AT&T NetBond® User Guide

AWS Public and Private

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Legal Disclaimer

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1 About AT&T NetBond®

AT&T NetBond is a network-enabled cloud solution that allows you to extend your MPLS (multi-protocol label switching) Virtual Private Network (VPN) to a cloud service provider for the delivery of business applications through fast and highly secure connectivity.

AT&T NetBond uses patented technology that implements Software Defined Network (SDN) capabilities, providing traffic routing flexibility and integration of VPN to cloud service providers. From a security perspective, AT&T NetBond isolates traffic from the Internet and from other cloud traffic reducing exposure to risks and attacks such as DDoS (Distributed Denial of Service).

AT&T NetBond allows you to create highly-secure, private and reliable connectivity to cloud services in minutes without additional infrastructure investments and long term contract commitments.

This guide is designed to help you order and configure your AT&T NetBond VLANs using the Amazon Web Services service.

For more information about AT&T NetBond, please refer to the following links:

- AT&T Cloud Solutions Portal
- AT&T Enterprise Services Website
- AT&T Cloud Solutions Service Guide

2 Ordering AT&T NetBond

To order AT&T NetBond, you need the following:

- A contract that must be signed, and countersigned by AT&T.
- An AT&T Cloud Solutions Account that is activated in the AT&T Cloud Solutions portal.

The following sections describe how to complete each of these.

2.1 Contract

Your AT&T Account Manager will help you with your contract questions. There are specific documents that need to be signed before NetBond can be used with your VPN:

- Existing AT&T Cloud Services Customers: Review and sign the AT&T Cloud Services Pricing Addendum
- New AT&T Cloud Services Customers: Review and sign the AT&T Cloud Services Pricing Schedule

2.2 Activating Your AT&T Cloud Solutions Account

Once the AT&T Cloud Services contract is countersigned by AT&T and your account is set up in the AT&T Cloud Solutions portal (synaptic.att.com), you will receive a welcome email with instructions for how to activate your AT&T Cloud Solutions Account.

Note: Before provisioning AT&T NetBond, you will want to have an account with a Cloud Service Provider (CSP) that is partnered with NetBond

3 Provisioning Amazon Web Services Service

For first time AWS customers, log onto aws.amazon.com and setup an account. You will use your Commercial AWS account number to connect to AT&T Netbond.

4 Provisioning AT&T NetBond

Once your AT&T NetBond connection has been established, log into the AT&T Cloud Solutions portal with the credentials you received from the "Welcome" email.

Select the "Products" option from the top menu, select "AT&T NetBond" under the Network Enablement option, then click "Buy Now" for NetBond:

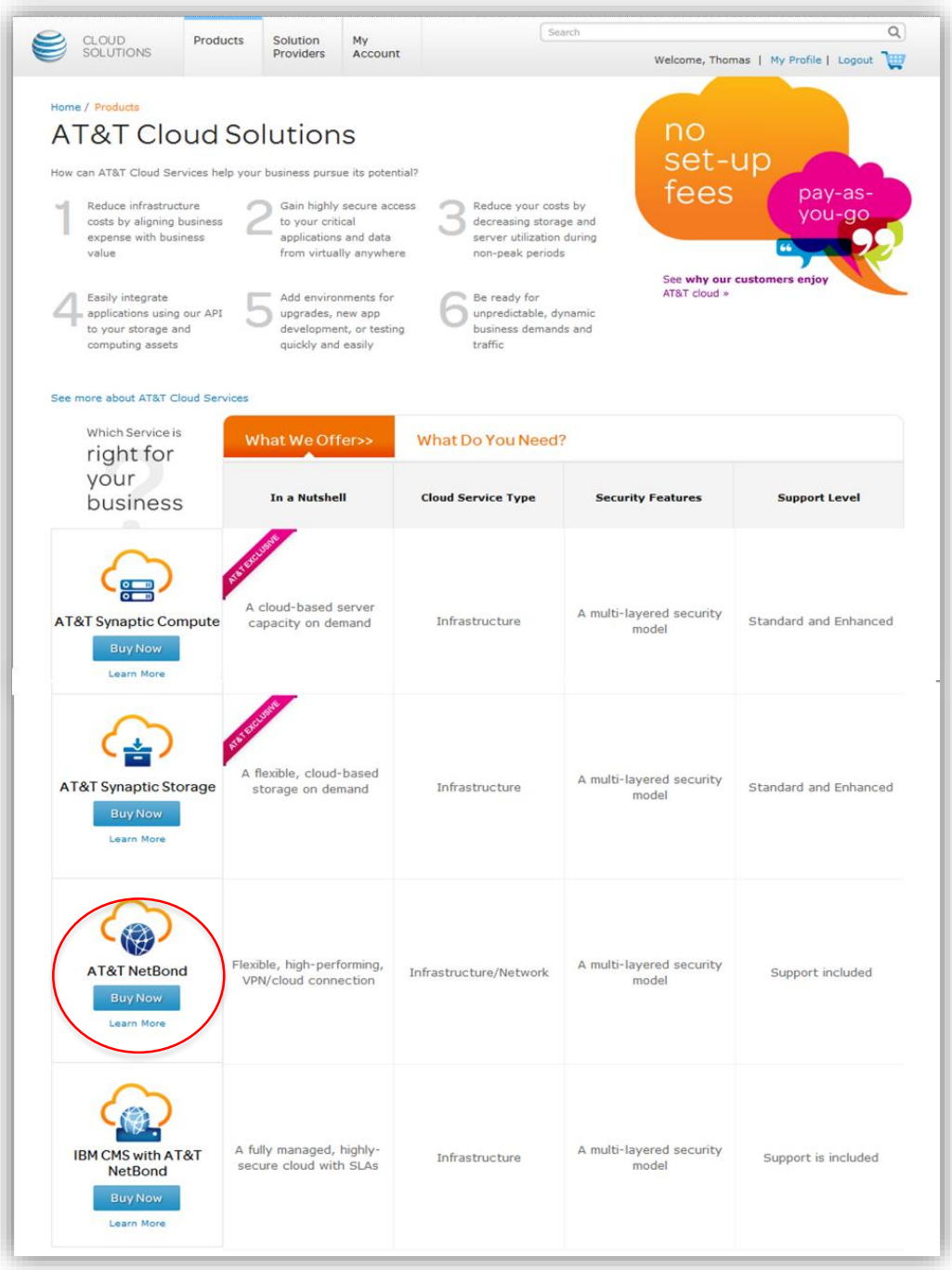

Figure 4-1: Product Options on the AT&T Cloud Solutions Portal

4.1 Provisioning AT&T NetBond – Configure Service

After selecting the NetBond service (shown in figure 4-1), you will see the "Configure Service" screen shown in figure 4-2.

