give trading partners a common language and tools for rapid negotiation and flexible information exchange, escalating the quality and scalability of multi-party collaboration. On top of the collaboration layer, the OSM Platform adds sophisticated management and coordination of web-based services provided by a dynamically extensible set of business partners for the marketplace.

Key Components

The OSM Platform is made up of five core components, three which make up the collaboration layer, and two which comprise the service coordination layer.

Collaboration Layer:

- Ontology-based *e-business service vocabularies* give trading partners a common language for rapid integration, negotiation, and cost-effective collaboration.



- *Mapping tools* enables partners to define the relationships among their varying APIs and information formats. *Translation tools* make use of the mapping information to seamlessly convert
- A UDDI-compliant *business and service registry* enables dynamic addition of new trading partners and e-services, promoting flexible substitution of providers according to the situation.

Service Coordination Layer:

- *Business Process Engine*: Business logic can be rapidly customized to meet the changing needs of the enterprise.
- As e-service options proliferate, *automated brokering and service coordination* facilitates optimal trading partner selection using customized business rules and domain-specific knowledge.

More specifically, here is how interactions with an OSM-enabled marketplace work:

1. Applications and services within an enterprise, from external business partners, or from third party providers are published into an ontology-based service directory. The publishing process includes mapping to normalize heterogeneous APIs and information.
2. OSM provides a searchable library of industry-focused business processes, composed of sequences of sub-processes and e-Service calls. The processes can be customized to meet the specific needs of individuals or groups within the marketplace.
3. Coordination services ensure efficient and intelligent execution of the business processes, conforming to the specifications of the requesting client. As needed, service brokers negotiate to find, contract, and compose appropriate service providers to fulfill process steps. Other market-oriented mechanisms for coordination decisions are also be able to influence the business process flow.
4. The OSM Platform also provides a flexible presentation layer services, to quickly deploy scalable commerce web portals and business application front ends that provide end-user access to the OSM-managed services and processes.
5. Marketplace interchange is facilitated through open APIs that enable dynamic discovery and inspection of the services, processes, and protocols of interaction for those resources.

Designed for Interoperability

Private exchanges and consortium marketplaces are not about accounting or reports; they're about active systems that help employees design, negotiate, buy, sell, and communicate over the vast network of trading and business partners.

Using the core elements discussed above, OSM solves the problem by creating the core of an ecosystem that incorporates trading partners,

logistics providers, strategic sourcing, enterprise application integration, and content management. By creating marketplaces with this kind of flexibility, OSM will insulate corporate systems during the turbulent developmental phase of B2B Commerce. OSM utilizes industry standards such as a UDDI for business registration, WSDL for service description, and XSLT for dynamic translation between XML formats. Together these standards ensure that OSM-based private exchanges will interoperate with consortium exchanges, independent trading exchanges, various XML standards, or other emerging industry information standards such as RosettaNet or ebXML.

In the next chapter, we shall go further into the specifics about the architecture of the OSM framework and the tools and functionality that make up the OSM Platform Suite.

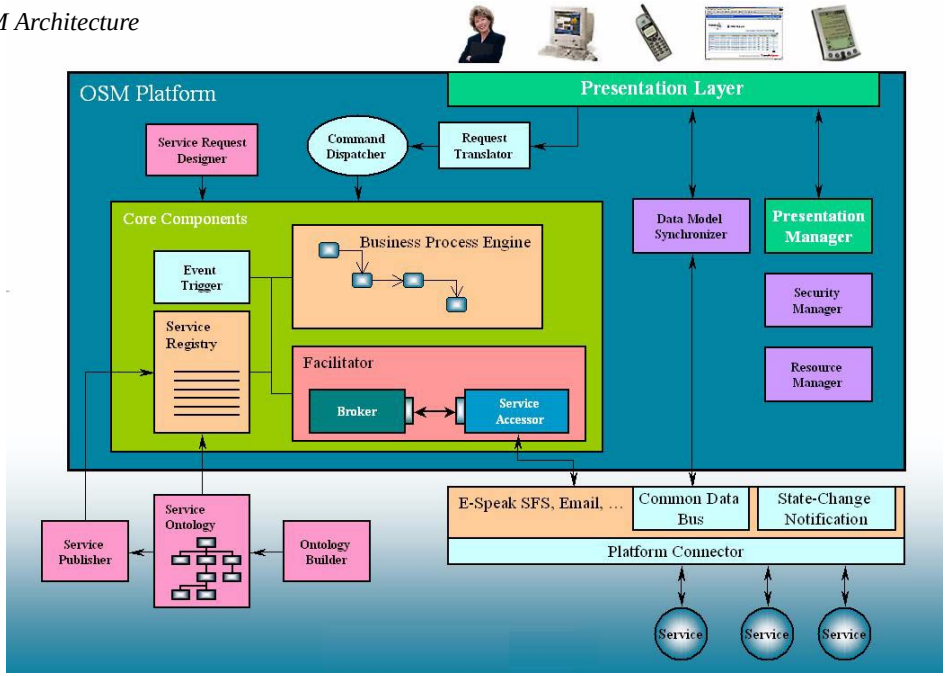
Chapter 3: Architecture and Component Tools

In this chapter, we will go through OSM's technical architecture and briefly describe the tools that are provided as part of the OSM Platform Suite. Detailed descriptions of how to use these tools to construct a public or private trading exchange are given in the *OSM Marketplace Implementation Guide*.

Overview

The OSM Platform comprises a suite of server-level components arranged in a 3-tier hierarchy to deliver electronic marketplace functionality. Each layer is implemented using well-defined interfaces that promote flexible integration through clean layers of program abstraction. OSM layers include:

OSM Architecture



- The *presentation layer*, which manages the user's display and interactions with the system.
- The *business logic layer*, which defines the functionality of the application, and specifies how individual functional components and external services interoperate.
- The *services layer*, which provides mediated access to potentially distributed services across numerous communication protocols (e.g. Email, XML over HTTP).

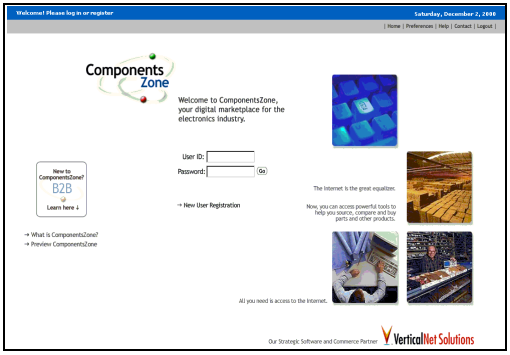
We shall now examine each of these layers in more detail.

Presentation Layer

Through the Presentation Layer, a marketplace implementor can define the look and feel and the screen sequencing of the user interface, with only a loose coupling to the business logic of the underlying marketplace.

Although marketplace developers are free to incorporate any commerce site presentation strategy they choose (e.g., XSL over XML, Microsoft .ASP), we believe VerticalNet's Cooperative Commerce Service Framework (C2/SF) Application Server offers numerous advantages as the front end to an OSM-enabled marketplace. The C2/SF Application Server is an open framework for integrating modular service components using an industry-standard JSP/J2EE approach.

Look and feel for ComponentsZone Market



C2/SF: Features and Benefits

The C2/SF framework provides the following benefits as part of the OSM platform:

- A uniform integration & deployment standard for aggressive product roll-out
- A proven methodology for quick system integration and application prototyping
- Facilitates internationalization and localization
- Rapid integration of a diversity of service components and business processes:
  - Provides separation and coordination between presentation and business layers via MVC
  - Provides service configuration and management
  - Integrated security management

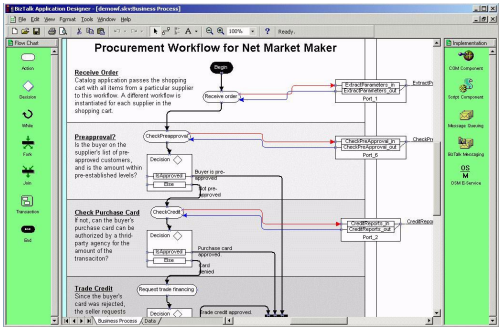
Business Logic Layer

The Business Logic Layer provides multiple techniques for implementing the functionality behind the graphical user interface of the marketplace. User events can be tied to logic specified as Java code, or, to promote enhanced flexibility, can be linked to business processes stored in a business process library. Instead of a one-size-fits-all approach, multiple processes can be rapidly created and customized for particular situations and user segments.

Although the OSM Platform supports just about any business process engine or process editor tool, out-of-the-box support is provided for Microsoft's BizTalk Orchestration process tool, and soon, for BEA's Process Integrator and HP's Business Process Manager.

Most business process engines or workflow engines allow an analyst to create a flow that binds the actions of a business process to systems or remote function calls by using connectors to specifically-addressed locations. However, it is often advantageous to bind the action step not to a known system, but rather to delegate the execution of the action to external service providers defined in an OSM service repository. Doing so allows the possibility of defining business rules to select the appropriate partner for the current context or user, and enables an enterprise to reconfigure business partners over time without having to recode business processes to accommodate a new partner's APIs. Managing the optimal selection of partners for your e-business operation is the domain of the services coordination layer.

Microsoft BizTalk Orchestration



Services Layer

The Services Layer enables business process logic to access and integrate with component services defined by the marketplace or by external business partners. As part of the Services Layer, the OSM Platform provides a number of software tools and servers to manage the just-in-time integration and coordination of web-based services.

- *VerticalNet Ontology Builder*: aids the market builder in constructing ontologies through which services and processes are structured.
- *OSM Service Registry*: an ontology-based, UDDI-compliant directory of web-based services.
- *OSM Service Select Wizard*: enables a business analyst, while designing a process flow, to specify requirements for how an appropriate service provider should be selected to accomplish a task in the flow.

- *OSM Service Coordination Advisor*: an extensible rule-based expert system that helps manage optimal business partner selection.
- *OSM Service Execution Engine*: a high-performance server that manages reliable, scalable communications with remote business services.

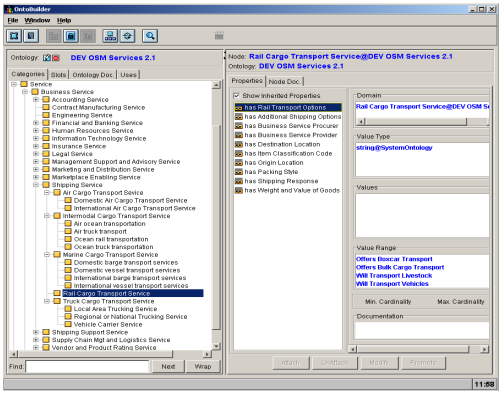
Trading Vocabulary Management

In cross-enterprise business operations, there can be no communication, negotiation, or transactions without first agreeing upon standards that define the formats and semantics for the information that is to be exchanged in accomplishing these tasks. However, standards generally don't exist for all types of services and interactions that you might want -- different business will have different ways of representing this information.

As a means of broaching this problem, the OSM Platform provides an initial ontology for over 400 B2B-related business services, and mapping tools for creating relationships between the OSM Service Ontology and existing standards or APIs that permit automatic translation between the various formats. Another expression for the term "ontology" could be "trading vocabulary": the OSM Service Ontology provides a data model for storing information about business partners, the services they provide, constraints and properties that describe these services, and rules for managing the services and business partner relationships.

Additionally, using the VerticalNet Ontology Builder product, an enterprise can customize OSM's "out-of-the-box" Service Ontology to meet their precise needs and view of how their business information should be represented. Ontology Builder is a scalable, web-based collaborative tool that allows teams of domain experts, business analysts or IT Engineers to design, modify and extend ontologies.

