Template-based Ordering
Concepts and Processes Guide

The MetaSolv Solution.™

5.1

MetaSolv® Software

MetaSolv Solution™ M/5.1

Template-based Ordering

Concepts and Processes Guide
SECOND EDITION

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Introduction

This chapter introduces this guide, provides an overview of the features and functions that are addressed in detail in the Concepts and Processes chapters, and highlights some of the benefits of template-based ordering.

About this guide

This section defines the purpose of this guide and the audience for whom it is written. The *Before you begin* section describes what must be in place before you can approach template-based ordering. Ensure these assumptions have been met before attempting any of the processes described in the Processes chapter. The *Related documentation* section lists the other Concepts and Processes (CAP) guides in the book-set, plus guides on the technology modules.

Purpose

This guide provides detailed information on using the Ordering Dialog to order any template-based products your company offers. The software interface guides the process with great ease. If you want to familiarize yourself with the features, functions, and processes before you use the Ordering Dialog or just learn about the new template-based functionality, then this book is for you. The information presented includes:

- An introduction to the features and functions of the Ordering Dialog
- Concepts, including what template-based ordering is and how it fits into the big picture of template-based functionality throughout the MetaSolv Solution
- Step-by-step procedures for ordering a new template-based product and changing an existing template-based product
- Scenarios for ordering a VPN system and xDSL service that illustrate the role of ordering in the overall process of order management and service fulfillment

Audience

This guide is intended for customer service representatives (CSRs) who create template-based orders through PSR and for sales engineers who provide the information needed to complete an order successfully. In addition to those involved in implementing and supporting such order creation, this book may prove useful to those who want to understand the implications of the M/5.1 templates functionality on ordering.

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Before you begin

Before you can process orders for template-based products such as customer VPNs and customer connections, the following checklist items must be made ready:

- ❏ The MetaSolv Solution M/5.1 (or M/5.1.x) must be installed. See the *System Guide* for M/5.1 for information on database installation and upgrade. See online help for information on client and server installation.
- ❏ The PSR migration must be complete. See the *Migration Guide* for M/5.1.
- ❏ A working copy and a reference copy of the MetaSolv technology modules must exist. See the *Network Templates Concepts and Processes Guide* for this procedure.
- ❏ Template components and custom attributes must be tailored for your business. See the *Network Templates Concepts and Processes Guide*.
- ❏ Product specifications and product catalog must include template-based products.
- ❏ Internal networks must be fully designed on the network design canvas.
- ❏ Template components and custom attributes must be tailored for your business.
- ❏ Provisioning plans for template-based orders must be available.

Organization

The following table describes the topic of each section comprising this book.

Table 1: Template-based Ordering CAP Guide organization

To learn about	See this section
Ordering Dialog features and functions	Introduction
Template-based ordering within the end-to-end process	Concepts
Using the Ordering Dialog	Processes
Ordering process flow through example scenarios	Scenarios

Related documentation

This section lists the documentation related to template-based functionality in MetaSolv Solution release 5.1 (M/5.1). CAP guides and white papers are available through the customer and partner portals on the MetaSolv web site. Technology module guides are available with the related Technology Module. Online Help can be accessed by clicking the Help button on the main toolbar of the MetaSolv Solution. For information and enrollment details for MetaSolv Education Services courses, access the MetaSolv Web site and navigate to Education Services.

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Concepts and Processes (CAP) guides

- *Network Templates Concepts and Processes Guide*
- *Template-Based Network Design Concepts and Processes Guide*
- *Template-Based Product Specifications Concepts and Processes Guide*
- *Template-Based Service Provisioning Concepts and Processes Guide*

Other documents

- *Next Generation Networks* White Paper
- *Migration Guide*
- *System Guide*

Technology module guides

- *ATM/Frame Relay Technology Module Guide*
- *Digital Loop Carrier Technology Module Guide*
- *Digital Subscriber Line Technology Module Guide*
- *Ethernet Technology Module Guide*
- *Internet Protocol Technology Module Guide*
- *Multiprotocol Label Switching Technology Module Guide*

Additional resources

- MetaSolv Solution Online Help

MetaSolv Education Services M/5.1 template-based courses

- Template-Based Technologies 5.1
- Template Customization 5.1
- Custom Attributes 5.1
- Template-Based Network Design 5.1
- Template-Based Ordering 5.1
- Template-Based Service Provisioning 5.1

FEATURES

New Ordering features include

- Ability to display template-based products for selection on PSR treeview
- Ordering Dialog for configuring template-based products
- PSR Summary tab for reviewing an order for template-based products

PSR treeview and template-based products

Product Service Request ordering is based on product offerings defined in the product catalog. When you add a new product offering to your order, you highlight an item from

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the Add Item Selection window and select **Add**. When the product offering you select is a customer network or a bundle of customer connections, you launch the Ordering Dialog.

Figure 1: Example template-based product offerings

If the product offering is a network system, you can add the following:

- Customer locations where network elements reside and network connections terminate
- Network elements
- Equipment related to network elements
- Network connections
- Product options subordinate to the network system, a network element, equipment, or a network connection

If the product offering is a product bundle, you can add the following:

- Customer location(s) where network connections terminate
- Network connections
- Product options subordinate to the product bundle or a network connection

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Ordering Dialog and template-based products

When you take an order for a template-based product, you'll use the Ordering Dialog. The Ordering Dialog is a set of windows that guide you through the process of ordering template-based products. The look and feel of the interface is new. Here's what the windows look like:

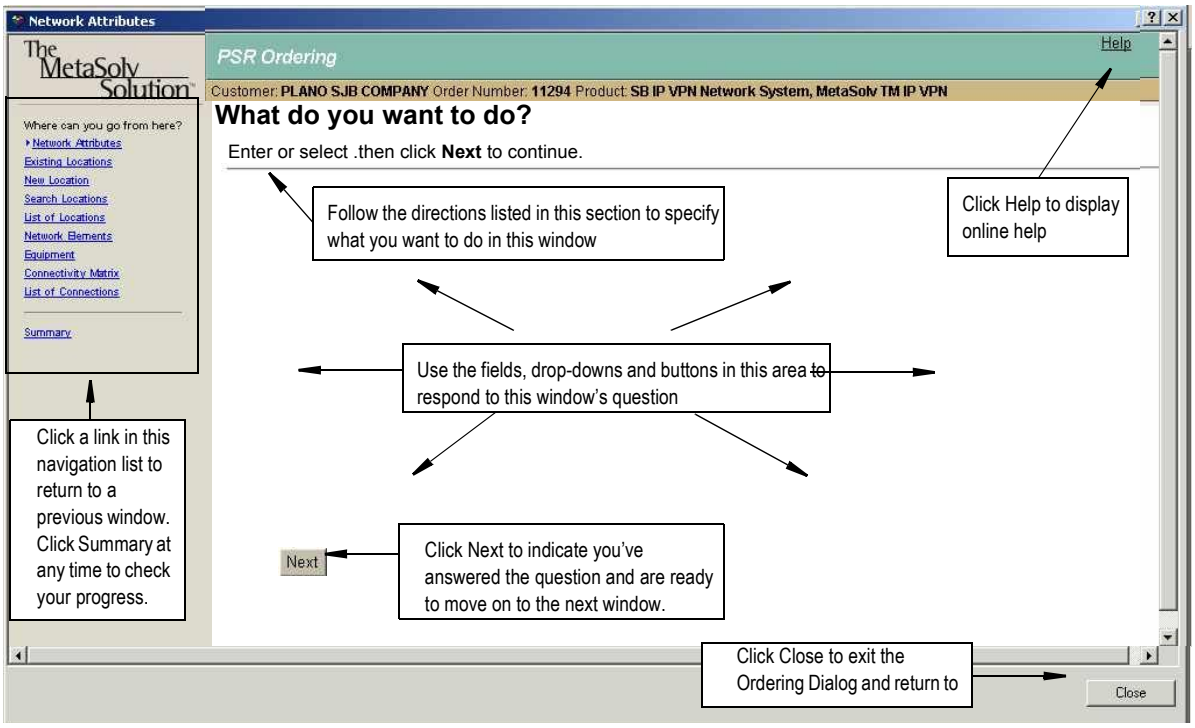

Figure 2: Ordering dialog window layout

You'll notice many common features on the Ordering Dialog windows:

The question: One of the first things you'll notice is the big question at the top. You'll answer this question by the selections you make and the data you enter on this window.

Hints: Right below the question are directions on how to use the window, including directions of what to enter or select and links to detailed steps. Hints usually end with the direction to click **Next** to continue.

Next button: The **Next** button appears on every window but the last one. The current window will remain in view until you click **Next**. Clicking **Next** displays the next logical window in the Ordering Dialog window sequence.

Navigation list: The navigation list on the left includes links to windows that can be accessed at any point in the process. Clicking one of these links allows you to return to a window you've already completed. The Ordering Dialog also includes other windows that are presented only once or are presented in response to clicking a link on another window.

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Close button: Any time you want to exit the Ordering Dialog prior to completing all of the windows, you click the **Close** button in the lower right corner of the window. Clicking **Close** displays the PSR Service Items tab you use to add other products to an order.

Help link: The **Help** link in the upper right corner of the window is always available for displaying the MetaSolv Solution Online Help.

PSR Summary tab and template-based products

The treeview contains a branch for each instance of an ordered item. For example, if three physical connections are ordered for a VPN, three physical access branches are displayed in the treeview. The Summary tab displays the same information as the summary window in the Ordering Dialog. It also contains links to the Ordering Dialog. Note also, that if an item such as an IP address is ordered, that item is also displayed and the order can continue to be filled by clicking on that item. You can use this window to view the locations where ordered connections terminate.

An example of the Summary tab for a network system follows.

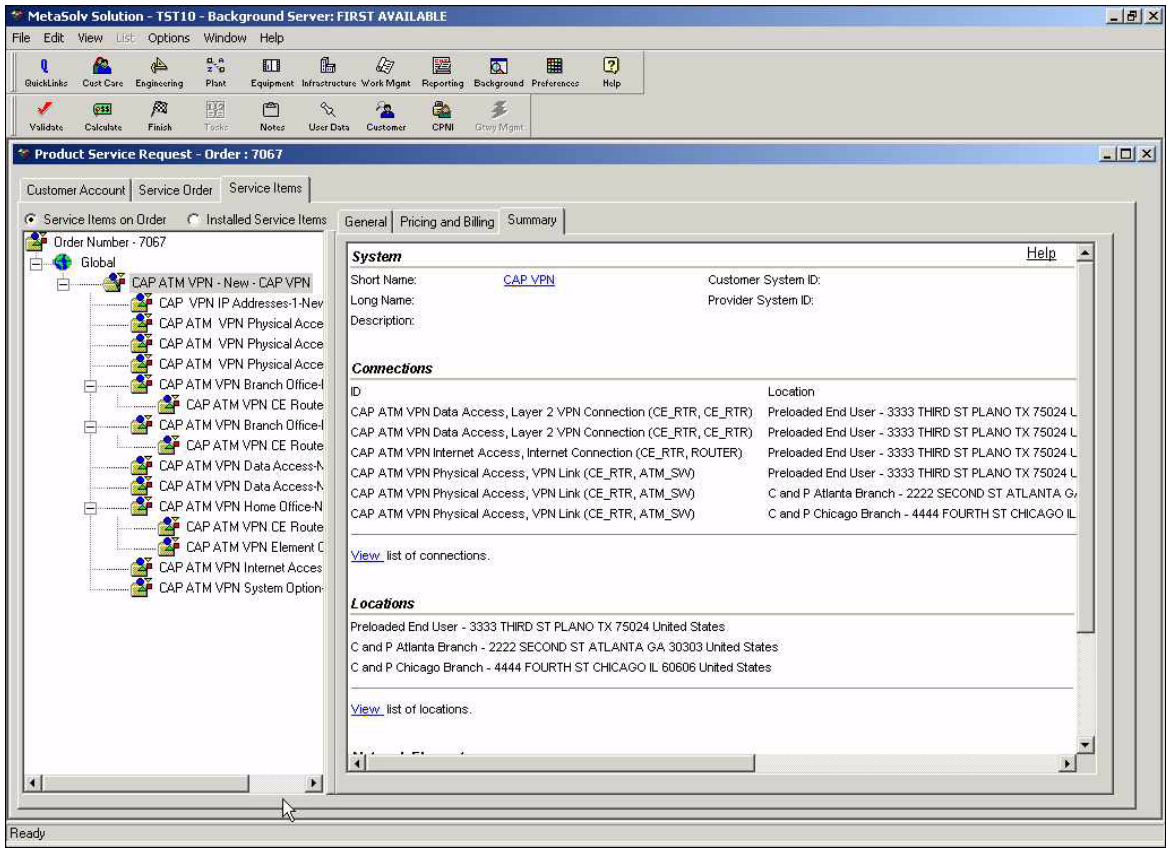

Figure 3: Summary tab for network system

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An example of a Summary tab for a product bundle follows.

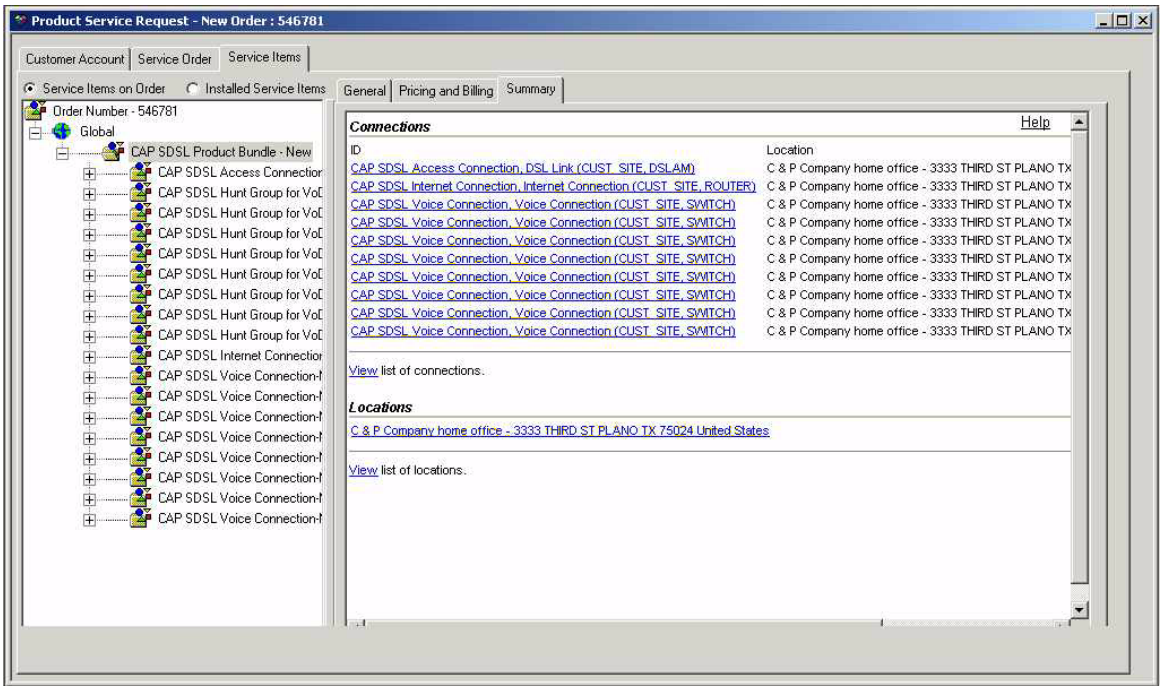

Figure 4: Summary tab for product bundle

FUNCTIONS

The Ordering Dialog enables you to perform the following functions:

- Add—Adds a new template-based item
- Delete—Undoes the addition of a new item, that is, deletes it from the order
- Update—Changes an existing template-based item
- Remove—Undoes the change to an existing item, if any, and/or removes it from the order so it remains "as is"
- Disconnect—Disconnects an existing, InService item
- Reconnect—Undoes the disconnect requested on the pending order
- Change disconnect reason—Changes the reason entered when the disconnect was initially requested

This section provides a overview of these functions. To see how they are used in end-to-end processes, see:

- Adding a new template-based product to an order for processes using the add function
- Delete the product or a new service item added to an order for processes using the delete function

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- Changing an existing template-based product on an order for processes using the update and disconnect functions as well as reconnects, and changing disconnect reasons
- Remove service items from the order for processes using the remove function

Add and delete

New service items that are template-based can be added through the Ordering Dialog. During the ordering process, that is, before the order is finished, you can update your specifications for service items you have added or you can back out the addition altogether with a delete. The service items you can add and delete in this way are indicated with an x on the following table.

Table 2: Adding or deleting new service items within the Ordering Dialog

Ordered item	Add	Delete
Network System	x	
Location	x	x
Network Element	x	x
Equipment	x	x
Network Connection	x	x

A description of the add and delete functions follows:

- **Add** puts the new product or location in pending status until the order is due date complete. At due date, the new product or location goes in service, with an "InService" status.
- **Delete** is an undo for an addition made by mistake. The delete action just deletes the new product or location from the order. Delete is allowed only for new service items.

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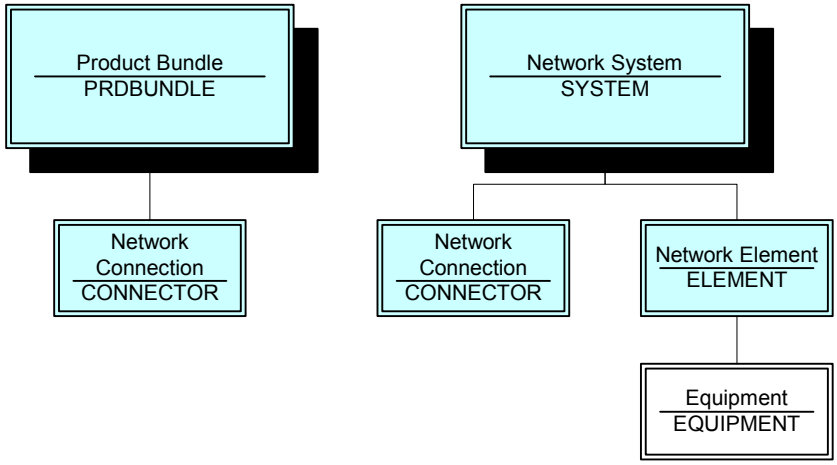
The parent/child hierarchy of these items is shown on the following diagram. For example, network system is parent to network element; equipment is a child of network element.:



Note that network system and product bundle service items cannot be deleted or removed through the Ordering Dialog. Removal of new or existing product level items from an order can be accomplished from the PSR treeview with the **Delete This Item** menu option.

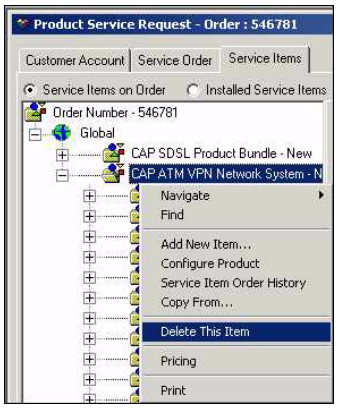


Figure 5: PSR option for deleting a level 1 product

Update and remove

Once a template-based service item is successfully added and due dated, it becomes *InService* and can be updated through the Ordering Dialog. If you change your mind about making any updates to a service item while in the Ordering Dialog, you can elect to remove the item from the order and the service item remains unchanged. The following table lists the types of service items that can be updated while InService through the Ordering Dialog. It also lists the InService service items you can remove from the order.

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Notice that you cannot remove an InService network connection from the order. This is because removal would not back out any updates you have made.

Table 3: Updating or removing InService service items within the Ordering Dialog

Service item	Update	Remove
Network System	x[a]	
Location	x	x[b]
Network Element	x	x
Equipment	x	x
Network Connection	x[c]	

a.You cannot associate an InService network system to a different network template than the one associated when the item was added.
b.You can remove a location from the order, but removal does not back out any updates you may have made.
c.You cannot update the technology type for an InService physical network connection.

A description of the update and remove functions follows:

- **Update** of an existing network system, network element, or equipment assigns an activity code of changing to the service item until the order is due date complete, at which time it goes InService. Update of an existing location results in changes made to the existing data, where changes are immediate. That is, the order doesn't have to be due date complete for changes to location data to be implemented. InService network connections are treated like locations, in that updates are made to the live data when entered on the Ordering Dialog. Because updates to network connections cannot be backed out by removal of the service item from the order, you would need to manually update network connection data to its initial state to remove any impact of changes at due date.
- **Remove** simply takes the selected InService service item off of the order. You can remove any service item bundled with the selected product that you do not want to update. Some service items have dependencies on other service items; this can make removing that service item a two-step process. For example, removal of a network element requires that it not be associated with any connection on the order. To remove a network element used by a network connection on the order, you must first remove that network connection.

Disconnect, reconnect, and change disconnect reason

Processes that involve disconnecting service items include disconnecting selected network connections, disconnecting their terminating network elements, and disconnecting the equipment related to these network elements. The order in which the

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disconnect processes are implemented is important: the network connection should be disconnected first, before the adjacent network element or the related equipment. When a disconnect action is implemented, the activity code for the service item is changed from InService to disconnect. When any service item is disconnected, a disconnect reason must be entered. While any service item is in the process of being disconnected, it can be reconnected or the disconnect reason can be changed.

Table 4: Disconnecting service items within the Ordering Dialog

Ordered item	Disconnect	Reconnect	Change disconnect reason
Network Element	x	x	x
Equipment	x	x	x
Network Connection	x	x	x

A description of the disconnect, reconnect, and change disconnect reason functions follows:

- **Disconnect** is a process performed with the intent to disconnect an InService service item such as a network connection, a network element, or a piece of equipment. Once disconnected, the service item becomes unusable. When you disconnect a service item through the Ordering Dialog, the activity code of the service item is changed from InService to Disconnect, but the service item is still in use. Service items with an activity code of Disconnect are not actually disconnected until the order is due date complete.
- **Reconnect** is an action available to any service item that is in the process of being disconnected. Reconnect reverses the Disconnect action and has the effect of leaving the InService product unchanged at due date. Reconnect changes the activity code back to InService.
- **Change disconnect reason** permits the reason for disconnecting the service item to be updated. This process can be performed only on service items that are in the process of being disconnected.

BENEFITS

The M/5.1 functionality extends the MetaSolv Solution into the market of service providers who have built out their internal ATM, Frame Relay, or MPLS transport networks on which to provision VPN services to their enterprise customers. VPN services are managed services that provide enterprise customers with secure site-to-site connectivity within the enterprise, between the enterprise and its partners, or between a remote user and the enterprise. This functionality also accommodates providers who manage customer VPNs using the traditional IP VPN, which is configured with encrypted tunnels through the Internet.

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Template-based functionality benefits current MetaSolv Solution users who provide Internet connectivity, LAN-to-LAN connectivity, and xDSL services to their customers. In the area of network design, it also benefits current MetaSolv Solution users who provide the local loop via Digital Loop Carrier (DLC).

Benefits of the Ordering Dialog include:

- Provides a structured path for providing information in the sequence it is required, relieving you of any concern about the order in which you provide ordering details.
- Provides easy "undo" functionality to remove unwanted service items from the order, to reverse disconnect actions, and to revise disconnect reasons.
- Eliminates the need for you to identify provider locations for ordered connections; this is now handled by the service provisioner.
- Provides easy access to detailed usage steps where entry or selection order is critical.
- Provides an easy to use matrix for identifying the pairs of locations between which you want connectivity, where you can display locations by the placement of your cursor.
- Provides a view-only mode when the Ordering Dialog would otherwise be inaccessible.

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Concepts

This chapter begins with a brief overview of the M/5.1 template-based functionality from network design to service provisioning, followed by an overview of how templates affect ordering. Some common template-based products, such as VPN network systems and xDSL network connections, that an order could include are listed followed by a preview of configuration requirements for each of these classes of products. A section on how you use the Ordering Dialog addresses questions such as what you can add and change with the Ordering Dialog. This section describes how template-based service items, template component associations, custom attributes, and location details are added on different types of Ordering Dialog windows. It also describes the update, disconnect, reconnect, and change disconnect reason functions and how they apply to network system, network element, network connection, and locations. A summary of the makeup of the Ordering Dialog is followed by how ordering fits into the end-to-end process.

Read this chapter if you are responsible for entering orders for customer networks or customer connections in MetaSolv Solution or for providing details to those who do.

WHAT IS TEMPLATE-BASED FUNCTIONALITY IN M/5.1?

The template-based MetaSolv Release 5.1 (M/5.1) functionality provides all users of the MetaSolv Solution—regardless of size or business focus—the tools needed to easily replicate in software the design of the networks over which they provision services. MetaSolv's network design canvas supports drag-and-drop additions of network elements or nodes and right-click-and-drag capability for designing connections between the nodes. Once the network is designed, any customer service that uses virtual connections can be provisioned on the graphical layout record (GLR), which supports virtual connection assignments across the internal networks.

Network elements and network connections that make up a network system are defined with template components.

- The template component for defining network systems is called the *network template*.
- The template component for defining network elements is called an *element type*.
- The component for defining network connections is called a *connection spec type*.

The names of each MetaSolv-defined template component are shown in the following figure, which can be viewed through Templates. The template components that can be associated with orderable products are annotated. Most of the template components are used for building internal networks as opposed to provisioning customer networks and customer connections.

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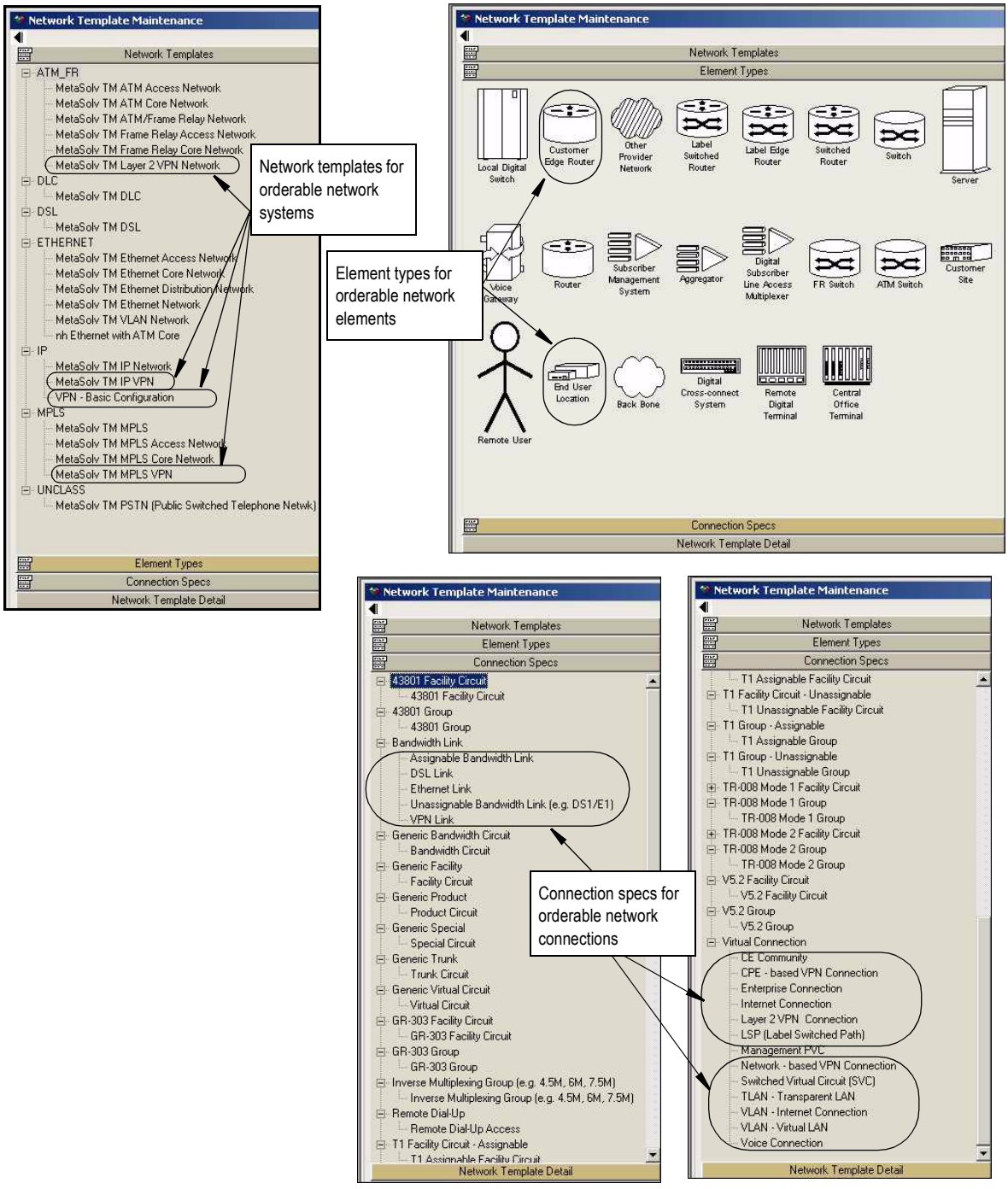

Figure 6: MetaSolv-defined template components for internal networks and customer products

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The same three template component types that are used to define internal networks are also used to design customer networks, such as virtual private networks (VPNs). The M/5.1 MetaSolv technology modules for technology types such as ATM, Frame Relay, MPLS, Ethernet and IP include starter-kits composed of sample network templates, element types, and connection spec types. Some of these template components can be used out-of-the-box to design internal networks. Others can be used to design customer networks and other customer connections that use internal network. Regardless of use, the sample MetaSolv-defined template components can be tailored. The best feature however, is the ability for each company using the MetaSolv Solution to define customized template components that exactly reflect their business requirements.

When product specifications for template-based products are created, they are associated with one or more occurrences of their respective template component. Template-based product catalog functionality is a counterpart of template-based network design. Template-based products that are customer connections, like an Internet connection, are defined with a new item type called CONNECTOR and associated with connection spec types. As you might expect, products that are customer elements are defined with a new item type called ELEMENT and associated with element types. Products that are customer network systems are defined with a new item type called SYSTEM and associated with network templates.

Template-based ordering begins with adding a template-based product offering to the order. Template-based products include any product bundle of customer connections or any customer network system that is defined in the product catalog with associated template components. From an ordering perspective, network systems refers to customer networks. The type of customer networks that come predefined with the ATM_FR (ATM/Frame Relay), MPLS, and IP technology types is the VPN. A customer's VPN is created by joining the customer's home office with each of its branch offices. These locations are joined together through connectivity offered by the provider's network. If you have a network that spans a large geographical area, you could support VPNs of customers who have offices in any location along your network routes.

In summary, each MetaSolv technology module (TM) is composed of technology-specific templates that support the design of internal networks and provide rules for processing and provisioning orders for services over these networks. Validation of orders for network systems or connections to an internal network are based on rules defined within the template components associated with the ordered network system or network connection.

WHAT IS TEMPLATE-BASED ORDERING?

The major difference between service items associated with template-based ordering and other service items is that the new service items are associated with template components. The network system, network elements, and network connections that are being ordered were each associated with different template components when their product specifications were created. These template components are called network templates, element types, and connection spec types.

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One of the big pluses in template-based ordering is the Ordering Dialog. The Ordering Dialog is a series of windows designed to make it easy for you to provide all the needed information for the following types of product offerings:

- Customer network systems, for example, VPNs
- Bundled customer connections, for example, a DSL link and an Internet connection
- User-defined product category associated with a user-defined network template marked as orderable

What can template-based orders include?

The following table lists example products that can use the pre-defined template components that are part of the technology module starter kits. This list may or may not be representative of the products your company offers because template-based functionality is designed for companies to tailor template components to their own products and services. In this table, LAN-to-LAN refers to a virtual connection (PVC) between the local area networks (LANs) belonging to different end-users. VPNs, on the other hand, include a collection of physical connections from various sites belonging to one end-user to a provider's network as well as virtual connections between the sites. A VPN can be an ATM VPN, a frame relay VPN, an MPLS VPN or an IP VPN. In the MetaSolv Solution, a Layer 2 VPN would have physical connections to the provider's ATM or frame relay network and the site-to-site connections would be bona fide PVCs.

Table 5: Example product offerings using MetaSolv-supplied template components

Transport Technology of Internal Network/MetaSolv Technology Module (TM)	Orderable Network Systems, Connections, and Services
Asynchronous Transfer Mode (ATM)/ Frame Relay (FR) ATM Networks and FR Networks support: - Service interworking - Network interworking - Virtual paths MetaSolv TM ATM/Frame Relay Network (includes MetaSolv TM Layer 2 VPN Network)	LAN-to-LAN (Enterprise) LAN-to-Internet Remote Access to LAN Soft Permanent Virtual Circuit (PVC) Hard PVC VPN service over ATM VPN service over Frame Relay
Digital Loop Carrier (DLC) Network MetaSolv TM DLC	Voice line with Telephone Number

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Table 5: Example product offerings using MetaSolv-supplied template components

Transport Technology of Internal Network/MetaSolv Technology Module (TM)	Orderable Network Systems, Connections, and Services
Digital Subscriber Line (DSL) Network MetaSolv TM DSL	Access connection (DSL link) Internet PVC (Internet connection) Enterprise PVC VoDSL (Voice connection) xDSL, for example, SDSL
Ethernet, for example, Fast Ethernet, Gigabit Ethernet MetaSolv TM Ethernet Network	LAN-to-LAN (Enterprise) LAN-to-Internet VLAN
Multi-Protocol Label Switching (MPLS) MetaSolv TM MPLS Network (which includes MetaSolv TM MPLS VPN)	LAN-to-LAN (Enterprise) LAN-to-Internet Remote Access to LAN VPN service over MPLS
IP MetaSolv TM IP VPN	VPN service over IP

The following sections introduce two classifications of product offerings that are template-based: the product bundle of customer connections and the customer network. In the features and functions section, we'll describe the Ordering Dialog in detail.

What does configuring a product entail?

Template-based products that are configured with the Ordering Dialog are based on two types of items: product bundle and network system. This section describes each type plus what a CSR must know to configure a network system.

Product bundles

You can configure a product bundle in the Ordering Dialog. A product bundle is a product related to one or more customer connections. The customer connections may be related to a service being offered through the product bundle, such as connections supporting an xDSL. Or, they may be a group of unrelated customer connections using the same or different technologies. Examples of ordered connections are those that connect two

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customer locations and those that connect one customer location with the provider network.

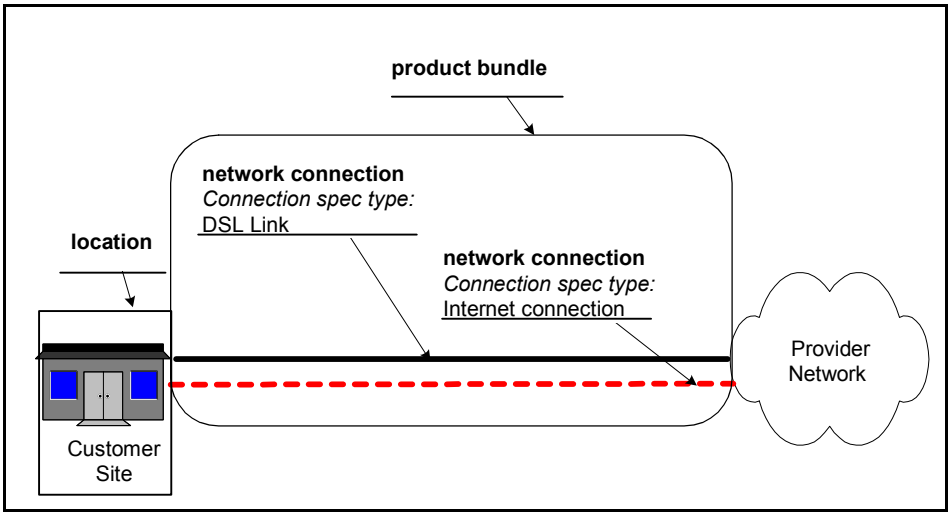

Figure 7: Product bundle composed of two network connections

When you enter an order for a product bundle, you identify three important things:

- The customer location(s) to be used as terminating point(s) for any ordered connection
- The other location, if the other location is on the provider network
- The connection spec type for each customer connection

Network system

You can configure a network system in the Ordering Dialog. An orderable network system represents a customer network. A network system is a product related to network elements and network connections. A network system is generally composed of three or more network elements, network connections that connect the network elements, and network connections that connect the network elements to the provider network.

When you enter an order for a network system, you generally identify the following things:

- The network template to use for the ordered network system
- The customer locations to use as terminating points for ordered network connections
- The network element(s) to use at each location and its element type
- The equipment ordered with each network element
- The pairs of locations to be connected, for example, two customer locations or a customer location and the provider network
- The network template to associate with each connection between each pair of locations you selected for connectivity
- The name of the network system, each network element, and each piece of equipment

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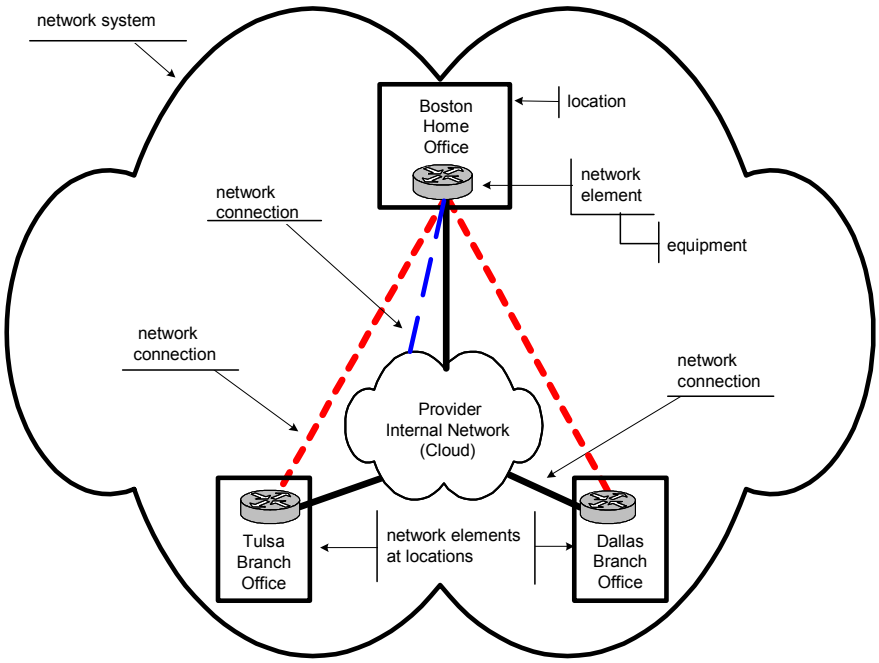
Configuration details needed to complete an order

Before a CSR launches the Ordering Dialog to complete an order for a network system, it is recommended that the sales engineer supply some basic details. Those details could be provided on a graphical representation, a formatted report, or a combination of the two such as the following example. Custom attribute values may be required as well.