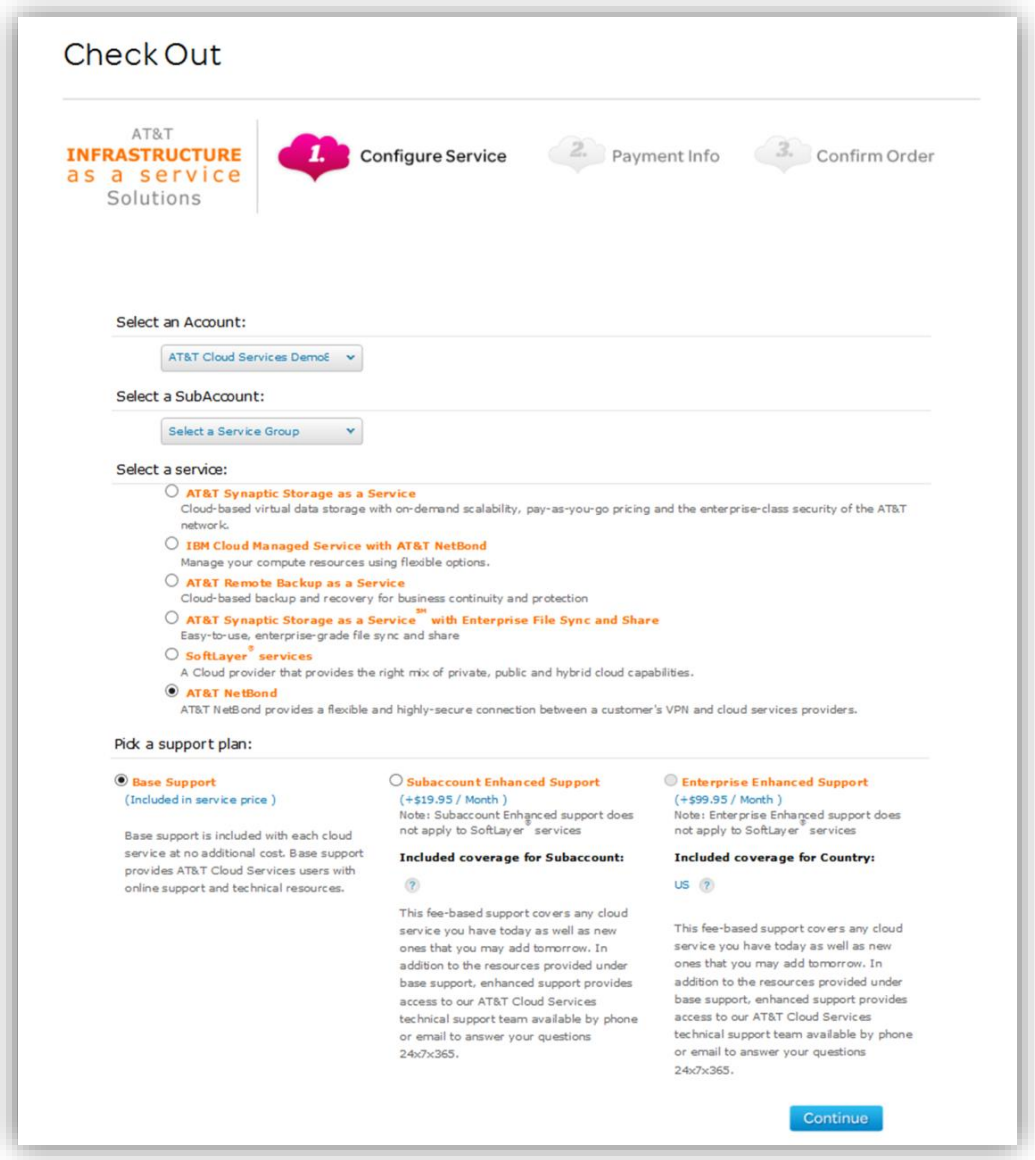

Figure 4-2: Configure Service Screen on the AT&T Cloud Solutions Portal

The following table describes the options on the Configure Service screen, and the action that should be taken for each.

When you have selected your options, click Continue.

Option	Action
Account	Select an account from the dropdown
SubAccount	Select a subaccount from the dropdown
Service	Select AT&T NetBond
Pick a Support Plan – For additional details on support, see section 7.0	Select one of the following plans: ▪ Base Support (Included with each cloud service at no additional cost) ▪ Subaccount Enhanced Support (+$19.95 / month) ▪ Enterprise Enhance Support (+$99.95 / month)

Table 4-1: Order NetBond

4.2 Provisioning AT&T NetBond – Payment Info

Click "Continue" when you see the Payment Confirmation screen:

Note: NetBond services are contract-based so "Invoice" will be the only selection.

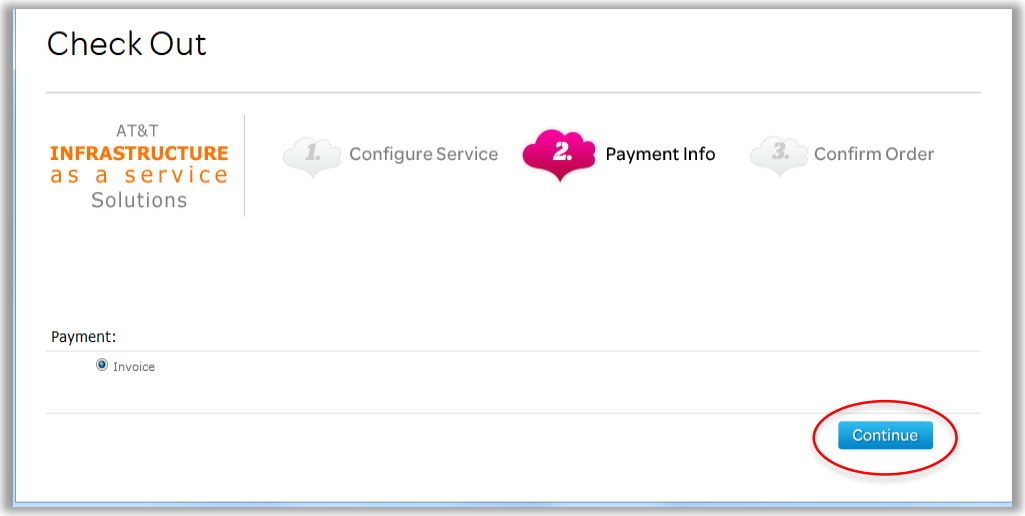

Figure 4-3: Payment Confirmation Screen

4.3 Provisioning AT&T NetBond – Confirm Order

The Confirm Order Screen (figure 4-5) will allow you to:

- Review a summary of your service purchase.
- Check box to acknowledge that you are purchasing AT&T NetBond.
- Enter a promotional code. If your AT&T account team has provided you with a promotional code, enter it into the "Promotion" box and click "Update Total".
- Submit your order by clicking the "Place My Order" button.

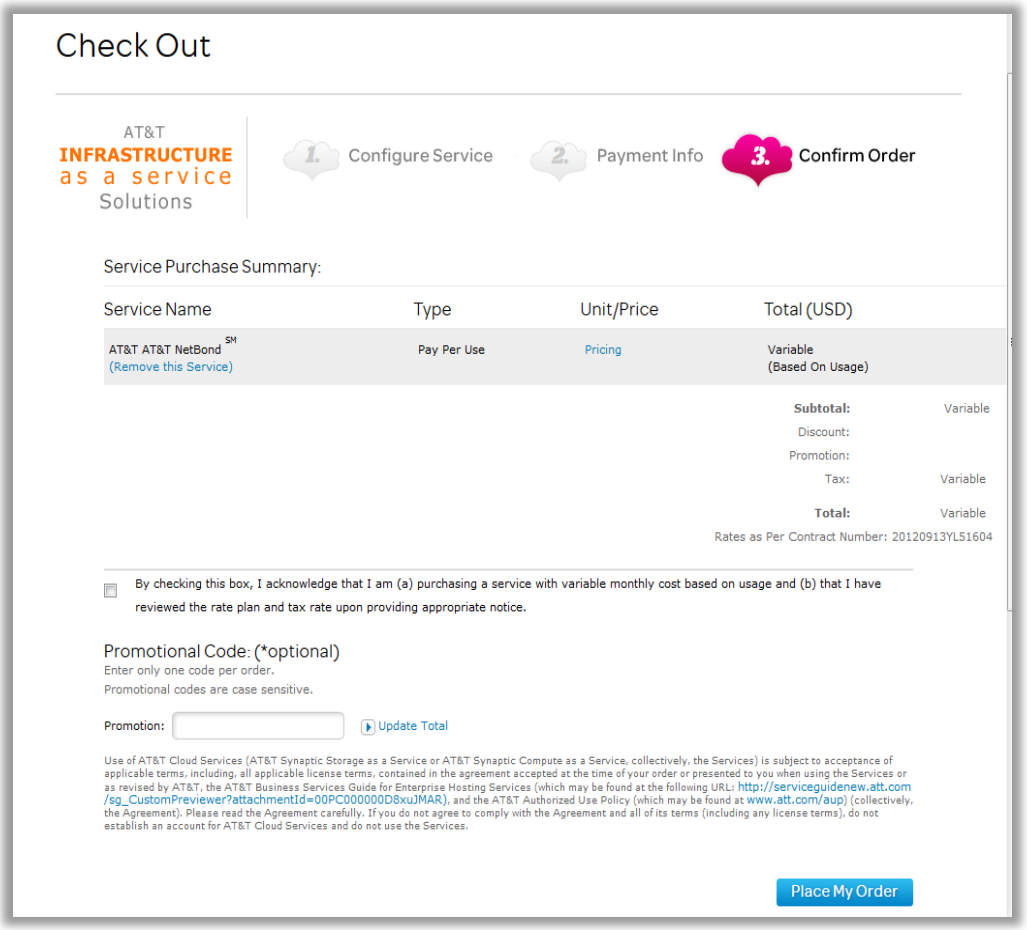

Figure 4-4: Confirm Order

Once you click on "Place My Order", the order confirmation message should appear (Fig. 4-5) which includes your order key number. Save this page and refer to the order key number if you need to contact the AT&T Cloud Solutions Support team.