The OSM Services Ontology in Ontology Builder



Service Registry

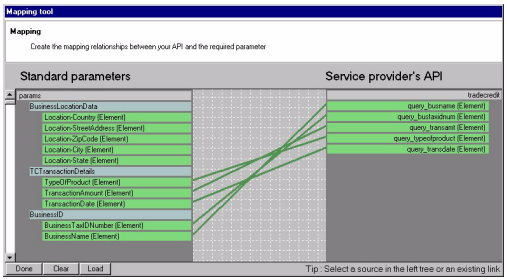
The OSM Service Ontology provides the backbone for the OSM Service Registry. The Service Registry is an ontology-enhanced, UDDI/WSDL-compliant directory server. The Service Registry is used by an enterprise to store information about business partners and the services they provide, classified the typology of service types managed by the public or private marketplace. The registry is completely dynamic -- new business partners can be added or their information updated at any time, using the Service Publisher tool.

Publishing Services into the Service Registry

OSM's Service Publisher is a wizard-based tool that enables providers of business-to-business e-commerce services to dynamically register and administer descriptions of their capabilities within one or more OSM-enabled marketplaces. By doing so, a service provider creates increased sales channels for their services in public and private B2B marketplaces. As an additional benefit, the Service Publisher's mapping tools enable a service provider to maintain a one API specification in their preferred format, and then map this API specification to many different marketplace formats.

The Service Publisher Tool

The mapping component of Service Publisher



Service Coordination Advisor

With its Service Ontology and mapping tools, OSM can provide a single API interface to many business partners, each with their own potentially different native interfaces. In this way, instead of binding the process logic to a known system through a hard-coded API, the enterprise can delegate the execution of the action to the (potentially dynamic) set of external service providers defined in the OSM service repository. It is the Service Coordination Advisor's job to figure out which of the available service providers is best suited to the current situation, as defined by many factors (e.g., context, process requirements, user or group, cost, time, reliability, load or "busyness"). One way of thinking of the Service Coordination Advisor is as an easy-to-extend business rule engine that encodes a company's logic for how they do business with their partners. Using an OSM approach enables an enterprise to reconfigure business partners over time without having to recode business processes to accommodate a new partner's APIs.

To make recommendations about which provider to choose, the Advisor uses a decision-theoretic algorithm to combine the inputs across multiple dimensions from a (potentially distributed) set of knowledge sources called *decision experts*. A decision expert is actually an OSM Service that can return information about who might be good, who's not so good, and a justification for any information given.

Information of this sort can come from many places. Historical information about vendor performance from across different business units

can be easily assembled and integrated. Third-party recommendation or credentialization services can be added to influence decisions by just the right amount (not too much, not too little). Rules can be set up so that different user groups have access to different sets of service providers (e.g., "gold members" can access even the most expensive providers).

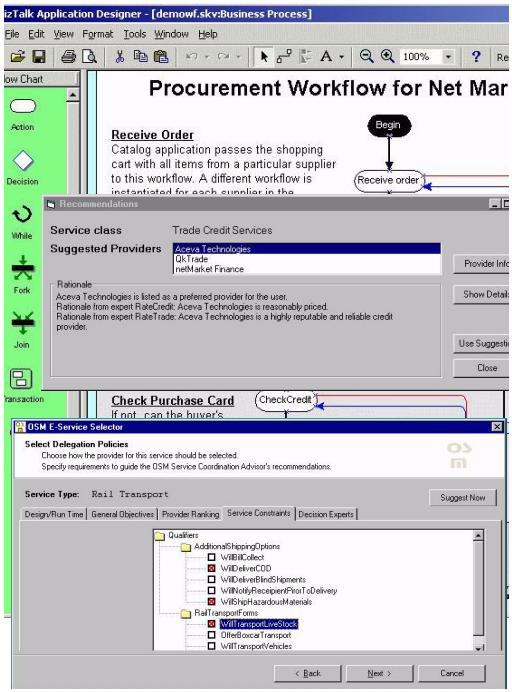
A taxonomy of decision expert types

```
Decision Expert
   User-focused
      Preferences
      Historical

   Market-focused
      Market Rules
      Historical

   System-focused
      Load Balancing

   Suggestion-based
      Rating services
      Collaborative Filtering

   Market Mechanisms
      Reverse Auction
      Structured Negotiation

   Multi-party Interactions
      Relationship rules
```

Service Select Wizard

As mentioned in the previous section, the purpose of the Service Coordination Advisor is to combine multiple information sources in order to determine the optimal trading partner to fulfill some type of service. Perhaps the most important information to consider during this process is the requirements specified by the designer of the business logic that will integrate the service step. To help elicit these requirements, and to provide a user interface to the workings of the Service Coordination Advisor, the OSM Platform provides a tool called the Service Selection Wizard.

Service Select Wizard



Using this application, a business analyst specifies the type of the service to fulfill, general and specific constraints about the task to be accomplished, and preferences about individual service providers or decision experts. After enumerating a set of preferences, the **Suggest** button on the interface displays a list of recommended providers, ranked in order of suitability. For each suggestion provided, the user can view high level or detailed explanations about how the recommendation was obtained, and then explore additional available information for the provider to evaluate the decision.

Using this interactive process, an analyst can set different scenarios and view the resulting responses. Once sufficient research has been conducted, the analyst defining the business logic can select a preferred provider at design time, and can specify whether the Advisor should perform run-time analysis to optimize the process or to handle exceptions (e.g., if a preferred shipper has no trucks available, an alternate provider can be automatically selected that meets all the requirements set up by the analyst). Runtime decisions can be automatically enacted by the Advisor, or a mode can be set to ask for a confirmation notification before executing any tasks that depend on runtime decisions.

Service Execution Engine

Once the Service Coordination Advisor has chosen the optimal business partner for some activity, it is the Service Execution Engine's job to interact with the contracted partner using whatever communications protocols have been defined during the publishing phase. The Service Execution Engine accepts an XML request message from the Advisor in the format specified by the marketplace ontology, and will translate both the request and the subsequent response appropriately for the service provider's view of the world. If the remote service provider's message-receiving system is not functioning, the Service Execution Engine will try all protocols and addresses defined for the provider, as governed by retry logic parameters defined for the provider.

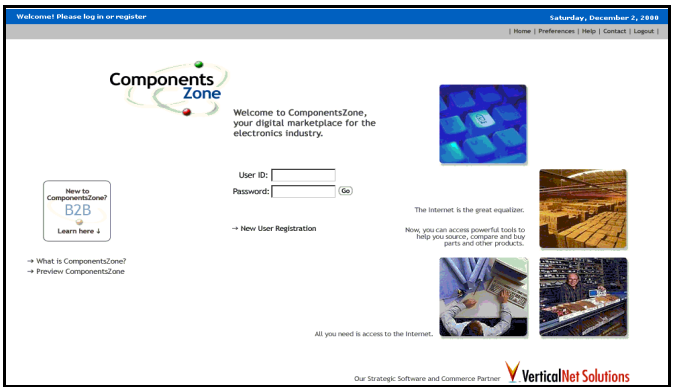
Chapter 4: Sample Application -- ComponentsZone

The OSM distribution comes with a sample application intended to show how the OSM Platform can be used to quickly build an e-commerce marketplace that incorporates flexible business logic and just-in-time integration of web-based services.

The ComponentsZone (CZ) demonstration marketplace is a procurement application for the electronic components industry. Buyers use ComponentsZone to find products that meet their requirements and then purchase products using a distributed multi-vendor catalog, auctions, reverse auctions, exchanges, and so forth. Suppliers joining ComponentsZone can publish descriptions of their products for sale using catalogs, auctions or other market mechanisms.

At an implementation level, ComponentsZone uses OSM and C2/SF to integrate products from VerticalNet Solution's eMarketplace Suite, including VerticalNet Auctions, VerticalNet Exchange and VerticalNet Distributed Catalog. Order management from a third party vendor (Yantra) is also integrated into the demonstration. The OSM version of ComponentsZone extends that shipped with eMarketplace Suite 3.0.5 with a procurement execution workflow that leverages BizTalk Orchestration and the full suite of OSM tools.

In this chapter, we shall give an overview of how to interact with the ComponentsZone trading hub, and then briefly discuss how OSM was used to implement the marketplace. For a more complete description of the ComponentsZone application, see the ComponentsZone Demo User Guide.



Login Page

To access the ComponentsZone Demo, use the following URL:

`<host>/emarket/control/signin`

where `<host>` is the full name of the computer on which the demo is installed.

You will see the ComponentsZone login page.

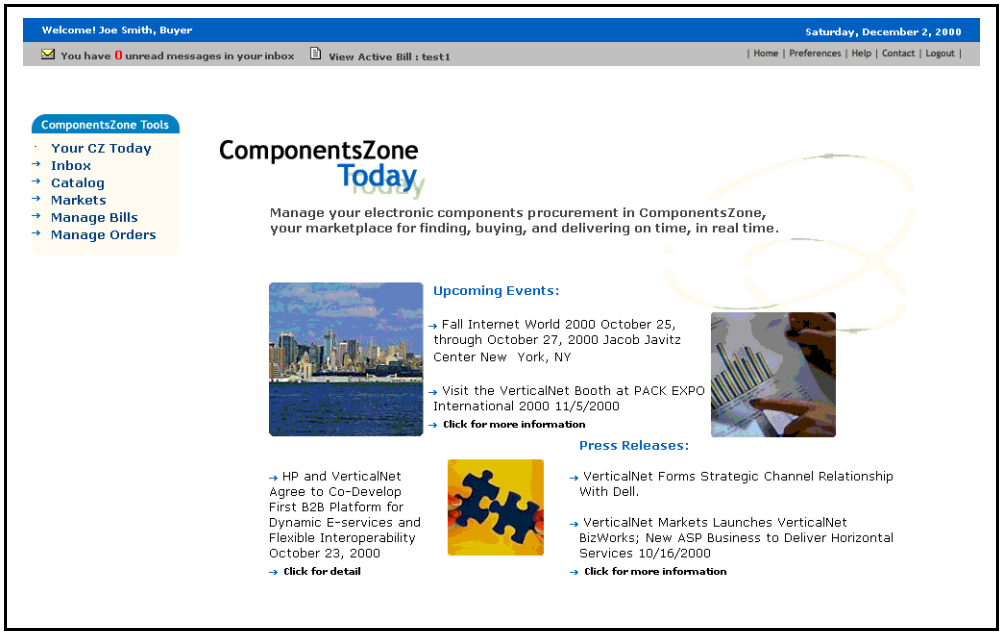
Type the User ID and Password and click Go.