Network system	Network template
ATM VPN	MetaSolv TM Layer 2 VPN network

Network element	Element type	Equipment spec	Location
Home Office	CE_RTR	CSC 2514 router	3333 Third St., Boston, MA 02202
Branch Office	CE_RTR	CSC 2512 router	2222 Second St., Dallas, TX 75303
Branch Office	CE_RTR	CSC 2512 router	4444 Fourth St., Tulsa, OK 74101

Network connection	Connection spec type	Location Pairs
	VPN Link (CE_RTR, ATM_SW)	Boston & Cloud, Dallas & Cloud, Tulsa & Cloud
	Layer 2 VPN connection (CE_RTR, CE_RTR)	Boston & Dallas, Boston & Tulsa
	Internet connection (CE_RTR, Router)	Boston & Cloud

Note: Network system name, network element names, and equipment names can be collected at order time.

Figure 8: Sample information needed to order a customer network

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How do you use the Ordering Dialog

This section focuses on the features of the Ordering Dialog used to order template-based products. It also addresses the information requirements for ordering template-based products.

What can you add with the Ordering Dialog?

The Ordering Dialog provides an easy interface for adding the attributes, products, associated template components, and locations comprising the network system or product bundle you select.

Custom attributes: Custom attributes can apply to the network system, network elements, and network connections. You configure custom attributes by entering data in entry fields or selecting drop-down options. Custom attributes are configured on windows that begin with the following questions:

- What are the attributes for the network?
- What are the attributes for this network element?
- What are the attributes for this [virtual] connection?
- What are the attributes for this [physical] connection?

  When ordering many connections of the same type, you can copy the attributes you assign to one connection to the other connections. This usability feature is presented on the Which connection attributes do you want to copy? window

Template-based related products: If the selected product offering is a network system such as a VPN where equipment is associated to the network elements, the Add action is one supported action. You add network elements at each location, add equipment with each network element, and add network connections between selected network elements. Windows that support actions contain links to the steps required to perform the actions. Actions, such as Add can be performed on windows that begin with the following questions:

- What kind of network elements are at each location?
- What kind of equipment do you want to order with each network element?
- What kind of connections are they?

Template components: Template components are associated with template-based service items on the Ordering Dialog only if more than one is associated with the item in the product catalog. Template components can be associated with a network system, a network element, and a network connection. You select the template component to associate from a drop-down list of those associated with that product in the product catalog. Template components are configured on the following windows:

- Which network template do you want to use?
- What kind of network elements are at each location?
- What kind of connections are they?

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Other related products: Related products are products that are related to an ordered template-based service item, but is not template-based. You indicate what products to include with an ordered service item by checking a checkbox preceding the desired items from a list of related items. Related products are configured on windows that begin with the following questions:

- What products do you want to add to this network?
- What products do you want to add to this product bundle?
- What products do you want to add to each network element?
- What products do you want to add to this equipment?

Locations: You can select customer locations that have been associated with a customer on previous orders on a window, search for existing location, and even add new locations. The window for adding a location has fields that reflect the format you select, for example MSAG. You configure location information on the following windows:

- Do you want to include any of these existing locations?
- Where is the location?
- Location Search
- Location Search Results
- Is the list of locations correct?

What can you change with the Ordering Dialog?

Besides being able to add a network system or a product bundle with its related products, you can make the following changes to template-based products and locations that are part of the order:

- Update the attributes of the network system, network elements, and network connections on the order
- Disconnect network connections, network elements terminating those network connections, and equipment related to those network elements and select a disconnect reason
- Update location information where you can specify the scope of the update on the Impacts of address change window

What can you do if you notice a mistake?

Correcting mistakes is easy with the Ordering Dialog. For example:

- If you include a location by mistake, select **List of Locations** from the navigation list, click the checkbox preceding the location you don't want, and click **Remove**.
- If you add a network element, equipment, or network connection by mistake, you can easily delete it. Just select the *Delete* action from a drop-down, check the service item to delete from a list of items, and click the **Delete** button. There's even a link for the Delete action in the directions section that spells out the steps. For details, see Delete the product or a new service item added to an order

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- If you've updated an existing network element or related equipment and want to back out the changes, they are easy to remove. Just select the *Remove* action from a drop-down, check the item to remove, and click the **Remove** button. Again, there's a link that describes how to use the Remove feature. For details, see Remove service items from the order
- If you disconnect a network connection, network element, or related equipment by mistake, you can reconnect it with the *Reconnect* action that is designed similar to that for Delete and Remove, where the change is made by clicking a **Reconnect** button. For step-by-step procedures, see Changing an existing template-based product on an order
- If you notice a disconnected network connection, network element, or equipment has an incorrect disconnect reason, you can easily change it while the disconnect is pending. Here also, the windows include a *Change Disconnect Reason* action and **Change** button as well as a link to the steps. For step-by-step procedures, see Changing an existing template-based product on an order

Can you close an order and finish it later?

You can close an order at any time within the Ordering Dialog. When you click the **Next** button, all of the data you have entered up to that point is saved. When you return to the Ordering Dialog, the first window is displayed. You can either page through the dialog with the **Next** button until you reach the window after the one you completed last or you can click a link on the navigation list to jump right to the desired window.

Can you view a finished order in the Ordering Dialog?

You not only can return to the Ordering Dialog after the order is finished, but also at other times when you might expect it to be inaccessible. The Ordering Dialog supports a "view only" mode under the following conditions:

- It is already open by another user.
- It has had tasks generated and is not being supplemented.
- It has been Due Date completed.
- It has been canceled via a supplement.

When it is open by another user, a Confirm Action pop-up appears with the userid of the person who has the order open and the prompt: Do you wish to open the order in view-only or edit mode? If you select View Only, the title bar of each page displays "View Only" beginning with the PSR order page. You can navigate through the dialog but you cannot make changes.

Does the Ordering Dialog always include the same windows?

The following table lists all windows, with an indication of whether or not they are required for a network system or standalone connections or both. *Conditionally required* refers to windows that may or may not be displayed depending on product catalog definitions. Connection attributes are marked as conditionally required because the windows are presented only if the corresponding custom attributes (CAs) have been defined for entry at the ordering process point. *Optional* refers to windows that are

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presented only when you take an action that explicitly invokes them. That is, they are not presented if you proceed through the Ordering Dialog using only the **Next** button to continue. The table also includes a cross-reference to the page on which you can find details for each window.

The Ordering Dialog windows are sequenced to collect and display information for product level items, for example, network system, locations, network elements, and network connections. A summary page is presented last.

Table 6: Ordering Dialog windows

Window	Network System	Stand-alone Connection	Cross-reference
Network Template	Conditionally required	N/A	Figure 14, “Which network template do you want to use?,” on page 38
Network Attributes	Required	N/A	Figure 15, “What are the attributes for the network?,” on page 39
Network Attributes	Conditionally required	N/A	Figure 16, “What products do you want to add to this network?,” on page 40
Standalone Connection	N/A	Conditionally required	Figure 17, “What products do you want to add to this product bundle?,” on page 41
Existing Locations	Required except for new customer	Required except for new customer	Figure 19, “Do you want to include any of these existing locations?,” on page 43
New Location	Optional	Optional	Figure 20, “Where is the location?,” on page 44
Update Location	Optional	Optional	Figure 40, “Impacts of address change,” on page 73
Search Locations	Optional	Optional	Figure 21, “Location Search,” on page 45
Location Search Results	Optional	Optional	Figure 22, “Location Search Results,” on page 46
List of Locations	Required	Required	Figure 23, “Is the list of locations correct?,” on page 47

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Table 6: Ordering Dialog windows

Window	Network System	Stand-alone Connection	Cross-reference
Network Element	Required	N/A	Figure 25, "What kind of network elements are at each location?," on page 50
Network Element Attributes	Required	N/A	Figure 26, "What are the attributes for this network element?," on page 51
Network Elements	Conditionally required	N/A	Figure 27, "What products do you want to add to each network element?," on page 52
Equipment	Conditionally required	N/A	Figure 28, "What kind of equipment do you want to order with each network element?," on page 53
Equipment	Conditionally required	N/A	Figure 29, "What products do you want to add to this equipment?," on page 54
Connectivity Matrix	Required	Required	Figure 31, "Where do you want connectivity?," on page 57
List of Connections	Required	Required	Figure 32, "What kind of connections are they?," on page 58
Connection Attributes	Conditionally required	Conditionally required	Figure 33, "What are the attributes for this [virtual] connection?," on page 60 Figure 34, "Connection Attributes - custom attributes for ATM connections," on page 61 Figure 35, "Connection Attributes - custom attributes for frame relay connections," on page 62
Copy Connection Attributes	Conditionally required	Conditionally required	Figure 36, "Which connection attributes do you want to copy?," on page 63
Connection Attributes	Conditionally required	Conditionally required	Figure 37, "What are the attributes for this [physical] connection?," on page 65

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Table 6: Ordering Dialog windows

Window	Network System	Stand-alone Connection	Cross-reference
Summary	Optional	N/A	Figure 38, “Summary - network system,” on page 67
Summary	N/A	Optional	Figure 39, “Summary - product bundle,” on page 68

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WHERE DOES ORDERING FIT WITHIN THE END-TO-END PROCESS?

CAP guide view

Template-based ordering fits into the end-to-end service activation process as follows.

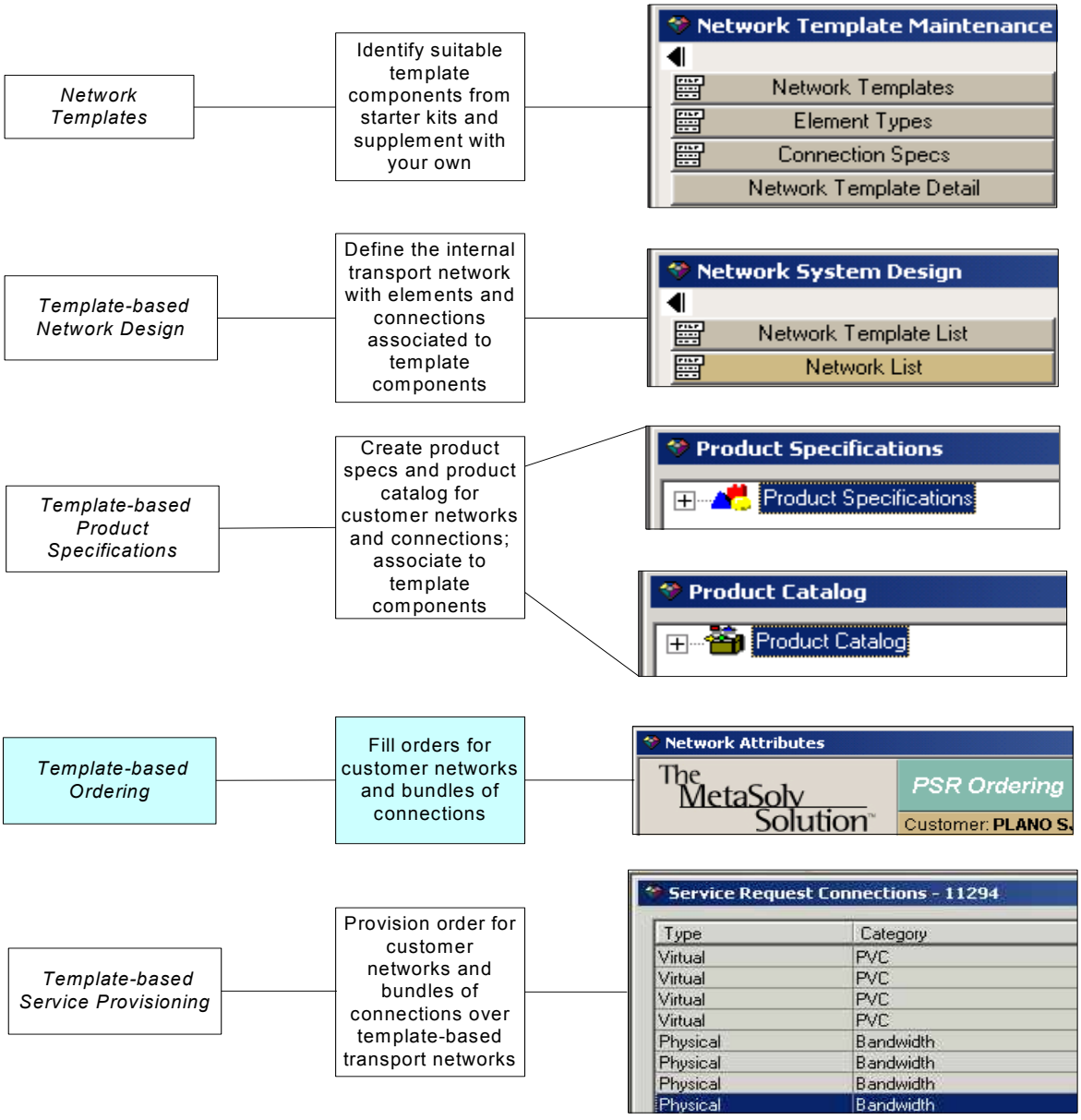

Figure 9: End-to-end process of using templates in MetaSolv M/5.1

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Work-flow view

The following workflow diagram highlights the processes addressed in this CAP guide.

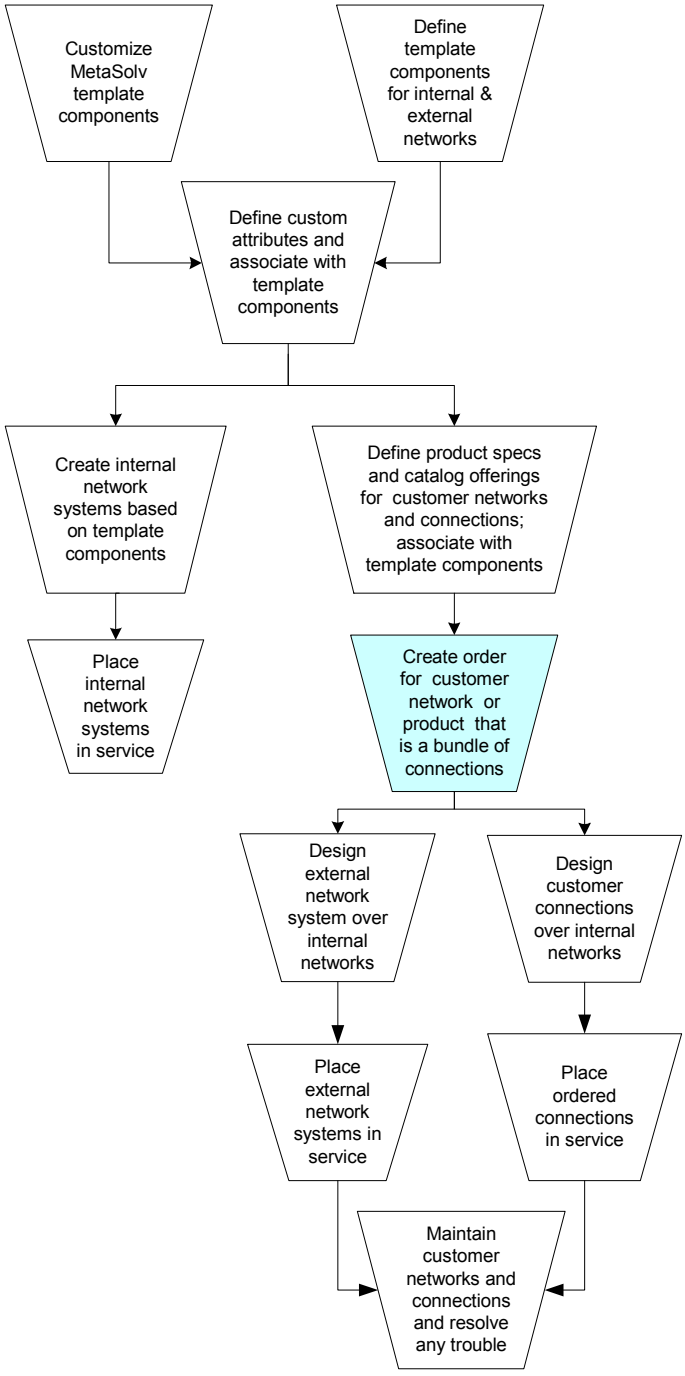

Figure 10: Detailed workflow of using template-based functionality

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Subsystem view

Tool/Utilities

- MetaSolv M/5.1 includes utilities for migrating existing data that is a candidate for redesign using the new template-based functionality.
- MetaSolv Solution Utility Application, a separate executable from the MetaSolv Solution, enables you to create and maintain custom attributes. The purpose of custom attributes and brief descriptions of the processes involved in creating and maintaining them are included in the *Network Templates Concepts and Processes Guide*.

Engineering

- Templates based on MetaSolv Technology Modules are available as software options for technologies such as ATM/Frame Relay, MPLS, Ethernet, and IP for services such as Virtual Private Networks (VPNs) and Digital Subscriber Line (xDSL), and for existing networks such as Digital Loop Carrier (DLC). See the *Network Templates Concepts and Processes Guide* for details.
- Internal network systems based on templates can be designed on the new graphical canvas with the enhanced Network Systems functionality. See the *Template-Based Network Design Concepts and Processes Guide* for details.

Infrastructure

- Customer and non-customer locations can be defined or queried for using the Ordering Dialog. The definition of locations containing customer edge routers is critical to defining ordered VPN systems. Completing the connectivity matrix for ordered standalone network connections requires the definition of locations. See “Examine the Connectivity Matrix.” on page 57
- Product catalog is used to develop product offerings for network systems and bundled network connections that are based on new item types. See the *Template-Based Product Specifications Concepts and Processes Guide* for details.
- Network items that may be associated with network areas have been extended to include a network system, a network element within a network system, and a network element, where network system is not associated with network area. IP addresses associated with the network area can then be further associated at the network system level and/or the network element level. See online help for network areas for details.
- Number inventory includes the inventory of IP addresses. IP addresses are assigned during the provisioning of Internet circuits. See the *Template-Based Service Provisioning Concepts and Processes Guide* for details. IP addresses may also be assigned during the design of the internal network. See online help for IP address management and the *Template-Based Network Design Concepts and Processes Guide* for details.

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Equipment

- Product specifications for equipment can be related to product specifications for network elements, and product specifications for equipment can be associated with equipment specs. The ability to associate an equipment spec for a customer router to equipment related to VPN locations is supported. See the *Template-Based Product Specifications Concepts and Processes Guide* for details.
- The Ordering Dialog includes a page on What kind of equipment do you want to order? This page permits retrieval of an existing equipment specification. See "Examine the Equipment window." on page 53
- Equipment specifications can be associated with network elements selected from the templates when building internal networks. See the *Template-Based Network Design Concepts and Processes Guide* for details.
- Connection assignments to equipment, specifically, port addresses is part of service provisioning. Service provisioning of any product offering processed through the Ordering Dialog is provisioned with the Provisioning Dialog. See the *Template-Based Service Provisioning Concepts and Processes Guide* for details.

Preferences

- Engineering preferences include a new Design Mode preference that replaces the former Use Path Analysis preference. It is used to indicate whether virtual connections are to be designed with path analysis based on the number of hops, with path analysis based on distance, or manually configured.
- System preferences include a new Use Default Connection ID format, which was added for the Connection ID task. When set, the default format used is Location 1/ Location 2/label/circuit design ID.

Customer Care

- Customer management and account information can now be accessed through the new Customer Profile functionality. See online help on customer profile for details.
- Product service request information is collected on the new Ordering Dialog when a network system or product bundle of connections is selected from the product catalog. See "Procedures" on page 34

Work management

- Task types include a new task type called NET DSGN for provisioning a VPN network system. See the *Template-Based Service Provisioning Concepts and Processes Guide* for details.

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Processes

This chapter describes each task in the process of ordering customer networks and standalone customer connections.

You should read this chapter if you are responsible for ordering services that include VPNs or customer connections, if you help customers with orders for VPNs or connections such as DSL access, Internet access, and VoDSL, or if you wish to learn about how PSR ordering of these service items works in the MetaSolv Solution.

For additional assistance while you are using the software, press **F1** to access the MetaSolv Solution Online Help.

This chapter is organized around the following topics:

- Procedures List
- Implementation Sequence
- Procedures

PROCEDURES LIST

The processes addressed in this chapter are listed in the following table.

Table 7: Process list cross-reference

To learn the steps for	See
Prerequisites	page 34
Launching the Ordering Dialog	Launch the Ordering Dialog for a new product on 35. Launch the Ordering Dialog for a partially configured product on 36.

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Table 7: Process list cross-reference

To learn the steps for	See
Adding a new template-based product to an order	Add any required product-level details on 37. Add and/or verify locations on 41. Add any required network element-level information on 48. Add any required equipment-level information on 52. Add network connection-level information on 55. Review summary information on 66. Delete the product or a new service item added to an order on 69.
Configuring products ordered with template-based products	page 70
Changing an existing template-based product on an order	Change product-level details on 71. Change location information on 72. Change a network element service item on 74. Change an equipment service item on 75. Change a network connection service item on 77. Remove service items from the order on 79.
Completing an order	page 81
Viewing a completed order	page 82

IMPLEMENTATION SEQUENCE

The following implementation sequence focuses on processes that are performed by the Customer Support Representative (CSR) with new functionality—processes that are described in the Process section of this book. Included in the flow are those processes that are performed by the CSR with existing functionality, processes performed by someone other than the CSR, and processes that do not involve MetaSolv Solution functionality but are recommended business processes.

A summary of the implementation sequence for ordering-related processes follows:

1. Ensure the following prerequisites are met:
    a. Product catalog items for template-based products to be ordered and their underlying specifications are effective

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b. Ensure the transport network over which the orderable items are provisioned exists within the MetaSolv Solution.

c. A provisioning plan appropriate for products to be ordered is available

d. A reference sheet or diagram of the required data for the order from the sales engineer has been provided as an aid to order entry. See "Configuration details needed to complete an order" on page 19

e. If support for multiple pending orders is needed, the user preference *Copy PSR Pending Items* is set to Y for yes.

Prerequisite processes are outside the scope of this book. The final item in this list of prerequisites is a recommended business process—it is not required by MetaSolv Solution.

2. Begin the order

   a. If the customer is new, enter customer account information (using existing functionality)

   b. Launch the Ordering Dialog

3. If the template-based product is new, add the product to the order

   a. Add any required product-level details

   b. Verify locations and add any that are missing but required

   c. Add network element-level information, if needed

   d. Add equipment-level information, if needed

   e. Add network connection-level information

   f. Review the order summary

   g. Delete a new service item that was added by mistake

4. If the template-based product exists, change service item or location details on an order

   a. Update information for locations or for any service items such as network elements, equipment, or network connections

   b. Disconnect an InService service item such as a network connection, a network element, or a piece of equipment and provide a disconnect reason.

   c. Change a disconnect reason

   d. Reconnect a service item

   e. Review the order summary and verify accuracy

   f. Remove a service item or location from the order that is bundled with the selected product, but that is not updated

5. Complete order by adding, updating, or disconnecting any non-template based service items on the order.

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This task is outside the scope of this document since it does not concern template-based products

6. Generate tasks

   This task is outside the scope of this document, since it is an PSR-level task. After tasks are generated and set to the proper work queue, the service provisioner handles the provisioning of the ordered services and places the order InService.

7. View a completed order in view-only mode

PROCEDURES

The step-by-step procedures in this section do not include field-level information. Access Online Help to display field descriptions.

Preparing to add a template-based product to an order

Steps

1. Ensure the service items on the order are effective

   Before you can create an order with the Ordering Dialog, the product catalog you use must contain template-based products, that is, products built with the network system (SYSTEM) or product bundle (PRDBUNDLE) item types. If a To Effective Date has been entered for the product or any of its components, that date must be a future date. For information on template-based product catalog offerings and the product specs on which they are based, see the *Template-Based Product Specification Concepts and Processes Guide*.

2. Ensure the transport network over which the orderable items are provisioned exists within the MetaSolv Solution.

   Before you can provision an order using product catalog items built with the template-based product specifications, the networks over which the new products and services are provisioned must be fully designed. This is done by customizing the applicable templates, where the purchase of technology modules is based the technologies of your network systems. For information on designing your internal network within the MetaSolv Solution, see the *Template-Based Network Design Concepts and Processes Guide.*

3. Obtain and have on hand the information on the order that was collected by the sales engineer. See Configuration details needed to complete an order.

4. Be able to identify the correct provisioning plan for the current order.

   - If the order is for a network system, the provisioning plan must include at least the following tasks:

     ⇒ CKTID

     ⇒ EQINST

     ⇒ NETDSGN

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⇒ RID

⇒ DD

- If the order is for a bundle of customer connections, the provisioning plan must include at least the following tasks:

  ⇒ CKTID

  ⇒ RID

  ⇒ DD

5. If support for multiple pending orders of template-based service items is needed, ensure the user preference *Copy PSR Pending Items* is set to Y for yes.

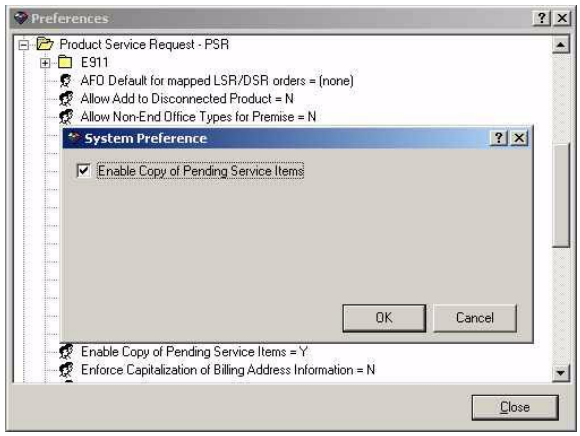

Figure 11: Preference to enable multiple pending orders for template-based products

Launching the Ordering Dialog

The steps for launching the Ordering Dialog depend on whether you are launching it for the first time for the current order. If you exit the order and return to it, you'll use a different procedure than you did when you initially opened it.

Launch the Ordering Dialog for a new product

The Ordering Dialog is initiated from the Product Service Request. Use the following steps to launch the Ordering Dialog for a new product.

Steps

1. Click **Customer Care** > **Serv Req**.

2. On the Service Request Search window, enter the account number of the customer and click **Retrieve**.
3. Select the requested account and click **New** to begin another order.
4. Complete the required information on the Customer Account tab and Service Order tab.
5. From the Service Items tab, select **Add Item**.
6. On the Add Item Selection window, select an item built from a product specification item type of either Network System (SYSTEM) or Product Bundle (PRDBUNDLE).
7. At the prompt to configure the product, select **Yes**.

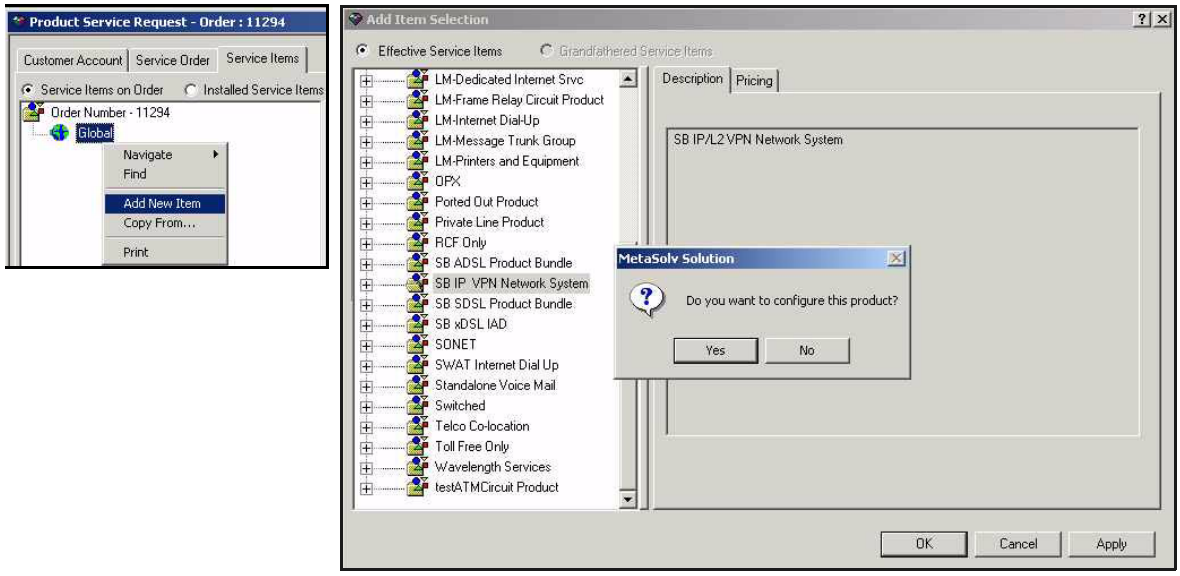

Figure 12: Navigation into a new Ordering Dialog

Launch the Ordering Dialog for a partially configured product

If you exit the Ordering Dialog before completion, you can re-enter the dialog.

Steps

1. Retrieve the PSR and display the treeview.
   a. Click **Customer Care > Serv Req**
   b. On the Service Request Search window, enter search criteria and click **Retrieve**.

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2. Highlight the partially configured network system or product bundle and select **Configure Product**.

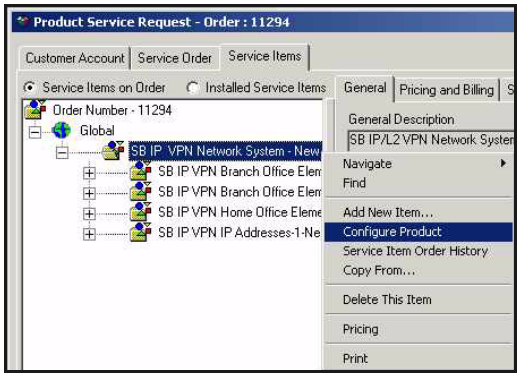

Figure 13: Navigation into partially completed Ordering Dialog

3. When the first window of the Ordering Dialog appears, either click **Next** repeatedly to page through to the window for the next step or bypass completed windows by selecting the link for the next step from the navigation list.

Adding a new template-based product to an order

This section describes step-by-step procedures for the following tasks. Some are used only for orders that include network systems; others apply to orders for both network systems and product bundles.

- Add any required product-level details
- Add and/or verify locations
- Add any required network element-level information
- Add any required equipment-level information
- Add network connection-level information
- Review summary information
- Delete the product or a new service item added to an order

Add any required product-level details

Four Ordering Dialog windows collect product level details:

- Network Template
- Network Attributes—main window
- Network Attributes—additional products
- Standalone Connections—additional products

The Network Template window is displayed in the Ordering Dialog only if a network system is being ordered and that network system has been associated with multiple network templates. Your company may define its own network templates to associate with

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network systems in the product catalog. The following example of a product specification window displays the MetaSolv-defined network templates.

Template Type	Network Template Name
IP	VPN - Basic Configuration
ATM_FR	MetaSolv TM Layer 2 VPN Network
MPLS	MetaSolv TM MPLS VPN
IP	MetaSolv TM IP VPN

If the Ordering Dialog is invoked to configure a VPN network system, where multiple network template types are associated with a network system in the product catalog, the Network Template window is presented so you can select the network template to use.

Steps

1. When you launch the Ordering Dialog, the window displayed depends on the order.
   - If the Network Template window is displayed, continue with the following step.
   - If the Network Attributes window is displayed, see Step 4 on page 39.
   - If the Standalone Connection window is displayed, see Step 8 on page 41.
   - If the Existing Locations window is displayed, see Add and/or verify locations.
2. Examine the Network Template window.

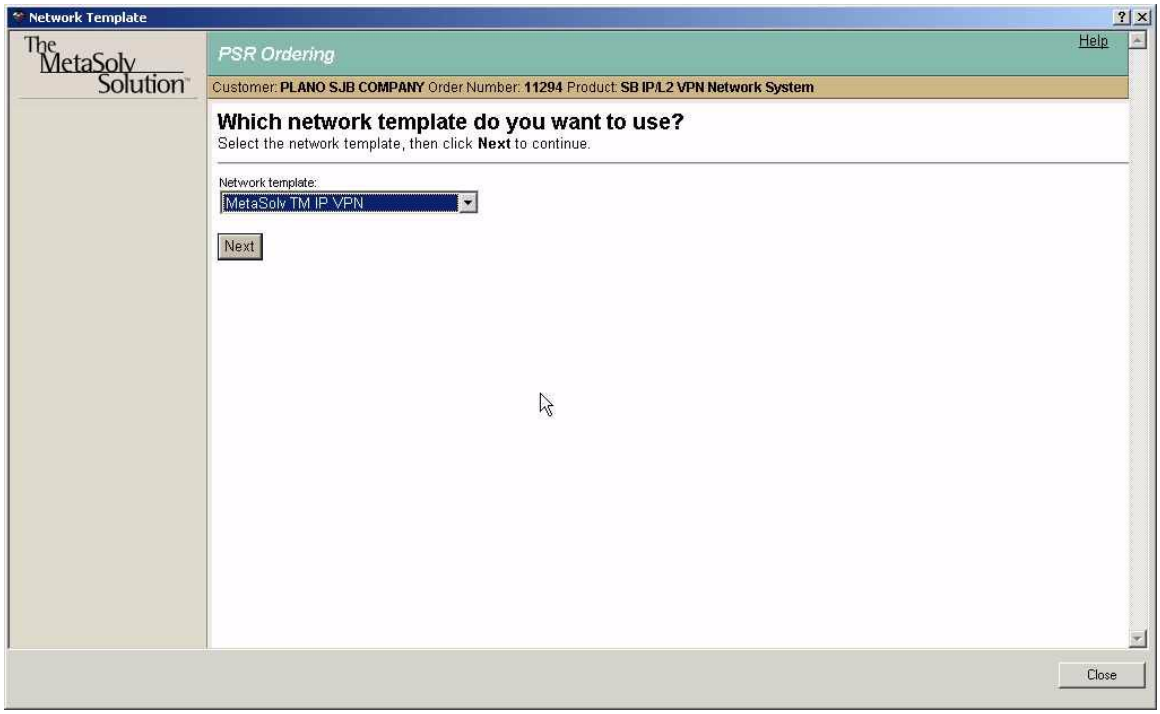

Figure 14: Which network template do you want to use?

The Network Template window displays a drop-down list of network templates associated with the network system being configured. This window appears only if the selected product catalog item for a network system is associated with multiple

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network templates. Once the network system has been added, this page cannot be redisplayed. That is, you cannot change the network template once it has been selected. If you select the wrong network template by mistake, close the dialog, delete the network system and re-add it to begin again so you can select the correct network template.

3. Use the following guidelines to select the network template from the drop-down list, then click **Next**.
   - If the order is for an ATM VPN, select the MetaSolv TM Layer 2 VPN Network
   - If the order is for a frame relay VPN, select the MetaSolv TM Layer 2 VPN Network
   - If the order is for an MPLS VPN, select the MetaSolv TM MPLS VPN
   - If the order is for an IP VPN, select the MetaSolv TM IP VPN
   - If the order is to change a VPN that was new prior to release 5.1, select VPN - Basic Configuration
4. Examine the Network Attributes window.

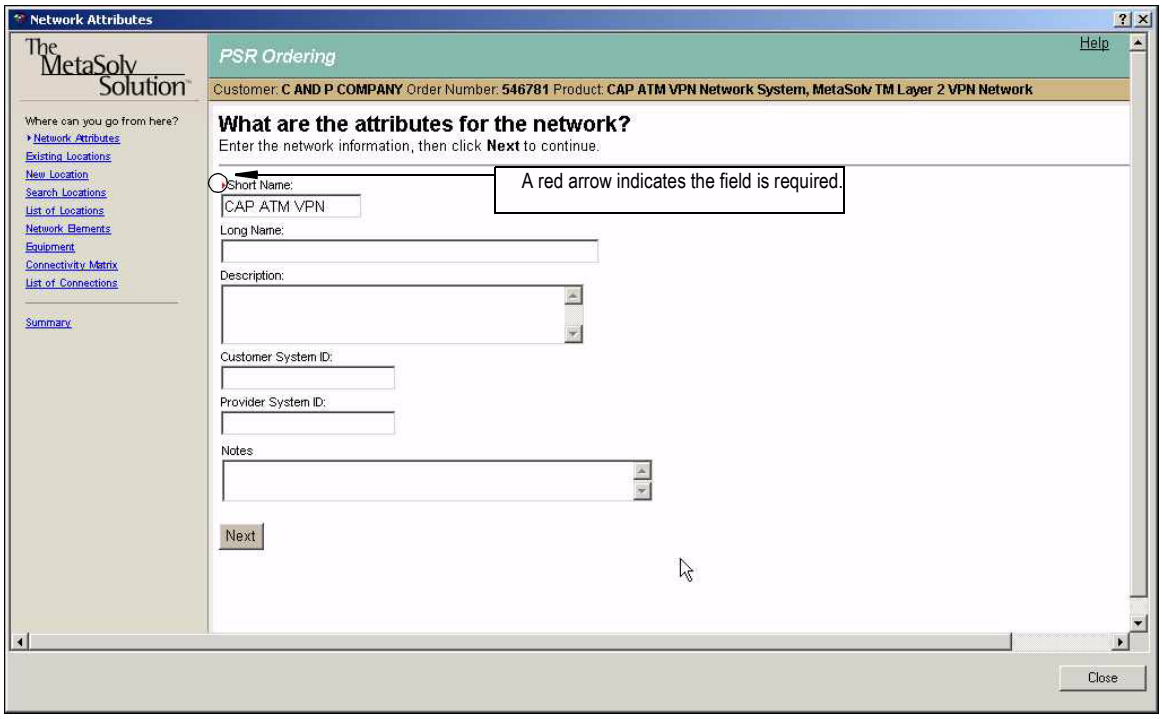

Figure 15: What are the attributes for the network?