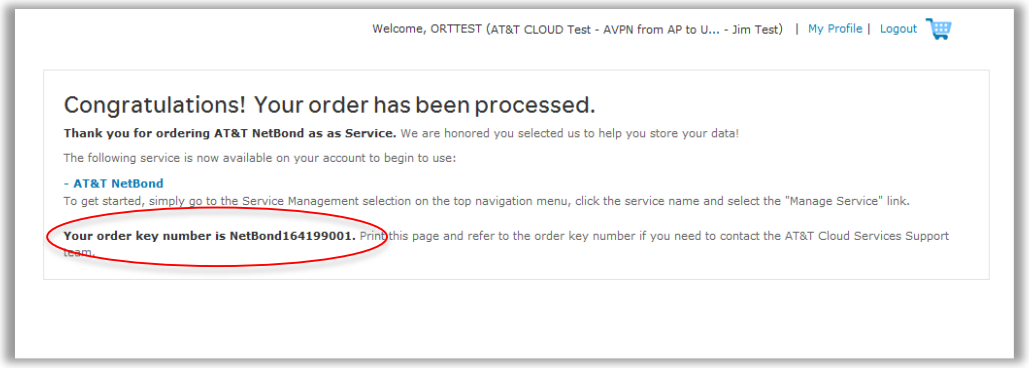

Figure 4-5: Order Confirmation Screen

5 Configuring AT&T NetBond with Amazon Web Services

To continue with the configuration of AT&T NetBond with Amazon Web Services, you will need to create a Virtual Network Connection (VNC).

Select ***Manage VNCs and VLANs*** as shown on the screen in figure 5-1.

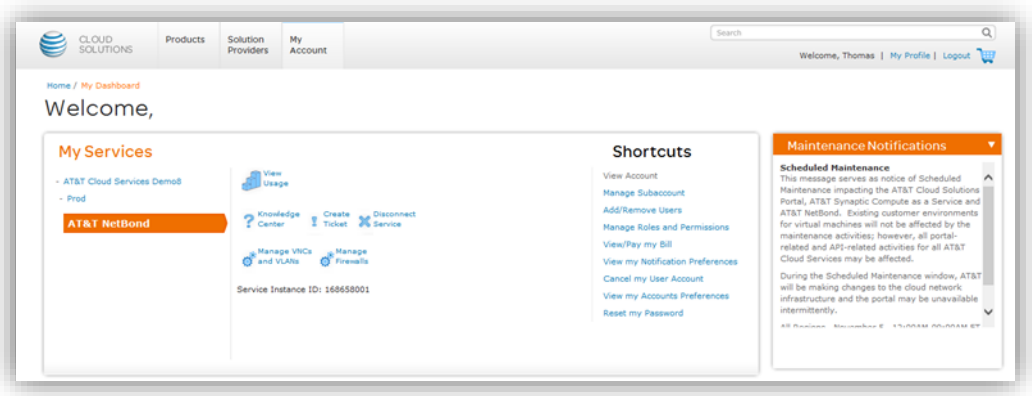

Figure 5-1: Manage Service Option

Select ***Create VNC*** as shown on the screen in Figure 5-2

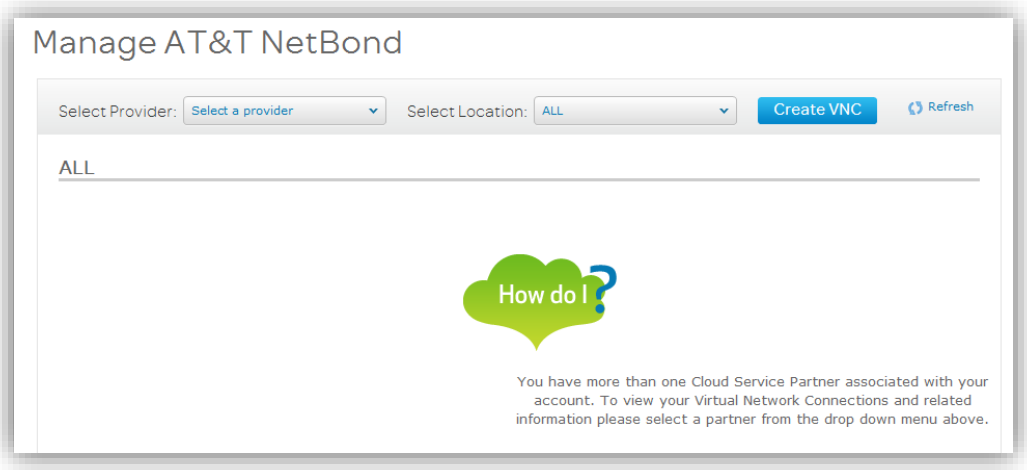

Figure 5-2: Create VNC

The ***Create VNC*** screen will open.

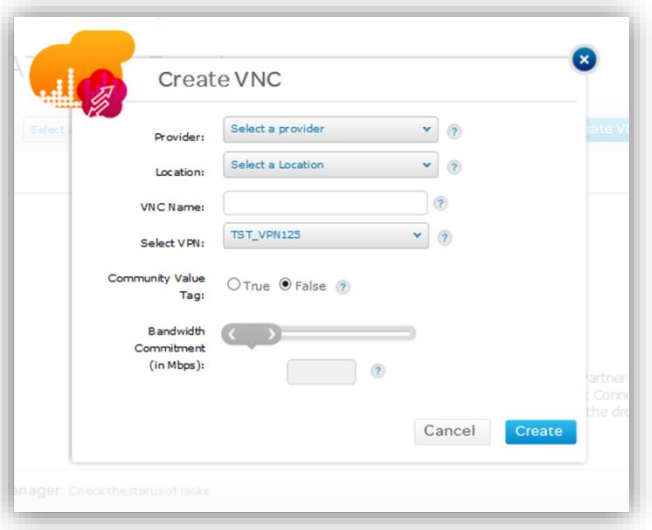

Figure 5-3: VNC Information

The following table describes the options on the Create VNC screen, and the action that should be taken for each. When you have selected your options, click Continue.

Option	Action
Provider	Select the provider to be added to this Virtual Network Connection (VNC).
Location	Select the location for this VNC.
VNC name	Choose a VNC name that will be recognizable to your organization. **Note:** There is a 64-character limit for VNC names.
VPN	From the dropdown list, select the AT&T MPLS VPN you wish to use for AT&T NetBond connectivity. If the VPN ID is missing, contact your AT&T account team for assistance.
Bandwidth Commitment	Use the Slider control to set your monthly bandwidth commitment based on your company requirements. A Minimum Bandwidth Commitment can be adjusted prior to the end of each billing cycle to minimize overage charges. See section 6.1 for more information.
Community Value Tag	Certain Cloud Service Providers have a limit to the number of routes they can receive. If a customer network exceeds this limit, then it is advised to include a set of summarized routes tagged with the 8030:999 community value. By selecting "Community Value Tagging" on the AT&T Synaptic Portal VNC configuration, AT&T will only accept routes from an AT&T VPN

Option	Action
	that has this community value. The options for Community Value Tagging are "True" or "False". **Note:** For Amazon Web Services this will always be "False".

Table 5-1: VNC Creation

Next, you will need to assign a Virtual Local Area Network (VLAN) to the VNC. By assigning a VLAN to a VNC, you are allowing a virtual connection to occur between AT&T NetBond and the CSP.

On the "Manage AT&T NetBond" screen, click the **Service Provider** dropdown menu and select Amazon Web Services. Next, select the location you created the VNC for this CSP.

Click the "**Assign VLAN**" button (shown in figure 5-4).