Home Page

The ComponentsZone home page is shown below:

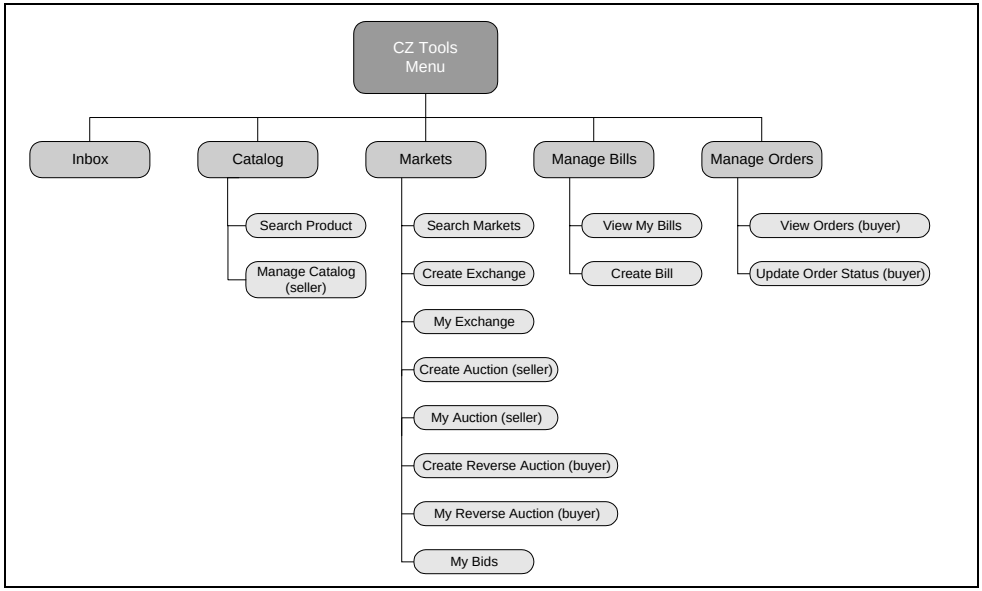
Access the demo's features by clicking the items listed under the CZ Tools menu on the left side of the screen. The items are as follows:

- Your CZ Today (home page)
- Inbox
- Catalog
- Markets
- Manage Bills
- Manage Orders



Features

The items on the CZ Tools menu are comprised of the features shown below:



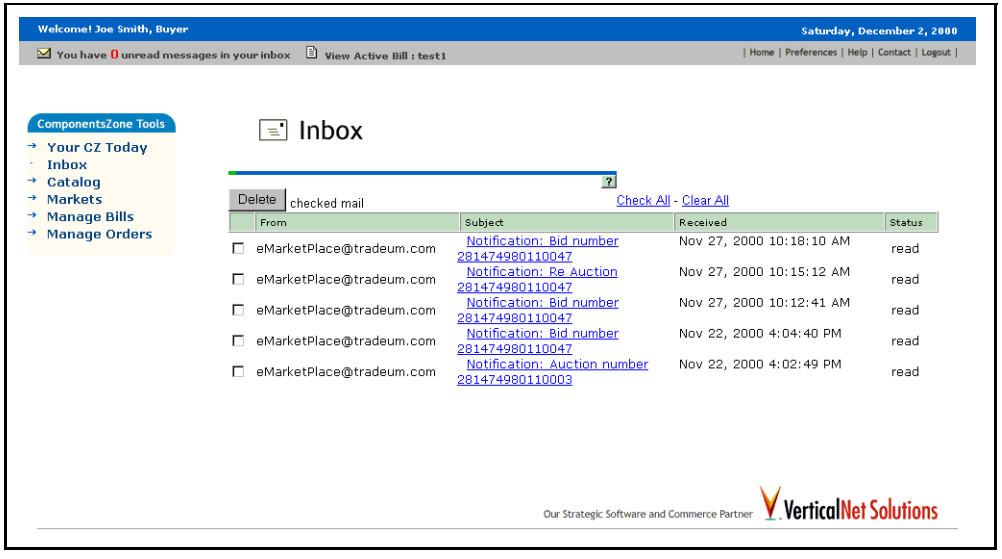
For Catalog, Markets, and Manage Orders, the features vary depending on whether the user is a buyer or seller. For example, if a buyer selects Catalog, only the Search Product feature is available. A seller selecting Catalog can access both Search Product and Manage Catalog.

Similarly, a buyer selecting Markets can access Search Markets, Create Exchange, My Exchange, Create Reverse Auction, My Reverse Auction, and My Bids. A seller selecting Markets can access Search Markets, Create Exchange, My Exchange, Create Auction, My Auction, and My Bids.

Finally, a seller who selects Manage Orders will be taken directly to the Yantra Supplier login screen.

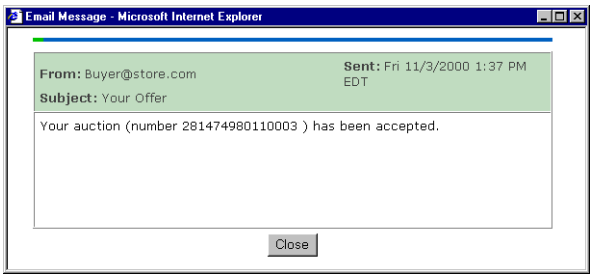
Inbox

Click Inbox on the CZ Tools menu to display the page shown below:



Click the subject of an email to display details of a message, as follows:

Mail is sent to the Inbox whenever there is market activity. Messages may also be sent by the OSM Service Coordination Advisor to inform the market operator of suggestions and decisions.



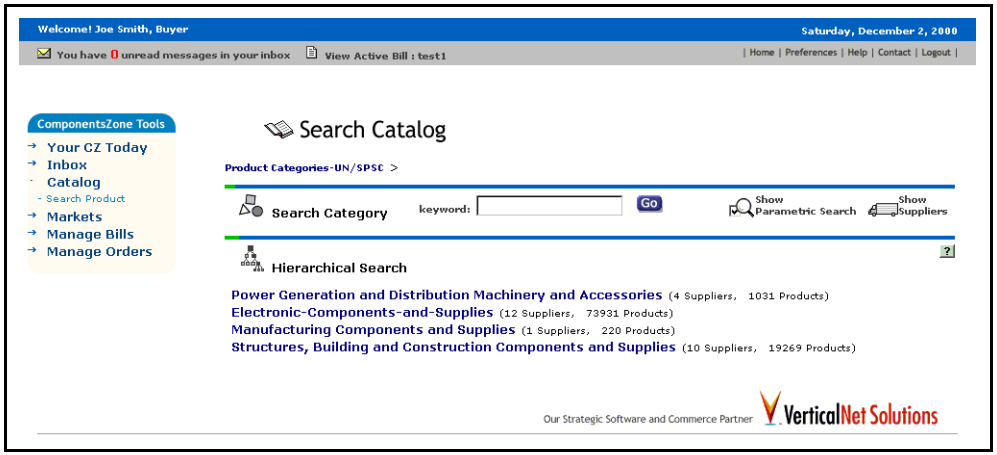
Catalog

Click Catalog on the CZ Tools menu to display the following options:

- Search Product
- Manage Catalog (seller only)

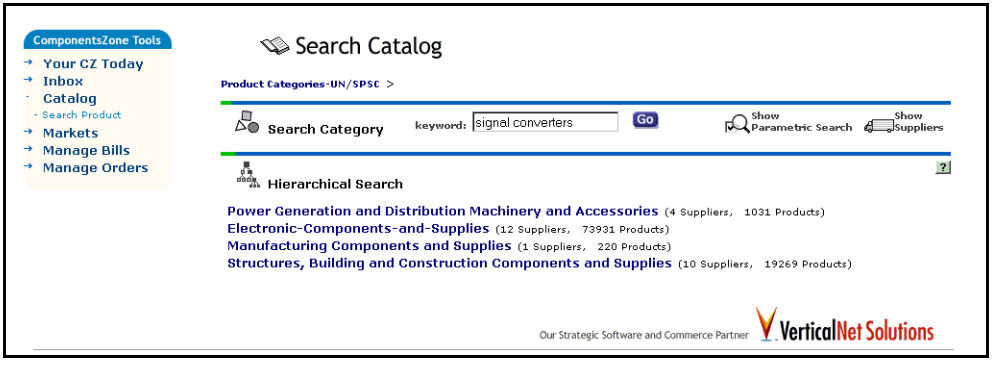
Search Product

Click Search Product to display the following screen:

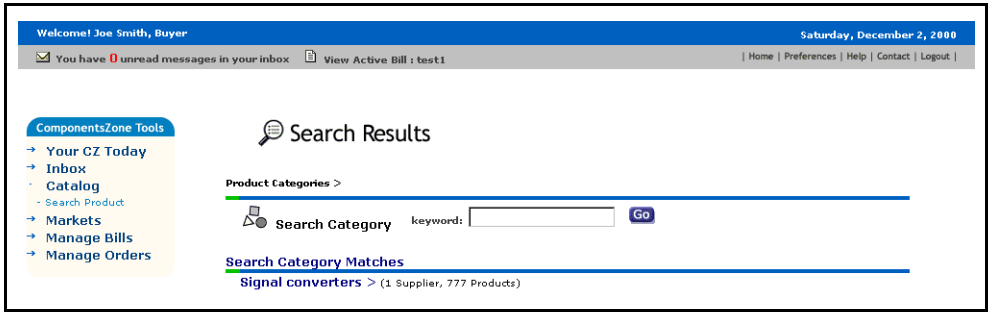


Search Category by Keyword

Type a keyword(s) into the field and click Go (e.g., the keywords **signal converters**):

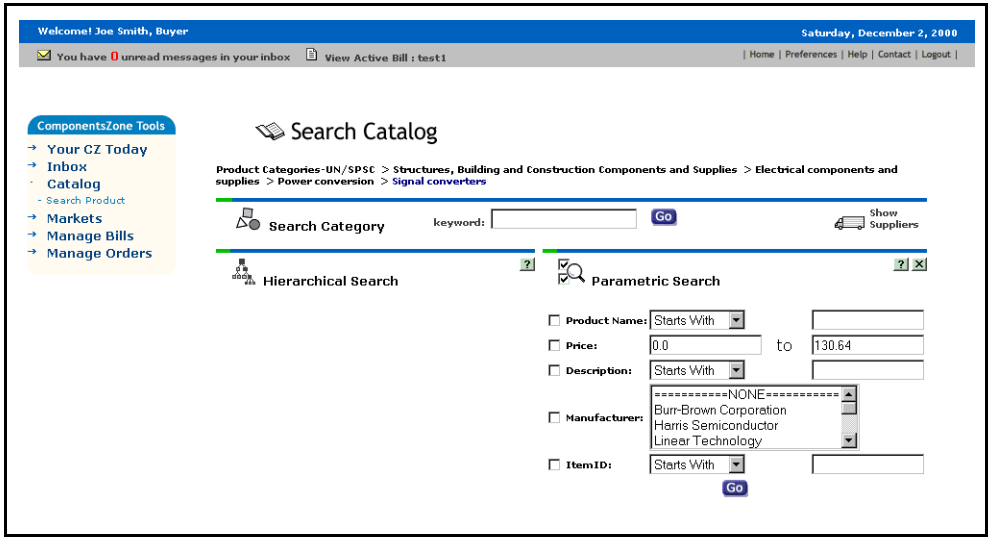


In this example, the keyword search displays one match under the line titled “Search Category Matches.” Click the match (i.e., signal converters) to proceed.

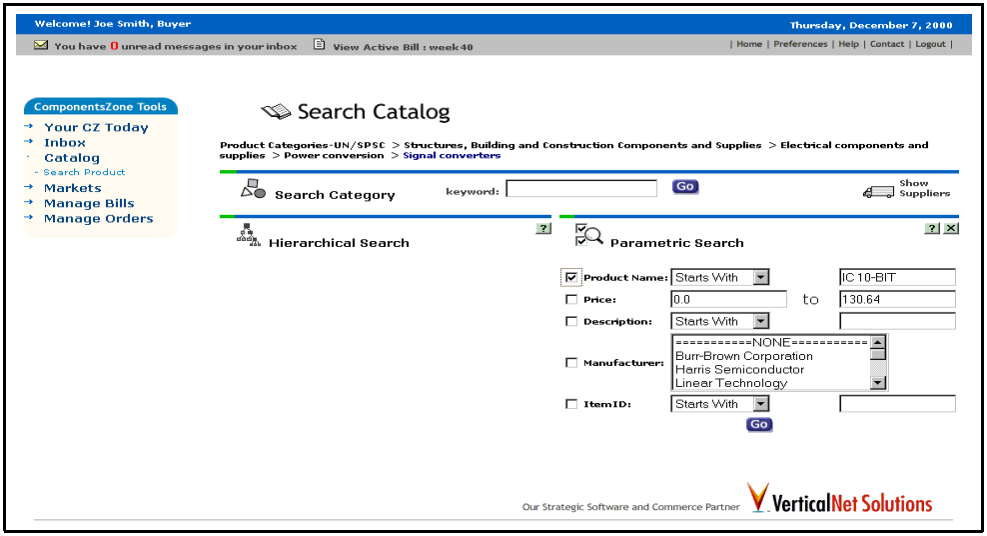


The next screen displays the hierarchical path through the UN/SPSC classification system to "signal converters."