The Network Attributes window contains entry fields for describing attributes of the network system. Any custom attributes (CAs) for this network system that are defined for entry at the ordering process point also appear on this window. A red arrow indicates an entry in the field is required.

5. Specify the attributes for the ordered network system such as network name and description. To add a physical link to a VPN that is in InService status on another

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VPN, add this request in notes. (During network design, the existing physical connection would be associated with, or disassociated from, the “line” between two elements.) Click **Next** to continue. Continue in one of the following ways depending on the window displayed:

- If the Network Attributes window for additional products is displayed, continue with the following step.
- If the Existing Locations window is displayed, see Add and/or verify locations.

6. Examine the Network Attributes window for additional products.

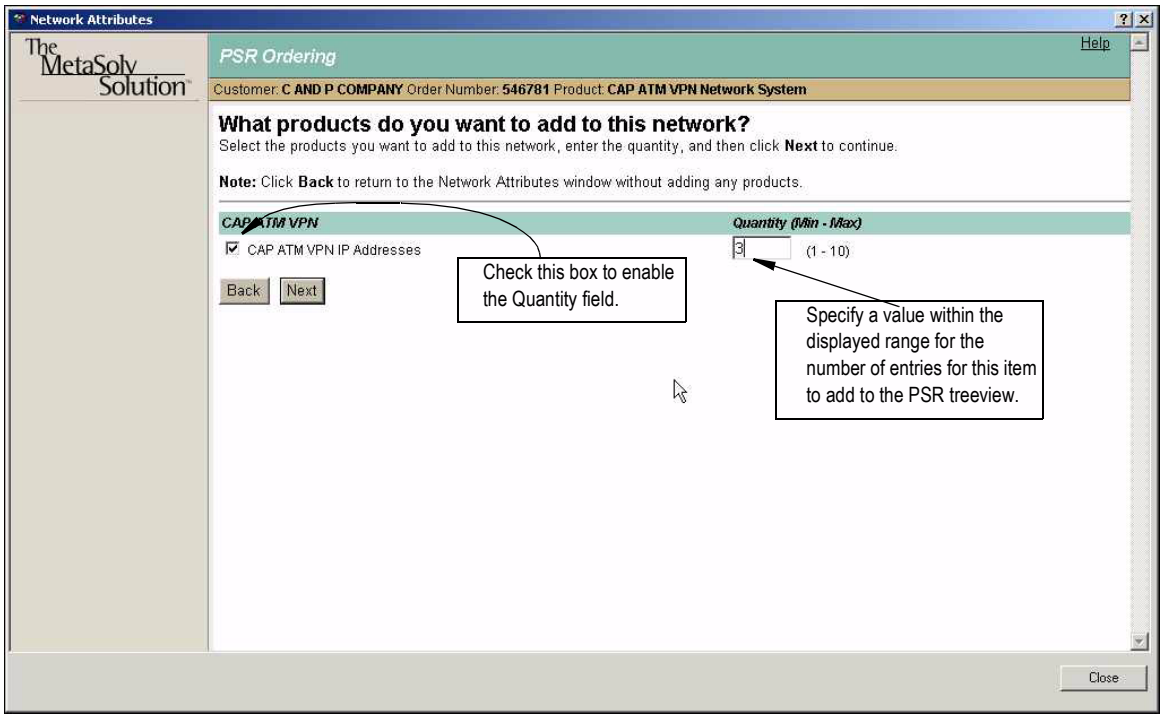

Figure 16: What products do you want to add to this network?

The Network Attributes window for additional products lists all subordinate products related to the network system in the product catalog. Checking the checkbox preceding a listed item enables the **Quantity** field if a valid range exists. A range is displayed only if User Quantity was specified on the product specifications for the product. The quantity entered here controls the number of occurrences for this item that are added to the PSR Service Item treeview. When you close the Ordering Dialog, you can configure these items. This window is presented only when the network system is being added. You cannot redisplay this window once you click **Next.**

7. Select the product(s) you want to add and specify how many of each, then click **Next** to continue. The Existing Locations window is displayed. For information on locations, see Add and/or verify locations.

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8. Examine the Standalone Connection window.

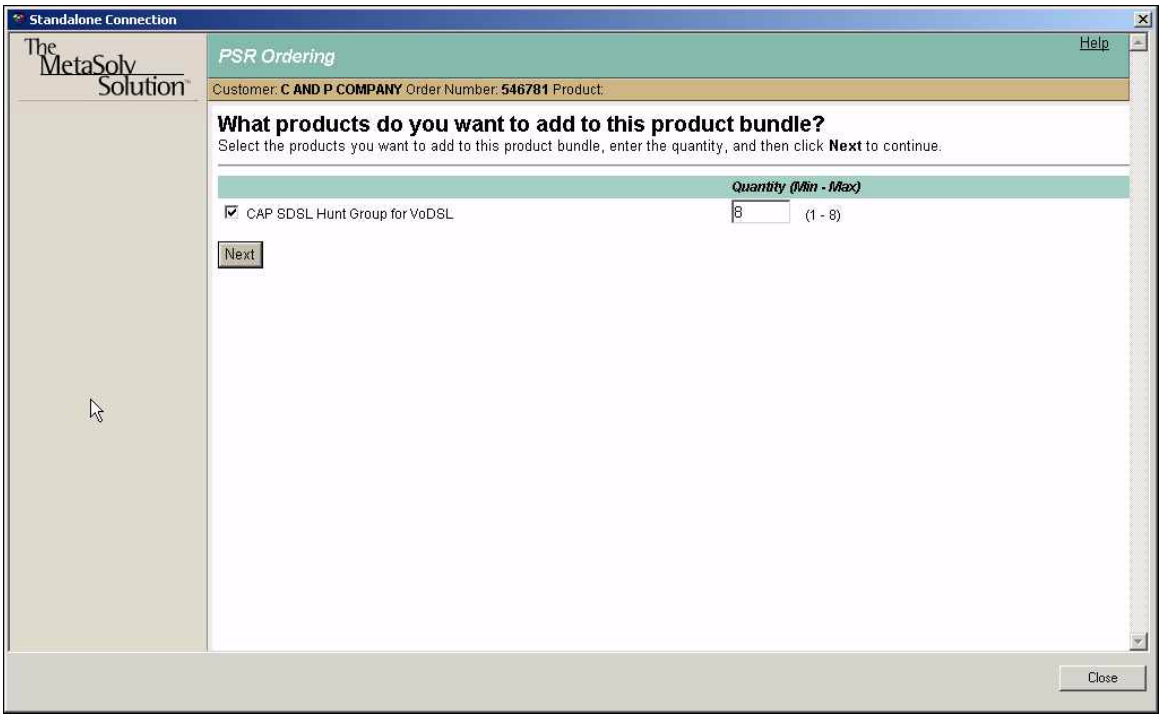

Figure 17: What products do you want to add to this product bundle?

The Standalone Connection window lists all subordinate products related to the product bundle in the product catalog. Checking the checkbox preceding a listed item enables the **Quantity** field if a range is displayed. The quantity entered here controls the number of occurrences for this item that are added to the PSR Service Item treeview. When you close the Ordering Dialog, you can configure these additional items. However, you cannot redisplay this window after you click **Next**.

9. Select the product(s) you want to add and specify the quantity to order, if more than one and multiples are permitted. Click **Next** to continue.

Add and/or verify locations

Locations that are used by template-based service items are customer locations. These include the customer locations that are terminating locations for the ordered network connections. Network connections such as Enterprise connections include two customer locations. Network connections such as a physical link or an Internet PVC have only one customer location; the other terminating location is an element in the provider network. Locations of network elements in the provider's network are not included in the list of locations specified in the Ordering Dialog. When network connections are ordered under a network system, the terminating customer locations are also associated with the ordered network elements and their related equipment.

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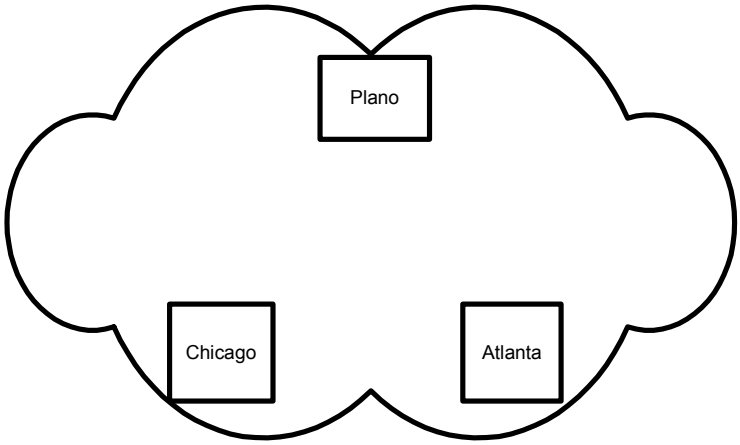
It is possible to add new customer locations and update existing customer locations while in the Ordering Dialog, whether or not you include the new or updated location in the list of locations for the current order. The only locations you should include on the order are the customer locations at which the ordered network connections terminate.

Within the Ordering Dialog, you can take the following actions on locations:

- Add a new location
- Search for an existing location
- Remove a location from the list of locations to be used by the network connections being ordered
- Modify the attributes of a selected location

The type of information required to complete the location windows is shown on the following diagram:



Location

3333 Third St., Plano, TX 75230

2222 Second St., Atlanta, GA 30303

4444 Fourth St., Chicago, IL 60606

Figure 18: Location information

Use the following steps to enter the location details. Include all locations to which any connections ordered with this product terminate, other than locations on the provider network.

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Steps

1. Examine the Existing Locations window.

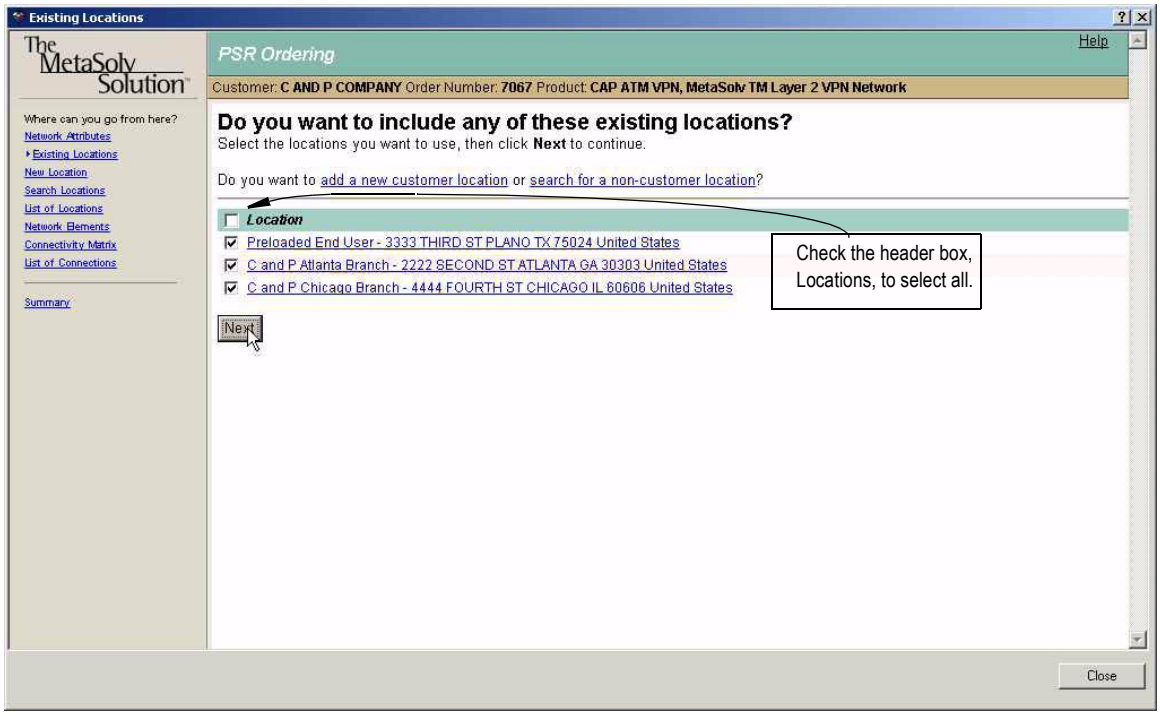

Figure 19: Do you want to include any of these existing locations?

The Existing Locations window displays locations associated with orders for the current customer and two links, one for retrieving other defined locations, the other for defining new locations.

2. Check any of the displayed locations used for previous orders for this customer that you want to include on this order. Then, proceed in one of the following ways:

   a. If the displayed list of locations includes all the locations needed for this order, click **Next**. The List of Locations window appears. Continue with Step 9 on page 47.

   b. If the displayed list is missing a location needed for the order and the missing location is a new location, click the **add a new customer location** link. The New Location window appears. Continue with the next step.

   c. If the displayed list is missing a location needed for the order and the missing location is an existing location, click the **search for a non-customer location** link. The Search Locations window appears. Continue with Step 5 on page 45.

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3. Examine the New Location window.

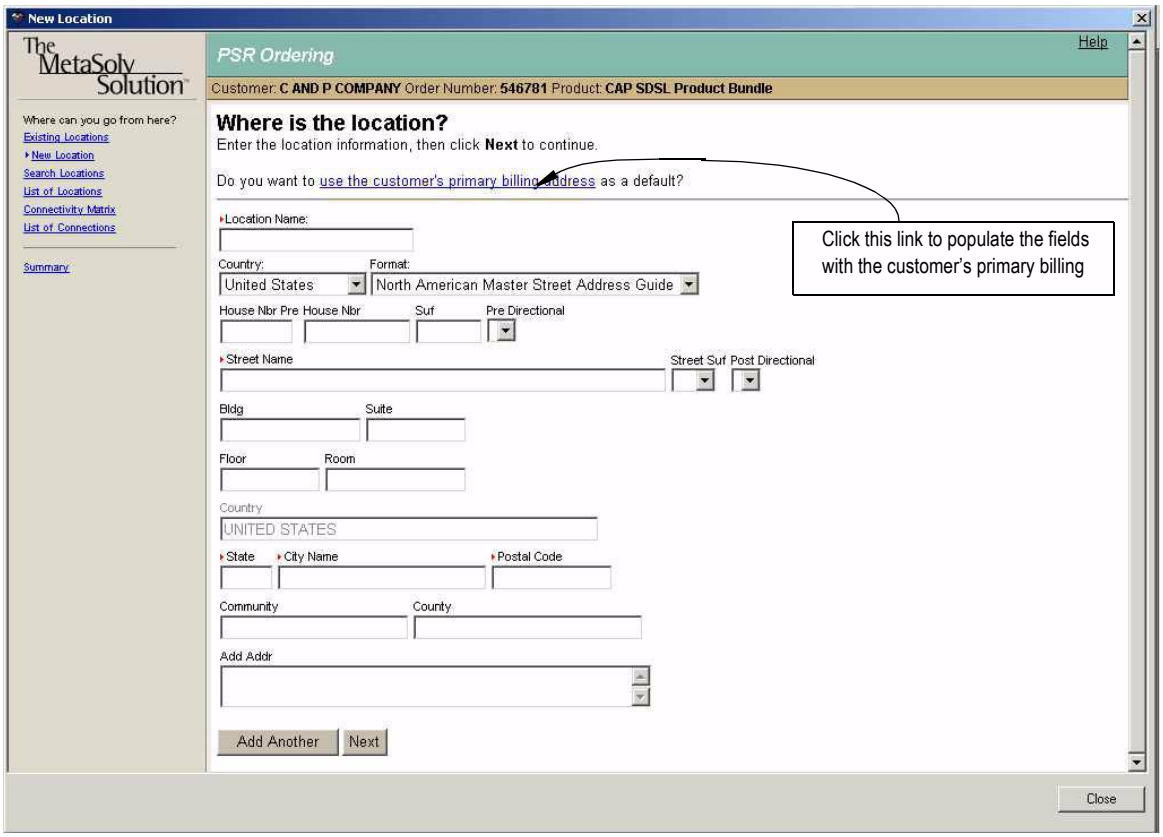

Figure 20: Where is the location?

The New Location window displays free-form text fields for defining a new customer location that is a network element for an ordered network system or a terminating point for an ordered stand-alone connection. The fields that appear are determined by the selection of format. This particular figure displays fields in the North American MSAG format. The use of the customer's primary billing address link populates the fields with the default address of the customer. When you add a new customer location, it is automatically associated with the network system or product bundle being ordered. This window is also used to update a location when it is retrieved from the Summary window.

4. Select a format from the Format drop-down. If applicable to use as the default, click the **use the customer's billing address** link. Enter the location information in the displayed fields. To save the current specifications and enter another location, click the **Add Another** button and repeat this step. If the displayed location is the last location to be used for this order, click **Next**. The List of Locations window appears. Continue with Step 9 on page 47.

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5. Examine the Search Locations window.

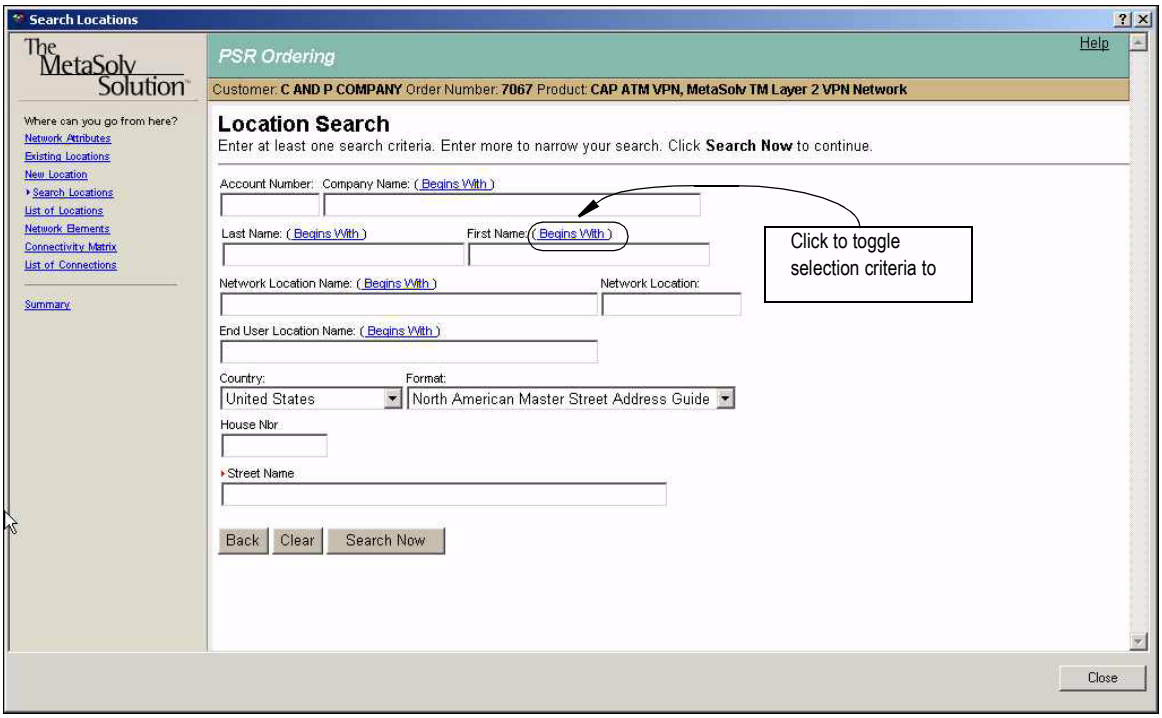

Figure 21: Location Search

The Search Locations window displays location fields as search criteria. Five of the fields permit searching on a partial value, where you can indicate whether to search for a value that begins with the entered value or contains the entered value. Clicking on **Begins With** or **Contains** toggles the display. An entry in at least one field is required to enable the search, which is initiated with the **Search Now** button. The **Back** button redisplays the Existing Locations window. You can open this window by selecting Search Locations from the navigation list or by selecting the search for a non-customer location link on the Existing Locations window.

6. Select a format from the Format drop-down. Enter one or more search criteria. For each field in which you enter criteria, set the search processing for either **Begins With** or **Contains**. Then click the **Search Now** button. If a message appears indicating that a result matching your criteria does not exist, click the **Clear** button and repeat this step using different criteria. The Location Search Result window appears.

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7. Examine the Location Search Results window.

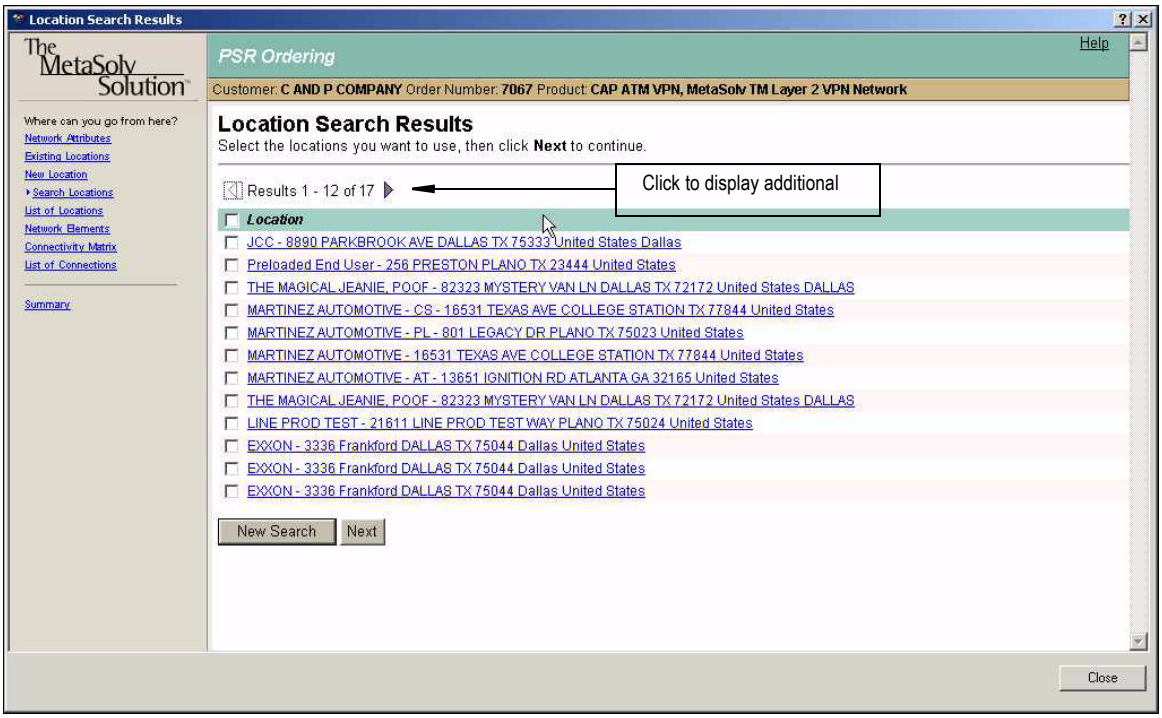

Figure 22: Location Search Results

The Location Search Results window displays a list of locations matching the entered selection criteria. Each entry on the list is preceded by a checkbox for indicating a location to use. The checkbox preceding the Location column label is used to select all displayed locations. Each location selected from the search results is associated with the order and with the network system or product bundle.

8. Select each location you want to use by clicking its checkbox or click the **Locations** checkbox to select all the displayed locations. If the displayed list does not contain all the locations you wish to add, click the **New Search** button and repeat the process beginning with Step 5 on page 45. If the checked items on the list are the only existing non-customer locations you wish to add, click **Next**. The List of Locations window appears.

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9. Examine the List of Locations window

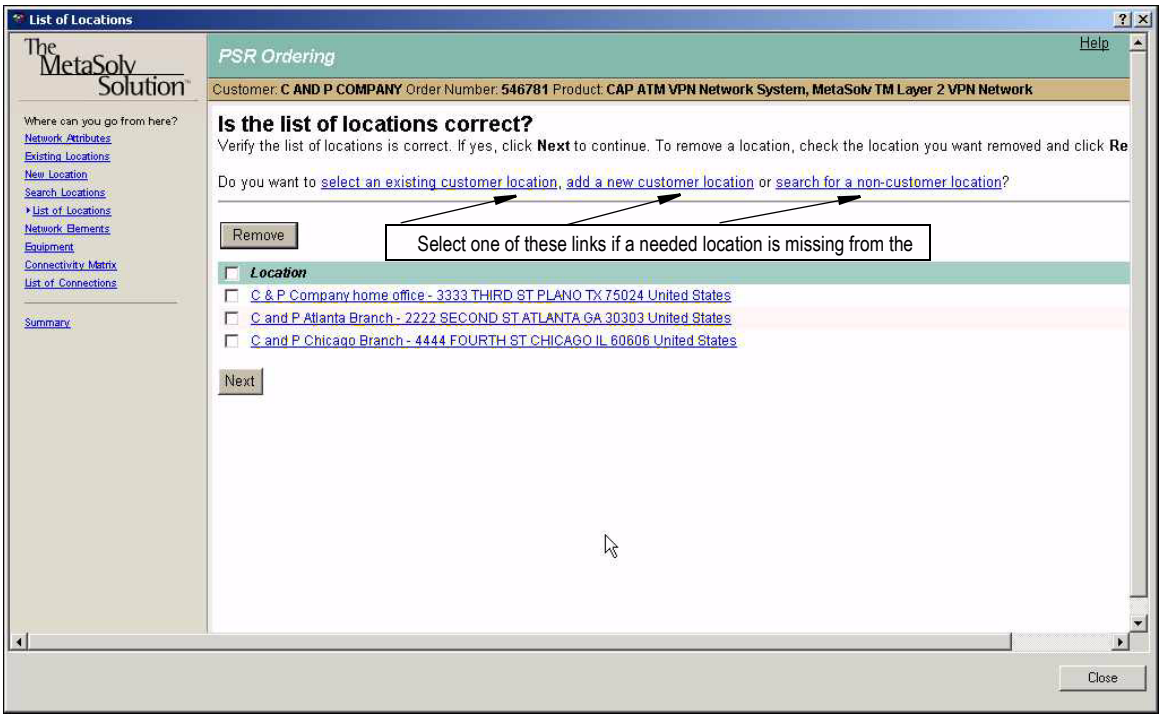

Figure 23: Is the list of locations correct?

The List of Locations window displays a list of selected locations for verification. This window displays the locations that have been associated with the network system or product bundle.

10. Evaluate the displayed list, then proceed in one of the following ways:

- If the list of locations is correct and complete, click **Next** to confirm. The window displayed depends on whether the order includes a network element.

  ⇒ If the order includes a network element, the Network Elements window appears. Continue with Add any required network element-level information.

  ⇒ If the order does not include a network element, the Connectivity Matrix window appears. Continue with Add network connection-level information.
- If the list of locations contains an item that is not the location for an ordered network element or a terminating point for an ordered network connection, select that location and click **Remove**, then repeat this step.
- If the list of locations is missing a required location, click the appropriate link to return to a previous window and add the missing location.

  ⇒ Click **select an existing customer location** link. The Existing Locations window appears. Continue with Step 1 on page 43.

  ⇒ Click **add a new customer location** link. The New Locations window appears. Continue with Step 3 on page 44.

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⇒ Click **search for a non-customer location** link. The Search Locations window appears. Continue with Step 5 on page 45.

Add any required network element-level information

The Network Elements window is displayed if the product you are configuring is a network system. When you add a network element to the order, you select the correct element type from a drop-down. The drop-down includes all element types associated with the network element in the product catalog. In the following example of a product specification window tab where element types are associated with network elements, CE_RTR is an element type. Your company can define other element types that can be associated with orderable network elements, so what you see may be something different than CE_RTR.

Template Type	Network Template Name	Element Type	Element Name
IP	VPN - Basic Configuration	EUL	End User Location
ATM_FR	MetaSolv TM Layer 2 VPN Network	CE_RTR	Customer Edge Router
MPLS	MetaSolv TM MPLS VPN	CE_RTR	Customer Edge Router
IP	MetaSolv TM IP VPN	CE_RTR	Customer Edge Router

As you add each network element to an order, you identify its location as one of the locations in the list of locations that you verified was complete. At this point in the Ordering Dialog, a network element represents a customer location. Later, when you add connections between pairs of locations, one or both of each pair represents a location where a network element resides, that is, a customer location. If the network system to which it belongs is a VPN, the network element can be a home office, a branch office, or office of a partner. When a network system is added to an order, its network elements are also added at the locations that are included in the network system. If equipment is related to the network element and that equipment is associated with multiple equipment specifications, you select the equipment spec to use. When a network element is added, you specify attributes such as whether the customer or the provider manages it.

In the process of adding a new network element to a new or existing network system, if you add a network element to the wrong location, you can back out the addition by deleting it. If you are changing an existing network system and no changes need to be made any InService network element, you can remove them from the order.

An InService network system can be modified by adding new network elements, by disconnecting existing network elements, by upgrading equipment associated with the network element, or by changing attributes of the network element itself, for example, from a customer managed element to a provider managed element.

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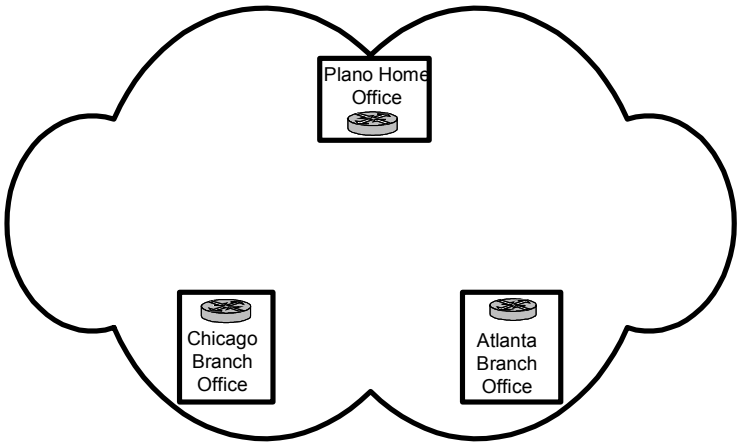
Information required to configure network elements is shown on the following diagram:



Network element	Element type	Equipment spec	Location
Home Office	CE_RTR	CSC 2514 router	3333 Third St., Plano, TX 75230
Branch Office	CE_RTR	CSC 2512 router	2222 Second St., Atlanta, GA 30303
Branch Office	CE_RTR	CSC 2512 router	4444 Fourth St., Chicago, IL 60606

Figure 24: Network element information

If the product includes network elements, use the following steps to enter network element details.

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Steps

1. Examine the Network Elements window.

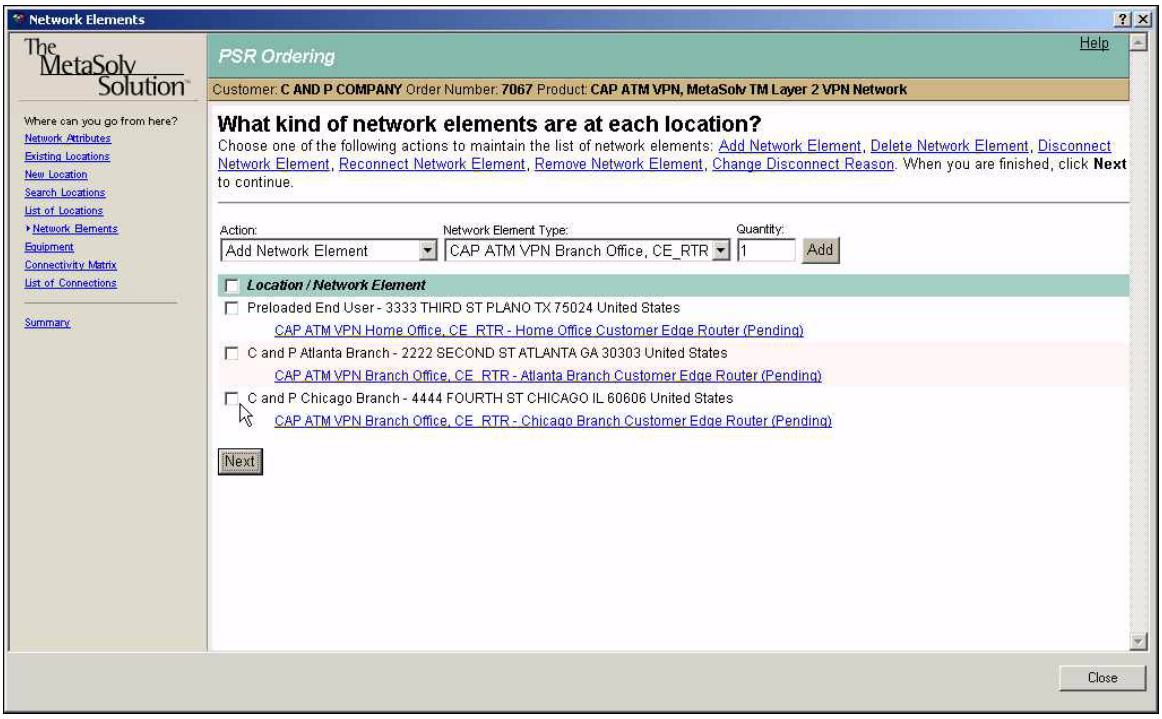
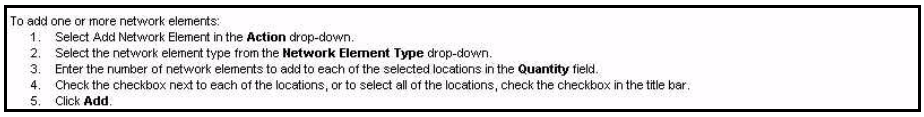


Figure 25: What kind of network elements are at each location?

The Network Elements window is displayed only for a network system with associated network elements. Six actions can be performed from this window. Links in the direction section of the window display steps for each action. When any action is selected, only items that are valid to select for that action are displayed with preceding checkboxes. See Delete the product or a new service item added to an order for details on using the Delete action. See Change a network element service item for actions other than Delete Network Element and Add Network Element. The *Add Network Element*, the default action, is displayed with a drop-down of all the elements types associated with the network elements for this network system with a quantity field for specifying the number of network elements associated with the displayed element type to process. Use this action to specify the element(s) to associate with each location in the network. You can associate multiple occurrences of a given element at one or more locations.

2. Click the link, **Add network element**, to display the following directions for using the controls on this window to perform this task.



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3. For each network element belonging to the ordered network system, identify its element type, quantity, and location(s). Verify that each of the displayed locations is associated with at least one network element. When you have specified the addition for all network elements, click **Next**. The Network Element Attributes window appears.
4. Examine the Network Element Attributes window.

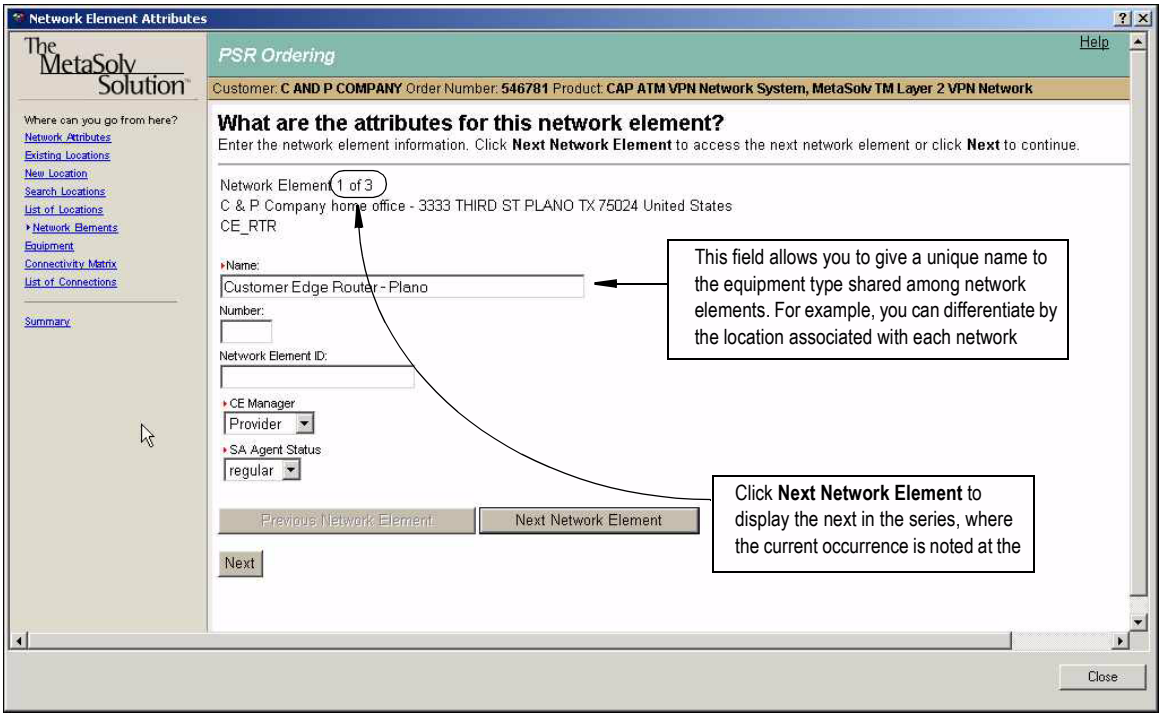

Figure 26: What are the attributes for this network element?