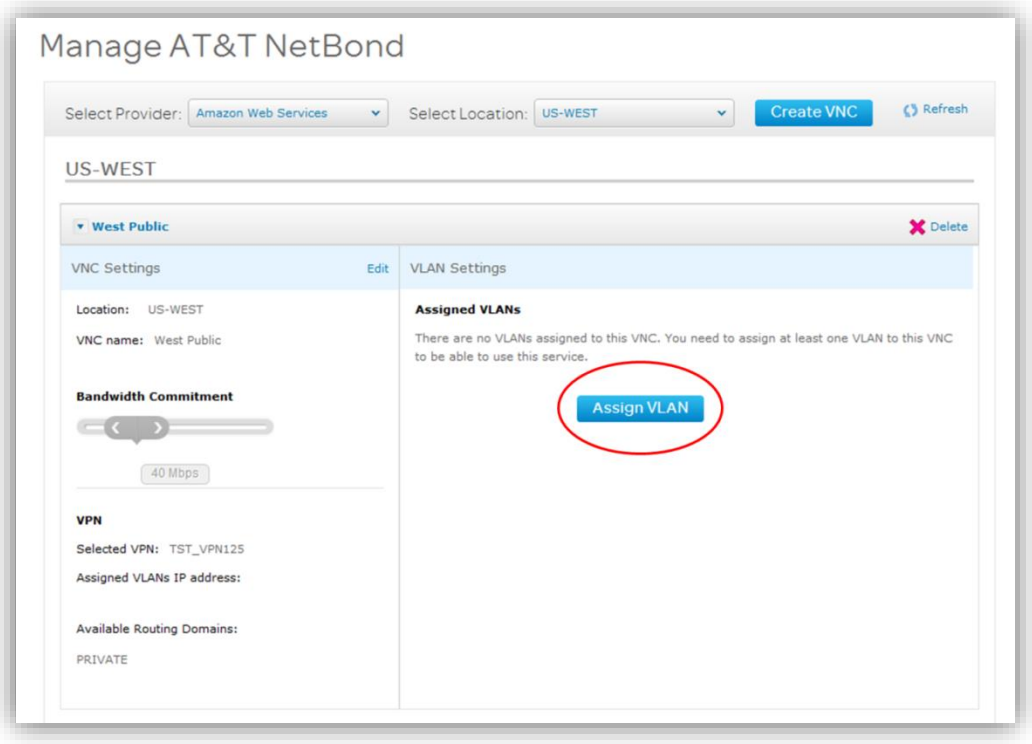

Figure 5-4: Assign VLAN Button

The ***Assign VLAN*** screen will open

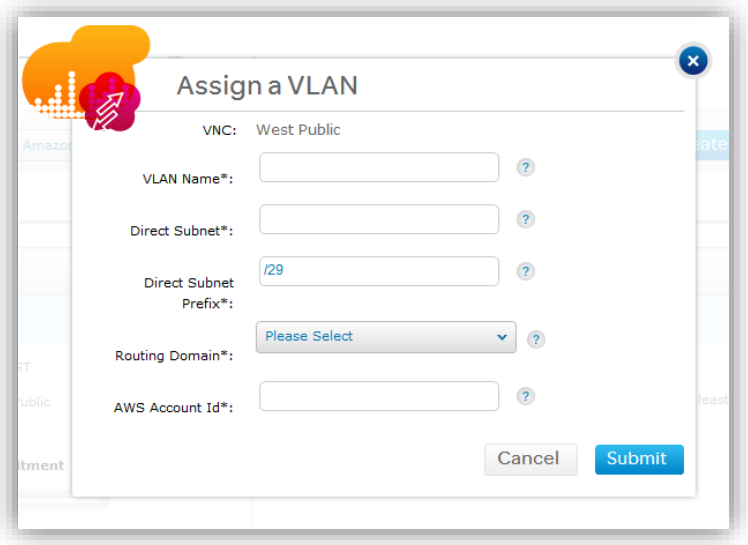

Figure 5-5: Assign a VLAN Screen

The following table describes the options on the Assign VLAN screen, and the action that should be taken for each.

When you have selected your options, click Continue.

Option	Action
VLAN Name	Enter the VLAN name of your choice. Consider using a similar name to what the VNC was named in section 4.1. The limit for this is 19 characters.
Direct Subnet	Enter a PRIVATE network address of a /29 subnet that you have allocated to this VPN. Do not include the "/29" subnet mask. The subnet should be sourced out of your enterprise IP address space. This needs to be a publicly registered subnet.
Direct Subnet Prefix	The /29 is standard and cannot be changed
Routing Domain	Select from Public / Private routing domains based on the AWS service you are using.
AWS Account ID	Enter your Commercial AWS account number in this field. This will orchestrate you VLAN to your Commercial AWS Account.

Table 5-2: VLAN Creation

Note: A separate VNC is required for each routing domain. Private Routing domains can have up to 50 VLANs per VNC.

Your VLAN connection is now in a ***Confirming*** state until you accept the VLANs in your Commercial AWS Account.

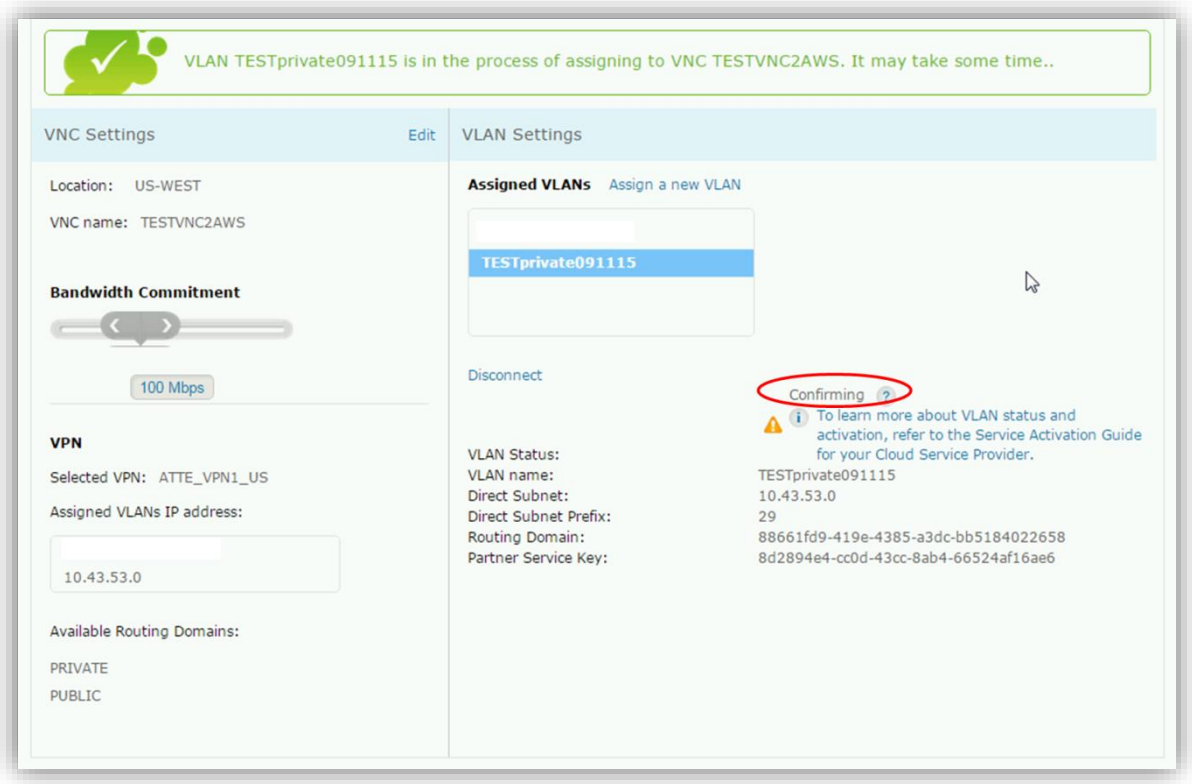

Figure 5-6: Manage AT&T NetBond – Assigning a VLAN

Log into your AWS account to accept this new VLAN connection that has just been created. On the Virtual Interfaces screen you will see two new VLANs “pending acceptance”. These two VLANs are the Primary and Secondary links from your NetBond Connection. You will need to accept both VLANs.

> **Note:** VLANs not accepted in 10 days will be deleted. Accepting only one VLAN will result in both being deleted after 10 days.

Private Routing Domain connections to AWS shall be active within 10 minutes from accepting the VLANs in the AWS Virtual Interface screen.

Public Routing Domain connections to AWS will be held in a confirming state while AWS verifies that the publicly routed IP addresses that have been assigned to your connection by AT&T are registered to AT&T and authorized for your company to use. AT&T will create a Letter of Authorization (LOA) for these IP addresses and send to AWS after your VLANs have been accepted in the Virtual Interface screen. The following steps will need to be completed to active your Public AWS virtual intereface:

1. AT&T On-Boarding team shall turn down customers BGP on AT&T side of connection.

2. AT&T shall collect the following information from your Public AWS connection.
    - BGP ASN
    - AT&T Peer IP address
    - Amazon Peer IP address
    - NATed IP address
    - Customer VIF (ID)
3. AT&T On-boarding team shall add the information listed in step 1 to a Letter of Authorization (LOA) and send to AWS at directconnect-requests@amazon.com
4. AWS DirectConnect Service team shall verify the IP address are authorized for use for the customer by AT&T.
5. Upon verification, AWS shall activate the Virtual Interfaces. This takes up to 72 hours from the time that the LOA is submitted to AWS.
6. Customer shall notify AT&T On-Boarding team that their Virtual Interface connection is active
7. AT&T On-Boarding Team shall bring up customers BGP session

Note: During which time a status screen shown in Figure 5-6 will have a ***Confirming*** status shown. There is a *Refresh* button in the upper and lower-right corners that can be clicked to check provisioning status.