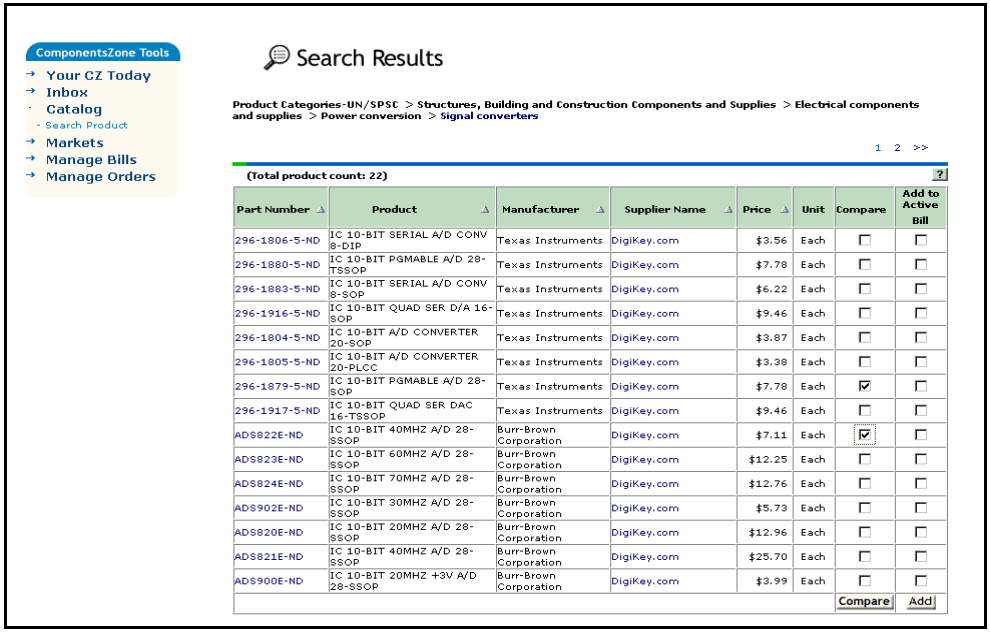
The Parametric Search function also displays in the lower right corner:



Use Parametric Search to refine the search. For example, select a product name (e.g., IC 10-BIT) and click Go.



The next screen displays signal converters by the selected manufacturer. A total of 22 products on 2 screens were returned.

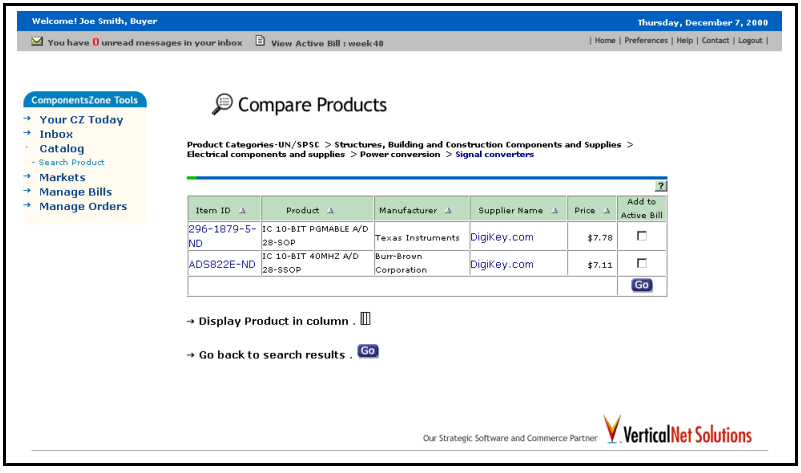


You can view part number information, and sometimes an image of a product, by clicking a number in the Part Number column.

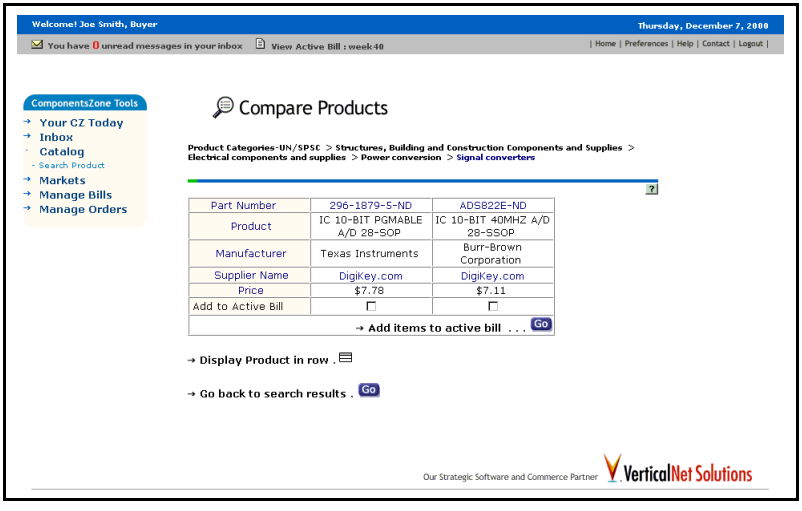
The Compare column allows you to compare products from the list. The Add to Active Bill column is covered in a subsequent section.

As an example of comparing products, check the boxes in the Compare column for two products (e.g., one each from Texas Instruments and Burr Brown Corporation) and click the Compare button.

The two products display in the table below:



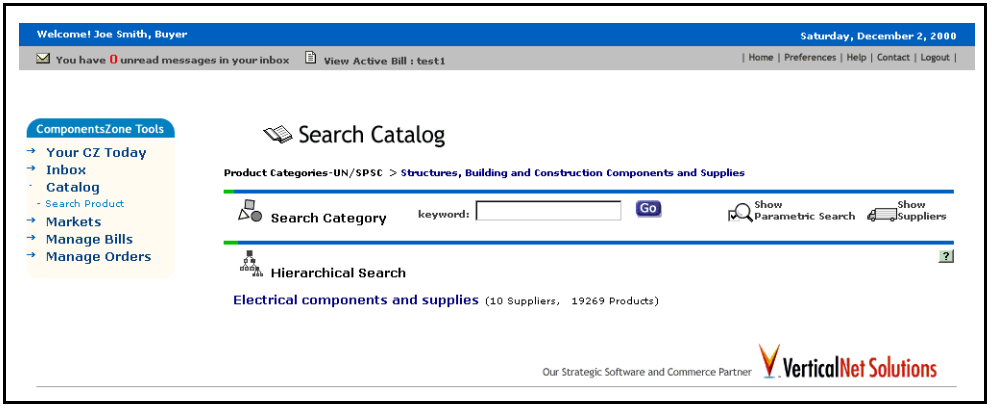
Click the icon next to “Display Product in column” to see the two products displayed in columnar format:



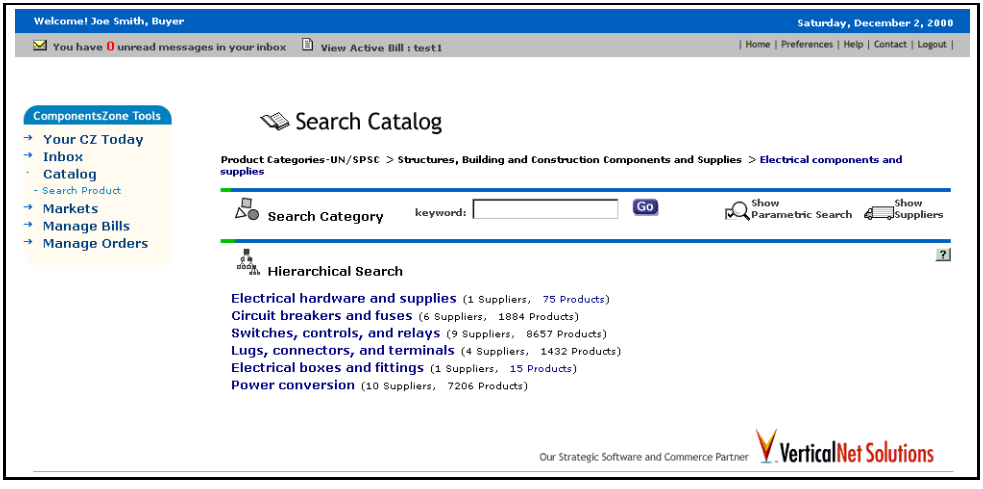
Hierarchical Search

Select a category (e.g., **Structures, Buildings and Construction Components and Supplies**):

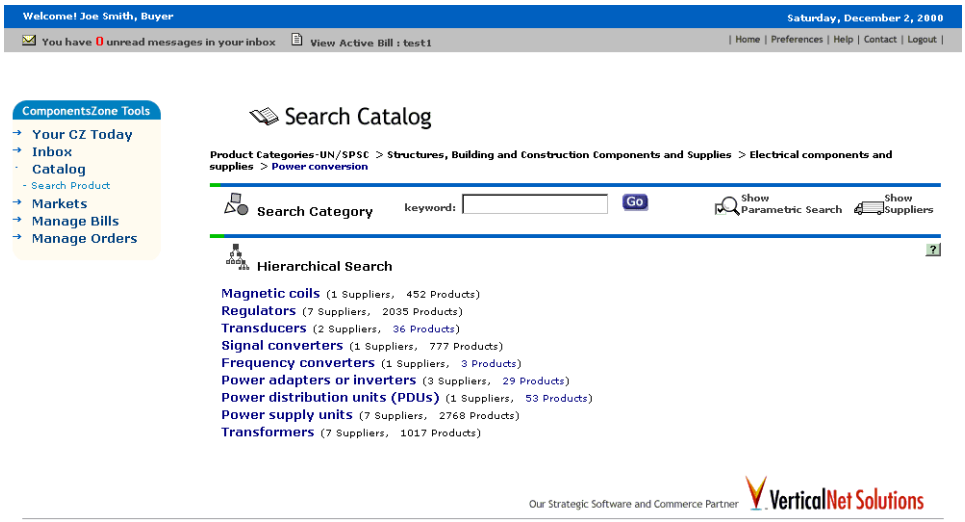
The hierarchical search displays one sub-category. Click **Electrical components and supplies** to proceed.



The hierarchical search again displays six sub-categories. Click **Power conversion** to proceed.

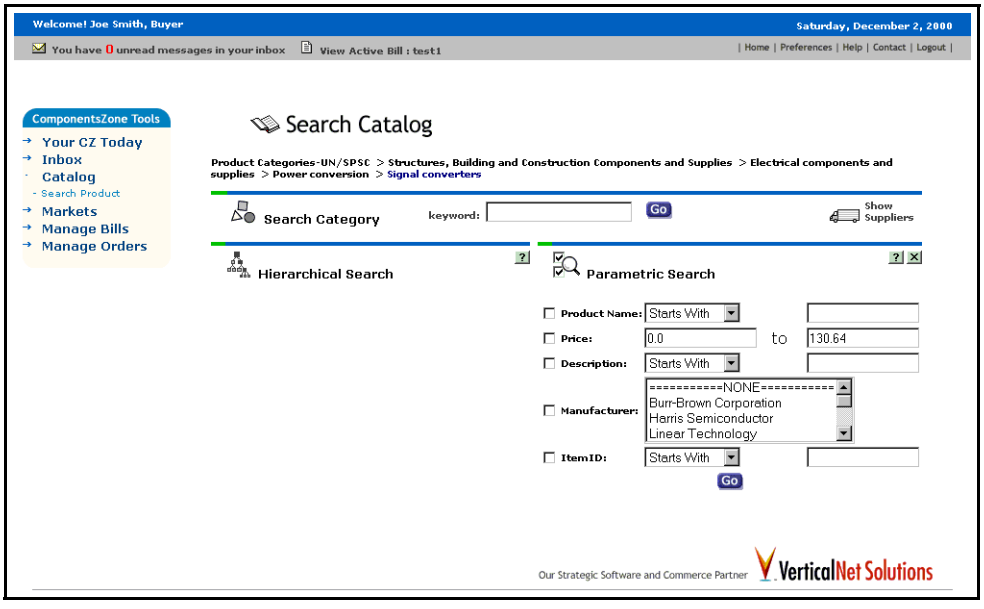


The hierarchical search displays nine sub-categories. Click **Signal converters** to proceed.