The Network Element Attributes window enables you to uniquely identify each network element at each associated location.

5. For each network element you associated with each location, enter the requested information. If more than one, click **Next Network Element** to save the information you entered for the current network element and clear the fields for entry of attributes for the next network element. When finished, click **Next** and proceed in one of the following ways:
   - If the order contains product options for any network element, the Network Elements window for product options appears. Continue with the following step.
   - If the order does not contain product options, the Equipment window appears. See Add any required equipment-level information.
   - If the Connectivity Matrix is displayed immediately after adding all network elements, click **Close**. The product catalog needs to be modified. A network element without related equipment cannot be provisioned.

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6. Examine the Network Elements - product options window.

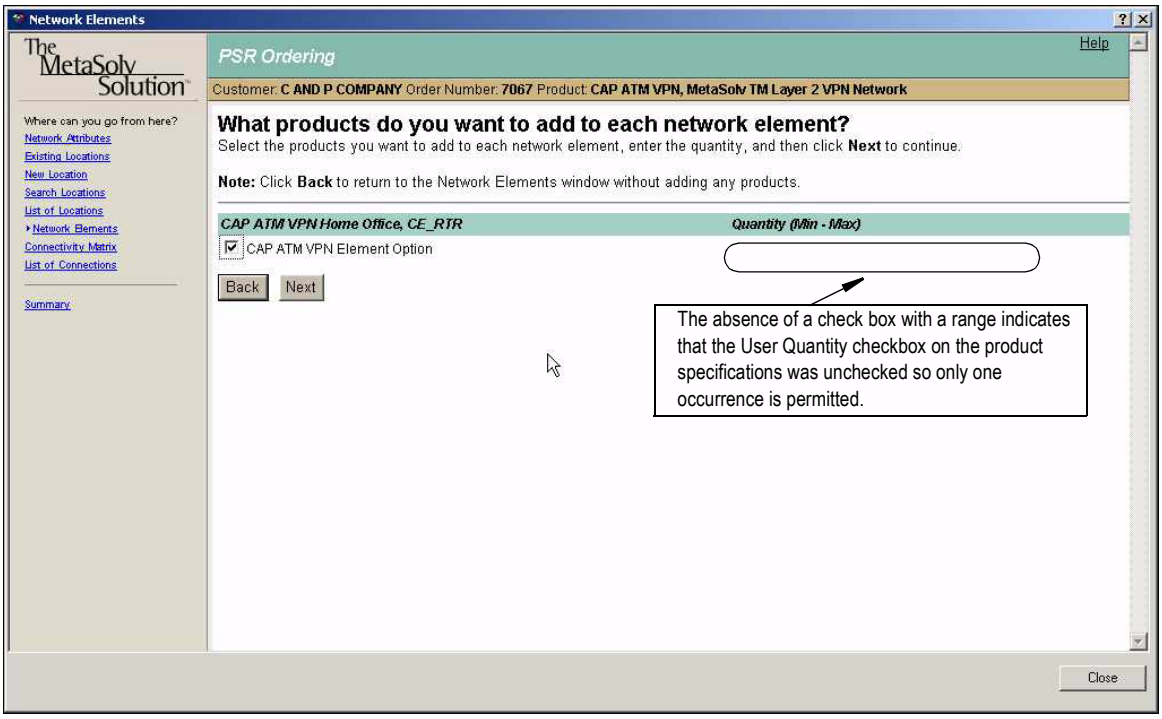

Figure 27: What products do you want to add to each network element?

The Network Elements window for product options lists all subordinate products related to the network element in the product catalog. Checking the checkbox preceding a listed item enables the Quantity field if a valid range is displayed. The quantity entered here controls the number of occurrences for this item that is added to the PSR Service Item treeview. When you close the Ordering Dialog, you can configure these additional items. This window is presented only when the product network elements are being added. You cannot redisplay this window after you click **Next.**

7. For each network element that has related products, indicate what products you want to add and the quantity of each. To include product options for any ordered element, check the box listing the desired option, and enter a quantity if a range is displayed, then click **Next**. The Equipment window appears.

Add any required equipment-level information

Equipment information is an extension of network element information. That is, for each network element ordered, that network element must have at least one piece of associated equipment. Each piece of equipment must be associated with at least one equipment specification. If a network element is related to a piece of equipment that is associated with multiple equipment specs, you can select the one spec to use during the order process.

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Steps

1. Examine the Equipment window.

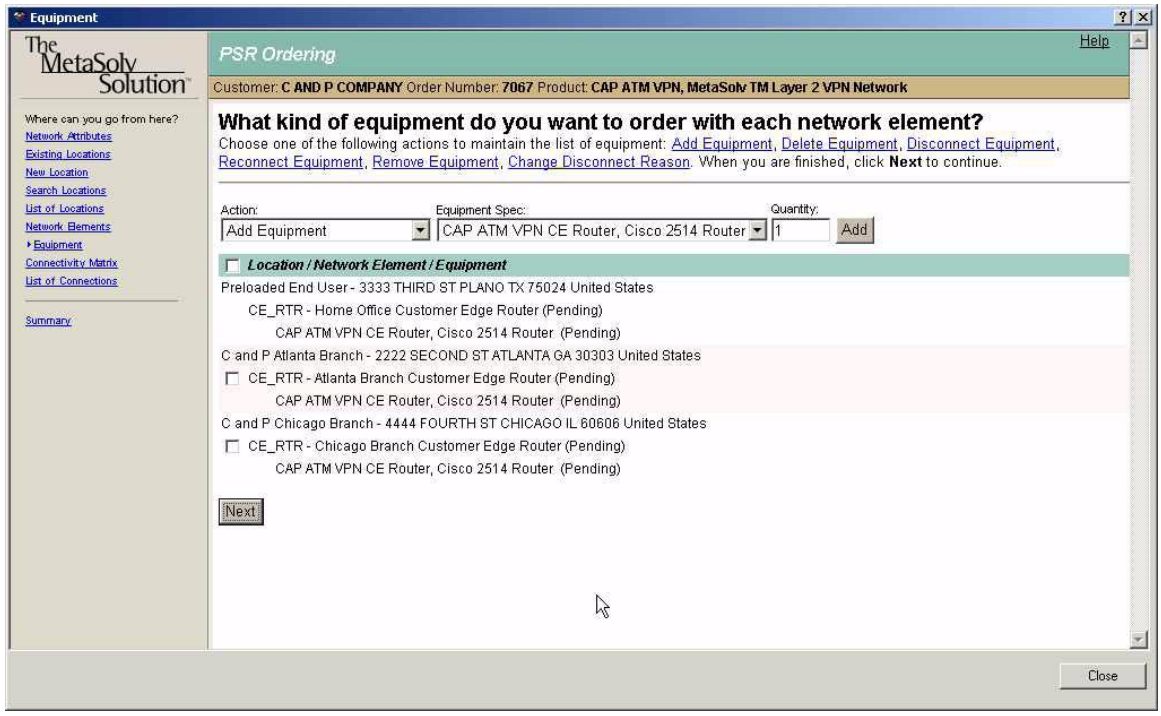

Figure 28: What kind of equipment do you want to order with each network element?

The Equipment window is divided into two parts: one where you select an action, the other where you identify the location/network element/equipment to which this action is to apply. When any action is selected, only items that are valid to select for that action are displayed with preceding checkboxes. For the action *Add Equipment*, the equipment specs displayed in the drop-down list include those associated with the equipment related to each network element under the ordered network system. In the example used in the preceding figure, the router displayed in the equipment spec field was selected on the product catalog for the equipment associated with only the branch office elements. Because this particular equipment spec was not associated with equipment related to the home office, the home office entry does not have a checkbox available for selection. This filtering of the data ensures that a given equipment spec can be associated only with network elements to which it can apply. The quantity selected should equal the pieces of equipment using this spec planned for each

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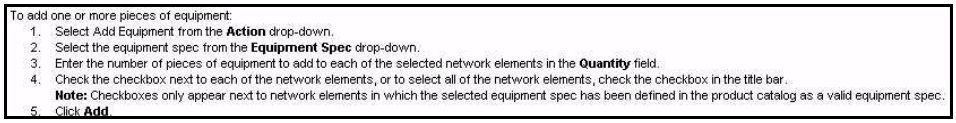
selected network location. The quantity that can be specified is limited by the Max of the range specified on the Product Specs.

2. Click the **Add Equipment** link to display the following steps.



3. Follow these steps for each listed network element. When you have identified the kind of equipment you want to order for each network element at each location by specifying the quantity and equipment spec, click **Next** and proceed in one of the following ways.
   - If the Equipment Attributes window for adding subordinate products appears, continue with the following step.
   - If the Connectivity Matrix window appears, see Add network connection-level information.
4. Examine the Equipment Attributes window.

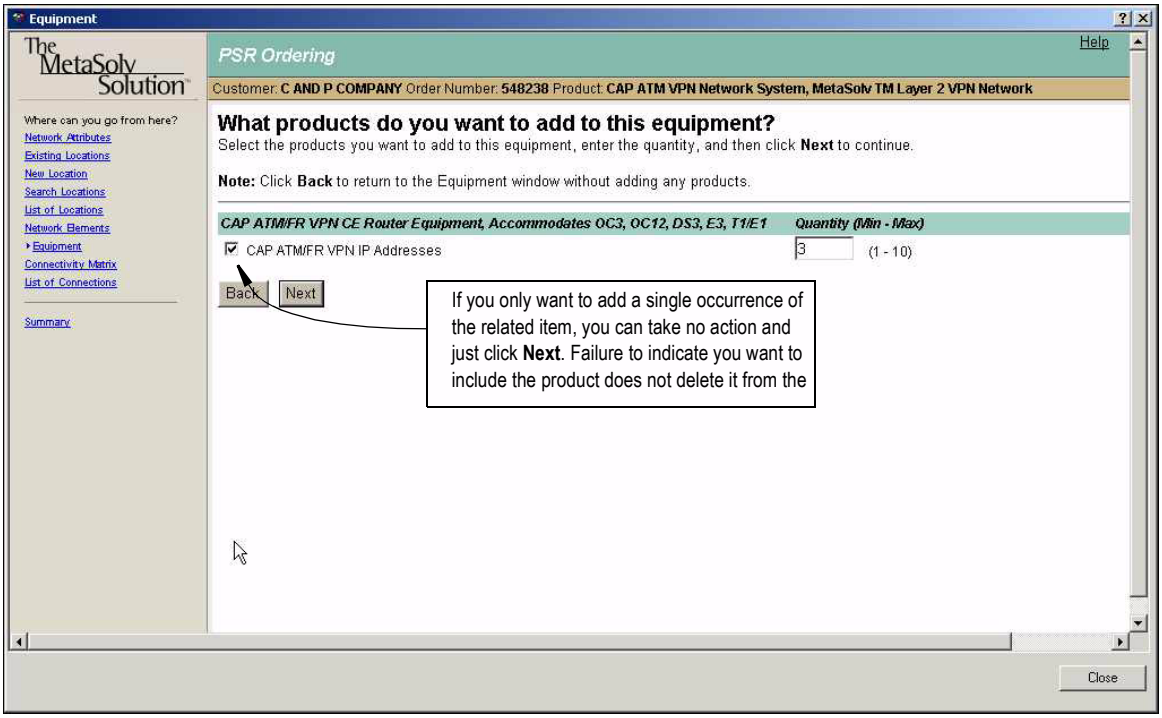


Figure 29: What products do you want to add to this equipment?

The Equipment Attributes window for product options lists all subordinate products related to this equipment product in the product catalog. Checking the checkbox preceding a listed item enables the Quantity field if a range is displayed. The quantity entered here controls the number of occurrences for this item that is added to the PSR

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Service Item treeview. When you close the Ordering Dialog, you can configure these additional items. (Preferably, IP addresses would be added subordinate to the network system. IP addresses are shown here only because equipment permits IP addresses as a subordinate product.) The Equipment Attributes window for specifying additional products is presented only when the equipment for each network element is being added. You cannot redisplay this window after you click **Next.**

5. To add a listed subordinate product, click the checkbox preceding the product name and specify a quantity within the displayed range, if any, then click **Next**.

Add network connection-level information

The Connectivity Matrix and List of Connections windows are always displayed in the Ordering Dialog, whether the product you are configuring is a network system or a product bundle. When you add a network connection to the order, you select a connection spec type from the Connection Type drop-down to indicate what kind of connection to add to each pair of network elements at the locations you identified. See the annotated connection spec types in Figure 6: MetaSolv-defined template components for internal networks and customer products on page 14 to get an idea of the types of connection specs that can be associated with ordered network connections. Your company can add others and delete those that are MetaSolv-defined, so this example may or may not be representative of what is available to you. A network connection can connect two customer locations or it can connect a customer location with the provider network. The difference between types of customer connections is specified through the association with a connection spec type.

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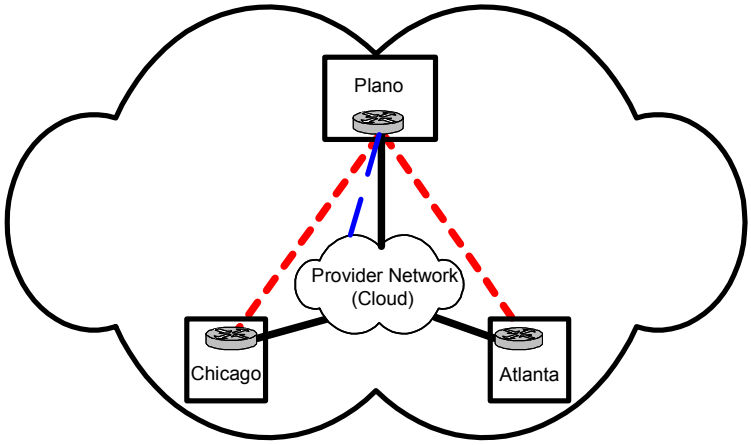
The type of information needed to complete the network connection windows for an ordered network system is shown on the following example:



Network connection	Connection spec type	Location Pairs
	VPN Link (CE_RTR, ATM_SW)	Plano & Cloud, Atlanta & Cloud, Chicago & Cloud
	Layer 2 VPN connection (CE_RTR, CE_RTR)	Plano & Atlanta, Plano & Chicago
	Internet connection (CE_RTR, Router)	Plano & Cloud

Figure 30: Network connection information

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Steps

1. Examine the Connectivity Matrix.

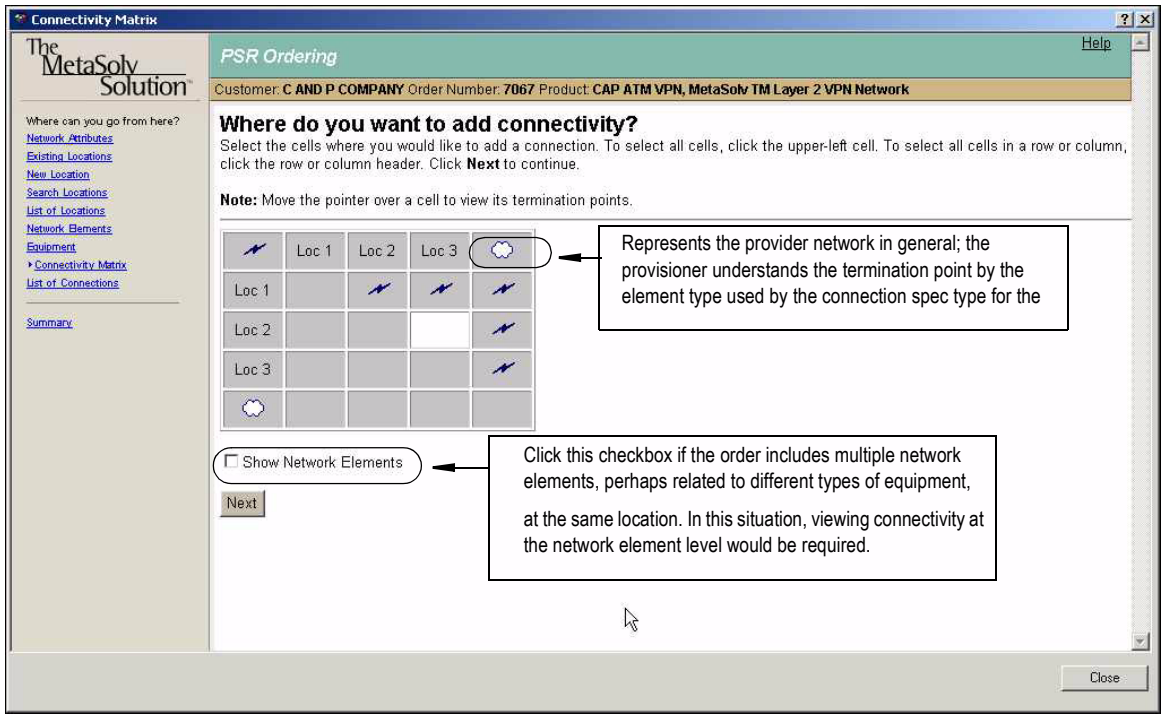

Figure 31: Where do you want connectivity?

The Connectivity Matrix window can display differently for network systems and stand-alone connections. For network systems, there is an option to display the matrix with the location's associated network elements. For stand-alone connections, it displays a matrix of all combinations of the selected locations. These location combinations are displayable by hovering over a given cell with your cursor. Clicking the lightning bolt symbol in the upper left cell selects all possible combinations, indicating a fully meshed network. Clicking a column or row header selects every possible connection involving the termination point corresponding to that header. When you display the Connectivity Matrix for the first time, all cells are open (white) above the diagonal from the upper left to lower right. The grayed out selections indicate that this window was redisplayed after making the connectivity selections. This window enables you to select the pairs of terminating locations for each connection in the ordered network.

2. Using the following guidelines, identify the pairs of locations between which you want connectivity by marking cells of the matrix of specified locations, then click **Next**.

    a. To indicate a fully meshed network, click the lightning bolt symbol in the upper left hand corner. This marks all available pairs for connectivity.

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b. To indicate connectivity from each location to the provider network, click the cloud symbol in the header of the last column.

c. To indicate only specific combinations, hover above each available cell with your mouse to display the location pair. If the displayed pair requires connectivity, click that cell to mark the location pair.

3. Examine the List of Connections window.

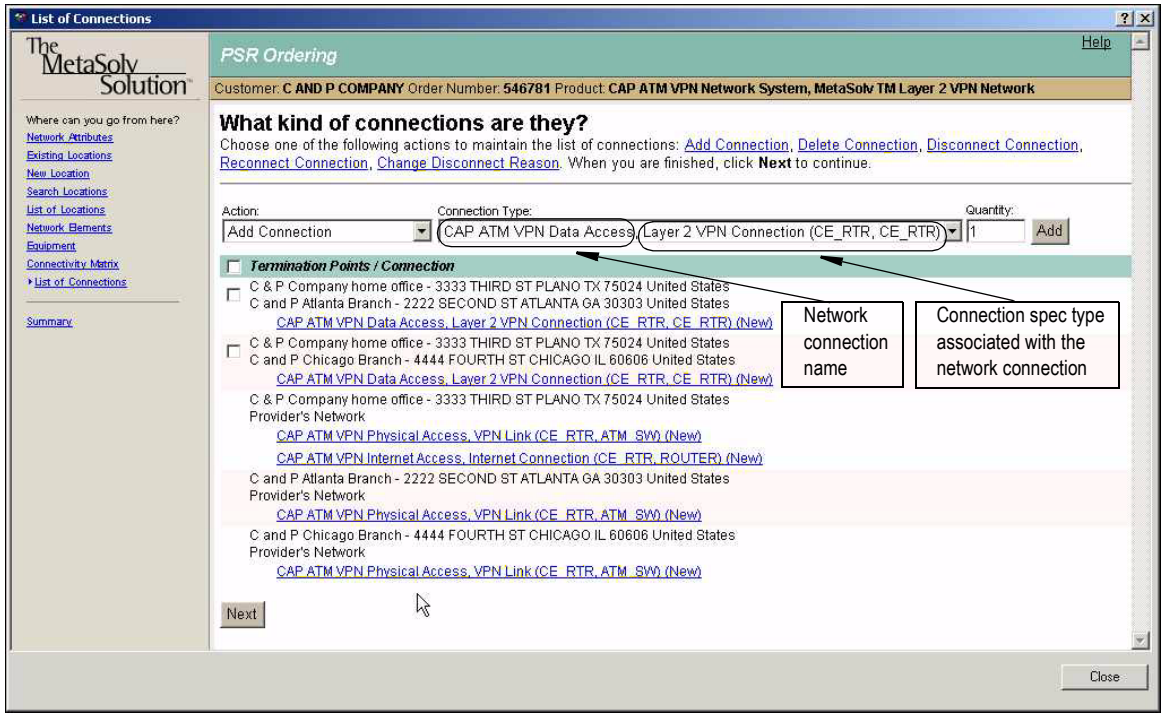

Figure 32: What kind of connections are they?

The List of Connections window has two sections. The bottom of the window displays connection locations as the pairs of end-points, or network segments, identified on the connectivity matrix. The appearance of checkboxes for adding connections is governed by whether the selected connection spec type is valid. For example, a connection spec type that terminates at two customer edge routers would not be valid for a segment terminating at the provider network; thus, such a segment would not include a checkbox when such a connection spec type is selected for addition. The top of the window enables you to specify whether connection(s) at the locations you check at the bottom are to be added, deleted, disconnected, or reconnected. The Action drop-down includes the options for each of these actions. *Add Connection*, the default action, requires specification of a connection spec type. The values in the Connection Type drop-down are populated with the connection spec types associated with each network connection being ordered. The quantity field permits you to take the selected action on more than one connection of a given type at a selected network segment. The connection type must be specified only if adding connections. For each addition, one

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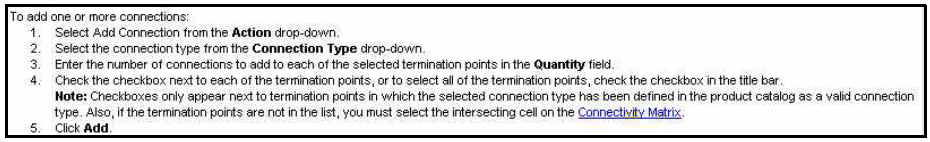
or more checkboxes can be checked to indicate the network segment to which the addition applies.

Note: To use a physical link for the ordered VPN that is InService on another VPN, do not add that network connection here. Rather, link to the Network Attributes window and add this request in the Notes field. (When the network is designed, the existing physical connection would be associated with the "line" between two elements.) To disconnect a physical link from a VPN that is in use on another VPN, add this request in notes. (During network design, the connection would be disassociated from the "line".)

4. Click **Add Connection** to display the list of steps for adding each connection.


To add one or more connections:
1. Select Add Connection from the **Action** drop-down.
2. Select the connection type from the **Connection Type** drop-down.
3. Enter the number of connections to add to each of the selected termination points in the **Quantity** field.
4. Check the checkbox next to each of the termination points, or to select all of the termination points, check the checkbox in the title bar.
   Note: Checkboxes only appear next to termination points in which the selected connection type has been defined in the product catalog as a valid connection type. Also, if the termination points are not in the list, you must select the intersecting cell on the Connectivity Matrix.
5. Click **Add**.

5. Using the displayed steps as a guide, specify the kinds of connections to add at each location pair you selected on the connectivity matrix. That is, identify the kinds and quantity of customer connections. When you have entered connection information for all ordered network connections, click **Next**. The format of the Connection Attributes window varies depending upon whether the connection is physical or virtual. Proceed in one of the following ways:

   - If the displayed connection is virtual, continue with the following step.
   - If the displayed connection is physical, continue with Step 11 on page 65.

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6. Examine the Connection Attributes window for a virtual connection.

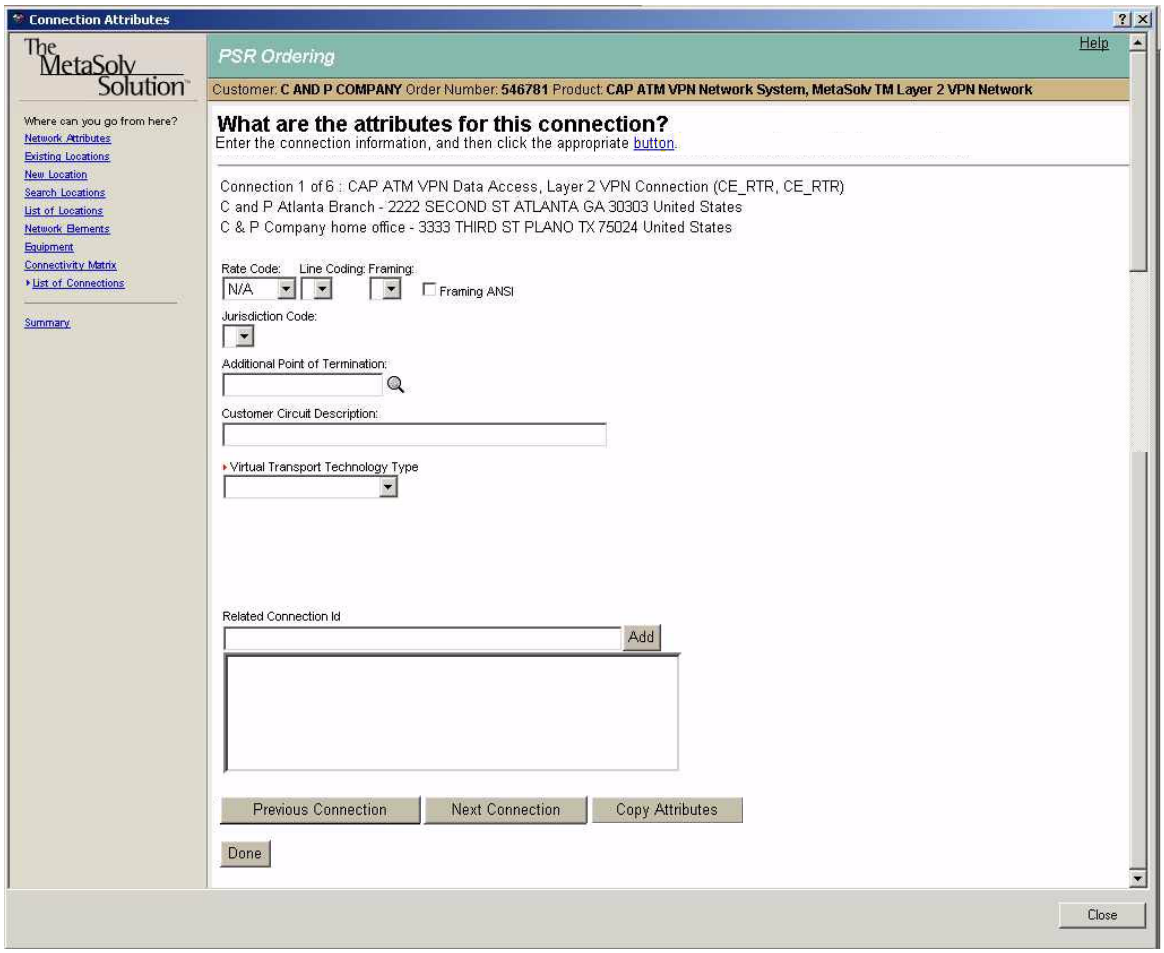

Figure 33: What are the attributes for this [virtual] connection?

The template type of the associated connection spec also drives the data that is displayed. The **Previous Connection** and **Next Connection** buttons allow you to scroll back and forth among connections being configured. If you want to go back to the previous page, complete the required fields on the current page before going back to the previous page. The **Copy Attributes** button enables you to apply attributes you have entered for one connection to other ordered connections that you select.

7. Specify custom attributes for the displayed virtual connection. Select one of the following as the virtual transport technology type and then specify the displayed custom attributes for the selected connection. To restore the default value for any field

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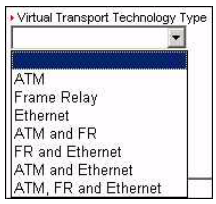
with a displayed value, blank out the displayed value; the system will restore the default value for the attribute.



- If the technology type is ATM, see the following figure for example custom attributes.
- If the technology type is frame relay, see Figure 35: Connection Attributes - custom attributes for frame relay connections on page 62.

Connection Attributes - ATM virtual connection follow:

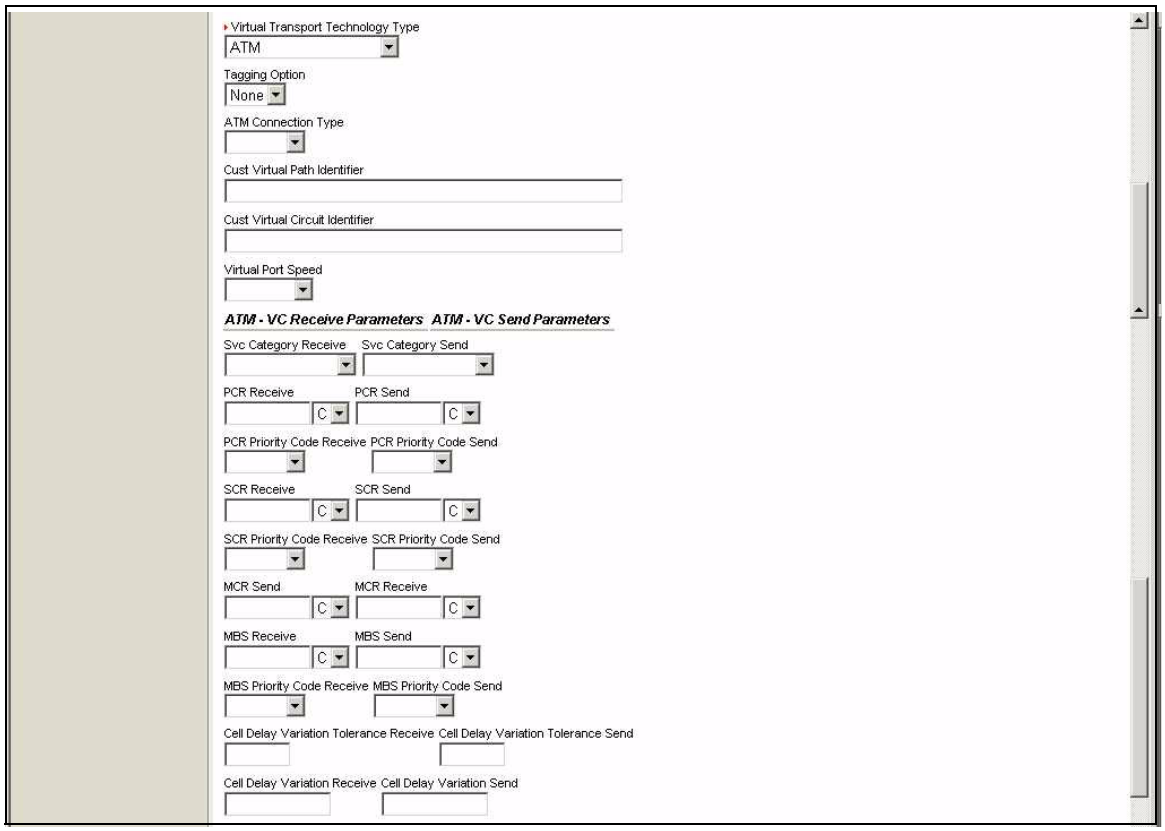


Figure 34: Connection Attributes - custom attributes for ATM connections

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Connection Attributes - Frame Relay virtual connection follow.

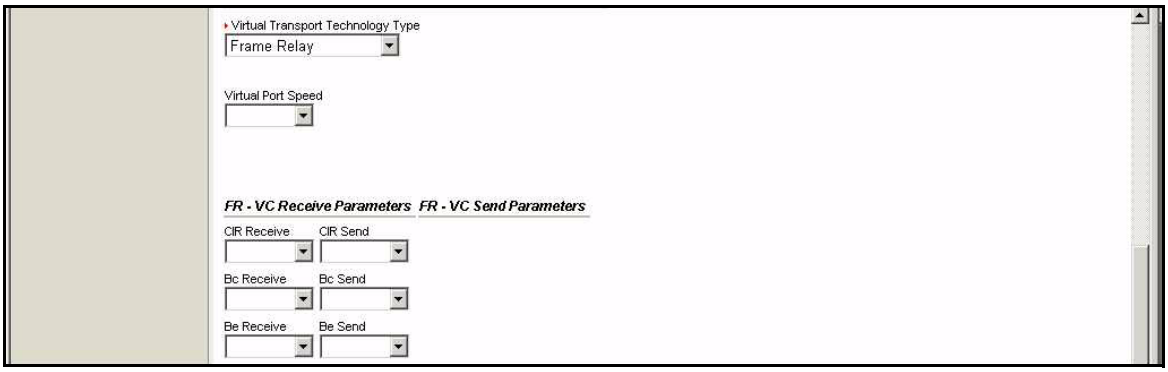

Figure 35: Connection Attributes - custom attributes for frame relay connections

8. After specifying the attributes for a connection, proceed in one of the following ways:

   ⇒ If the current connection is the last connection on the order, continue with Step 14 on page 66.

   ⇒ If the attributes specified for the current connection are not to be copied but there are other connections to configure, click **Next Connection** and continue in one of the following ways:

   ⇒ If the displayed connection is virtual, return to Step 7 on page 60.

   ⇒ If the displayed connection is physical, continue with Step 11 on page 65.

   ⇒ If the attributes specified for the current connection can be applied to other connections on the order for which custom attributes have not yet been defined, click the **Copy Connections** button and continue with Step 9 on page 63.

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9. Examine the Copy Connection Attributes window.

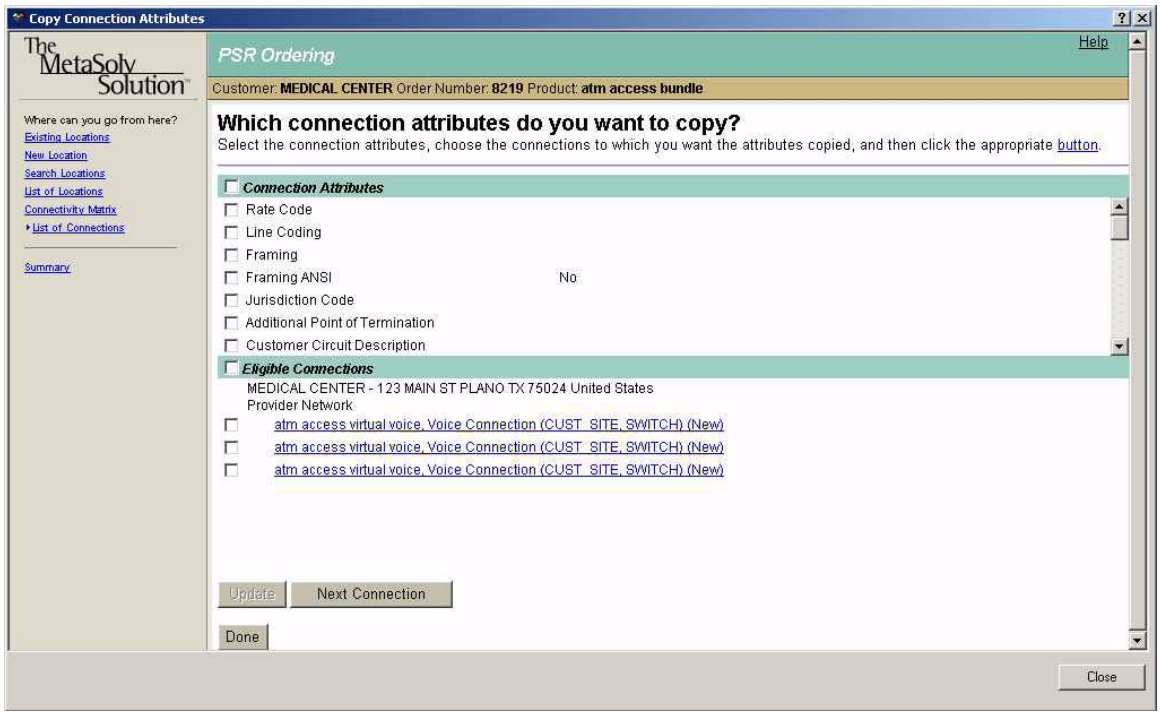

Figure 36: Which connection attributes do you want to copy?

The Copy Connection Attributes window displays a group of connection attributes and a group of eligible connections, where each group name is preceded by a checkbox that enables the selection of all members of the group with a single check. The eligible connections group contains those ordered network connections that were associated with the same connection spec type as the current network connection. The connection attributes group is a scrollable list of the connection attributes that have been associated with the connection spec type of the current connection. A checkbox precedes each connection attribute. The current value for each attribute of the current connection is displayed to the right. Values changed during the previous update of the current connection will be preselected for copying. Default values accepted during update of the current connection will also be displayed. These values will also be preselected.