Note: Accepted VLANs to AWS Public services will stay in "pending" status on your AWS Virtual Interfaces screen for 72 hours while AWS completes a verification process. Please reference the AWS guide to AWS Direct Connect for question with AWS Virtual Interfaces.

The VLAN status shown in Figure 5-6 will change to **Active** once AWS has verified that the IP Addresses are registered to AT&T and your company is authorized to use them.

At this point, connectivity has been established between your AT&T MPLS VPN and your newly created Commercial AWS account.

6 Managing AT&T NetBond with Amazon Web Services

After logging in, you will be in the "My Dashboard" view of your account screen. You can manage the details of your AT&T NetBond account and use the Shortcuts for common tasks, as shown in the following figure.

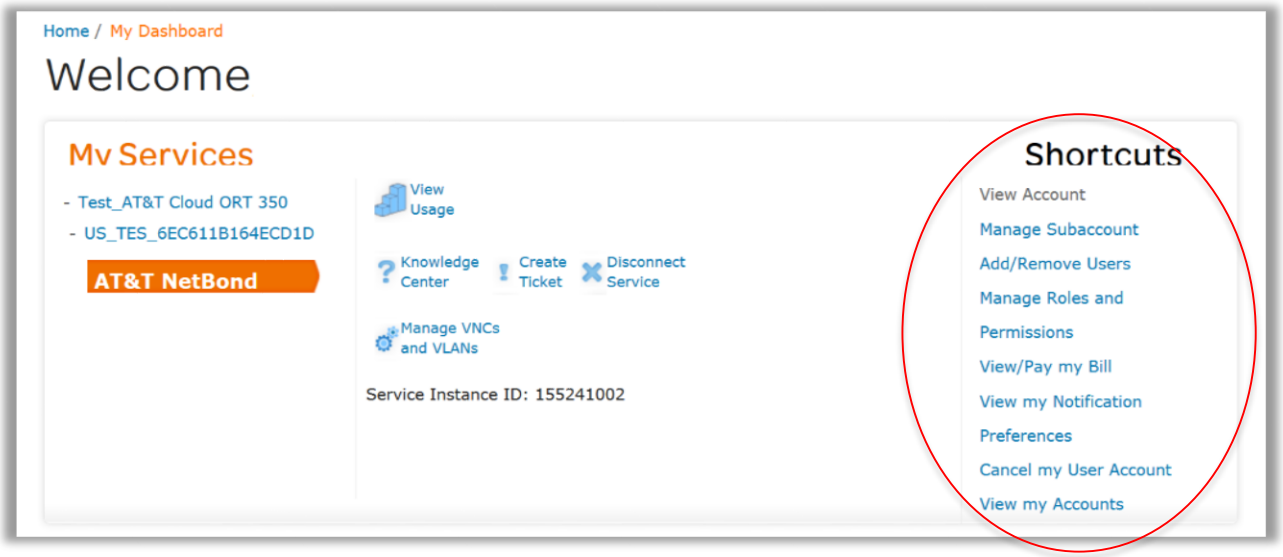

Figure 6-1: Shortcuts in the My Dashboard View of the My Account Screen

6.1 Managing Your Minimum Bandwidth Commitment

For your customer connection, select a minimum bandwidth commitment (MBC) by Virtual Network Connection (VNC) and select the capacity commitment in Mbps, which is a fixed rate. Overage rates will apply for sustained capacity over the package commitment levels. Overage rates will be calculated by measuring bandwidth demand, in bits per second, for a VNC for each five minute period during the month, inbound to the VNC and outbound from the VNC. AT&T will select the 95th percentile five-minute usage period of the larger direction (inbound or outbound). Divide by 1,000,000 to obtain the sustained bandwidth volume in Mbps (Megabits per second).

- It is advised that you generate daily and/or monthly reports to view your 95th In/Out percentiles.
- Minimum Bandwidth changes must be made prior to the last day of the AT&T NetBond billing cycle which is the 9th calendar day of each month.

To monitor your usage, hover over "My Account" and click "Reports" figure 6-2.

Figure 6-2: Accessing Reports for Your Account

Both Daily and Monthly Bandwidth Usage Reports are available, as shown in figures 6-3 and 6-4.

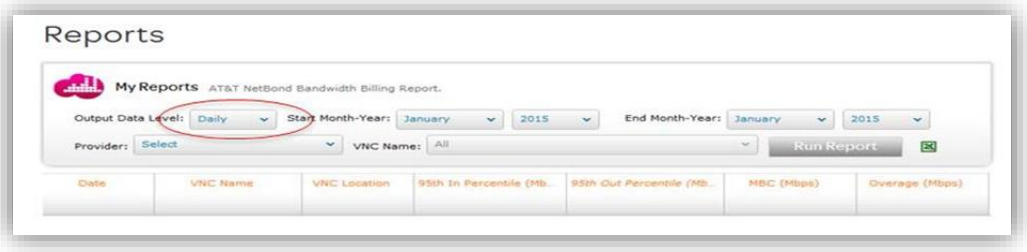

Figure 6-3: Daily Reports

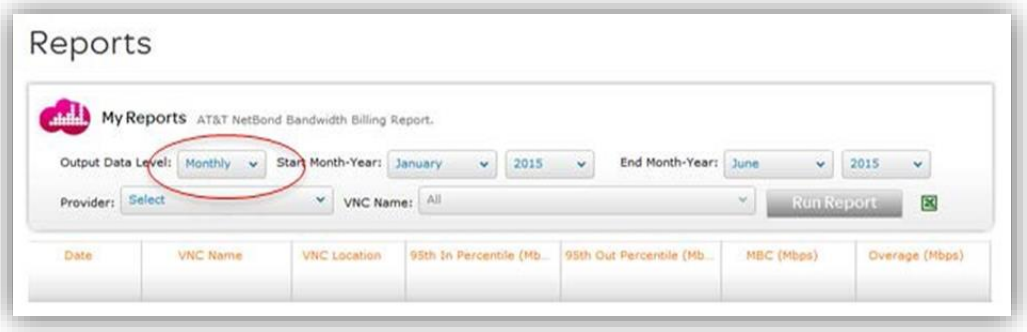

Figure 6-4: Monthly Reports

You can manage your Minimum Bandwidth Commitment (MBC) from the “Manage VNCs & VLANs” screen accessed from the My Account drop down. Click “Edit” next to “VNC Settings” (shown in Figure 6-5).