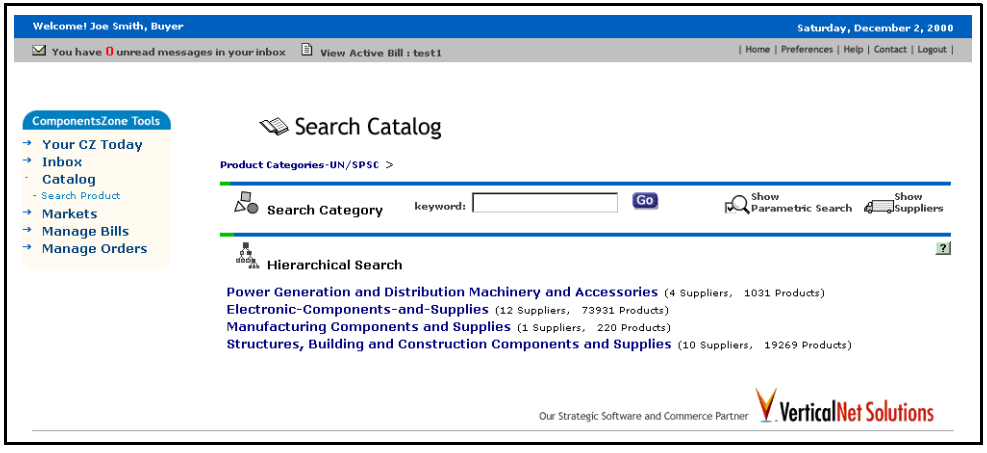
The hierarchical path (Product Categories in UN/SPSC) corresponding to your selections was built in increments with each selection, and now displays the entire path to “signal converters.”

Use Parametric Search that displays in the lower right corner to refine your search.

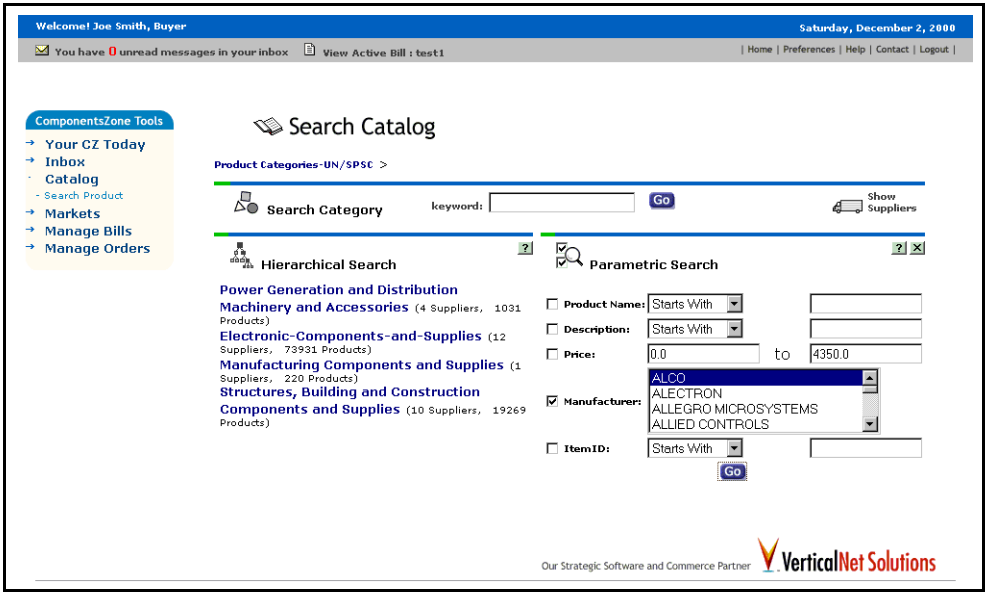


Parametric Search

You can access the Parametric Search function directly from the Search Catalog main page by clicking Show Parametric Search:

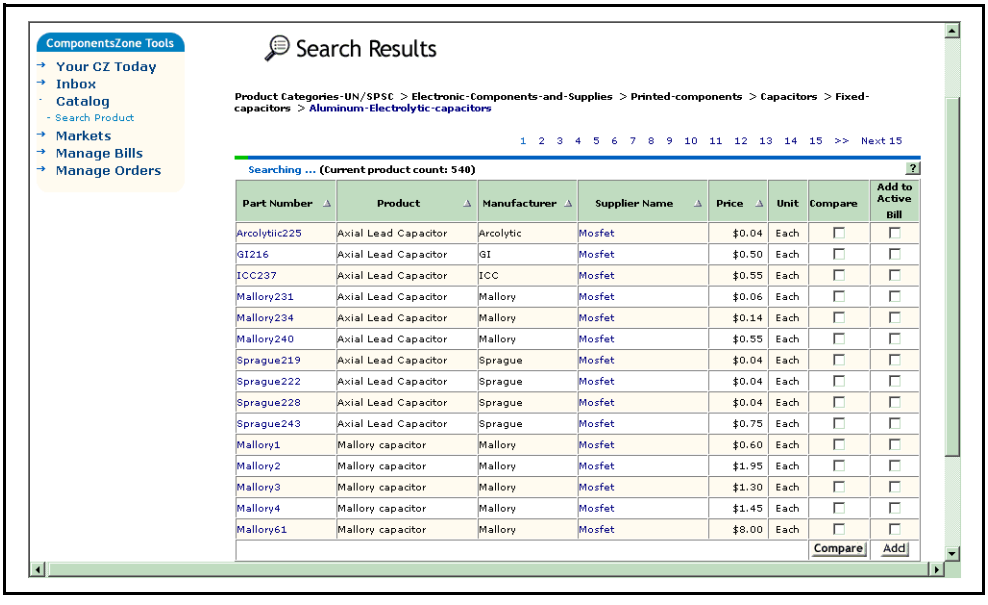


Parametric Search displays in the lower right portion of the screen. Select a parameter(s) to refine the search and click Go.



Supplier catalogs are distributed, and search results are returned asynchronously. Intermediate search results are displayed before the search is complete.

To retrieve the remaining search results, click "Searching..." over the Part Number column. You can also view additional results by clicking the numbers over the table, which represent pages of results.

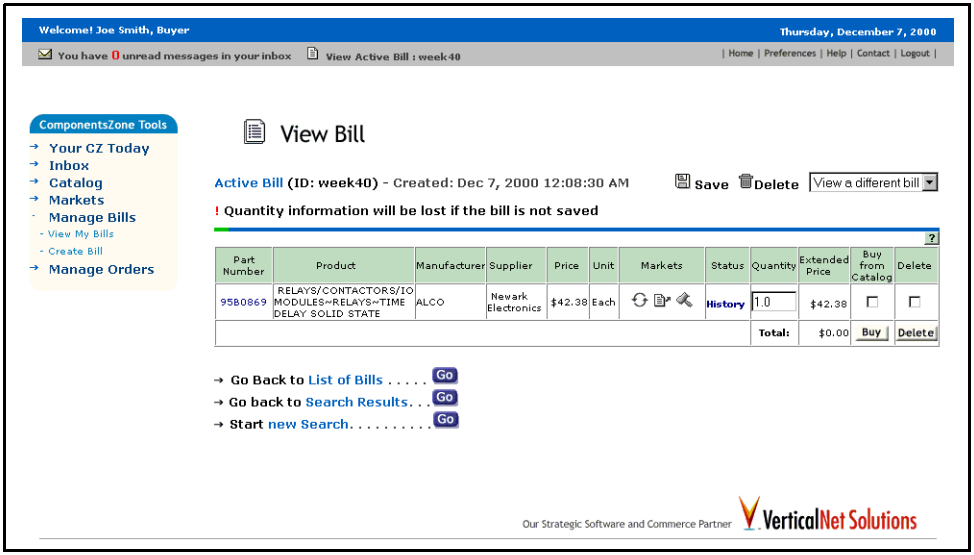


The Active Bill

Once you have located a product, you can put it on the *active bill* by checking the box in the Add to Active Bill column and clicking the Add button. The following screen shows an example of the active bill.

The selected product(s) displays in the table. The active bill is like a shopping cart where you store products pending further action.

You can have multiple bills such as the one shown below. At any given time, however, only one can be active, and the active bill is that to which new products are added from the search results screen.



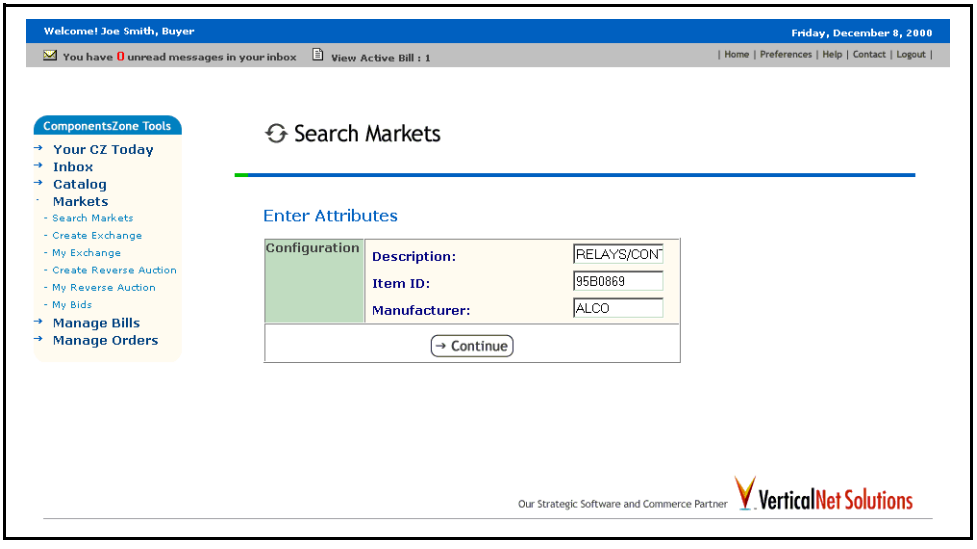
You can change the active bill by "activating" a different bill. Both creating and activating bills are features listed under Manage Bills on the CZ Tools menu.

From this screen you can buy a product from a catalog or delete a product from the active bill using the columns on the right.

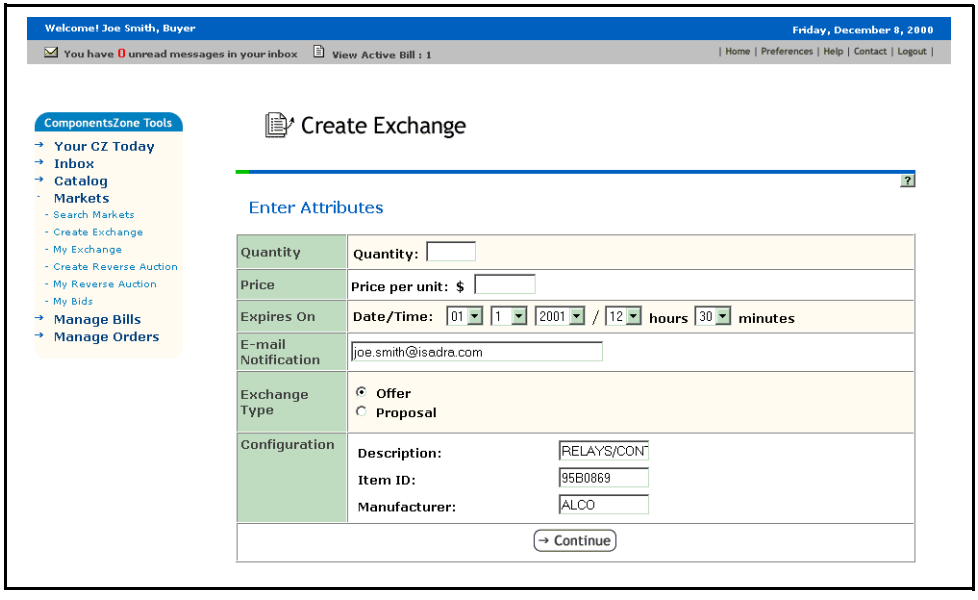
You can also click the three icons in the Markets column to perform the following (from left to right):

- Search for a market for the product
- Create an exchange for the product.
- Create an auction (if the user is a seller) or reverse auction (if the user is a buyer) for the product.