10. Follow these steps to copy connection attributes:

    a. Select the attributes to copy. To copy all the attributes, click the **Connection Attributes** checkbox; to copy selected attributes, scroll through the list and check the attributes with values to copy. If you blanked out any field that has a default on the Connection Attributes window, the default value is restored and the attribute is automatically checked for copying.

    b. Select the connections to which you want the selected attributes copied. To select all connections, click the **Eligible Connections** checkbox; to select individual connections, click the checkbox preceding the connections to select.

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c. Click the **Update** button to update the selected connections with the selected attributes.

Note: When copying a connection's attributes to other connections that already have attributes defined, there may be differences in values between the source connection and the target connections on those attributes designed with dependencies. When this occurs, you may receive the error *"CaValueValidateManager: CA value record being changed or deleted is not found..."*, identifying a specific attribute. To complete the change, uncheck each of the attributes flagged in the CaValueValidateManager errors, and click **Update**. Once that update succeeds (the parent attribute values are accepted), recheck the dependent attributes and click **Update** again to complete the update.

d. Click **Next Connection.** This redisplays the Connection Attributes window with the Next Connection on the list. This may or may not be one of the network connections to which you copied attributes.

⇒ If the displayed connection is one to which you copied attributes, verify the data and if desired, customize it for the displayed connection and return to Step 8 on page 62.

⇒ If the displayed connection is not one to which you copied attributes and the connection is virtual, return to Step 7 on page 60.

⇒ If the displayed connection is not one to which you copied attributes and the connection is physical, continue with Step 11 on page 65.

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11. Examine the Connection Attributes window for a physical connection.

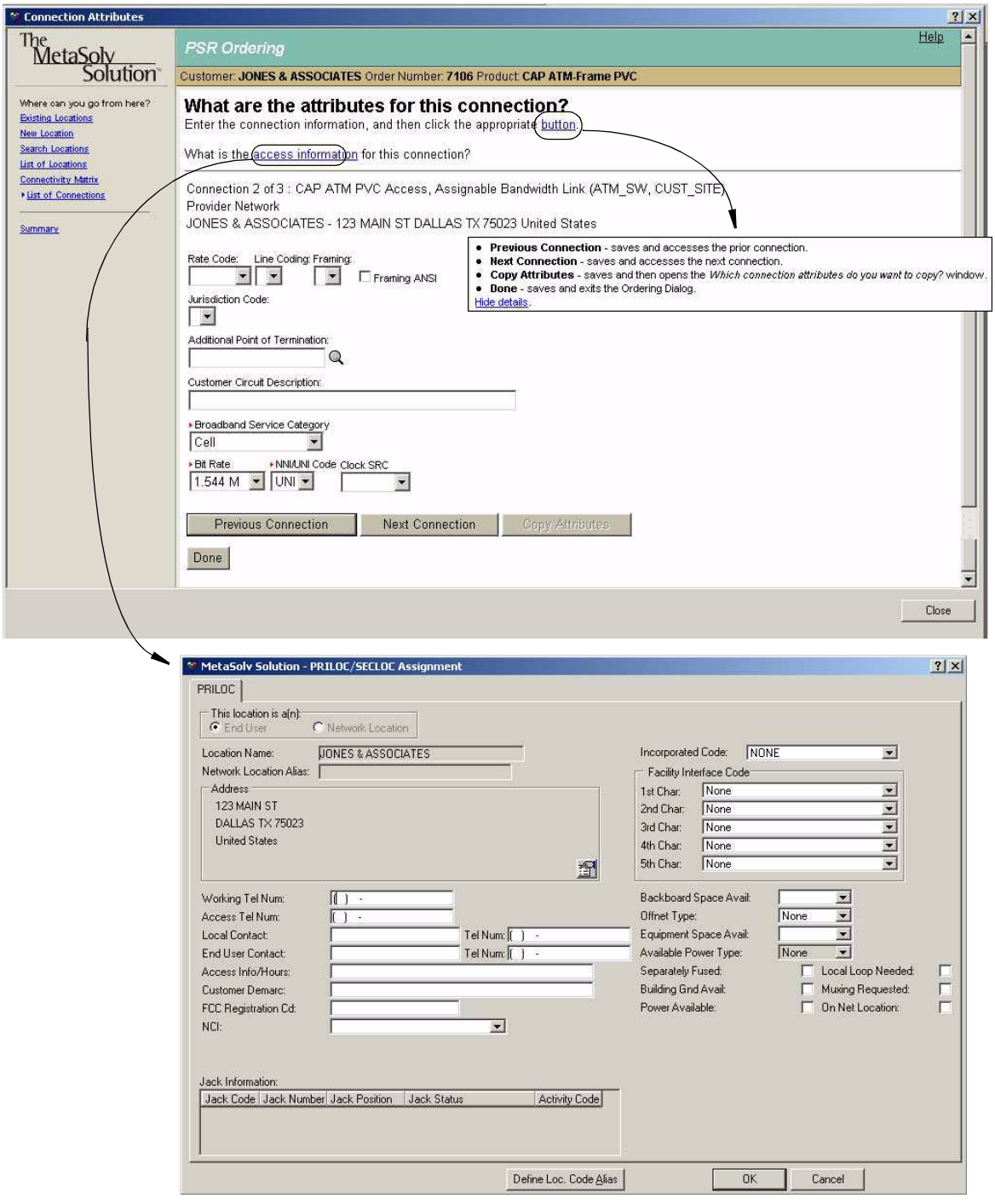

Figure 37: What are the attributes for this [physical] connection?

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The template type of the associated connection spec also drives the data that is displayed. The **Previous Connection** and **Next Connection** buttons allow you to scroll back and forth among connections being configured. If you want to go back to the previous page, complete the required fields on the current page before going back to the previous page. If the order contains multiple physical connections associated with the same connection spec, the **Copy Attributes** button enables you to apply attributes you have entered for one connection to all of these connections or those that you select.

12. Specify custom attributes for the displayed physical connection. For example, specify whether the Broadband Service Category (BSC) is *Cell*, *Frame*, or *N or LAN (Ethernet*). Then specify whether the connection is a *UNI* (User to Network Interface) or *NNI* (Network to Network Interface). All connections that are from the customer site to the provider network should be designated as UNI. Click the **Access Information** link to display the PSR window, PRILOC/SECLOC Assignment; complete this window and click **OK** to return to the Connection Attributes window.
13. After specifying the attributes for a connection, proceed in one of the following ways:
    - If the current connection is the last connection on the order, continue with the next step.
    - If the attributes specified for the current connection are not to be copied but there are other connections to configure, click **Next Connection** and continue in one of the following ways:

      ⇒ If the displayed connection is virtual, return to Step 7 on page 60.

      ⇒ If the displayed connection is physical, return to Step 12 on page 66.
    - If the attributes specified for the current connection can be applied to other connections on the order for which custom attributes have not yet been defined, click the **Copy Connections** button and return to Step 9 on page 63.
14. When you have specified connection attributes for the final connection, proceed in one of the following ways:
    - Click the **Summary** link on the navigation panel. The Summary window of the Ordering Dialog appears.
    - Click **Done**. The PSR order appears. Click the Summary tab to display summary information. The information displayed on the Summary tab is the same as that displayed on the Summary window of the Ordering Dialog. For examples, see PSR Summary tab and template-based products.

Review summary information

The information displayed on the summary windows refers to the template-based products in the selected product offering. Other related products are configured from the PSR service items tab.

Steps

1. Proceed in one of the following ways, depending on what you ordered:
    - If you used the Ordering Dialog to order a network system, see the following step.

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- If you used the Ordering Dialog to order a product bundle of network connections, see Step 4 on page 68.

2. Examine the Summary window for a network system.

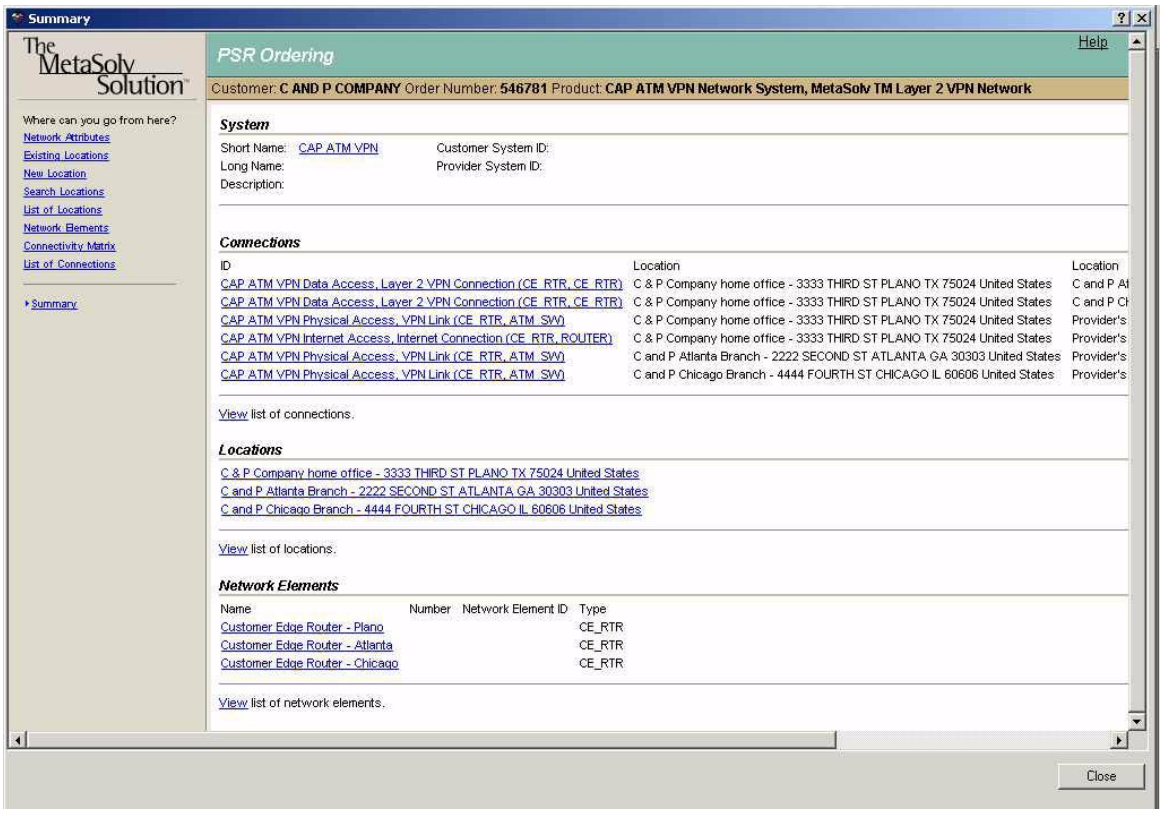

Figure 38: Summary - network system

The format and the type of data displayed on the Summary window depends on whether the product you added is a network system or a product bundle.

The Summary window displays different data depending upon whether the summary is for a network system or for a product bundle. The product bundle summary lists just connections and locations, while the network system lists these plus system details and network elements. The list of locations specifies customer sites where one or more of the ordered connections terminates. You can open this window by selecting Summary from the Navigation bar.

Use this window to:

- View the short name for the network
- View the list of connections
- View the list locations where ordered connections terminate
- View the list of element.
- Link to the source window to make any needed correction or to view more details.

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3. Verify the summary data is correct and complete. If you notice something you would like to change or just want to view more details, link to the source window as follows for the data of interest. Continue with Step 6 on page 69.
   - Click the link for the short name to display the window shown in Figure 15, “What are the attributes for the network?,” on page 39.
   - Click the link for one of the connections to display the window shown in Figure 33: What are the attributes for this [virtual] connection? on page 60 or in Figure 37, “What are the attributes for this [physical] connection?,” on page 65.
   - Click the **View** link on View list of connections to display the window shown in Figure 32, “What kind of connections are they?,” on page 58.
   - Click a link on a specific location to display the window shown in Figure 20, “Where is the location?,” on page 44.
   - Click the **View** link on View list of locations to display the window shown in Figure 23, “Is the list of locations correct?,” on page 47.
   - Click the link on a specific network element to display the window shown in Figure 26, “What are the attributes for this network element?,” on page 51.
   - Click the link for View list of network elements to display the window shown in Figure 25, “What kind of network elements are at each location?,” on page 50.
4. Examine the Summary window for a product bundle.

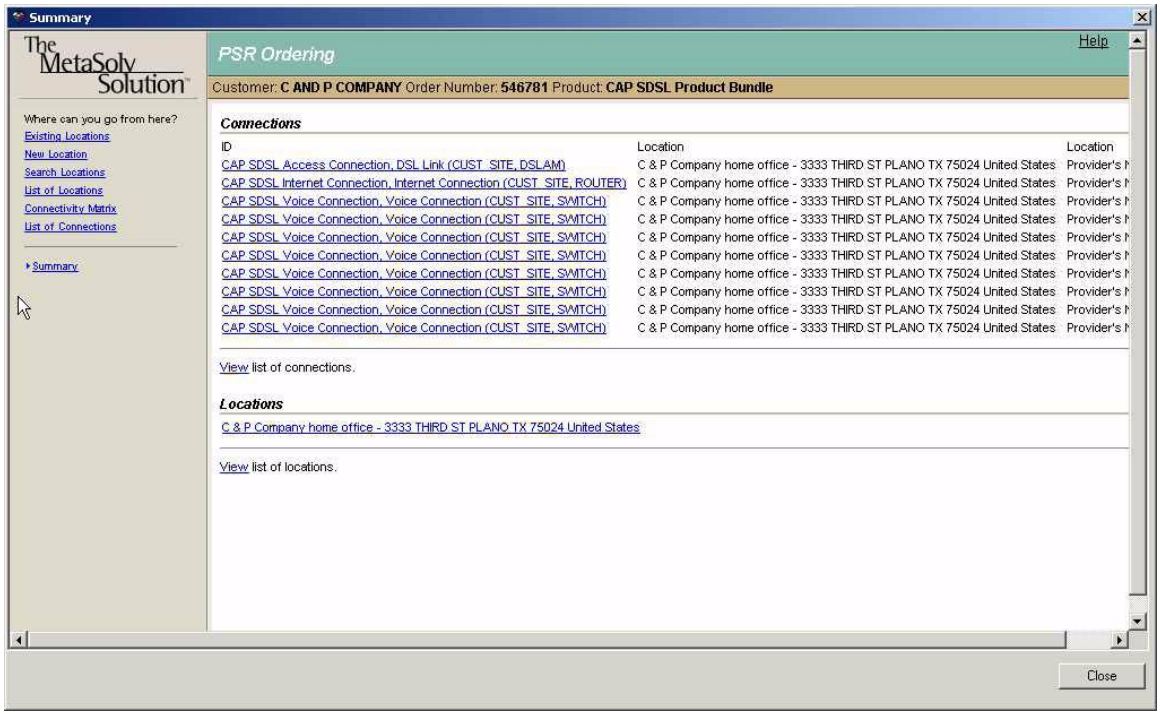

Figure 39: Summary - product bundle

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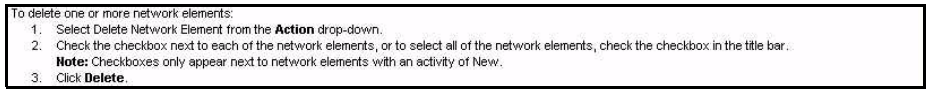
The Summary window for product bundle lists just connections and locations. The list of locations specifies customer sites where one or more of the ordered connections terminates.

5. Verify the summary data is correct and complete. If you notice something you would like to change or just want to view more details, link to the source window as follows for the data of interest.
   - Click the link for one of the connections to display the window shown in Figure 33, "What are the attributes for this [virtual] connection?," on page 60 or in Figure 37, "What are the attributes for this [physical] connection?," on page 65.
   - Click the **View** link on View list of connections to display the window shown in Figure 32, "What kind of connections are they?," on page 58.
   - Click a link on a specific location to display the window shown in Figure 20, "Where is the location?," on page 44.
   - Click the **View** link on View list of locations to display the window shown in Figure 23, "Is the list of locations correct?," on page 47.
6. If any error is found, make the needed correction. For example, to delete a new service item that is not needed on the order, use the following process.

Delete the product or a new service item added to an order

Steps

1. If you notice you added the wrong network system or product bundle to an order while in the Ordering Dialog, click **Close** to return to the PSR treeview. Highlight the network system or product bundle from the PSR treeview, and select **Delete This Item** from the right click menu.
2. If you add a network element in error, click the Network Element link on the panel list to display the Network Elements window, then click the **Delete a network element** link to display directions for using the controls on this window to perform this task. Follow these steps to undo the addition of the selected network elements, then confirm the displayed list of elements at each location is correct and complete.


To delete one or more network elements:
1. Select Delete Network Element from the **Action** drop-down.
2. Check the checkbox next to each of the network elements, or to select all of the network elements, check the checkbox in the title bar.
   Note: Checkboxes only appear next to network elements with an activity of New.
3. Click **Delete**.

Delete Network Element, which is valid only for new network elements just added, simply deletes the selected network element from the order. (Note: You can delete a

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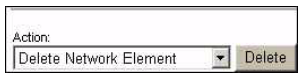
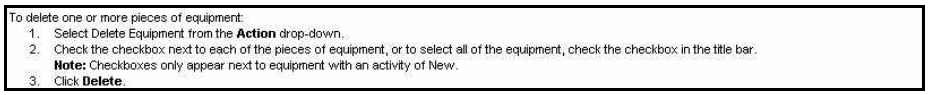
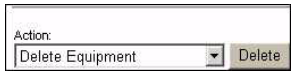
network element that is related to one or more pieces of equipment; the system severs the relationship for you.)



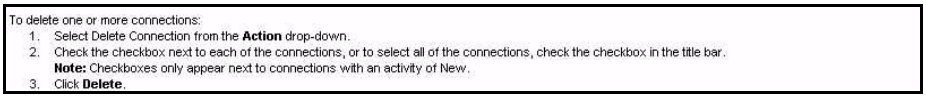
3. If you notice you added the wrong equipment while in the Ordering Dialog, click the **Equipment** link in the navigation list. Click the **Delete Equipment** link and follow the directions.



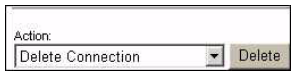
For the action *Delete Equipment*, only new equipment that was just added can be selected for deletion. Clicking the **Delete** button deletes the selected items from the order.



4. If you notice you added the wrong network connection while in the Ordering Dialog, click the **List of Connections** link to display the window similar to Figure 32, "What kind of connections are they?," on page 58. Click the **Delete Connection** link in the directions section of the List of Connections window and follow the described steps.



Delete Connection can be used to delete new connections from the order.



5. Click **Close** to exit the Ordering Dialog.

Configuring products ordered with template-based products

Product catalog offerings for template-based products, such as a DSL product bundle, may include voice connections with a hunt group as a system option. VPN offerings may include IP addresses either under the network system, a network connection, or equipment. Examples of configuration details can be found in the following sections of the Scenarios chapter:

- Assigning telephone numbers to voice connections on 96.
- Configuring hunt groups on 99.
- Configuring IP addresses on 116.

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Changing an existing template-based product on an order

This section describes the steps for making changes to an existing template-based product. The types of changes that can be made include changes to the service item's custom attributes, removal of the service item from the order, disconnecting the service item, reconnecting the service item, or changing the disconnect reason for a disconnected item. Changes are presented at the service item level in the same order as these items were added. Processes involving changes include:

- Changing product-level details
- Changing location information
- Changing a network element service item
- Changing an equipment service item
- Changing a network connection service item

You can have multiple orders open for the same service item. Consider this scenario: A customer calls and requests ADSL service (New). Before the service is turned up on this order, the customer calls back and asks you to change the original request from ADSL to SDSL (Change). Before either the new or changed orders are fully processed and due dated, the customer calls and informs you they will be relocating in three months but still need service turned up for the initial three-month period (Pending Disconnect).

- In the scenario described above, the following rules apply:
- New Activity – Must be due date complete before a Change or Pending Disconnect order can be due dated.
- Change Activity – Must be due date complete after a New order but before a Pending Disconnect order.
- Pending Disconnect Activity – If a New or Change order status exists for a customer, they must be due date complete before the Pending Disconnect order can be due dated.

Change product-level details

If the product you are changing is a network system, you may have provided the following details when you added this item: network template to use, attributes for the network, and products to add to the network. Of these specifications, you can change only the network attributes through the Ordering Dialog. To do so, follow these steps:

Steps

1. Access the Network Attributes main page by selecting the Network Attributes link from the navigation list. For an example, see Figure 15: What are the attributes for the network? on page 39.
2. Change existing attribute values as needed.
3. Either begin another task in the Ordering Dialog or click **Close** to exit the Ordering Dialog and complete the order as described on page 81.

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Change location information

The kinds of location information changes you can make include:

- Adding a new location
- Modifying an existing location
- Removing a location from the order

You may need to add a new location to the order to accommodate a new network connection. You may need to remove an existing location from the order in conjunction with disconnecting a network element and any network connections that use it. You can change location information through the Address Maintenance window for the current customer or you can change it through the Ordering Dialog.

To change location information, use the following steps.

Steps

1. To add a new location, use the steps described in Add and/or verify locations.
2. To remove an existing location from the order,
   a. Navigate to the List of Locations window by clicking the List of Locations link in the navigation bar.
   b. Check the location you want to remove.
   c. Click the **Remove** button.
3. To modify the attributes of a selected existing location,
   a. Retrieve the attributes for a particular location in one of the following ways, depending on whether the location to update is included on the list of locations for this order.
      ⇒ If the location is on the list for this order, click the link for a selected customer location either from the Locations section of the Summary window or from the List of Locations window. This displays the selected location details on a window similar to Figure 20, "Where is the location?," on page 44.
      ⇒ If the location to be updated is not included on the list for this order, click the **Search Locations** link in the navigation list to display a window similar to Figure 21, "Location Search," on page 45. Enter the criteria and click **Search Now**. When the Location Search Results window appears, double-click the link for the location to modify. This brings up the data in the New Location window.
   b. Make the needed changes, and click **Next**.

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c. Examine the Update Locations window.

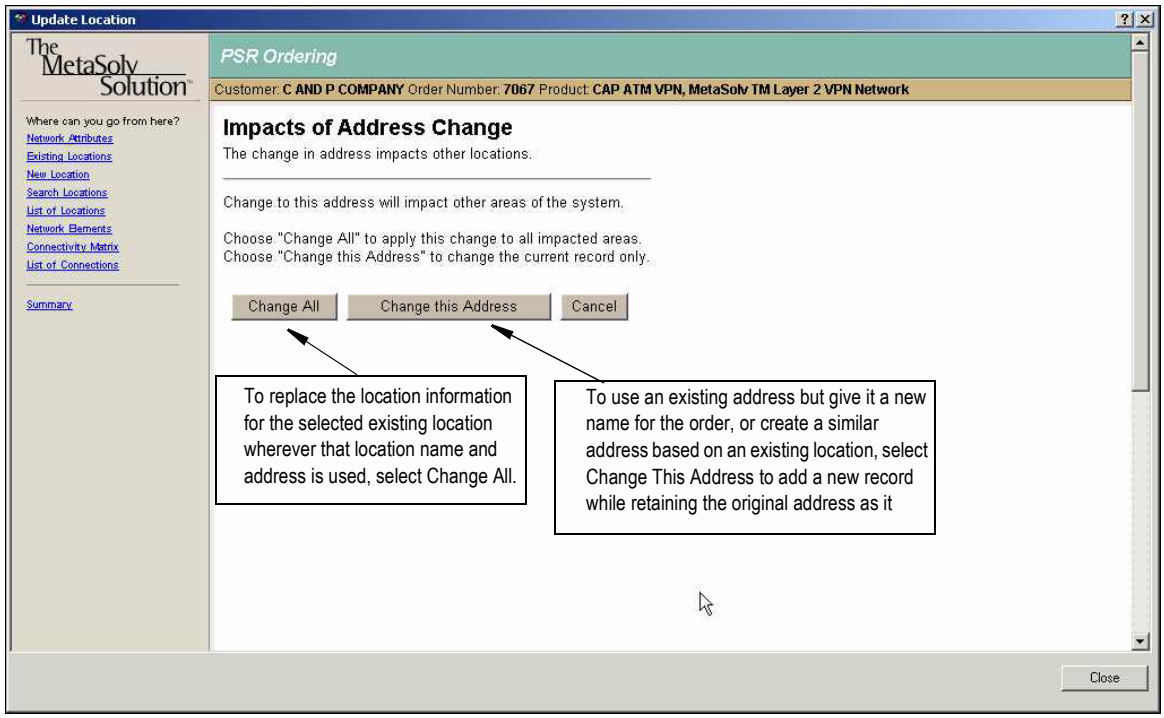

Figure 40: Impacts of address change

The Update Location window displays the options of applying a customer account address change to the current window or to all impacted areas. You can open this window by changing an address you have added. Clicking on an address from the List of Locations window redisplays the New Location window. If any change is made to the data on the New Location window, this Update Location window appears.

d. On the Update Location window, click the button corresponding to how you want the location information updated.

⇒ Click **Change All** to update the existing address information for the customer account with your changes.

⇒ Click **Change This Address** to create a new address and update all existing orders using the address, where the customer account retains the address details as they existed prior to the change. Click the **Summary** link to confirm changes.

4. Begin another task in the Ordering Dialog or click **Close** to exit the Ordering Dialog and complete the order as described on page 81.

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Change a network element service item

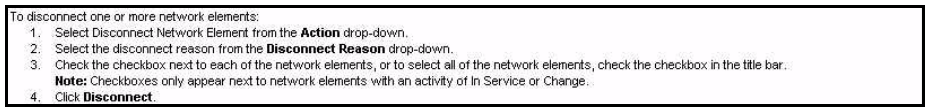
The kinds of changes you can make to an existing template-based product at the network element level include:

- Adding a network element
- Updating the custom attributes of an existing network element
- Removing an existing network element from the order
- Disconnecting an existing network element
- Changing the disconnect reason for a network element that is either disconnected or in the process of being disconnected
- Reconnecting an existing network element that is either disconnected or in the process of being disconnected

To change network element information, use the following steps.

Steps

1. To add a network element to the existing product, follow the steps for Add any required network element-level information.
2. To update the custom attributes of an existing network element,
   a. Access the network element of interest from the Summary window by clicking on its link in the Network Elements section
   b. Update the attributes as needed
3. To make any other changes at the network element level, access the Network Elements window either by clicking the **Network Elements** link on the Ordering Dialog panel list or by clicking the **View** list of network elements link on the Summary window.
4. To disconnect an existing network element,
   a. Click the **Disconnect Network Element** link to display the following steps.



   b. Follow the directions to disconnect the selected network element from one or more locations. (Note: You can disconnect a network element that is related to one or more pieces of equipment; the system severs the relationship for you.)

   Disconnect Network Element, which is valid only for InService network elements or those being changed, is displayed with a drop-down list of disconnect reasons, where the displayed reason at the time the **Disconnect** button is clicked is the reason used.

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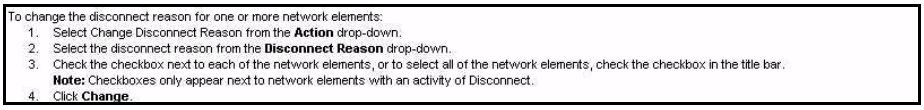
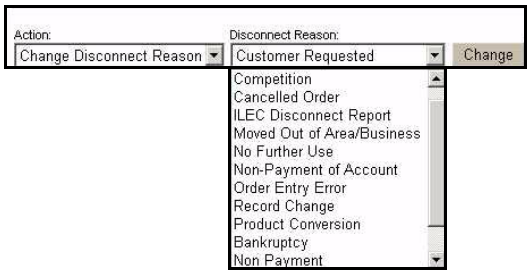
5. To change the disconnect reason for a network element that is either disconnected or in the process of being disconnected,

   a. Click the **Change Disconnect Reason** link to display the following steps.



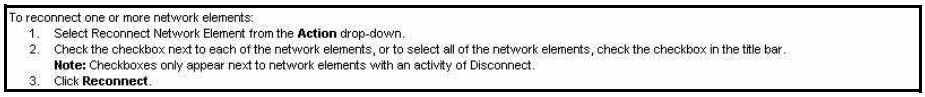
   b. Follow the listed steps.

   Change Disconnect Reason is the action that enables the reason last specified for a disconnected network element to be changed.



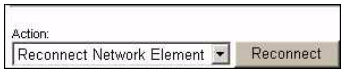
6. To reconnect an existing network element that is either disconnected or in the process of being disconnected,

   a. Click the **Reconnect network element** link to display the following steps.



   b. Follow the listed steps.

   Reconnect Network Element is an action that undoes a previous disconnect and puts the selected network elements back in InService status.



7. Confirm the displayed list of elements at each location is correct and complete.
8. Begin another task in the Ordering Dialog or click **Close** to exit the Ordering Dialog and complete the order as described on page 81.

Change an equipment service item

Any equipment related to an ordered network element in the Product Specs that was not initially added to the order can be added later on an order with an activity of Change. The kinds of changes you can make to an existing template-based product at the equipment level include:

- Adding equipment

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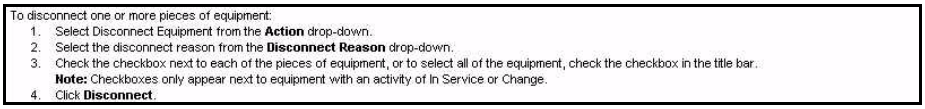
- Disconnecting equipment
- Reconnecting an existing piece of equipment that is either disconnected or in the process of being disconnected
- Changing the disconnect reason for equipment that is either disconnected or in the process of being disconnected

To change equipment information ordered with a template-based product, use the following steps.

Steps

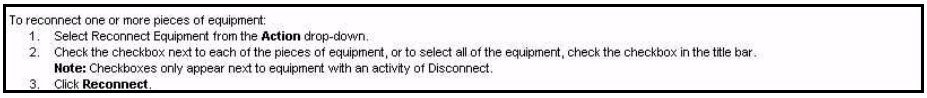
1. To add equipment to the existing product, follow the steps for Add any required equipment-level information.
2. For any other change, open the Equipment window by selecting **Equipment** from the panel list on the Ordering dialog.
3. To disconnect equipment,
   a. Click the **Disconnect equipment** link to display the following steps:



   b. Use these steps to disconnect the selected equipment and provide a disconnect reason.

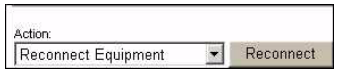
      For *Disconnect Equipment,* the window displays the Disconnect Reason drop-down and a **Disconnect** button. Only equipment that is InService can be disconnected.

4. To reconnect an existing piece of equipment that is either disconnected or in the process of being disconnected,
   a. Click the **Reconnect Equipment** link to display the following steps.



   b. Follow the listed steps.

      For *Reconnect Equipment*, the window displays a **Reconnect** button. Only equipment that is disconnected can be reconnected.



5. To change the disconnect reason for equipment that is either disconnected or in the process of being disconnected,

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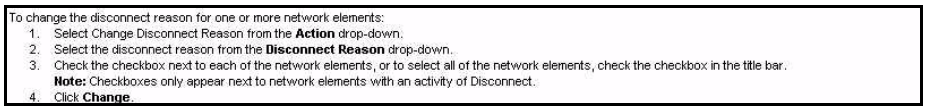
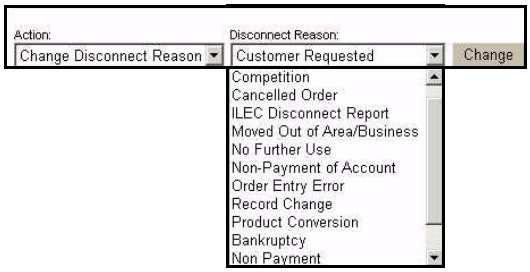
a. Click the **Change Disconnect Reason** link in the directions section of the Equipment window to display these steps.



b. Follow the listed steps.

For *Change Disconnect Reason*, the window displays a drop-down with a selection of disconnect reasons and a **Change** button. Changing the disconnect reason can apply only to disconnected equipment.



6. Confirm the displayed list of equipment ordered with each element is correct and complete.
7. Begin another task in the Ordering Dialog or click **Close** to exit the Ordering Dialog and complete the order as described on page 81.

Change a network connection service item

Any network connection that was not initially added to the order can be added later on an order with an activity of Change. The kinds of changes you can make to an existing template-based product at the network connection level include:

- Adding a network connection
- Changing the custom attributes for a network connection
- Disconnecting a network connection
- Reconnecting a network connection that is either disconnected or in the process of being disconnected
- Changing the disconnect reason for a network connection that is either disconnected or in the process of being disconnected

To change information for a network connection ordered with a template-based product, use the following steps.

Steps

1. To add a network connection, follow the steps listed in Add network connection-level information.

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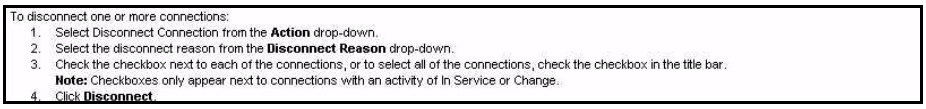
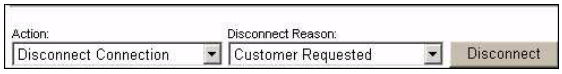
2. Display the network connection to change by selecting that connection from the Summary window of the Ordering Dialog or the Summary tab of the PSR window. Or, click the **List of Connections** link on the navigation list of the Ordering Dialog.
3. To change the custom attributes for a network connection,
   a. Click on the link for network connection of interest to display its attributes on the Connection Attributes window.
   b. Change any modifiable attribute as needed.
   c. Click on the List of Connections link in the navigation list to continue modifying network connections.
4. To disconnect a network connection,
   a. Click the **Disconnect Connection** link in the directions section to display these steps.



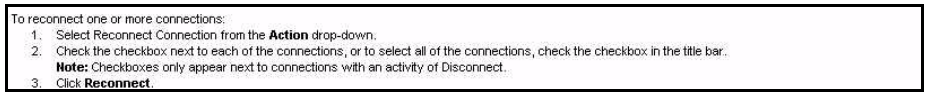
Note: To disconnect a physical link from a VPN that is in use on another VPN, add this request in notes. (During network design, the connection would be disassociated from the “line”.)

   b. Follow the displayed steps to disconnect one or more connections.

   Disconnect Connection can be used to disconnect InService connections.

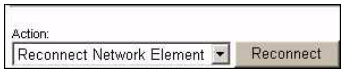


5. To reconnect a network connection,
   a. Click the **Reconnect connection** link to display the following steps.



   b. Follow the displayed steps to reconnect the selected connection.

   Reconnect Connection is like an undo for disconnect.



6. To replace a disconnect reason with a new one,

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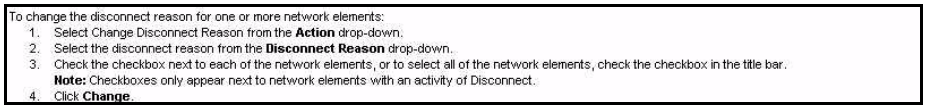
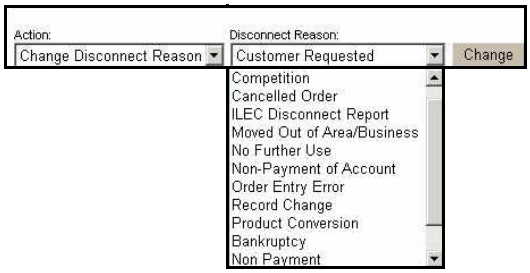
a. Click **Change disconnect reason** to display the following steps.



b. Follow the displayed steps to change the disconnect reason.

For *Change Disconnect Reason*, the window displays a drop-down with a selection of disconnect reasons and a Change button. Changing the disconnect reason can apply only to disconnected network connections.



7. Click **Close**.
8. Confirm the displayed list of network connections and their attributes are correct and complete.
9. Begin another task in the Ordering Dialog or click **Close** to exit the Ordering Dialog and complete the order as described on page 81.

Remove service items from the order

When you enter a change order, you can make changes to InService template-based service items on an as needed basis. It is likely that many of the service items that were part of the order when it was new are to be left as is. You can remove these service items from the order. Or, if you make a change to a service item on the order and want to back out that change, you can remove the service item from the order.

Use the following steps to remove any of the following:

- a location
- a network element
- a piece of equipment

Steps

1. Verify the accuracy of the order as described in Review summary information
2. To remove a location from the list of locations,
   a. Click the **List of Locations** link on the Ordering Dialog panel list to display a window similar to Figure 23, “Is the list of locations correct?,” on page 47.
   b. Check the location to remove and click **Remove**.

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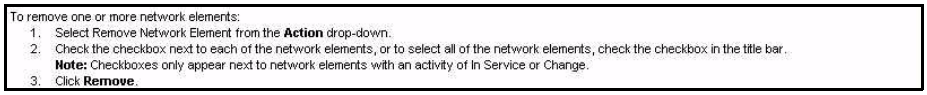
3. To remove an existing network element from the order,

   a. Verify the network element to be removed is not associated with an InService network connection.

   b. Click the **Network Elements** link on the Ordering Dialog panel list to display a window similar to Figure 25, "What kind of network elements are at each location?," on page 50.

   c. Click the **Remove Network Element** link to display the following steps.

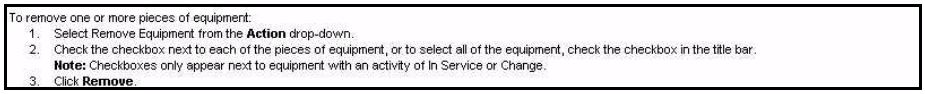


   d. Follow these steps to remove the selected network element from the order

      Remove Network Element is the action that removes an InService network element from the order. This action also can apply to network elements that are currently being changed. **Remove** has the effect of leaving the network element as it existed prior to being added to this order.