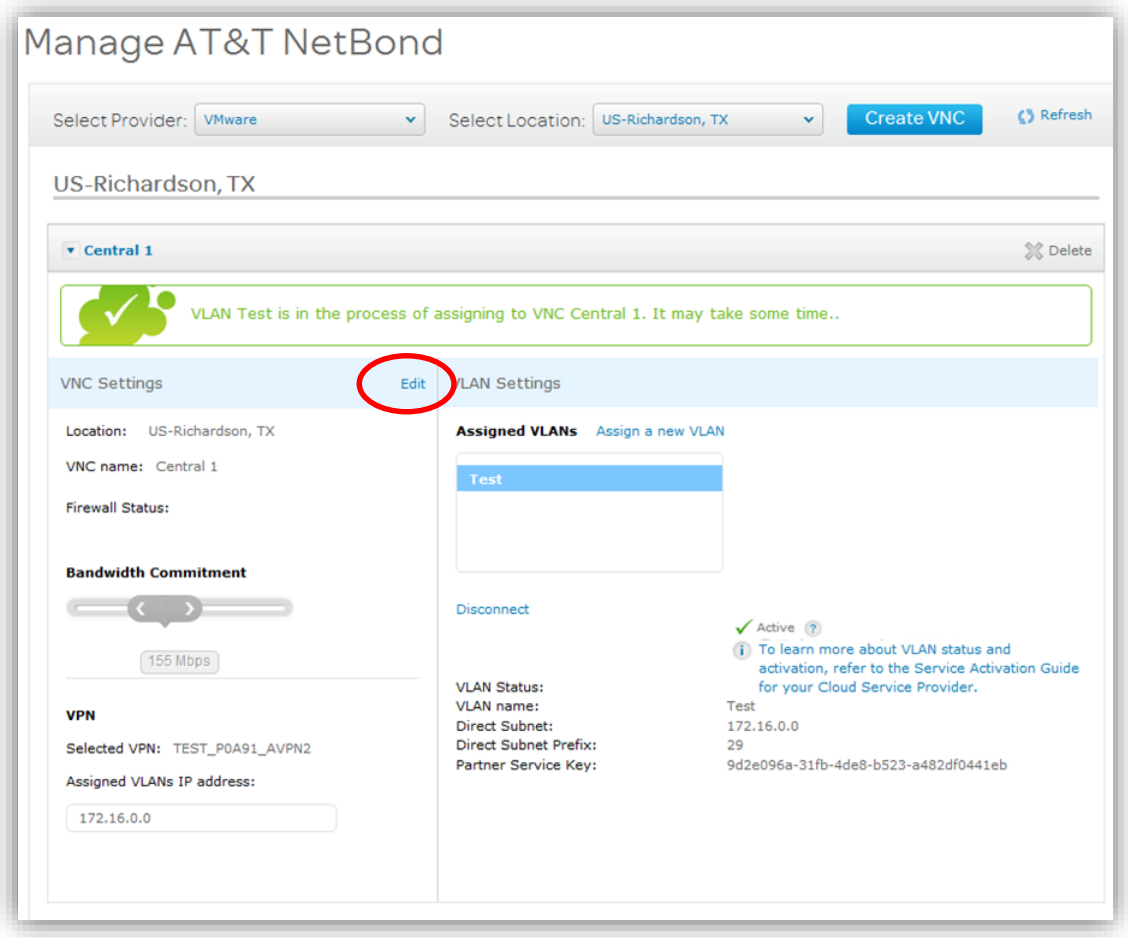

Figure 6-5: MBC Settings

You can then drag the slider to your desired Bandwidth Commitment level (see Figure 6-6), and click submit to save your changes.

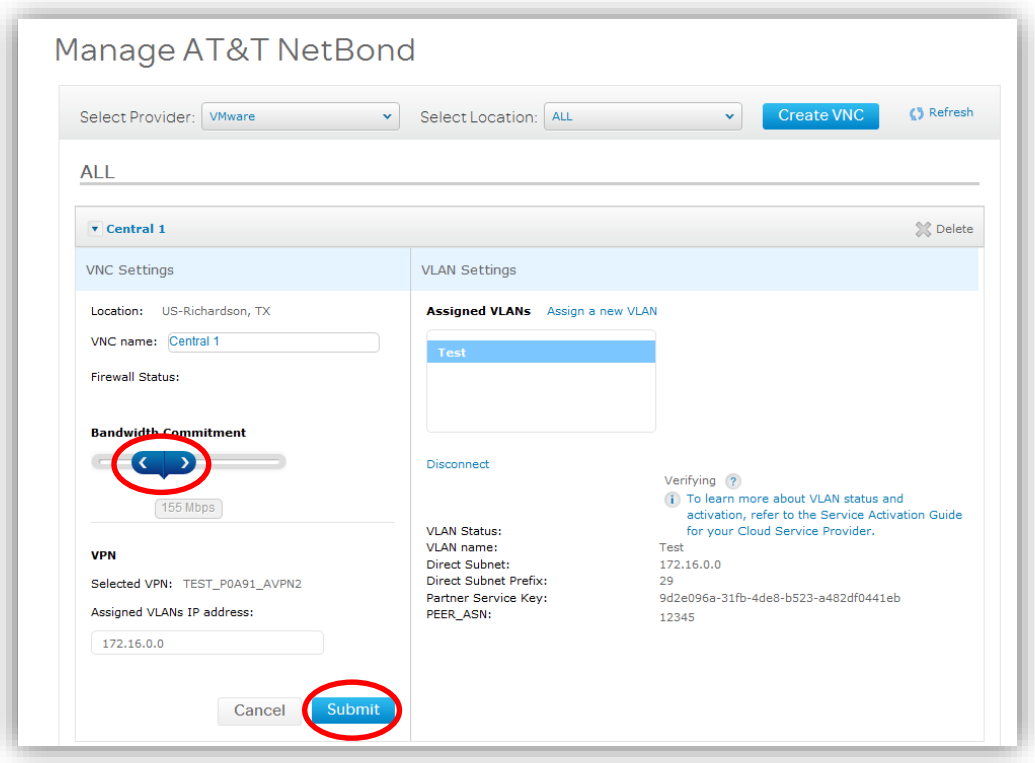

Figure 6-6: Adjusting the MBC

6.2 Managing Subaccount Disconnects

If you need to disconnect a subaccount from your AT&T NetBond Service go to "My Dashboard", and click "Manage Subaccount" under Shortcuts (figure 6-7).

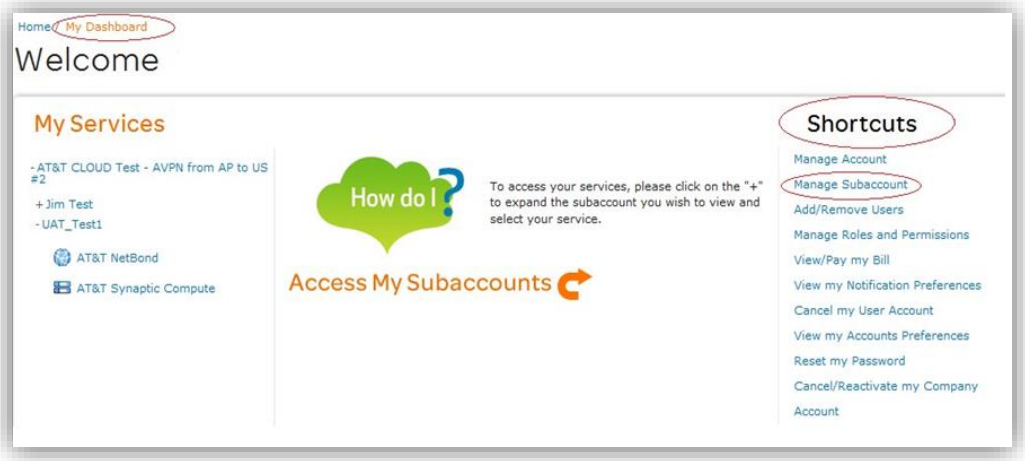

Figure 6-7: Manage Subaccount

Select the subaccount to be disconnected and click "Delete Subaccount" (figure 6-8).

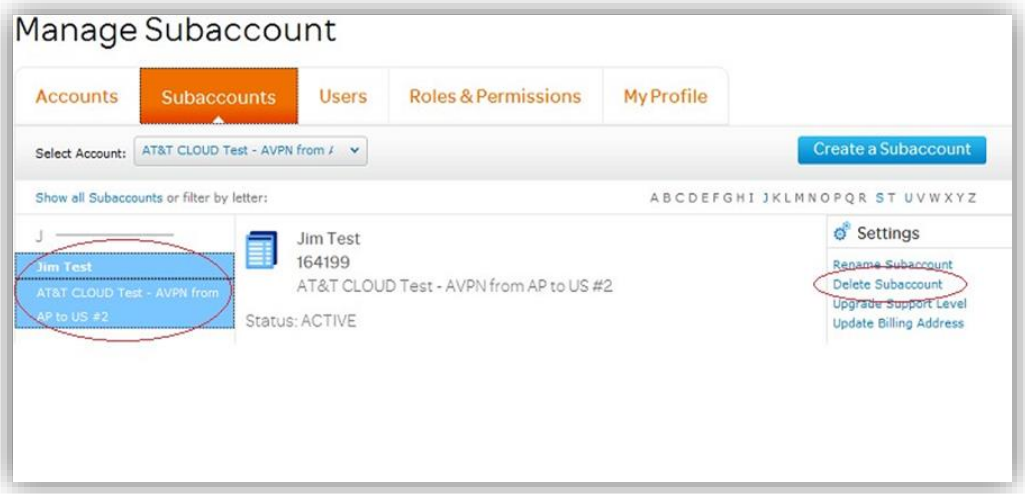

Figure 6-8: Delete Subaccount

Upon successful deletion of the subaccount, the status will change to "DISCONNECTED" as shown in figure 6-9.