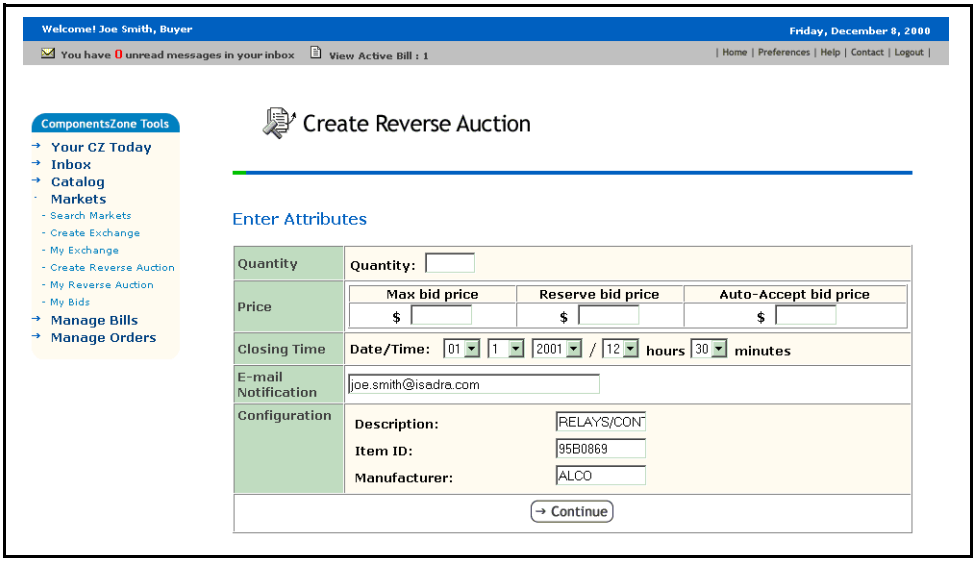
By clicking the left icon in the Markets column, the following Search Markets screen displays with the relevant product data listed in the configuration fields:



By clicking the center icon in the Markets column, the following Create Exchange screen displays with the relevant product data listed in the configuration fields:

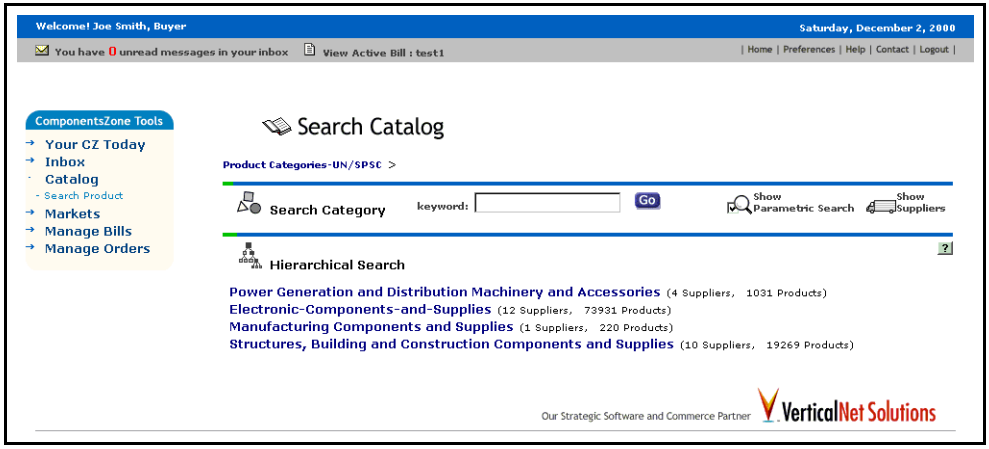


By clicking the right icon in the Markets column, the following Create Reverse Auction (for a buyer) screen displays with the relevant product data listed in the configuration fields:

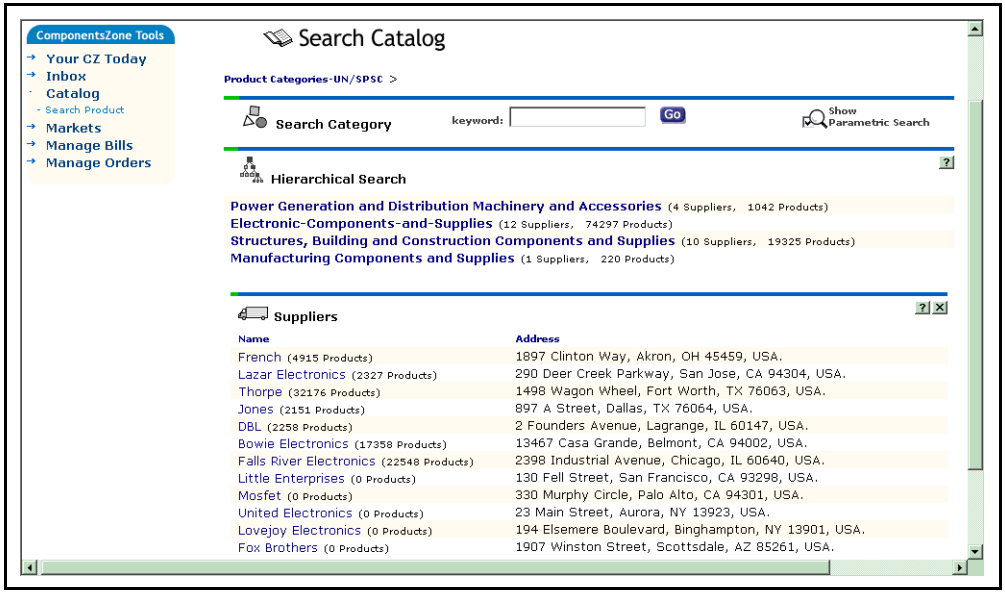


Display Suppliers

You can display a list of suppliers directly from the Search Catalog main page by clicking Show Suppliers:



A list of suppliers displays at the bottom of the screen.



Click on a supplier to display contact information.

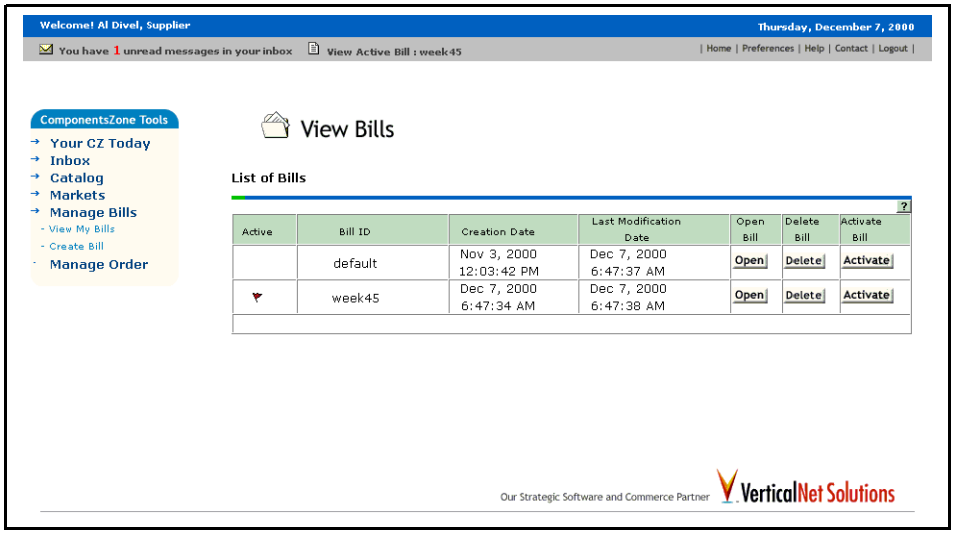
Manage Bills

Click Manage Bills on the CZ Tools menu to display the following options:

- View My Bills
- Create Bill

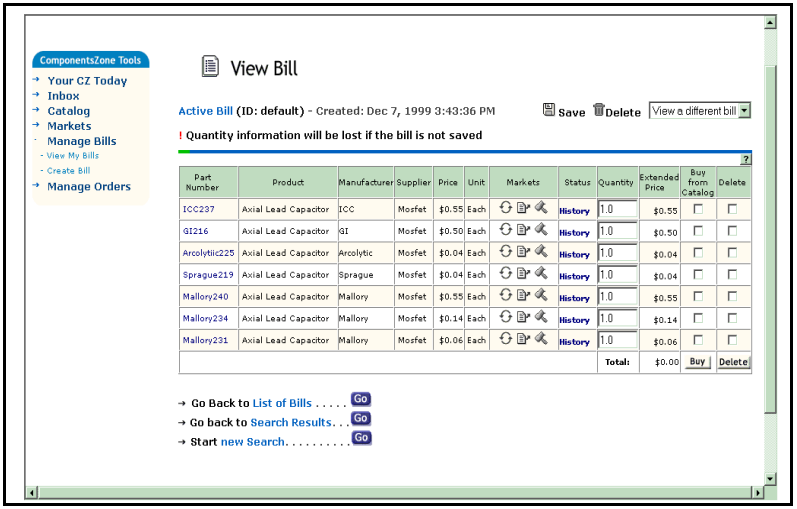
View My Bills

Click View My Bills to display the following screen:

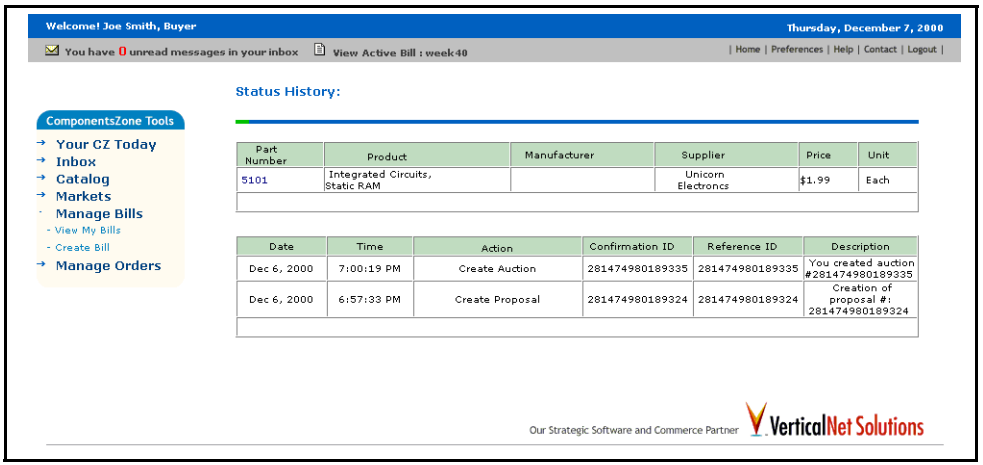


A list of your bills display. You can open a bill to examine the products it contains, delete a bill, or designate a bill as active by using the respective buttons. The active bill displays a flag in the Active column, and is the bill to which search results are sent.