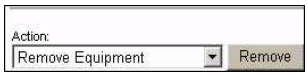
4. To remove equipment from the order,

   a. Click the **Remove Equipment** link in the directions section of the Equipment window to display the following steps.



   b. Follow these steps.

      For *Remove Equipment*, the window displays a **Remove** button. Only equipment that is either InService, or being changed where changes are to be backed out, can be removed from the order.



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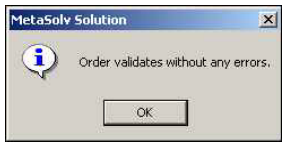
Completing an order

Use the following steps to complete any order.

Steps

1. Validate the order by clicking the toolbar button **Validate**. When the validation message appears, click **OK**.



2. Finish the order by clicking **Finish**.
3. Click **Yes** to generate tasks.

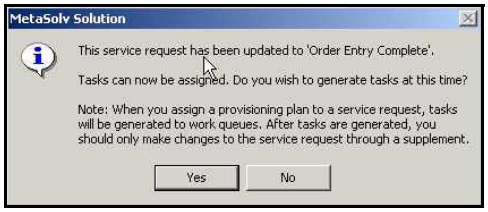


Figure 41: Prompt to generate tasks upon order completion

4. Ensure the provisioning plan selected contains the tasks needed for provisioning the order. If it does not, make the needed changes.

The following validation rules apply for multiple pending orders during the order finish process:

- New Activity – Desired due date must be earlier than or the same as the desired due date of any Change or Pending Disconnect order.
- Change Activity – Desired due date must be later than or the same as any New order. Desired due date must be before or the same as any Disconnect order.
- Pending Disconnect Activity – Desired due date must be later than or the same as the desired due date of any New or Change order.

The following validation rules apply for multiple pending orders at due date:

- New Activity – If the service item is new, no validation is required.
- Change Activity – Cannot exist on any order with an activity of New.
- Pending Disconnect Activity – Cannot exist on any open order.

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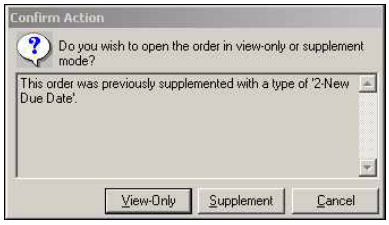
Viewing an order in view-only mode

You can view an order with the Ordering Dialog in a "view only" mode when it:

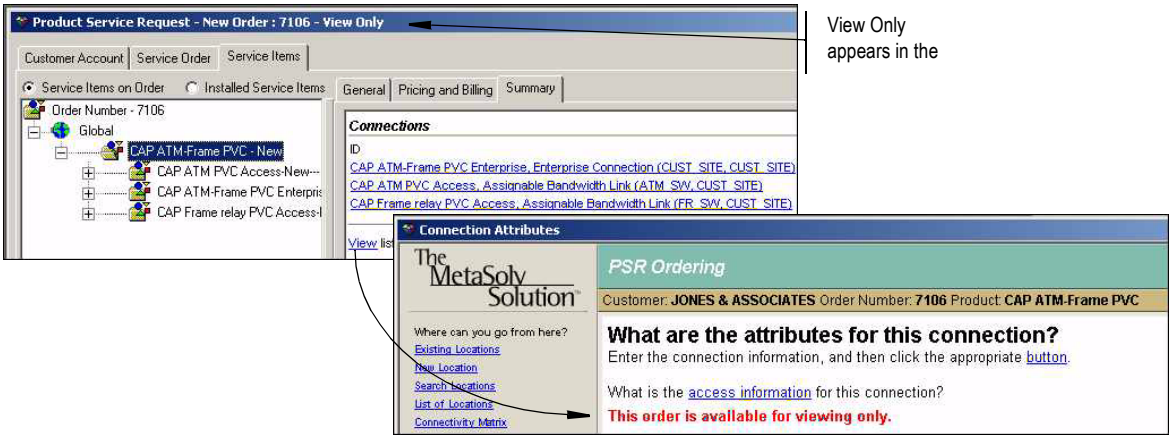
- Is open by another user
- Has had tasks generated and is not being supplemented
- Has been Due Date completed
- Has been canceled via a supplement

Steps

1. Open an order.
2. If the order is open by another user, a Confirm Action pop-up appears with the userid of the person who has the order open or the existing supp information with a prompt for viewing or supplementing.



3. Select View Only. Notice that View Only displays in the title bar of the PSR window; if you display the Ordering dialog by clicking a link in the Summary, the following message is displayed: *This order is available for viewing only.*



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Scenarios

This chapter presents end-to-end scenarios for common template-based ordering tasks. These scenarios put features and functionality together to guide you through the ordering process using specific examples and steps. You can relate these examples to your own scenarios and adapt the instructions to accommodate your business needs. The first scenario demonstrates how to enter an order for any product bundle; the second, for any network system.

The scenarios presented in this section represent a typical flow through the template-based Ordering Dialog. These simple implementations are designed to give you the flavor of the flow, rather than ensure representation of each valid connection type and all the required CAs (custom attributes). Therefore, not all windows that can be displayed in the Ordering Dialog are represented in the scenarios. For information on the full set of windows, see Table 6, "Ordering Dialog windows," on page 23.

You should read this chapter if you are a Customer Service Representative or Sales Engineer who uses MetaSolv Solution to order template-based products or services.

SCENARIO 1—ORDERING A DEDICATED PVC

The scenario for ordering a dedicated PVC presents a simple example of using the Ordering Dialog for a template-based product, while demonstrating the power of template associations. This scenario is a continuation of the scenario involving the dedicated PVC in the *Template-based Product Specifications Concepts and Processes Guide*.

Description

This scenario involves ordering an enterprise connection between two companies, Jones & Associates and Roberts & Associates, with access connections from both sites. The access connections include one from Jones & Associates to the provider's ATM access network and another from Roberts & Associates to the provider's frame relay access network.

The ordered items include:

Product bundle called CAP Dedicated PVC, with the following network connections:

- Physical access connection from Jones & Associates to the provider's ATM access network
- Physical access connection from Roberts & Associates to the provider's frame relay access network
- Enterprise connection from Jones & Associates to Roberts & Associates

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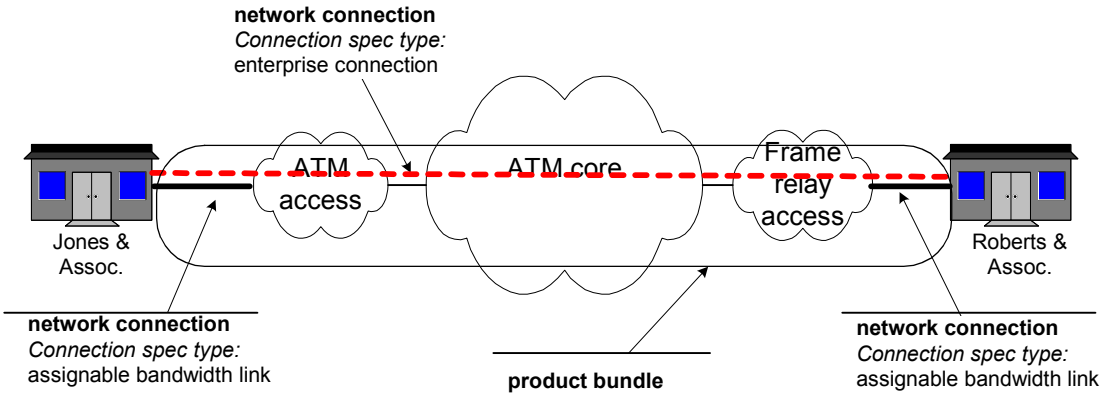
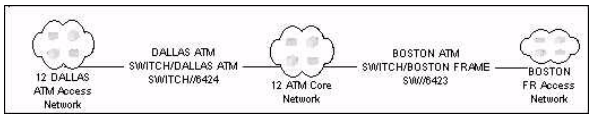


Figure 42: CSR view of connections ordered for a dedicated PVC

Assumptions

Consider the following assumptions:

- A product offering for a dedicated PVC has been defined in the product catalog.
- A provisioning plan has been defined.
- An account for the customer has been defined.
- The provider's networks include an ATM core network, an ATM access network, and a frame relay access network.



- Jones & Associates can access the ATM access network through an ordered access connection; Roberts & Associates can access a frame relay access network through an ordered access connection. An ordered enterprise connection can be used to connect the two customers.

Execution

Ordering the network connections for a dedicated PVC

1. Launch the Ordering Dialog as described in Launch the Ordering Dialog for a new product, selecting CAP ATM-Frame PVC since the order is to provide a dedicated enterprise connection between two customer sites, where one gains access through a

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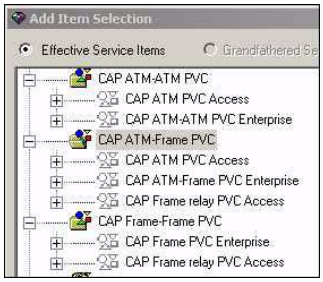
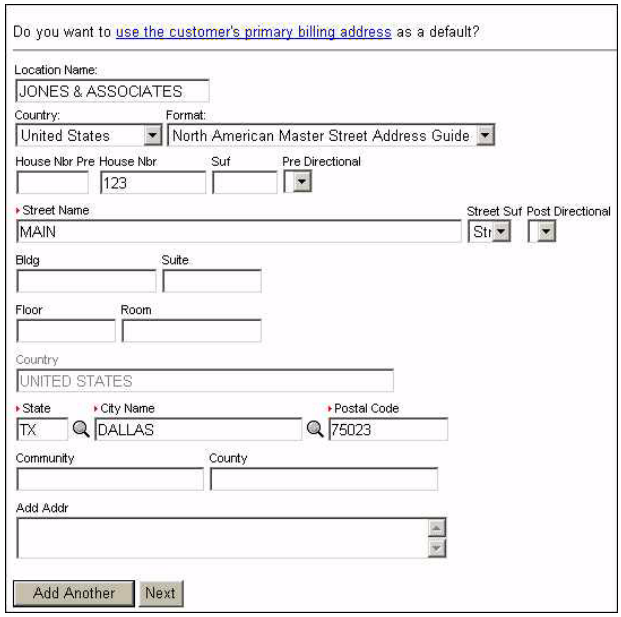
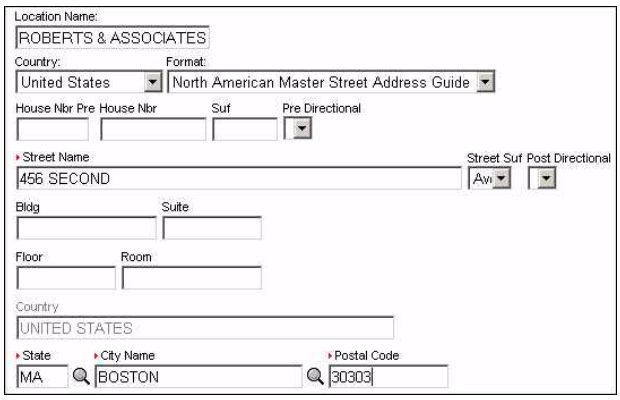
connection to an ATM access network and the other gains access through a connection to a frame relay access network.



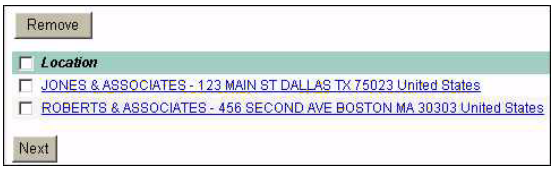
2. Specify the two locations being connected by the dedicated PVC and verify.
   a. Click the **use the customer's primary billing address** link in the New Locations window to retrieve location data for the customer placing the order.



b. Click the **Add Another** button to clear the fields. Enter the location information for the site to which the customer requires connectivity, then click **Next**.

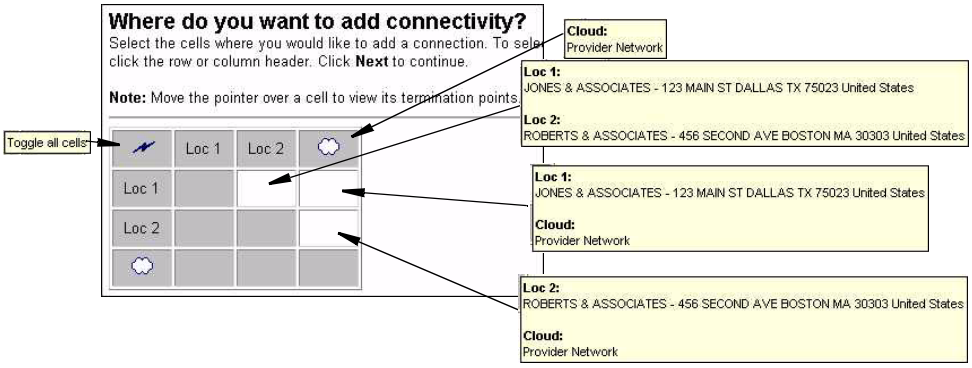


c. Verify the displayed list of locations, then click **Next**.



3. Indicate which locations are to be connected by an ordered connection.

a. Examine the connectivity matrix.



b. Identify the locations to be connected by each ordered connection.

⇒ Locations 1 and 2 are to be interconnected with the enterprise connection

⇒ Location 1 and the provider network is to be interconnected with an ATM access connection

⇒ Location 2 and the provider network is to be interconnected with a frame relay access connection

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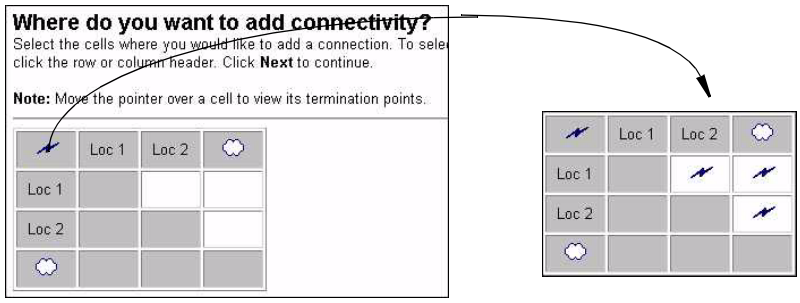
c. Click the lightning bolt symbol in the upper left corner to indicate that connectivity is required at all available combinations. Then click **Next**.



4. Add the ATM access connection between Jones & Associates and the provider network. Select CAP ATM PVC Access, Assignable Bandwidth Link (ATM_SW CUST_SITE), accept the default quantity of 1, check the checkbox for the Dallas location, and click **Add**. The selected connection is displayed.

5. Add the frame relay access connection between Roberts & Associates and the provider network. Select CAP Frame relay PVC Access, Assignable Bandwidth Link (FR_SW CUST_SITE), accept the default quantity of 1, check the checkbox for the Boston location, and click **Add**.

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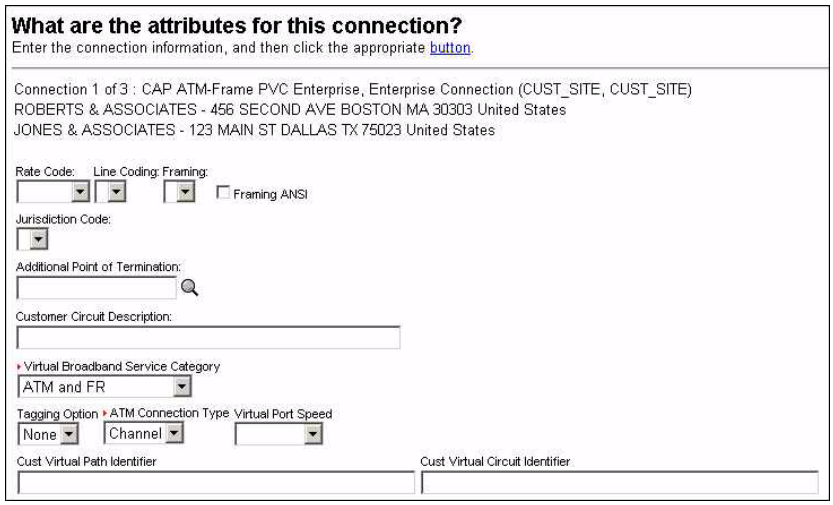
6. Add the enterprise connection between Jones & Associates and Roberts & Associates. Select the CAP ATM-Frame PVC Enterprise connection, accept the quantity of 1, check the pair of customer sites, and click Add. Verify the results. Click **Next**.

7. Assume the first displayed connection is for the enterprise. Specify ATM and FR as the Virtual Broadband service category. This enables the ATM and frame relay custom attribute fields.



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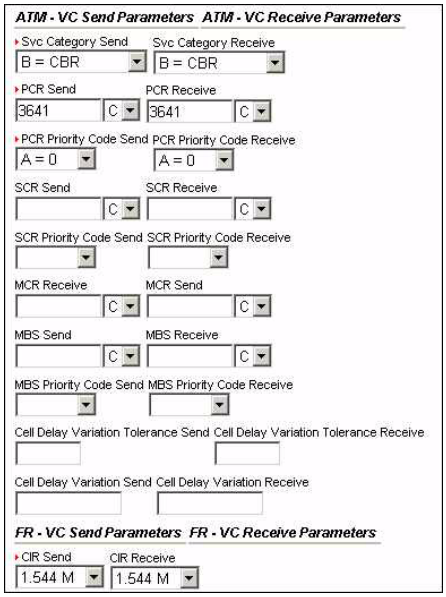
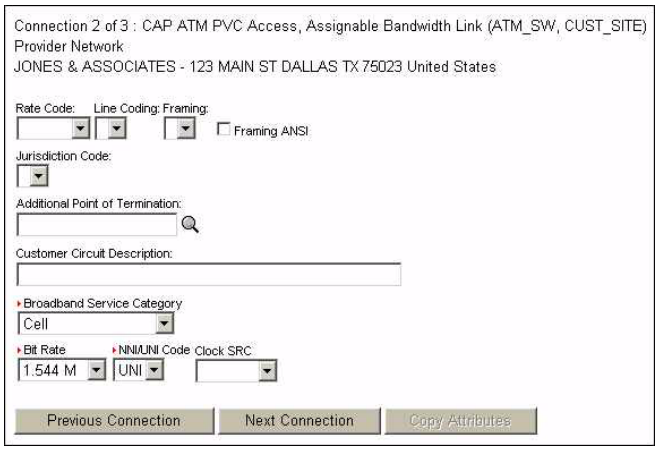
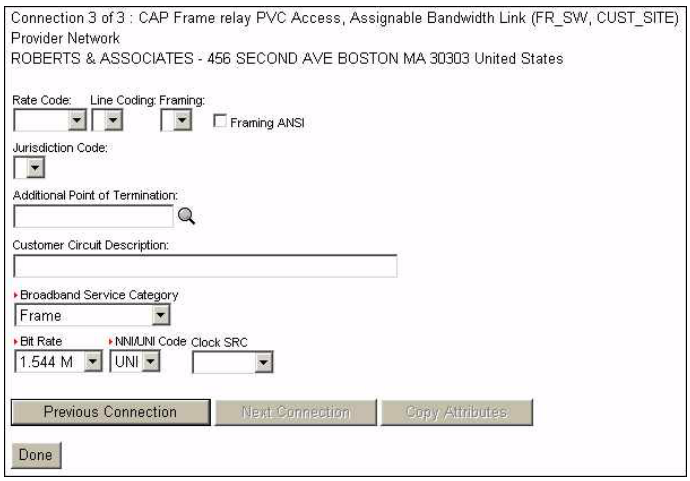
8. Complete the ATM and frame relay custom attribute fields as desired, using the following example as a guide. Then click **Next Connection**.



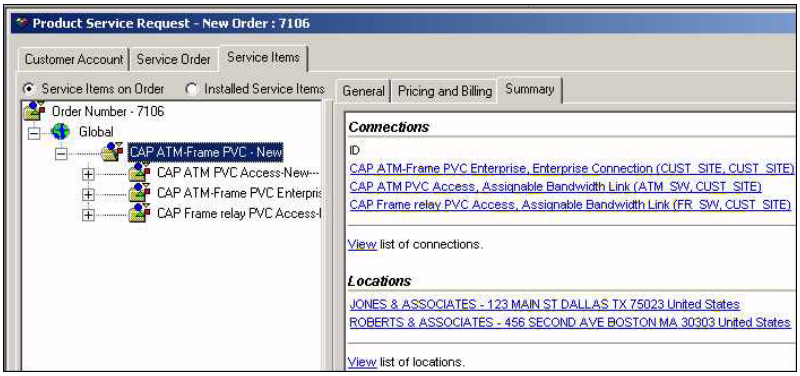
9. Enter the ATM attributes for the ATM access connection. Then click **Next Connection.**



10. Enter the frame relay attributes for the frame relay access connection. Then click the **Done**.



11. Review the summary information.



12. Complete the order. See “Completing an order” on page 81

Next steps

The provisioning plan for provisioning dedicated PVCs should contain at the minimum the following tasks: CKTID, RID (or DLRD), and DD. See the *Template-Based Service Provisioning Concepts and Processes Guide* for details on completing each of these tasks.

SCENARIO 2—ORDERING XDSL SERVICE

This scenario presents one example of ordering DSL service that includes an Internet connection and a Voice over DSL (VoDSL) connection. A physical bandwidth connection is also required; service provisioning involves assigning the two virtual connections across this DSL link that extends the provider network to the customer site.

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Description

This scenario describes how to order a Digital Subscriber Line (DSL) with an Internet service and VoDSL, having the following characteristics:

- Product bundle, with the following network connections:
  - ⇒ Physical access connection (DSL link)
  - ⇒ Virtual Internet connection
  - ⇒ Virtual Voice connection (VoDSL)

Figure 43: CSR view of connections ordered with the DSL product bundle

Assumptions

Consider the following assumptions when reviewing this scenario:

- A product offering for DSL service has been defined in the product catalog. For details, see Scenario 1 - Setting up product specs and catalog for xDSL service in the *Template-Based Product Specifications Concepts and Processes Guide*.
- An account for the customer has been defined.

Execution

Ordering connections supporting DSL service

1. Begin the order and launch the template-based Ordering Dialog as described in Launching the Ordering Dialog.
2. If the product offering includes a system option, like hunt groups, and the system option has been defined with a range of valid values, you can specify the quantity. (See Examine the Standalone Connection window.)

3. Specify the customer location. (Do not search for any locations at the provider site where the ordered connections terminate. This is done during service provisioning.)

   If this order is the first order placed by the customer, the New Locations window is displayed. This was the case in this scenario; clicking the link to use the customer's

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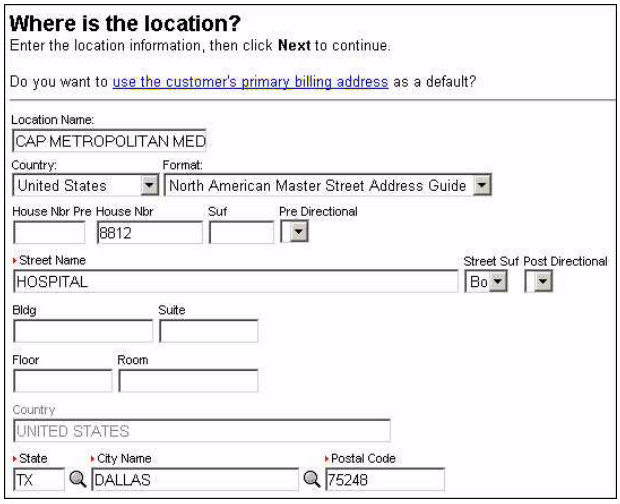
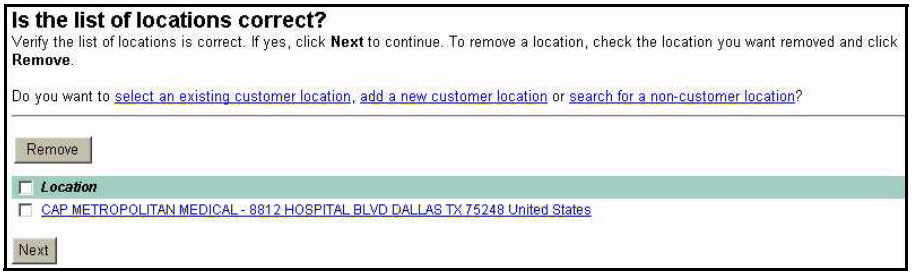
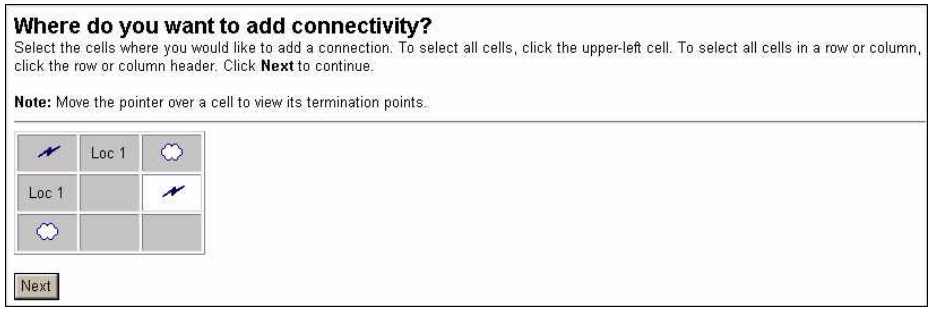
primary billing address brings in the data. Enter a location name in the Location Name field. (See Examine the New Location window. on 44.)



4. Verify that the List of Locations lists the customer location. This list never includes any provider locations. In this scenario, there is just one customer location. Click **Next**. (See Examine the List of Locations window on 47.)



5. Indicate where you want connectivity. On the connectivity matrix, the cloud represents the provider site. Although the physical access, data access, and voice connections in this scenario all terminate on different equipment at the provider's site, all three connections are represented by a single check for connectivity between the customer site and the provider site. (See Examine the Connectivity Matrix. on 57.)



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6. Add connections for the physical access, data access, and voice access. See Add network connection-level information.

   a. Leave the Add Connection action in place for all additions.

   b. Set the connection type for the link representing the physical access to the provider site, check the box representing the customer site and provider network, leave the quantity as 1, and click **Add**.

   c. Set the connection type for Internet access, check the box representing the customer site and provider network, leave the quantity as 1, and click **Add**.

   d. Set the connection type for Voice access, check the box representing the customer site and provider network, adjust the quantity as needed for voice lines, and click **Add**. (A typical IAD can accommodate up to eight voice lines.)

   e. Verify the resulting list and click **Next**.

7. Specify connection attributes for each connection.

   a. Here we begin with the physical connection or DSL link. We're assuming that this will be provisioned over an ATM internal network, so we can identify the BSC as Cell, for Cell Relay. UNI (user to network interface) is selected for the connection between the customer site and the provider network. The designated transport

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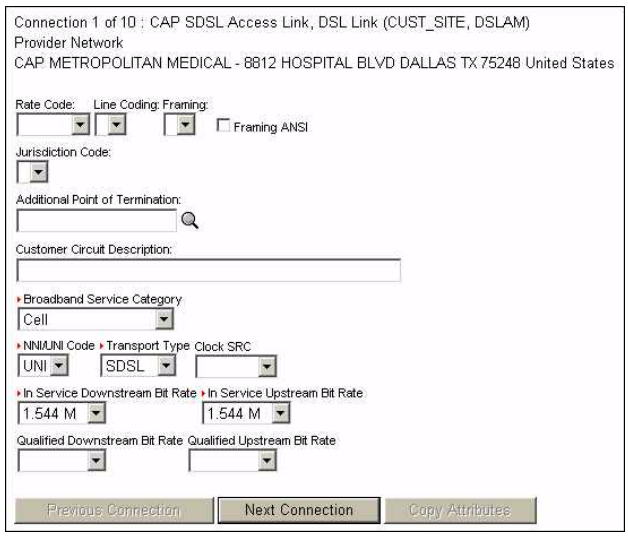
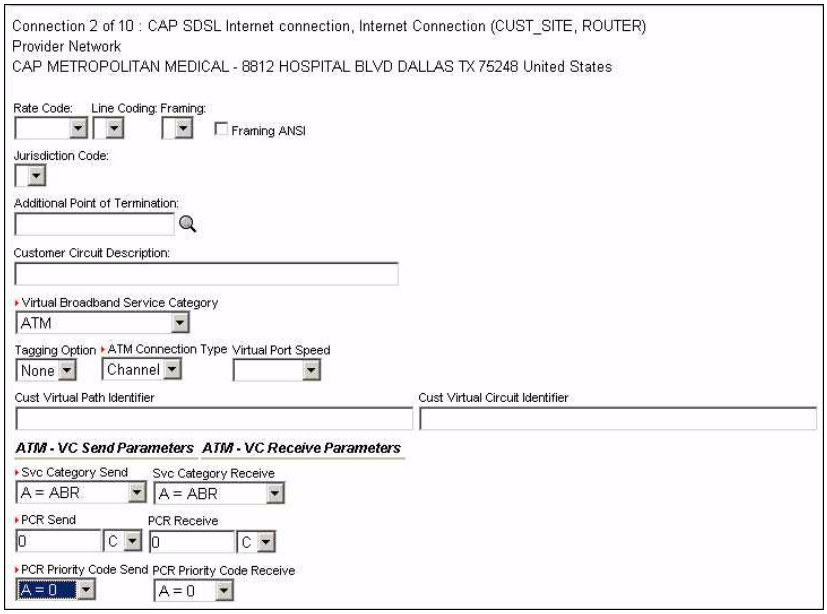
type is SDSL. With SDSL, the upstream and downstream rates are the same. See Examine the Connection Attributes window for a physical connection..



b. Specify connection attributes for the Internet circuit. See Examine the Connection Attributes window for a virtual connection..



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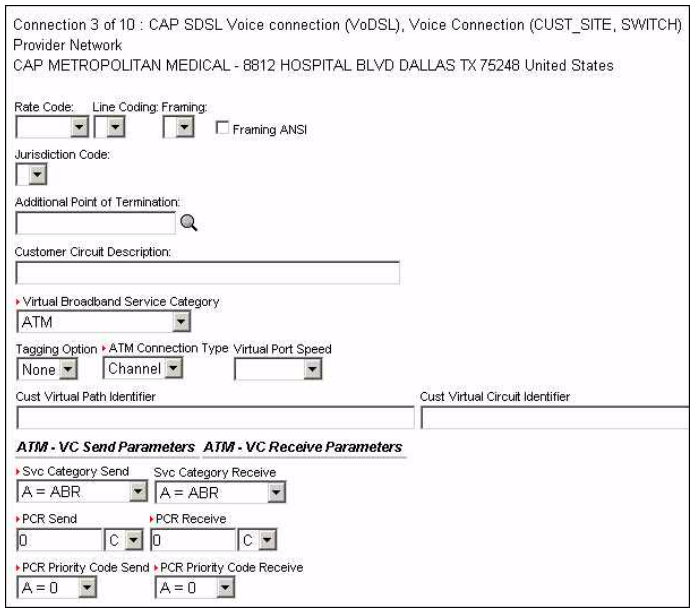
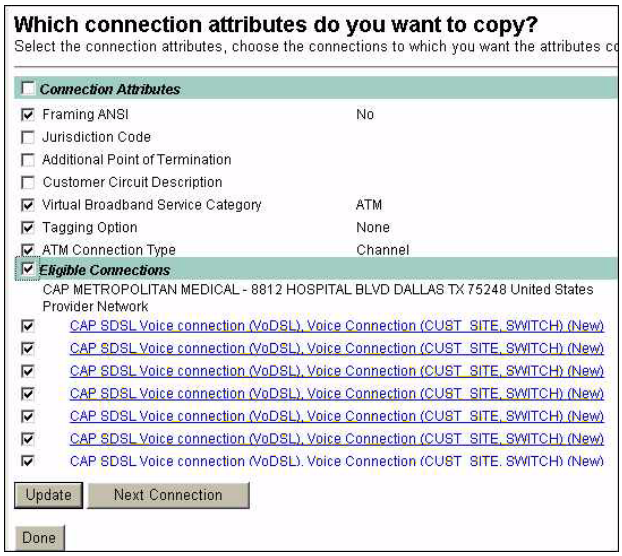
c. Specify connection attributes for the first of the eight voice connections.



8. Click the **Copy Attributes** button. Check the boxes in the Connection Attributes section that contain values. Check the **Eligible Connections** checkbox to select the other seven voice connections. Click **Update**. Click **Done**.



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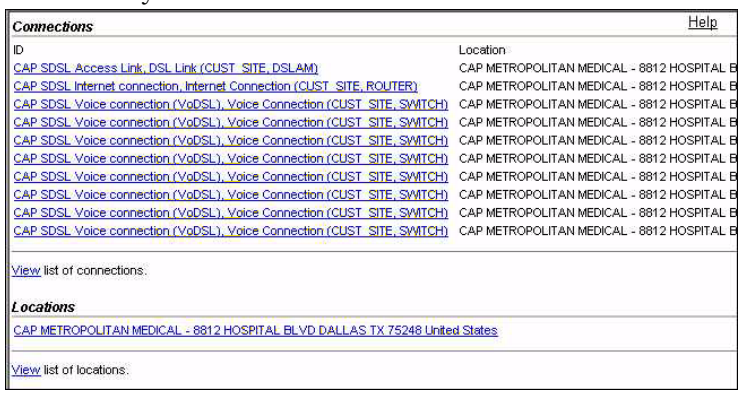
9. Verify the summary data. Then click **Close** to return to the order.



10. Make telephone number assignments as described in Assigning telephone numbers to voice connections.
11. Configure hunt groups as described in Configuring hunt groups.
12. Complete the order as described in Completing an order.

Assigning telephone numbers to voice connections

When you order voice connections under a product bundle, you assign telephone numbers to them.

1. Select the **Order Number** item on the Service Items treeview, and select **Assign Telephone Numbers** from the popup menu.

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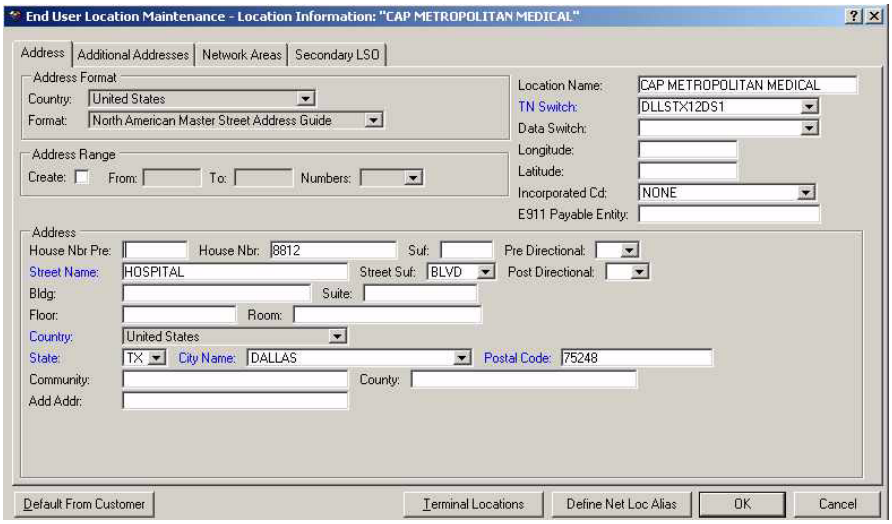
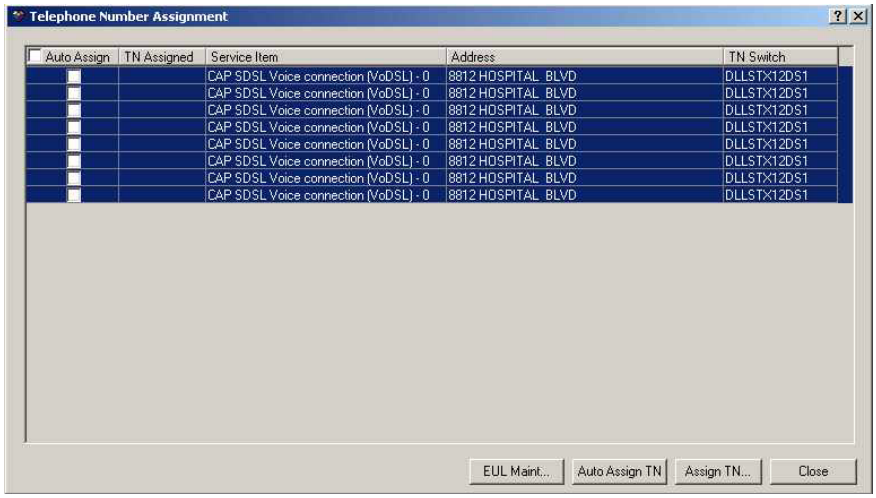
2. If the service item is not associated with a switch, click **EUL Maintenance**. Then select a switch location for **TN Switch** and click **OK**.



3. Select all the voice connections and click the **Assign TN** button.



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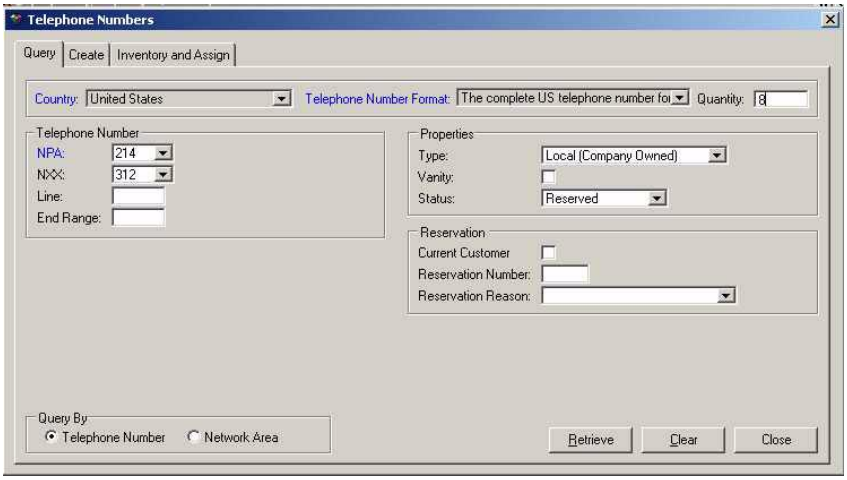
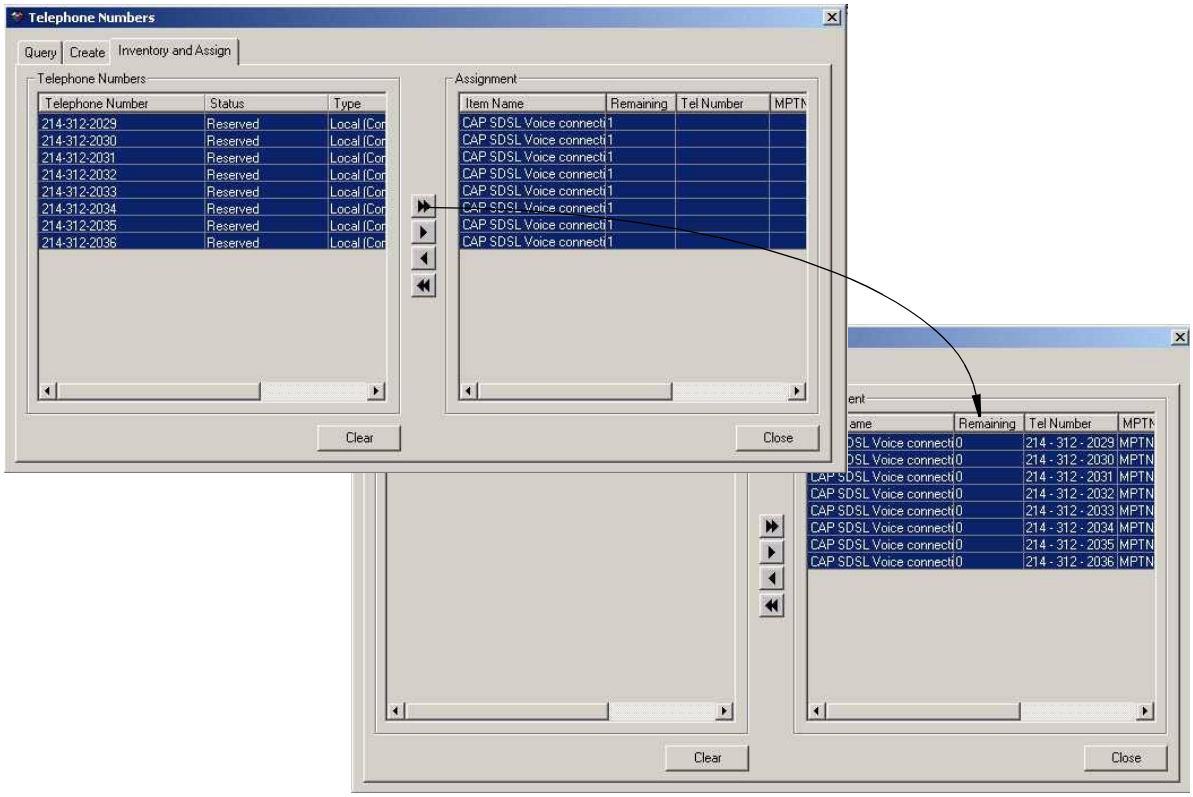
4. Enter the query criteria and specify as the Quantity of telephone numbers requested the number of voice connections, such that one telephone number can be assigned to each connection. Click **Retrieve**.



5. Assign the retrieved numbers to the voice connections by selecting all from both sides of the window and then clicking the assign all button. Click **Close**



6. Verify the TN assignments and click **Close**.

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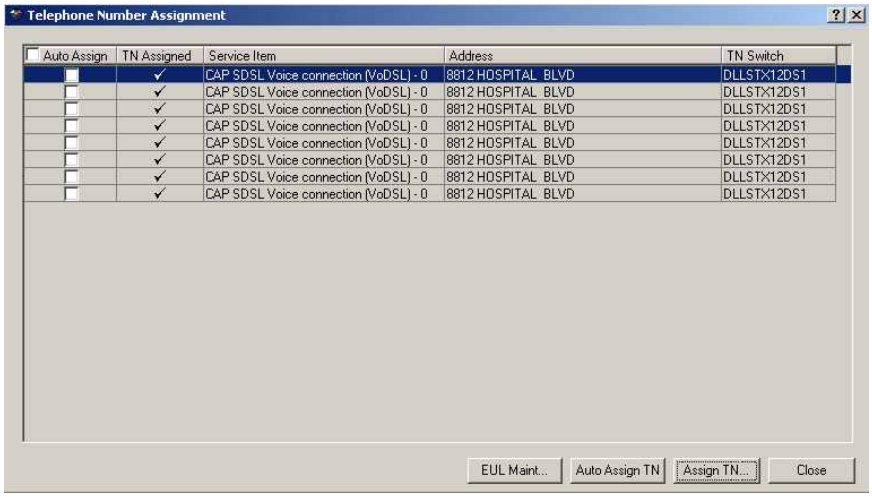
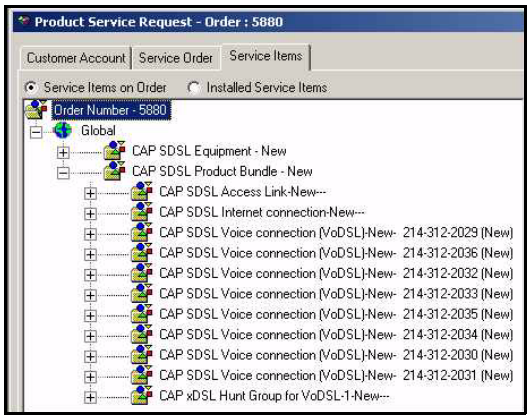
7. Verify that the TN Assignment column contains a check for each voice connection, then click **Close**.



8. Notice that the telephone number assignments appear next to the voice connections in the treeview.



Configuring hunt groups

This section is included in this book because the hunt group system option may be part of a product catalog offering that includes voice connections.

Use the following procedure:

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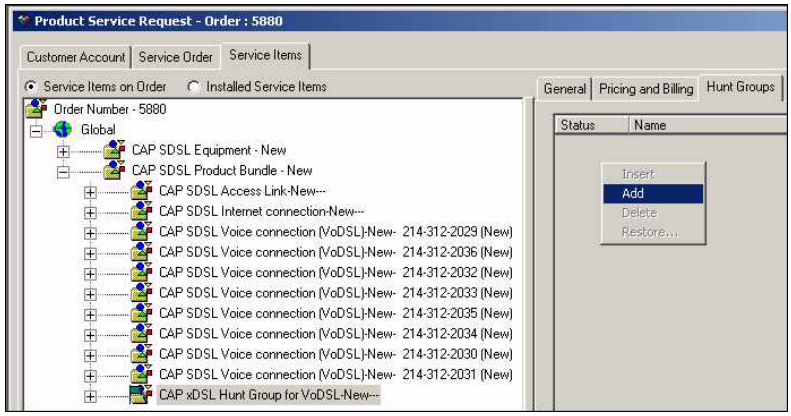
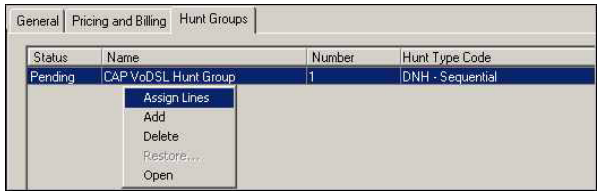
1. Set hunt type. Highlight CAP SDSL Hunt Group on the Service Items treeview, display the Hunt Groups tab, and select the **Add** option.



2. Specify the group name and hunt type and click **OK**.

3. Highlight the hunt group and select the **Assign Lines** option.



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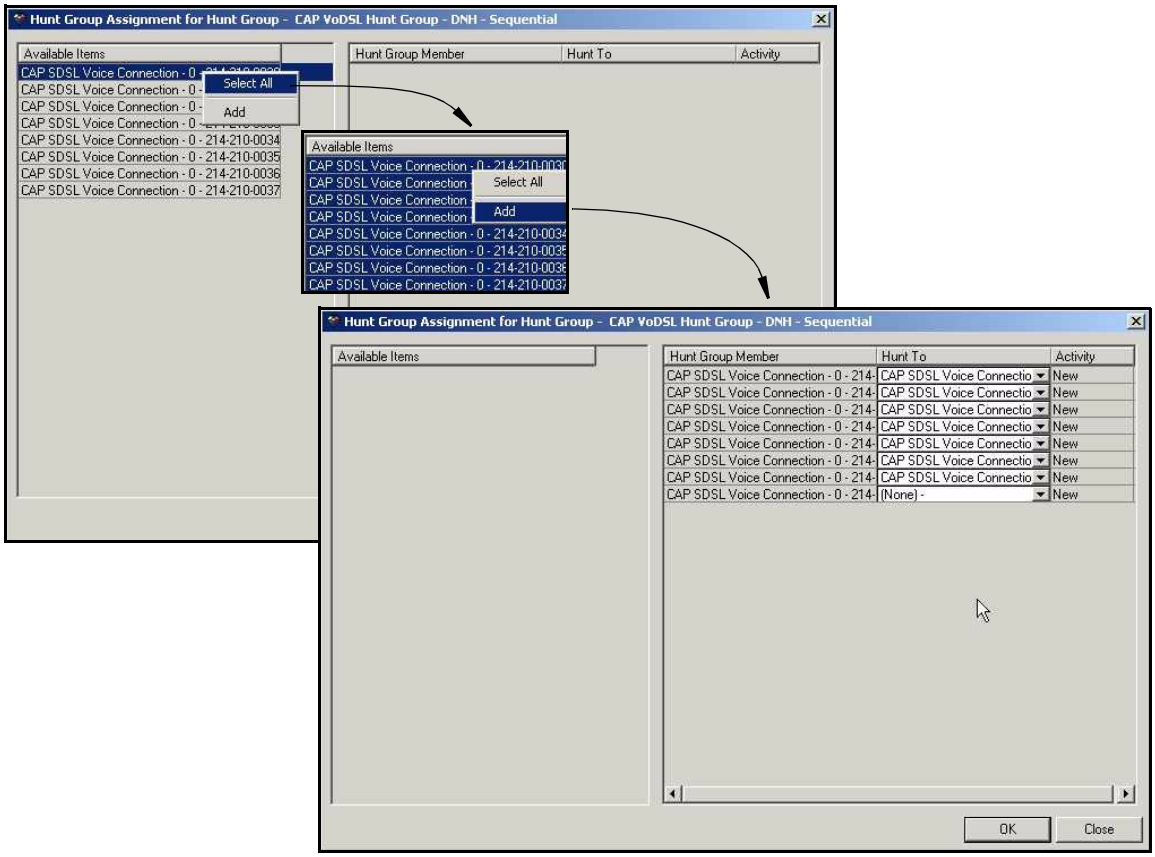
4. From the hunt Group Assignment window, select all available items. Select a telephone number for each **Hunt To** dropdown. Verify Click **Close**.



Next steps

The provisioning plan for provisioning DSL service should contain at the minimum the following tasks: CKTID, RID (or DLRD), and DD. See the *Template-Based Service Provisioning Concepts and Processes Guide* for details on completing each of these tasks. The following figure shows a customized DSL network drawing with the ordered connections that would be provisioned for this DSL scenario. The Internet connection (30-1) is allocated to three physical segments: the ordered DSL link from the customer site to the DSLAM, the internal network connection between the DSLAM and the ATM switch, then the internal network connection between the ATM switch and the IP router. The voice connection (30-3) is also allocated to three physical segments: the ordered DSL link from the customer site to the DSLAM, the internal network connection between the DSLAM and the voice gateway, and the internal network connection between the voice gateway and the public switched telephone network (PSTN).

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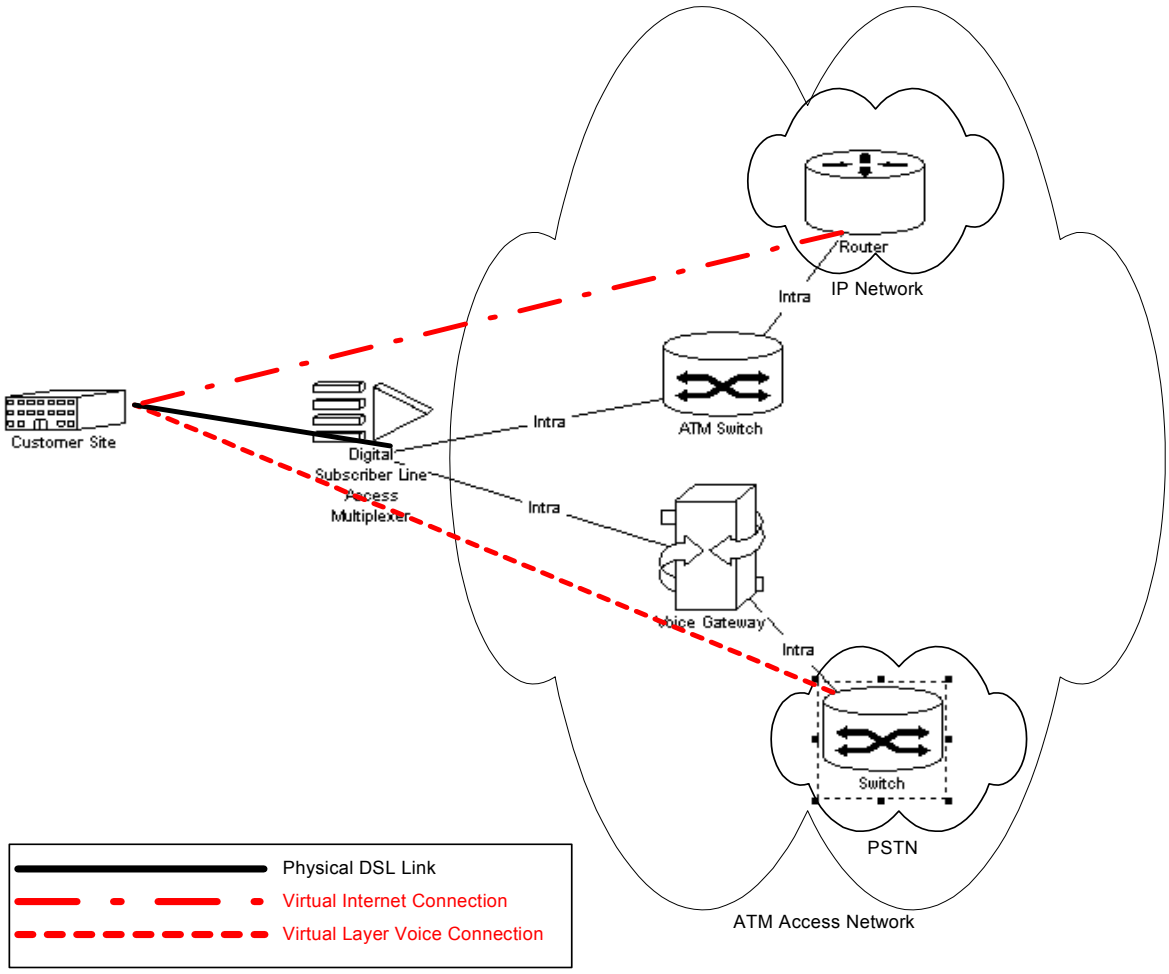

Figure 44: Connections to provider's customized DSL network

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SCENARIO 3—ORDERING A VPN SYSTEM

This section presents the step-by-step process of entering an order for a VPN, from launching the Ordering Dialog to completing the order. It includes a graphic of what would be provisioned to provide a picture of what is being ordered.

Description

This scenario describes how to order a network system. This example is for a VPN with one home office and two branch offices, having the following characteristics:

- Network system
  - ⇒ CAP VPN
- Network elements
  - ⇒ Boston home office
  - ⇒ Tulsa branch office
  - ⇒ Dallas branch office
- Network connections
  - ⇒ Physical connections
    - ⇒ Boston home office to provider network
    - ⇒ Tulsa branch office to provider network
    - ⇒ Dallas branch office to provider network
  - ⇒ Virtual enterprise connections
    - ⇒ Boston home office to Tulsa branch office
    - ⇒ Boston home office to Dallas branch office
  - ⇒ Virtual Internet connection
    - ⇒ Boston home office to provider network

Assumptions

Consider the following assumptions when reviewing this scenario:

- A product offering for VPN has been defined in the product catalog. For details, see the VPN scenario in the *Template-Based Product Specifications Concepts and Processes Guide*.
- An account for the customer has been defined.

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- The CSR has been given a diagram such as the following.

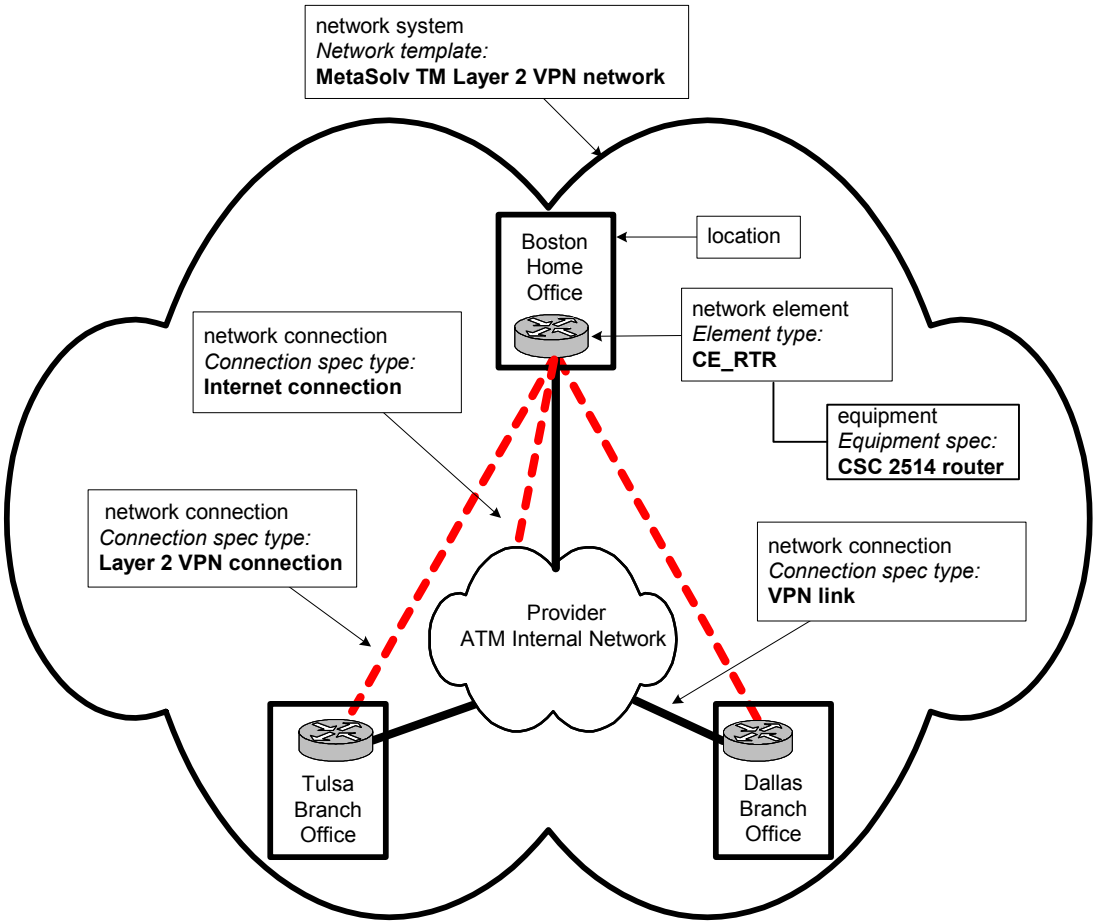

Figure 45: Reference diagram for the ordered CAP VPN

Execution

The following steps explain how to order a network system that is a VPN.

Ordering the network system, network elements, and network connections

1. Begin the order and launch the template-based Ordering Dialog as described in Launching the Ordering Dialog.

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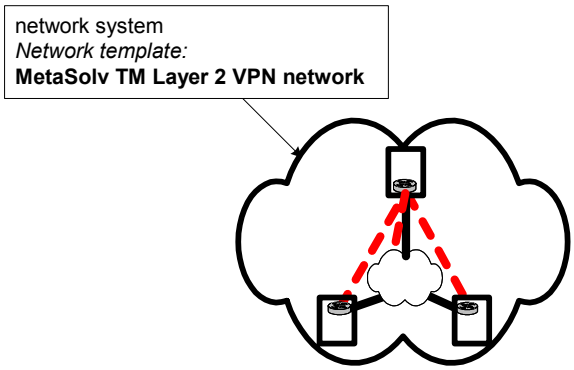
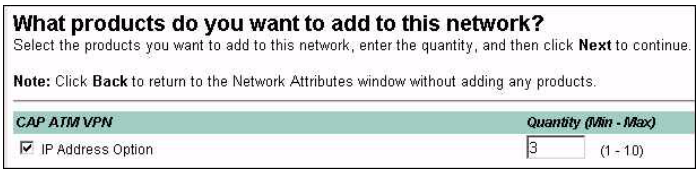
2. If the network template window is displayed, select the network template type shown on your reference diagram.



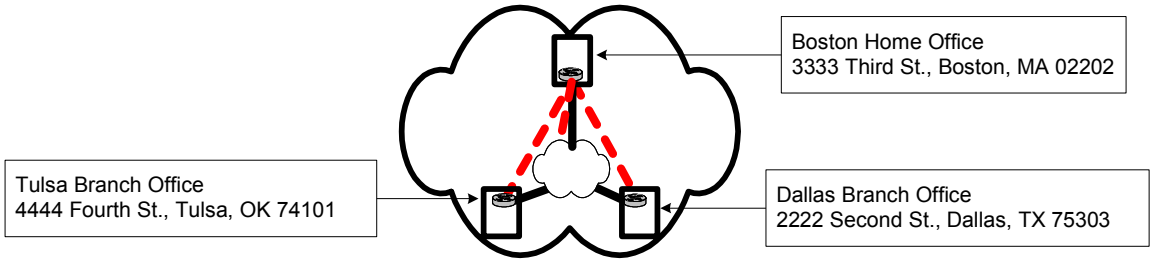
3. Specify the attributes of the VPN network system.

   a. Enter a short name for the new VPN network system. See Examine the Network Attributes window..

   b. Indicate products that are part of the order, but will be configured after completing the Ordering Dialog. In this scenario, we want to add 2 subnets and 1 host IP address, so we entered *3*. See Examine the Network Attributes window for additional products..



4. Identify the locations involved in the VPN network system, based on your reference diagram. For a window example, see Examine the Existing Locations window.



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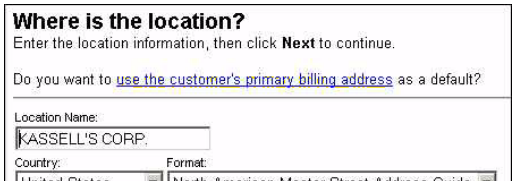
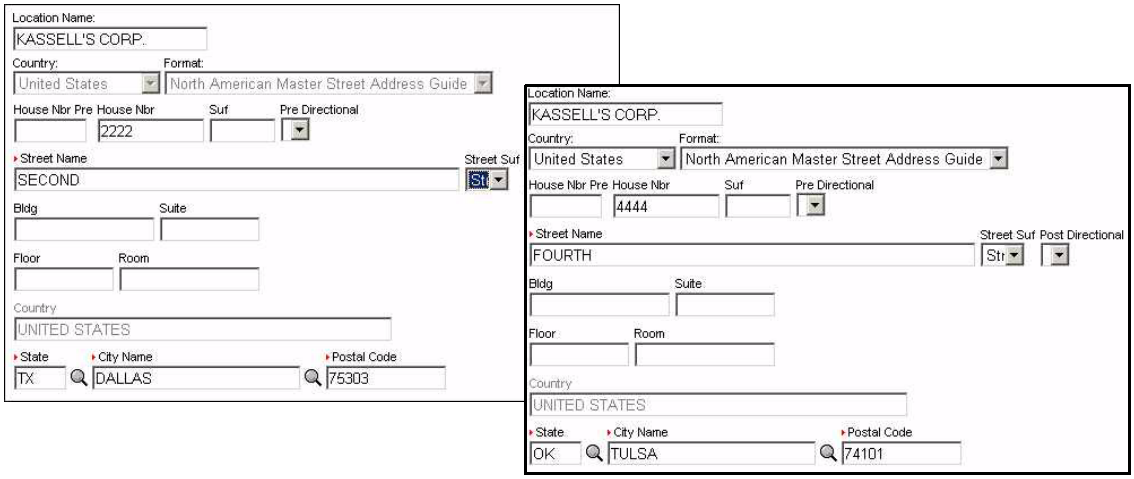
a. Click **use the customer's primary billing address** link to populate the fields with address information for the home office.



b. Click **Add Another** and add location information for the Dallas branch office. Click **Add Another** and add location information for the Tulsa branch office. See "Examine the New Location window." on page 44



c. Verify the list and click **Next**. See Examine the List of Locations window.

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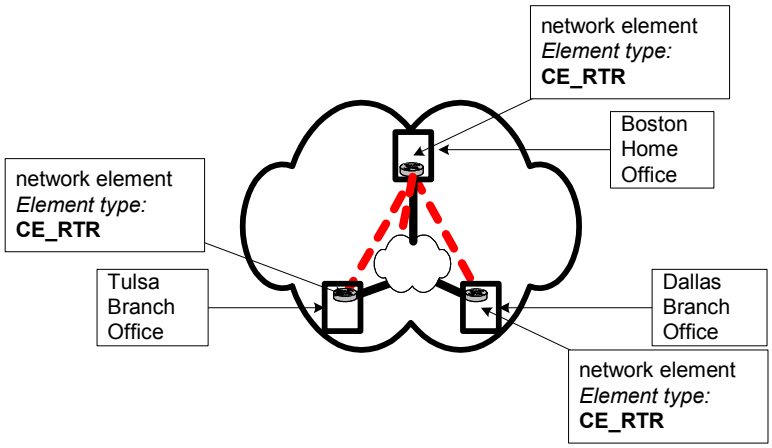
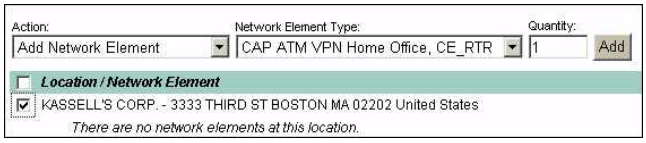
5. Using your reference diagram, identify the home office or branch office network element to associate with each of the identified locations.



   a. Identify the current customer location as the home office. Select the **Add Network Element** action, select CAP ATM VPN Home Office, CE_RTR as the network element type, leave the quantity as 1, and select the current customer location. Click **Add**. See “Examine the Network Elements window.” on page 50



   b. Select the Dallas and Tulsa locations. Select CAP ATM VPN Branch Office, CE_RTR, and click **Add**.

   c. Verify and click **Next**.

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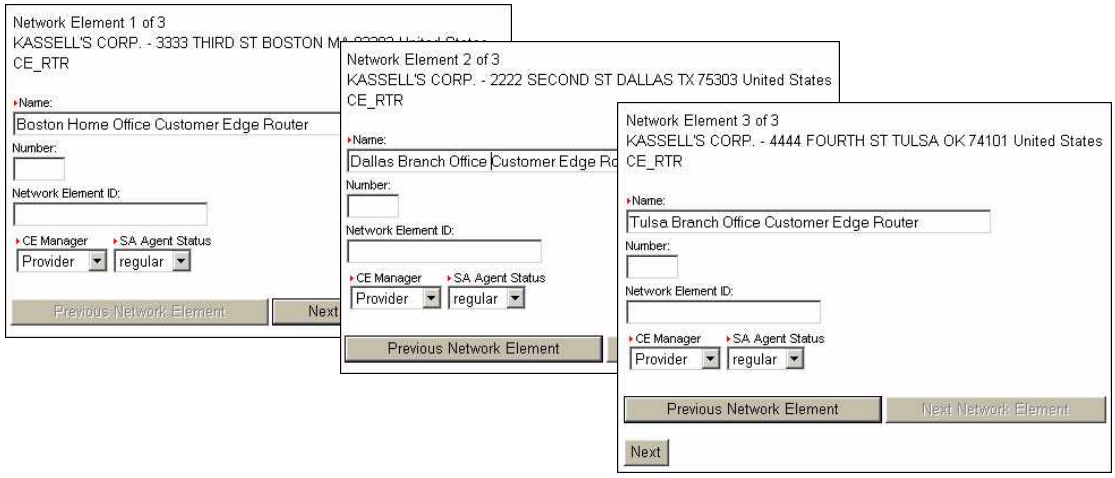
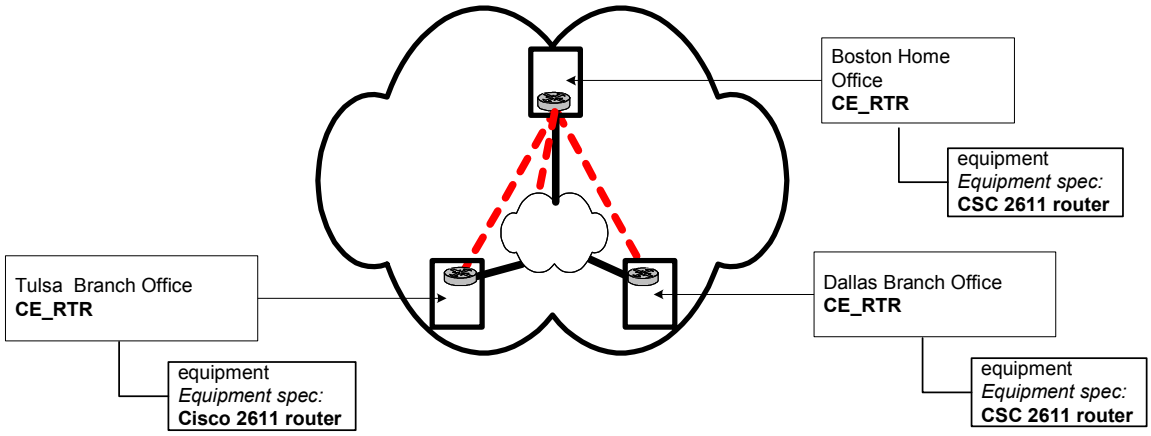
6. Specify the attributes for the home office and each branch office network element in the VPN. See "Examine the Network Element Attributes window." on page 51



7. Using your diagram as a reference, add equipment to each network element, home office and branch offices, and verify. See "Examine the Equipment window." on page 53.



a. Add equipment using the same equipment spec to each network element location where it applies

   The only reason the home office and branch offices would be defined as separate network elements in the product catalog is if different equipment were associated with each. (This is not reflected in the examples, however.)

b. Check the Boston office location, leave the action as Add Equipment, select the equipment spec used at the home office, leave the quantity as 1, and click Add.

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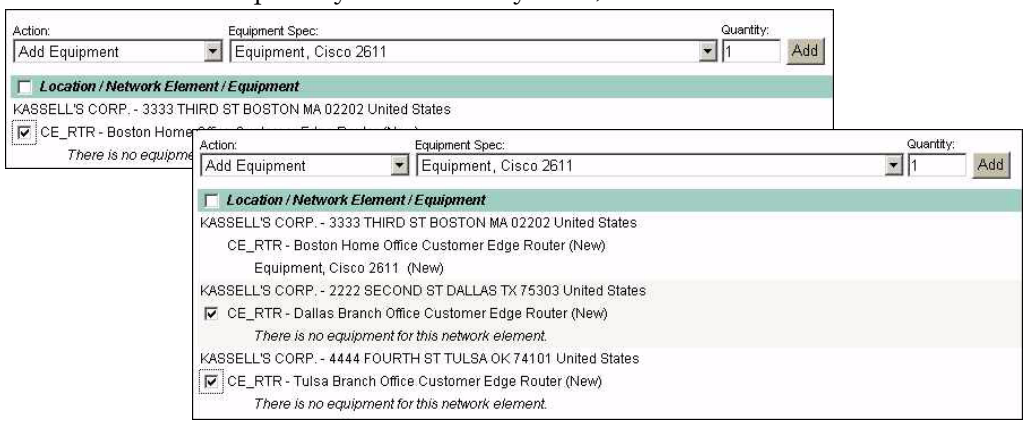
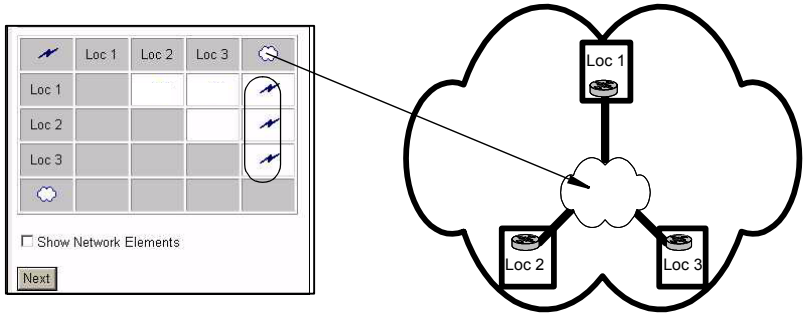
c. Check the two branch locations, select the required equipment spec, leave the action and quantity values as they were, and click Add.



d. Verify.

8. Indicate where you want connectivity.

a. Notice in the reference diagram that each site is connected to the provider's network. Click the cloud in the upper right corner to indicate these three connections.



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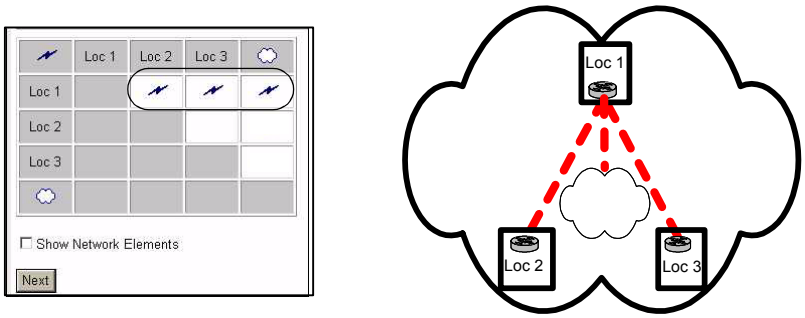
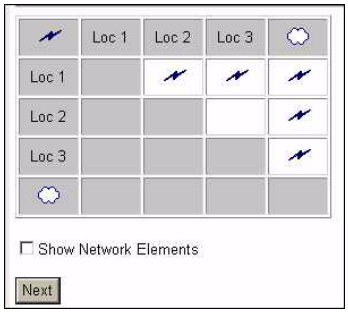
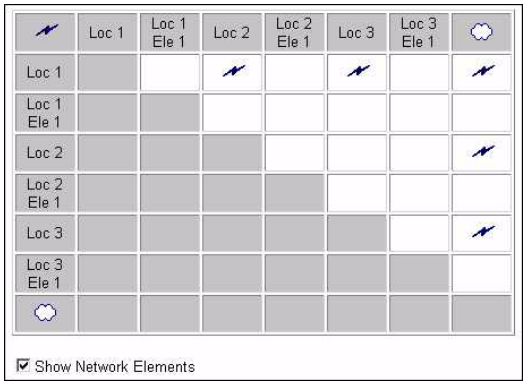
b. Notice in the reference diagram that the home office (Loc 1) has virtual connections to the two branch offices (Loc 2 and Loc 3) and also to the provider network. Clicking the Loc 1 row selects these connections in the matrix.



c. Since there is no connectivity in the reference diagram between the branches (Loc 2 and Loc 3), verify that this cell is not marked on the matrix. See "Examine the Connectivity Matrix." on page 57



d. If a given location contains multiple elements, you can click **Show Network Elements** to display each element at the same location. This scenario does not require this functionality, but the expanded matrix would have an appearance similar to the following.