When you open a bill, you see the following details:

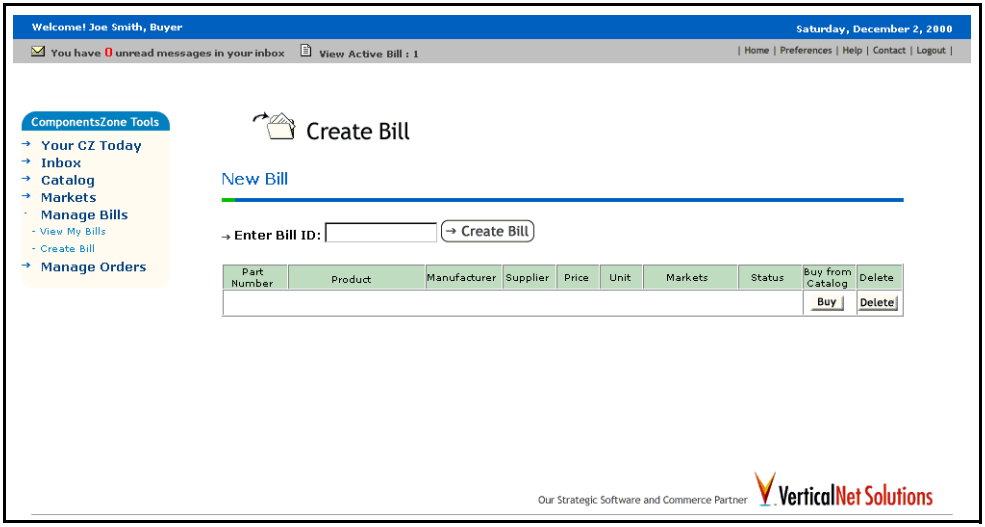


You can click History to see the history of the bill:



Create Bill

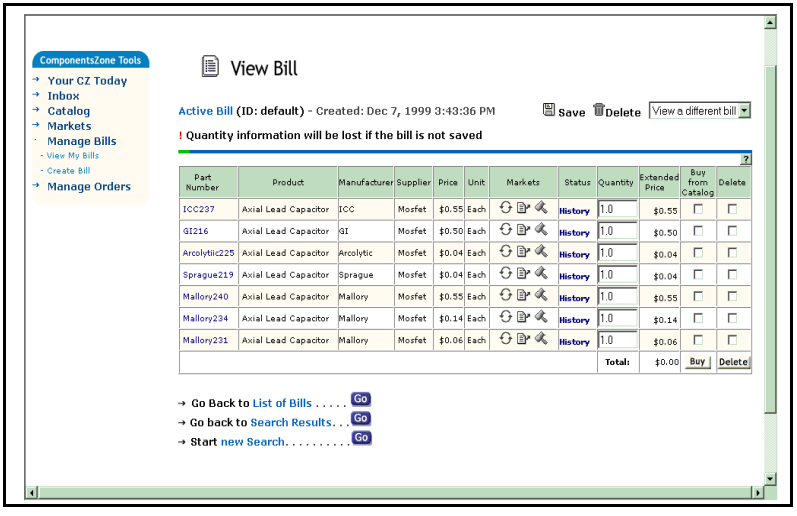
Click Create Bill to display the following screen:



Type in a Bill ID in the field and click Create Bill to create the bill.

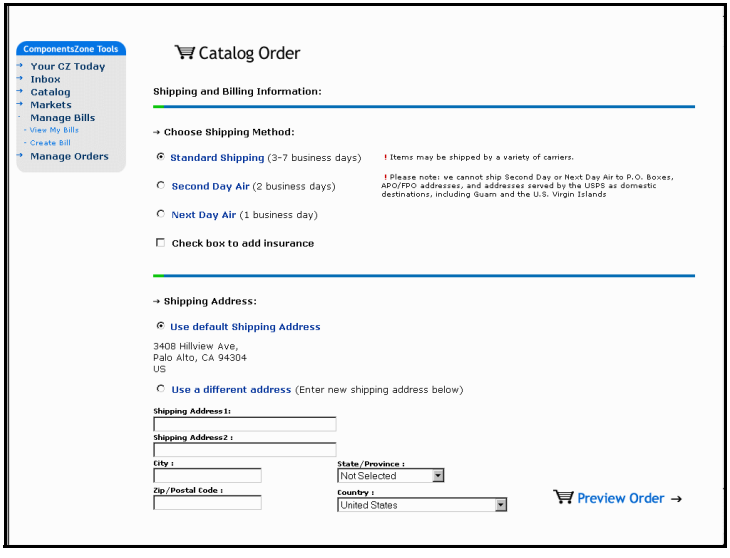
Buying from Catalog

From your active bill, you may choose to buy a product directly from the catalog that defines the product.

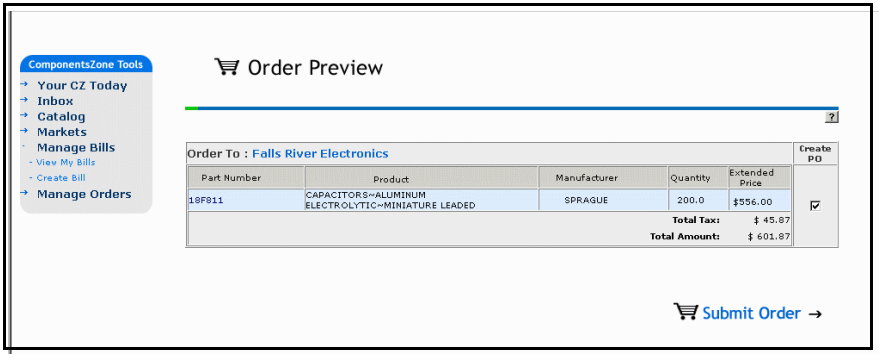


Select the “Buy from Catalog” option next to the desired products, and fill in the quantity you wish to purchase.

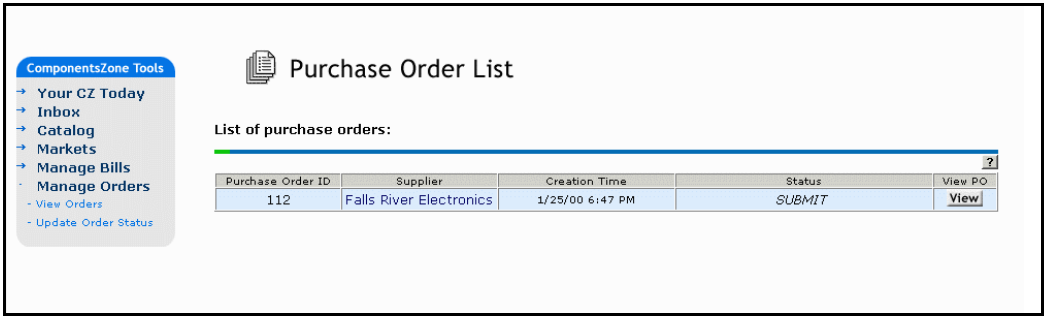
The Catalog Order page enables you to select your preferred means of shipping, and confirms the shipping address



The following screen displays a summary of the order. When you click on “Submit Order”, you have purchased the product and OSM’s purchase execution workflow will start.



As the order workflow is started, a summary of the current order status is displayed, showing the value “submit”.



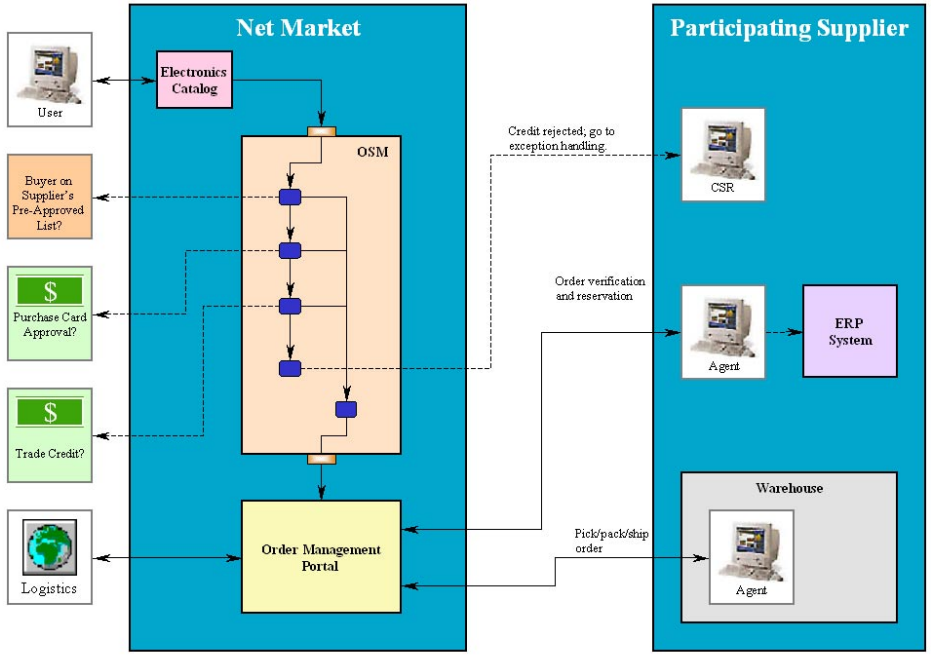
Purchase Execution Workflow

Once a purchase order has been produced, OSM coordinates the resulting workflow as follows:

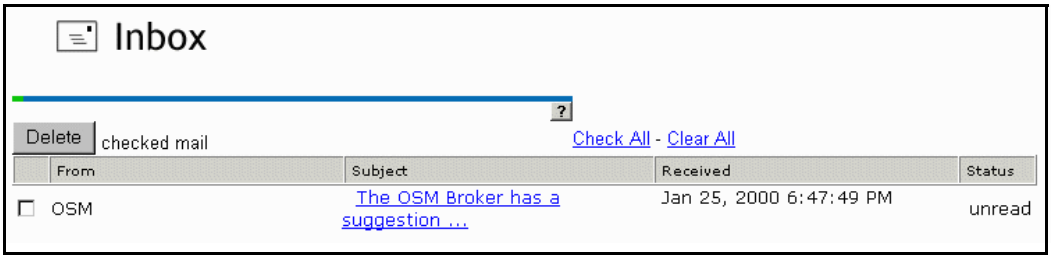
1. Check if the buyer is on the supplier's pre-approved list;
2. If not, check for purchase card approval;
3. If card not approved, try to get trade credit;
4. If trade credit refused, go to Customer Support exception handling

Step 3, a request for trade credit, has been configured to use the OSM Service Coordination Advisor, to select the best credit provider from among those registered in the Service Repository. When using the Service Select Wizard to define this request, the "Runtime Selection with User Confirmation" option was chosen, so that the user will be asked for confirmation of the dynamically selected trade credit provider. In our demo, this confirmation arrives through email:

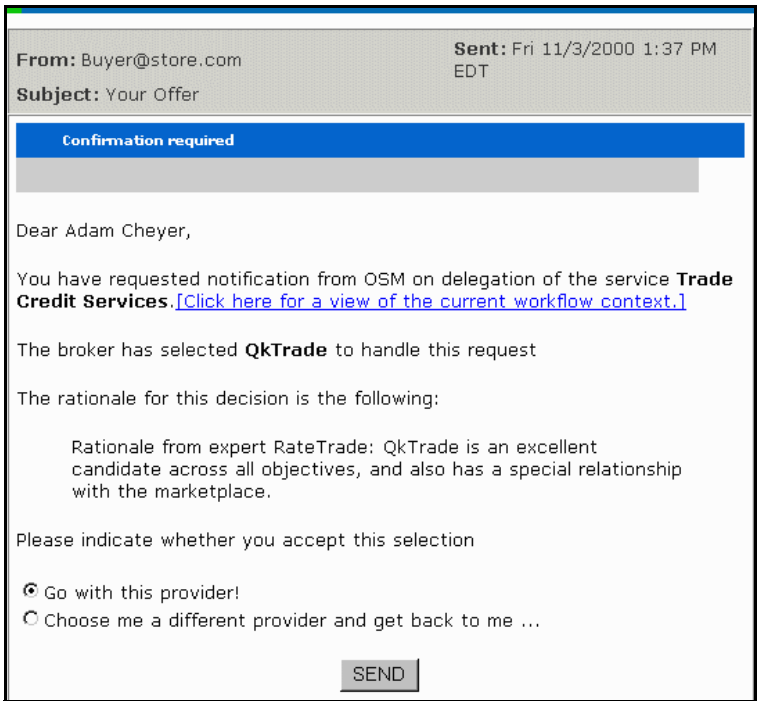
OSM Demo Purchase Execution Workflow



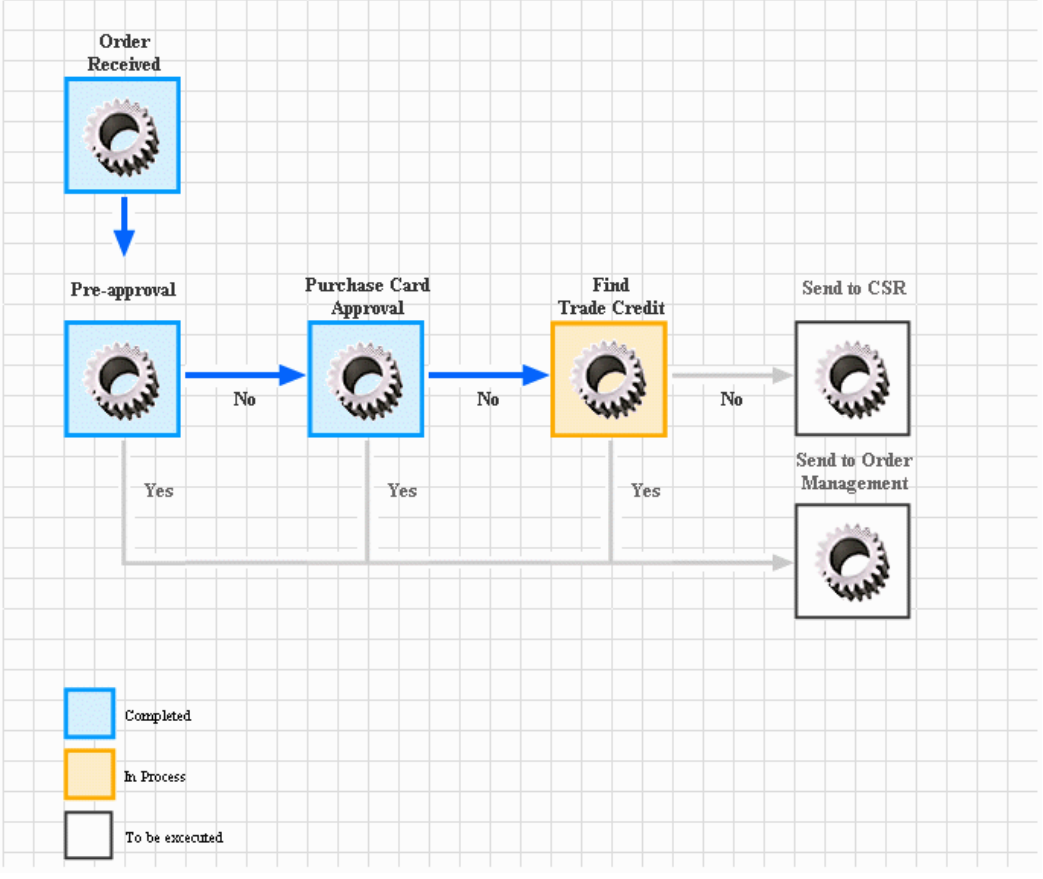
Clicking on the mail icon displays the Inbox, which now contains a message from the OSM Service Coordination Advisor.



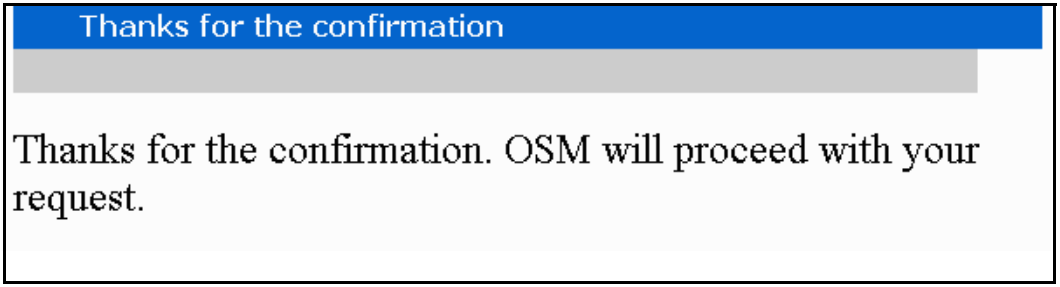
Here we see that the Service Coordination Advisor has chosen an appropriate provider. The explanation behind the suggestion also presented.



The mail message contains a link to view the status of the workflow that has provoked the notification message. Here we see that the current step being executed is the "Find Trade Credit" step in the purchase order execution workflow.



The user can now choose to either accept the proposed provider or to ask for another suggestion from the Advisor. Accepting the suggestion will product the following screen, and the workflow will continue to completion, eventually inserting an order into the order management service for fulfillment by the suppliers.



Summary

This simple application demonstrates many of the key components and features of the OSM Platform:

- New service providers can be added at any time using the Service Publisher tool, and they will be taken into consideration by the Service Coordination Advisor.
- Each provider can have a different API, and the mapping tools and Service Ontology normalize their interface, facilitating on-the-fly substitution.
- Decision experts can be added to help the Advisor reason about which providers are suitable for varying situations.
- A business process engine and modeling tool such as Microsoft BizTalk Orchestration can be used to encode the business logic of an application, producing enhanced flexibility. Alternatively, java-coded business logic can interface directly with the Advisor without requiring a business process engine (e.g., tax calculations in ComponentsZone can make use of OSM -- in this case, a provider specializing in International Tax Law can be added on the fly, and the application is thus extended to handle international tax without changing any underlying business logic code!)

As you become more familiar with the OSM Platform tools and approach by reading the *OSM Marketplace Implementation Guide* and the *Programmers Reference Manual*, we're sure that you will have much success applying these concepts to build flexible, "future-proof" public and private trading exchange applications.

Glossary

API See Application Programmers Interface.

Application Programmers Interface (API) A programmatic interface exposed by a service that provides invoking of the service from external applications.

ASP See Active Server Pages.

Active Server Pages (ASP) A technology from Microsoft for creating web pages that contain scripts, or “active content.”

BPCW See Business Process Connection Wizard.

Business Process Connection Wizard (BPCW) A tool to simplify the creation of a new business process for OSM, specifying the required inputs for the process.

C2/SF See Cooperative Commerce Service Framework.

C2/SF Component Builder A wizard that allows you to rapidly build a new service for integration within the C2/SF framework.

class A class is a representation for a conceptual grouping of similar terms. For example, a computer could be represented as a class that has many subclasses such as personal computers, mainframes, workstations, etc. Each class is described by a definition that specifies the slots and values that describe the class itself (not the members of the class), slots and values that describe the instances of that class, and logical statements (called axioms) that describe the class but can't be represented using slots and values.

Cooperative Commerce Service Framework (C2/SF) A framework for building electronic marketplace applications that leverages standard middleware technology to provide an integration environment and presentation layer for high-level business applications.

Decision Experts A decision expert provides expert options and rationale about the pros and cons of service providers in various situations. The Service Coordination Advisor’s job is to combine information from multiple decision experts to formulate a composite recommendation for the current context.

Microsoft Messaging Queue (MSMQ) Software from Microsoft that provides guaranteed message delivery functionality.

MSMQ See Microsoft Message Queue.

Ontology An ontology is an explicit, formal and declarative specification that provides a vocabulary (terms) and a set of relationships for representing and communicating knowledge about some topic.

Ontology Builder Aids the market builder in constructing ontologies through which services and processes are structured.

Open Services Marketplace (OSM) Platform An integration platform for B2B public and private markets based on advanced technologies for dynamic services coordination.

OSM Platform See Open Service Marketplace Platform.

Properties Attributes of a class that are defined by a slot.

Service Coordination Advisor An extensible rule-based expert system that helps manage optimal business partner selection.

Service Execution Engine A high-performance server that manages reliable, scalable communications with remote business services.

Service Registry An ontology-based, UDDI-compliant directory of web-based services.

Service Qualifiers Service qualifier attributes are used by the marketplace to filter prospective service providers down to those who most aptly suit a given request. Service qualifiers are specific to a service type: an example of a qualifier for a shipping service might be “Will ship hazardous materials.”

Slot A slot is used to describe a relationship between two terms. A slot is sometimes referred to as a binary relation.

Subcategory See subclass.

Subclass The child of an existing class.

Universal Description Discovery and Integration (UDDI) The UDDI consortium, consisting of more than 100 companies including Microsoft, IBM, Ariba, HP, and VerticalNet, are working to standardize the registration of business and web services. VerticalNet Solution’s OSM uses UDDI-compliant registries to store its registry information. `http://www.uddi.org`

XLANG Microsoft BizTalk Orchestration’s format for storing business process representations.

XSL eXtensible Stylesheet Language. A stylesheet format for XML documents.

XSLT XSL Transformations. The language used for converting XML documents into other XML documents. May be used independently of XSL.

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Index

Numerics

3-tier hierarchy 13

A

active bill 46
AMR Research 6
API 53, 55
APIs 11, 15
Application Programmers Interface 55

B

BEA's Process Integrator 15
BizTalk 5
brokering 11
business logic 53
Business Logic Layer 15
business logic layer 14
Business Process Engine 11
Business Process Libraries 5
business processes 11, 14
business rule engine 17
business rules 11

C

C2/SF 14, 21
Catalog 22
Collaboration Layer 10
Commerce Portal Developer's Guide 3
ComponentsZone 7, 21, 22
ComponentsZone Demo User Guide 21
consortium exchanges 12
Consortium Marketplaces 5
Cooperative Commerce Service Framework 14
Coordination services 11
Create Auction 23
Create Exchange 23
Create Reverse Auction 23

D

decision expert 18
decision experts 17
Display Suppliers 41
Dynamic Hyperpartnering 5

E

e-business service vocabularies 10
ebXML 5, 12
EDI 9
Email 14
eMarketplace Suite 21
E-speak 5

F

Flexible Interactions 9

H

Hierarchical Search 31
hierarchical search 32
History 44
Home Page 22
HP's Business Process Manager 15
HTTP 14

I

Inbox 22, 50
Installation Guide 3
Integration 5
Inter-market communication 5
internationalization 14
Interoperability 11

J

JSP/J2EE 14

L

localization 14
Login Page 22

M

Manage Bills 22, 43
Manage Orders 22, 23
Mapping tools 11
Marketplace Adminstration Guide 3
Marketplace interchange 11
Microsoft BizTalk Orchestration 53
Microsoft's BizTalk Orchestration 15
MVC 14
My Auction 23
My Bids 23
My Bills 43
My Exchange 23
My Reverse Auction 23

O

OBI 5
ontologies 5
Ontology 55
ontology 16
Ontology Builder 16
Open Services Marketplace 56

OSM Marketplace Implementation Guide 13, 53
OSM Service Coordination Advisor 16
OSM Service Execution Engine 16
OSM Service Registry 15
OSM service repository 15, 17
OSM Service Select Wizard 15

P

Parametric Search 28, 33, 34
Partner Services 5
Presentation Layer 14
presentation layer 11, 14
private exchanges 12
private markets 7
Private Trading Exchanges 6
Programmers Reference Manual 53
properties 56
Public Marketplaces 5
Purchase Execution Workflow 49

R

RosettaNet 5, 12

S

Search Markets 23
security management 14
service coordination 11
Service Coordination Advisor 17, 19, 49, 50, 53
Service Coordination Layer 11
Service Execution Engine 19
Service Ontology 53
Service Publisher 16, 17, 53
Service Select Wizard 49
Service Selection Wizard 18
Services Layer 15
services layer 14
subcategory 56
subclass 56
Suggest button 19
Supply Chain 7

T

trade credit 49
trading vocabularies 5
Trading Vocabulary Management 16
Translation tools 11

U

UDDI 11, 12, 16, 56
UN/SPSC 27, 33
Universal Description Discovery and Integration 56

V

VerticalNet Auctions 21
VerticalNet Distributed Catalog 21
VerticalNet Exchange 21
VerticalNet Ontology Builder 15

W

WSDL 12, 16

X

XML 9, 12, 14, 19
XSL 14
XSLT 12

Y

Yantra 23