9. Specify the connection type needed for each of the added connections. See "Add network connection-level information" on page 55

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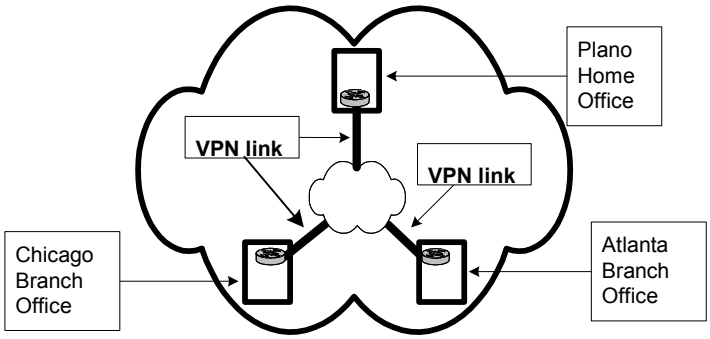
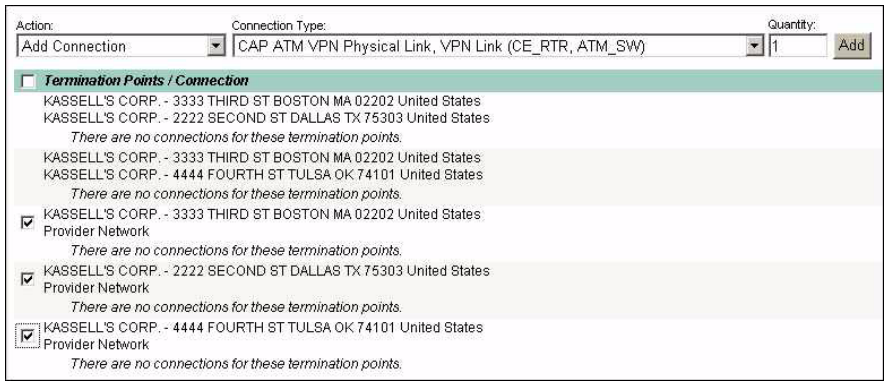
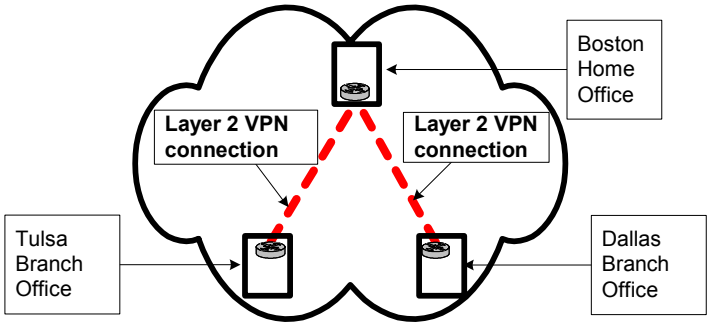
a. Using the diagram as a reference, note that the VPN Link connection spec type is used for three physical connections—between each customer site and the provider network.



Select VPN Link as the connection type for the physical connections, select the locations where each customer office is connected to the provider's network, leave the Quantity value as 1, and click **Add**.



b. Notice in the reference diagram that the home office is connected to each branch office by a network connection associated with the connection spec type called Layer 2 VPN connection.



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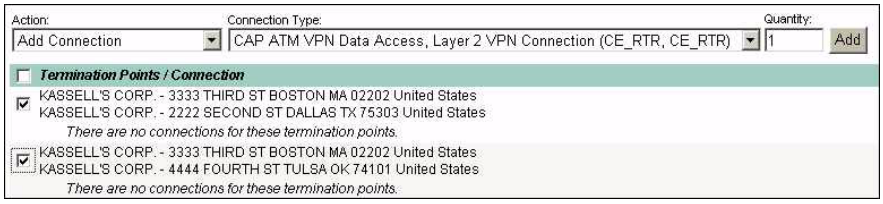
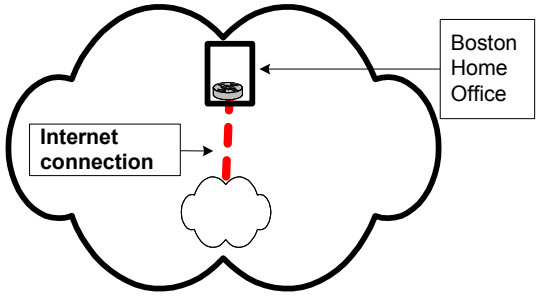
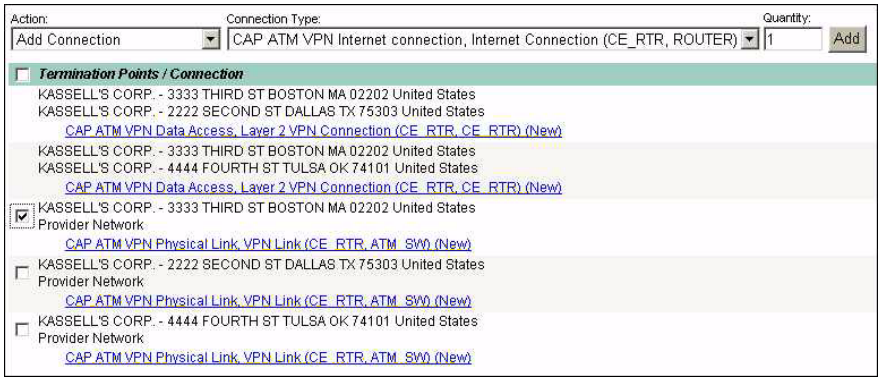
Select the Layer 2 VPN connection from the drop-down and select the location pairs corresponding to the home office and each branch and click **Add**.



c. Notice in the reference diagram that the order is to include a network connection associated with a connection spec type called Internet connection. The Internet connection is to be between the home office and the provider network.



Select the Internet connection from the drop-down, check the location pair with the home office and the provider's network, leave the Quantity as 1, and click **Add**.



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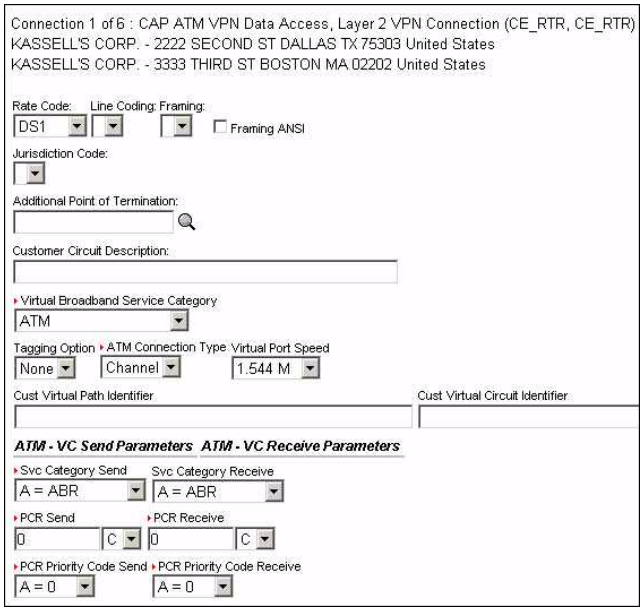
d. Verify list of connections.

10. Specify connection attributes. See “Examine the Connection Attributes window for a physical connection.” on page 65 See “Examine the Connection Attributes window for a virtual connection.” on page 60

    a. If the displayed connection is for data access, complete the required fields and click **Copy Attributes**.



    b. When the Copy Connection Attributes is displayed, check the eligible connections checkbox, check all the individual connection attribute checkboxes that contain

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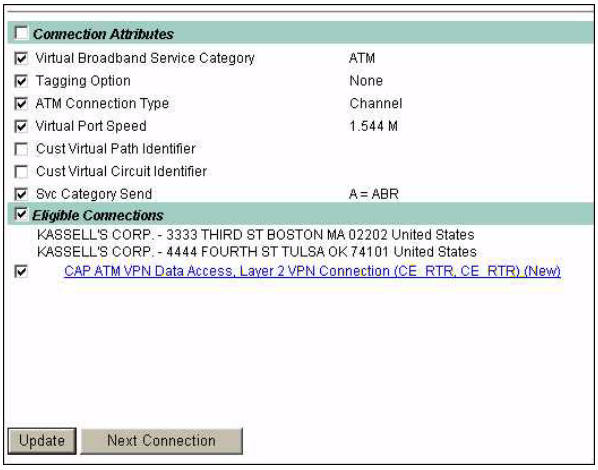
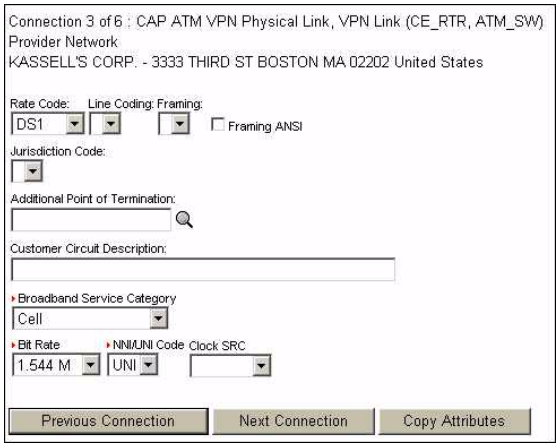
data, then click the **Update** button. When processing completes, click the **Next Connection** button.



c. When the data access connection to which you have copied attributes is displayed, click **Next Connection**.

d. If the connection is the first connection displayed for a physical link, complete the required fields and click **Copy Attributes**.



e. When the Copy Connection Attributes is displayed, check the eligible connections checkbox, check all the individual connection attribute checkboxes that contain

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data, then click the **Update** button. When processing completes, click the **Next Connection** button.

f. When a connection to which you have copied attributes displays, click Next Connection.

g. When the last connection is displayed and has been updated with attributes, click **Close**.

11. Verify the summary data. To make changes, click on the link to return to the desired source page. See “Summary - network system” on page 67

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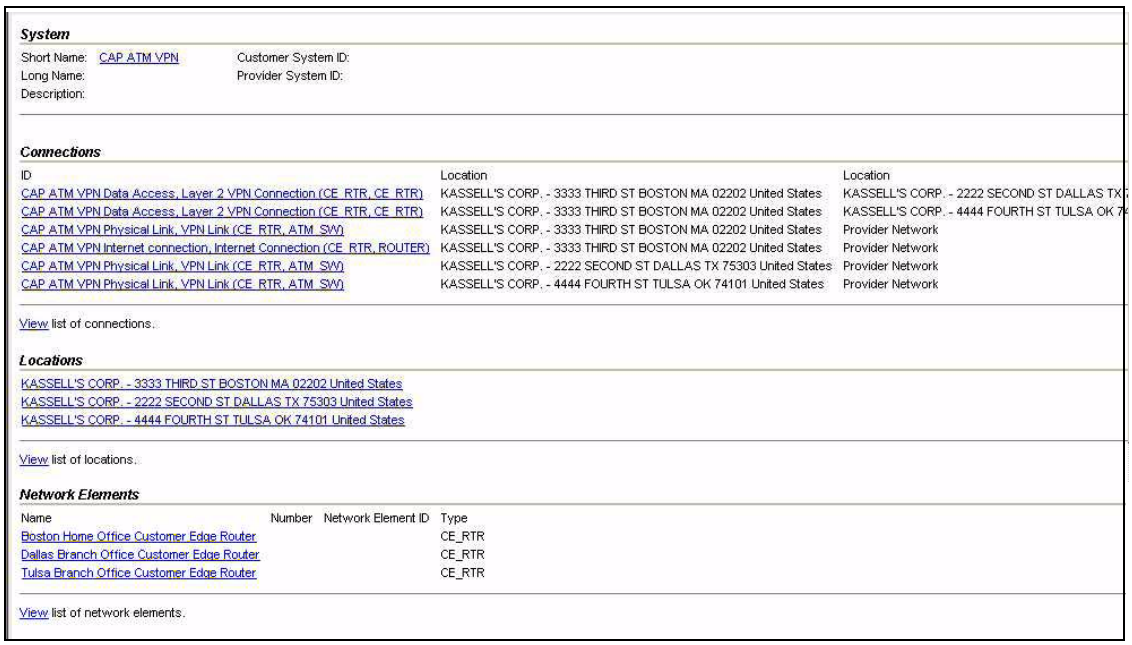

System

Short Name: CAP ATM VPN
Long Name:
Description:

Customer System ID:
Provider System ID:

Connections

ID	Location	Location
CAP ATM VPN Data Access, Layer 2 VPN Connection (CE_RTR, CE_RTR)	KASSELL'S CORP. - 3333 THIRD ST BOSTON MA 02202 United States	KASSELL'S CORP. - 2222 SECOND ST DALLAS TX
CAP ATM VPN Data Access, Layer 2 VPN Connection (CE_RTR, CE_RTR)	KASSELL'S CORP. - 3333 THIRD ST BOSTON MA 02202 United States	KASSELL'S CORP. - 4444 FOURTH ST TULSA OK 7
CAP ATM VPN Physical Link, VPN Link (CE_RTR, ATM_SW)	KASSELL'S CORP. - 3333 THIRD ST BOSTON MA 02202 United States	Provider Network
CAP ATM VPN Internet connection, Internet Connection (CE_RTR, ROUTER)	KASSELL'S CORP. - 3333 THIRD ST BOSTON MA 02202 United States	Provider Network
CAP ATM VPN Physical Link, VPN Link (CE_RTR, ATM_SW)	KASSELL'S CORP. - 2222 SECOND ST DALLAS TX 75303 United States	Provider Network
CAP ATM VPN Physical Link, VPN Link (CE_RTR, ATM_SW)	KASSELL'S CORP. - 4444 FOURTH ST TULSA OK 74101 United States	Provider Network

View list of connections.

Locations

KASSELL'S CORP. - 3333 THIRD ST BOSTON MA 02202 United States
KASSELL'S CORP. - 2222 SECOND ST DALLAS TX 75303 United States
KASSELL'S CORP. - 4444 FOURTH ST TULSA OK 74101 United States

View list of locations.

Network Elements

Name	Number	Network Element ID	Type
Boston Home Office Customer Edge Router			CE_RTR
Dallas Branch Office Customer Edge Router			CE_RTR
Tulsa Branch Office Customer Edge Router			CE_RTR

View list of network elements.

12. Complete the ordering of any additional products that are bundled with the VPN being ordered, but are not configured on the Ordering Dialog. The process for ordering IP addresses and configuring the customer's NAT mapping is documented in Configuring IP addresses.
13. Complete the order as described in Completing an order.
14. See Next steps for guidance on tasks to include in the provisioning plan for a VPN, plus examples of the network design.

Configuring IP addresses

This process is included because product catalog offerings for VPNs may include IP addresses as a system option so that NAT configuration parameters can be captured. The steps for configuring IP addresses follow:

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Steps

1. After completing the Ordering Dialog for a network systems, highlight the IP address service item on the Service Items tab and click the IP address tab.

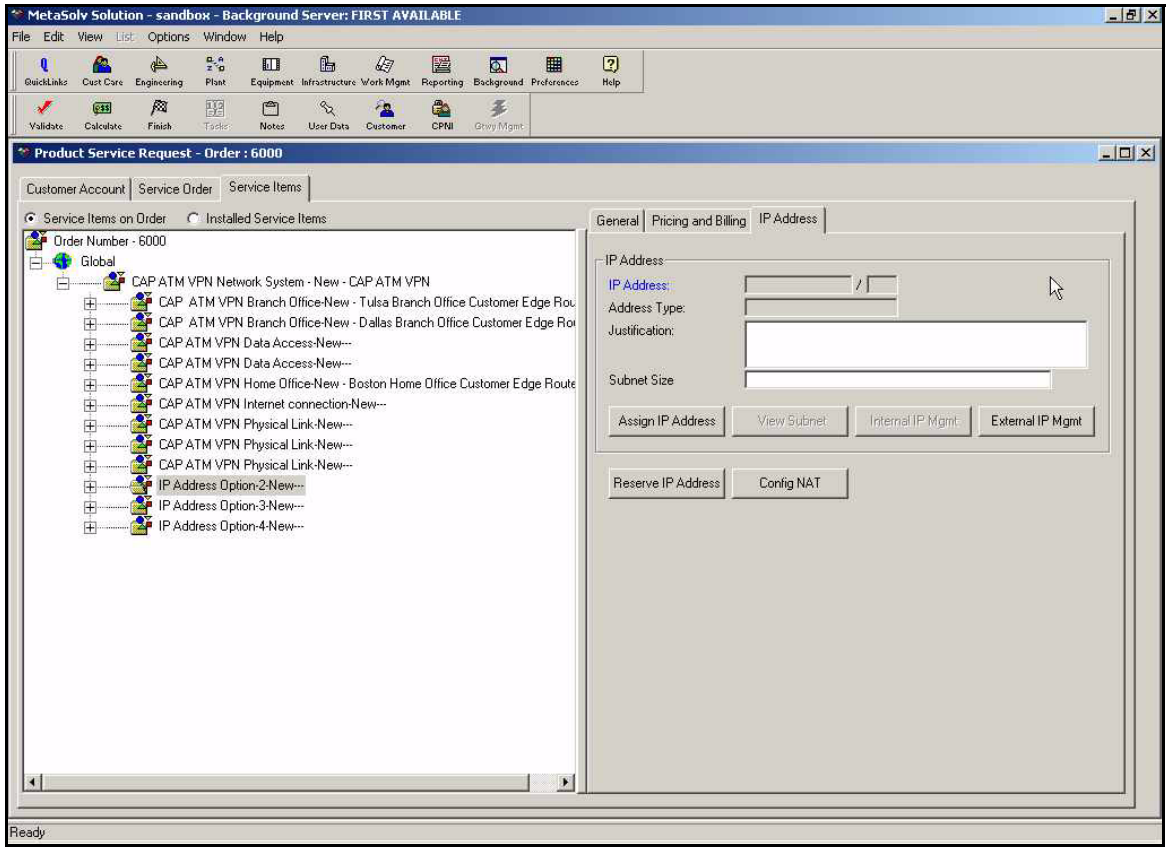

Figure 46: IP Address tab for IP addresses ordered for customer's network

2. To assign a host or subnet of public IP addresses for the customer's LAN usage, click the **Assign IP Address** button to display the Number Inventory Query window, set selection criteria and click **Retrieve**, and from the Results tab, highlight an IP address and click **OK**.

3. Before specifying NAT mapping, you can enter the private IP addresses the customer is using on the customer's inventory using **External IP Mgmt**. The IP Address Inventory window for the current customer appears with the allocated public addresses displayed in Available status. Click **New**, add the private subnets the customer is using to your view of their inventory. Or, you can just proceed with the NAT mapping and the software will create the private IP address subnets in this customer's External Number Inventory for you. We'll show both procedures. The

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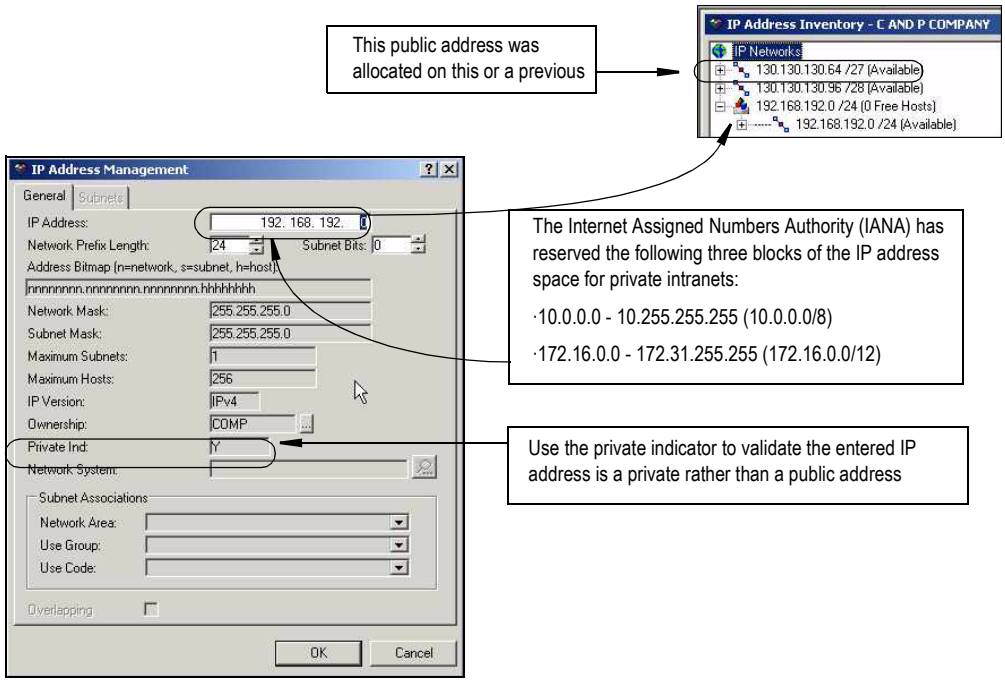
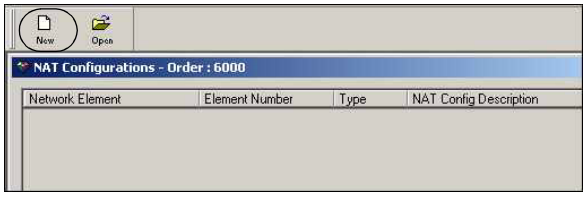
following figure shows the addition of a basenet of private addresses directly into the customer inventory. Such a basenet can be subnetted as shown here.

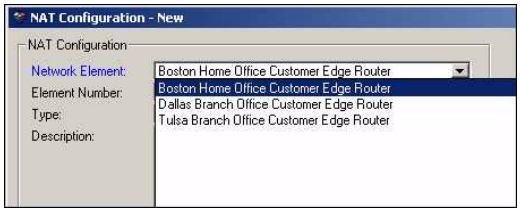


4. To specify a NAT configuration:

   a. Click **Config NAT**. Click **New**.



   b. Select a network element that is part of a LAN for which this NAT is being configured. For an intranet VPN scenario, the choices will include the elements from each location that is part of the ordered VPN.



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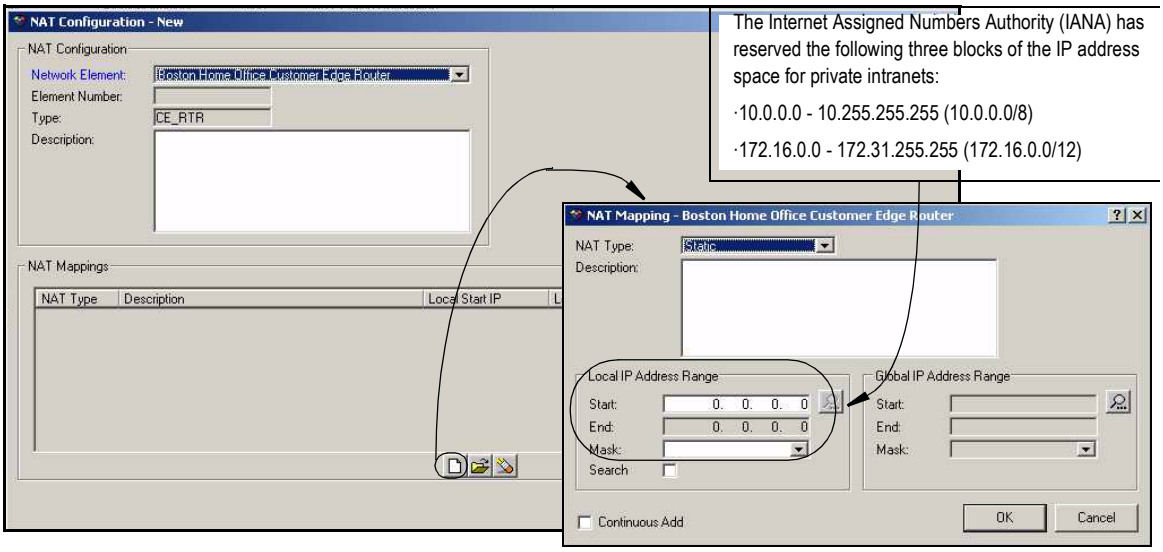
c. Click **New**.



d. Enter the local address range

Local addresses can be added in two ways. You can retrieve an existing private IP address you manually added to the customer's inventory or you can add a private address that is not in the customer inventory and specify the mask to indicate the subnet should be automatically added. Global addresses must be retrieved from the customer inventory. Both pending addresses allocated on the current order and available addresses allocated on a previous order may be used.

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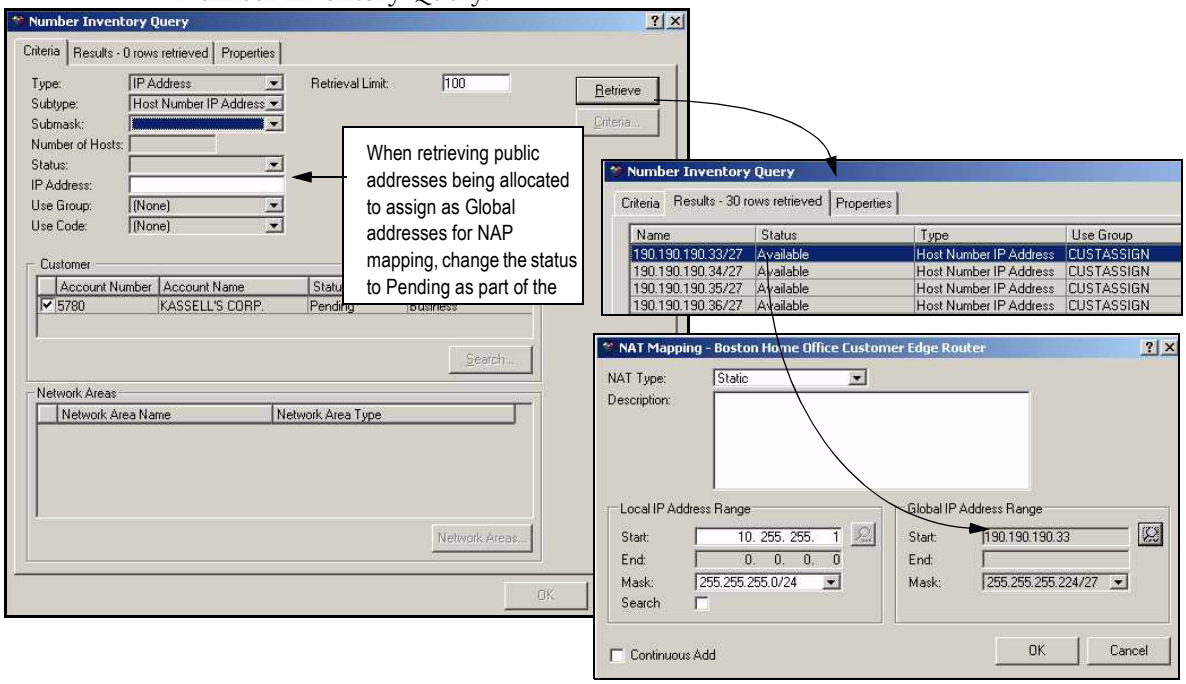
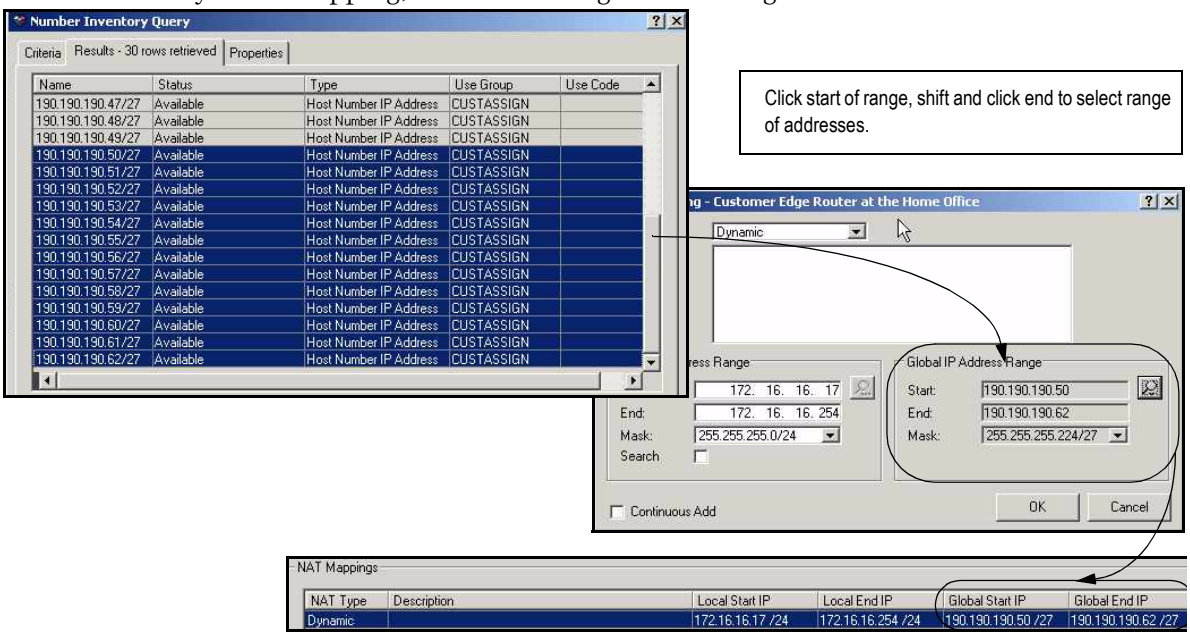
e. Click the Search button in the Global IP Address Range group box to invoke the Number Inventory Query.



f. Create a dynamic mapping by entering a local range or querying if you manually entered private IP addresses, and by querying for global IP addresses. With dynamic mapping, both local and global are ranges.



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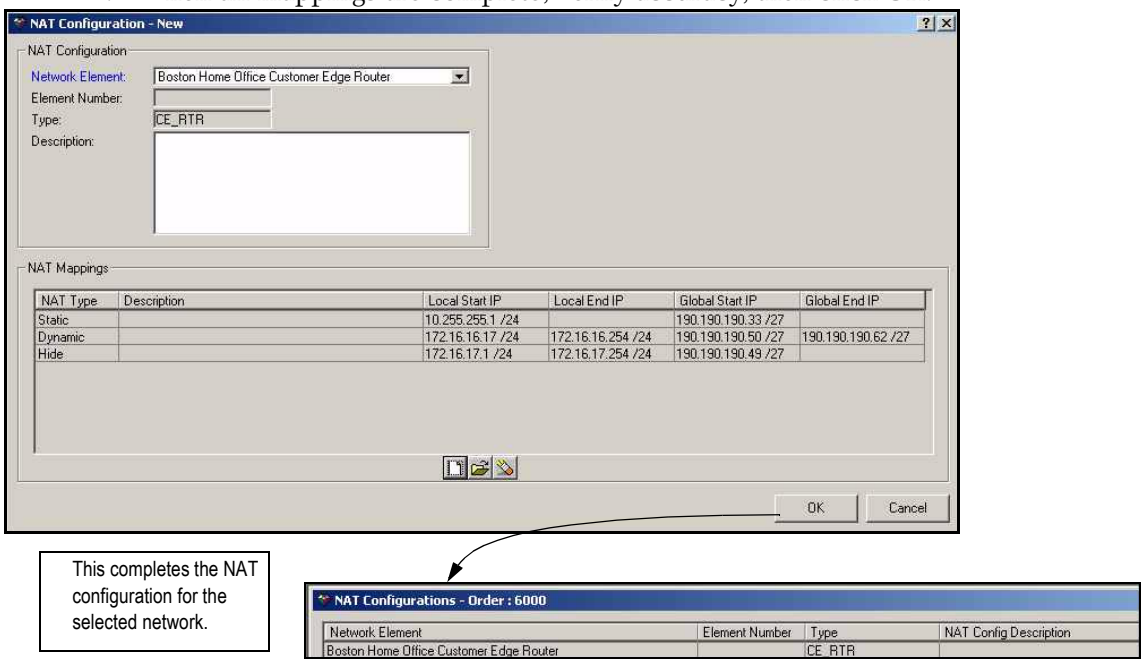
7. When all mappings are complete, verify accuracy, then click **OK**.



Next steps

The provisioning plan for provisioning a VPN network system should contain at least the following tasks: NETDSGN, RID (or DLRD), and DD. The CKTID task and the Equipment Install task can be performed from the canvas during the Network Design task. See the *Template-Based Service Provisioning Concepts and Processes Guide* for details on completing each of these tasks.

The service provisioner will associate equipment to the ordered elements, associated the ordered connection s to connection specs, complete record issued, design the connection from the Connection Maintenance. Finally, the service provisioner will put the network in service and complete the due date task.

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The following figure, which includes the ordered connections to be provisioned, demonstrates the tie-back of the network design to the underlying customized version of the Layer 2 VPN template.

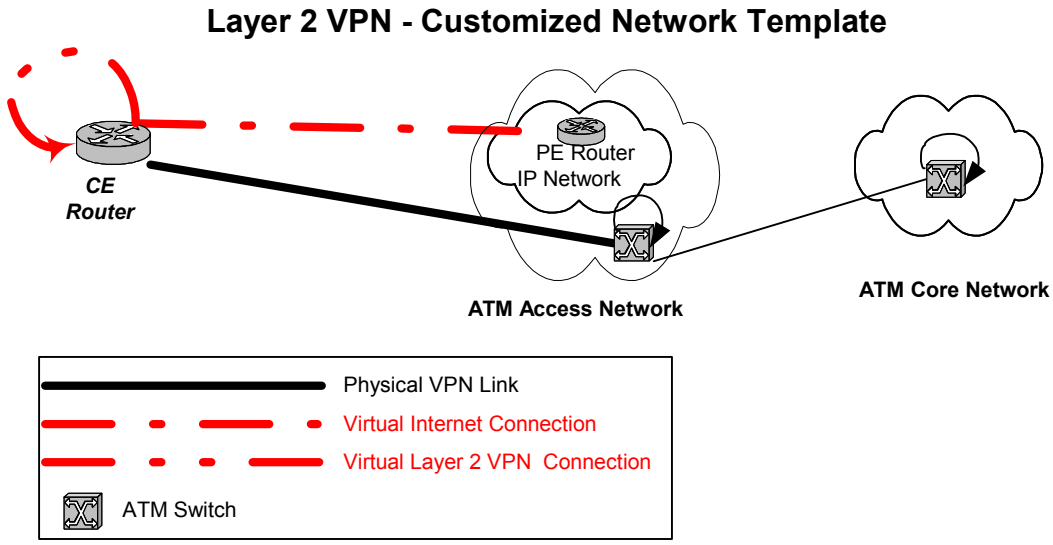

Figure 47: Extract of Layer 2 VPN template to be used as product offering

The network design task for this scenario would use a customized layer 2 VPN customer network with interconnections among customer routers and between each customer router and its access network. In this depiction, the branch offices access the Internet through the home office. The ordered connections to be provisioned in the sample VPN product

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offering described in this scenario are shown as heavy solid (physical) and heavy dashed (virtual) lines.

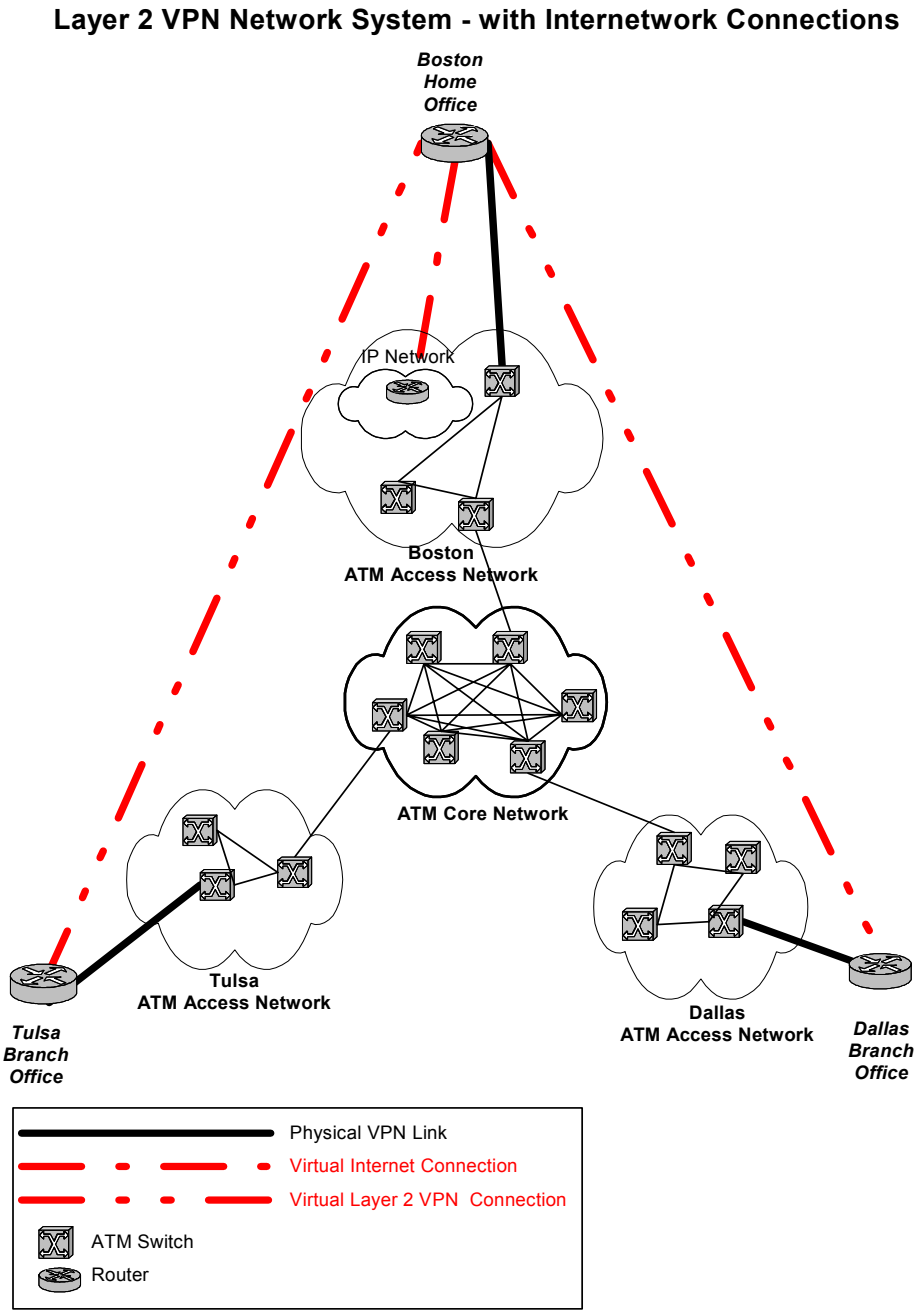

Figure 48: Layer 2 VPN with ordered and internetwork connections

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System Requirements

The MetaSolv Solution employs an n-tiered architecture consisting of an Oracle database, UNIX or Windows NT servers (for application and database servers), and Windows or browser-based clients. For more information specific to your application or version of the MetaSolv Solution, please contact your MetaSolv representative.

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