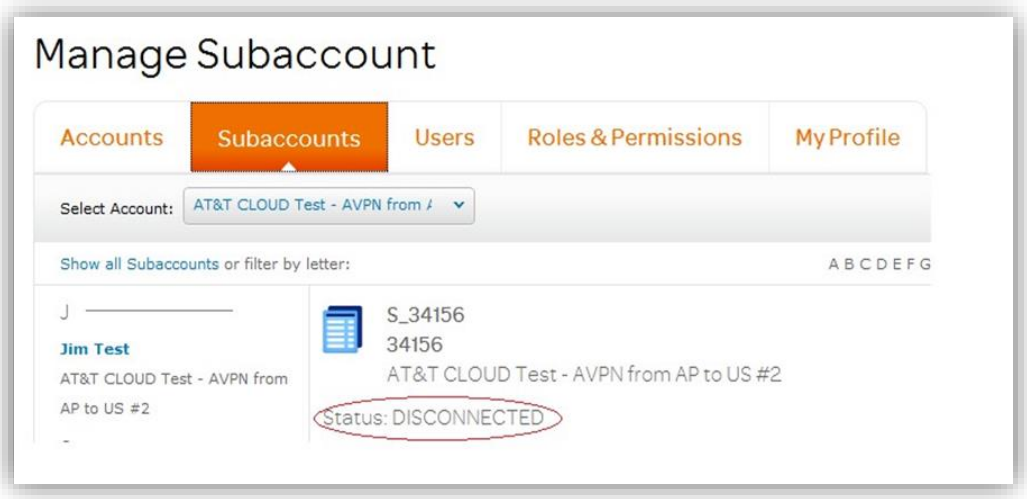

Figure 6-9: Subaccount Status

7 Troubleshooting and Support

If you are unable to connect to applications hosted by a Cloud Service Provider (CSP) across your NetBond connection, use the following troubleshooting steps. This will begin to isolate the issue and make it easier for Technical Support to assist you.

The Troubleshooting Diagram (figure 7-1) shows the troubleshooting steps that are described in this section.

Please note that additional steps may be necessary with your Cloud Service Provider or other AT&T teams.

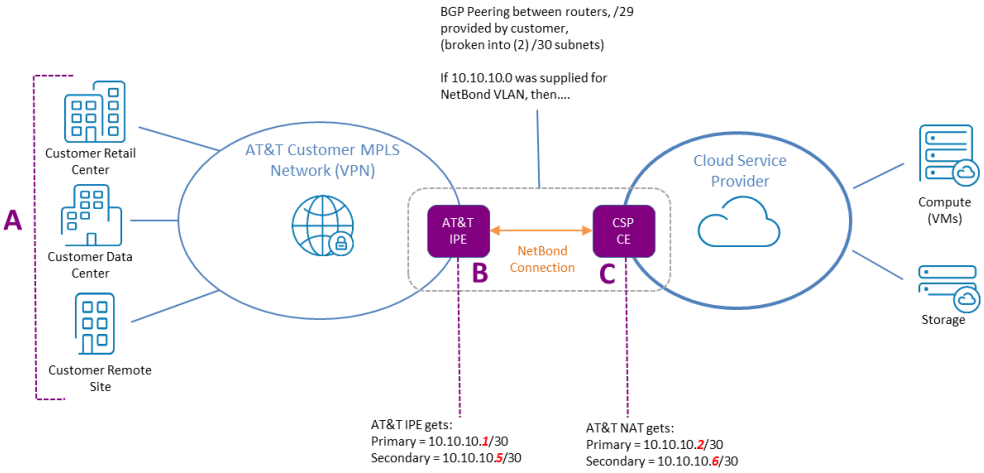

Figure 7-1: Private Troubleshooting Diagram

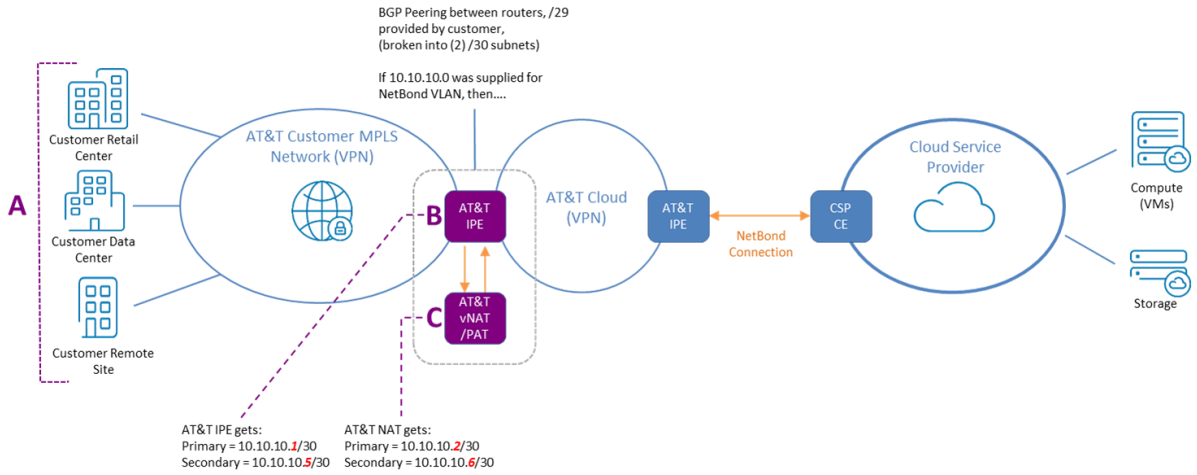

Figure 7-2: Public Troubleshooting Diagram

7.1 Ping from an Endpoint on MPLS Network

Attempt a ping from an endpoint on your MPLS network (Point A in the Troubleshooting Diagram) to the IP assigned to the CSP edge router (Point C).

Note: This is the second IP received from the NetBond VLAN.

7.1.1 If the Ping is Successful

If the ping is successful, it indicates the following:

1. The MLPS-VPN connection is good from the customer endpoint (Point A) thru the MPLS network, and thru the NetBond connection (Point B) to the CSP edge router (Point C).
2. If the connection is successful for pings and trace routes, the issue may be with your CSP. Engage your CSP directly.

7.1.2 If the Ping is Not Successful

If the ping is not successful, perform the following troubleshooting steps:

1. Check for VLAN IPs (Points B and C) in the routing tables on the customer edge routers (Point A).
    a. If the VLAN IPs are NOT in the routing tables, the issue could be with the AVPN or NetBond. Please submit a NetBond ticket via the AT&T Cloud Portal.
    b. If the VLAN IPs are in the routing tables, go to step two.
2. Perform a trace route from the endpoint on the MLPS network (Point A) to the CSP CE (Point C) IPs. Determine where the trace route dies – then go to step three or four.
3. If the trace route dies before AT&T IPE (Point B):

a. Check with your internal network engineer to verify network connectivity across the customer network.
b. If all connectivity tasks in the customer network are good, there could be a problem in the AT&T MPLSVPN (AVPN) network. Please submit a trouble ticket with the AT&T VPN Care team.

4. If the trace route dies at the AT&T IPE (point B), there could be a problem in the NetBond connection. Please submit a NetBond ticket via the AT&T Cloud Portal.

7.2 Technical Support

If you are still unable to resolve your connection issue after walking through the troubleshooting steps in Section 7.1, utilize the "Chat Now" option under "My Dashboard" as shown in figure 7-2.

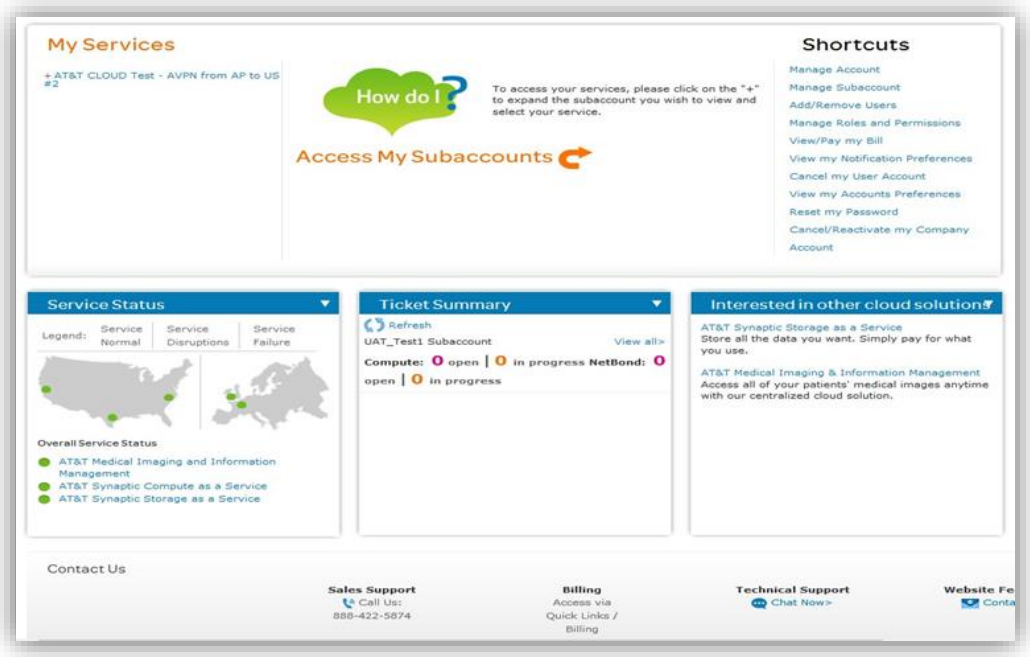

Figure 7-3: My Services: Technical Support – Chat Now

You also have the option to submit a service ticket. To submit a service ticket, use the following steps:

1. Select Quick Links and then "Ticketing"
2. Select the appropriate subaccount and click "New Ticket" (figure 7-3).

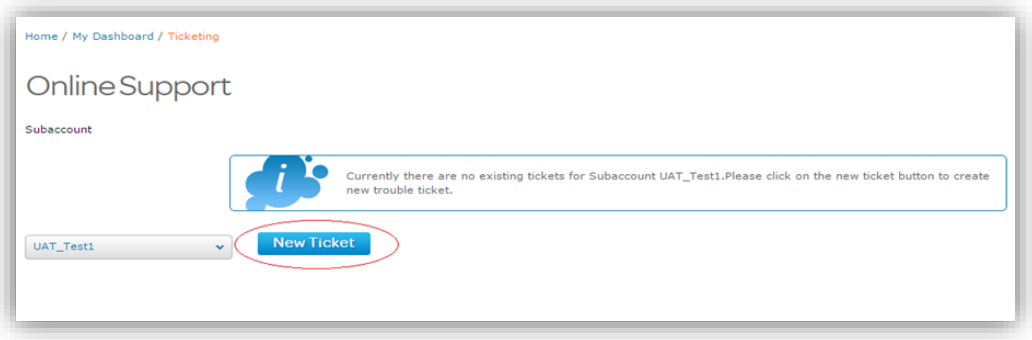

Figure 7-4: Submitting a Service Ticket Step Two

3. On the Open New Ticket Screen (figure 7-4), complete the following ticket information fields:

    - Cloud Service - Select AT&T NetBond
    - Priority Level: Select the appropriate priority level from the following options:

Portal Priority	Status Response	Status Update Interval
Critical	15-30 min	30 min – 1 hour
High	30 min – 1 hour	2 hours
Normal	2 hours	Daily
Low	1 business day	Daily

Table 7-1: Priority Levels for Service Tickets

    - Issue Summary: Select the appropriate Issue Summary.
    - Issue Description: Provide details regarding the issue you are experiencing.
    - Click "Submit".

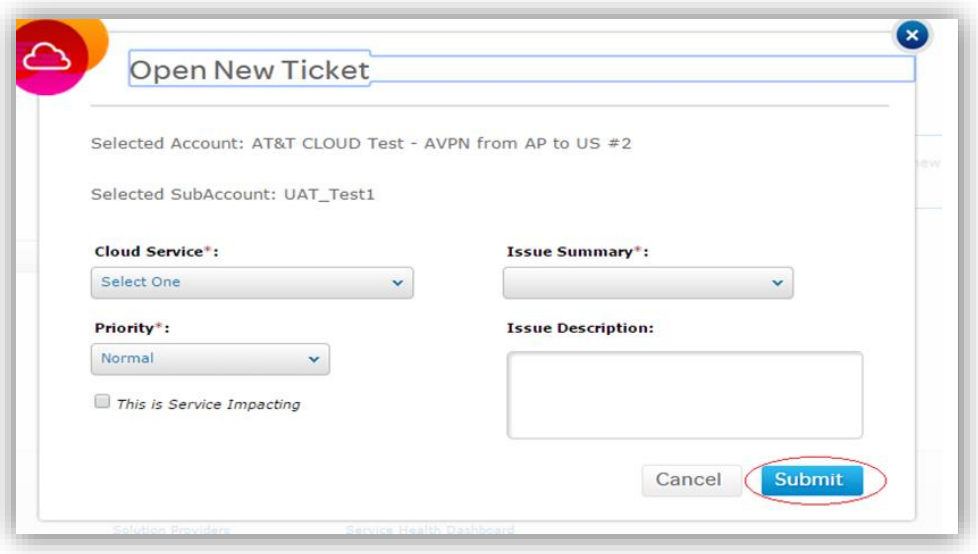

Figure 7-5: Open a Service Ticket Detail Screenshot

4. To receive an email confirmation that your ticket has been submitted, you may need to update your profile to "I wish to receive ticket notifications" - the default is automatically set to "I do not wish to receive ticket notifications". To do this:

    - Hover over "My Account" and select "View My Profile" (figure 7-5).
    - Choose "Edit" and "My notifications preferences" and select "I wish to receive ticket notifications" (figure 7-5).

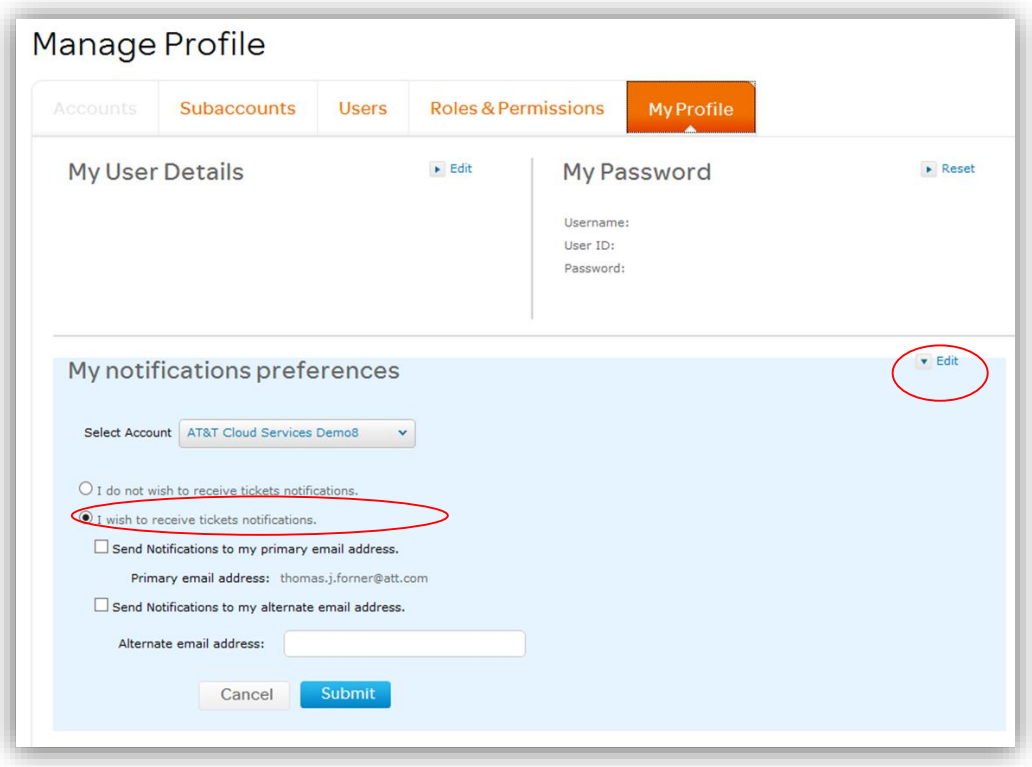

Figure 7-6: Manage/Edit Profile

7.3 Support Plan Details

In addition to Base Support, which is included with each cloud service at no additional cost, Enhanced Support is available per-subaccount or per-enterprise account.

7.3.1 Base Support

Base support is included with each cloud service at no additional cost, providing AT&T Cloud Services users with online support and technical resources.

7.3.2 Enhanced Support

Enhanced support is available for $19.95/month per subaccount and/or $99.95/month per enterprise (per country). This fee-based support covers any cloud service you have today as well as new ones that you may add tomorrow. In addition to the resources provided under base support, enhanced support provides access to our AT&T Cloud Services technical support team available by phone or email to answer your questions 24 x 7 x 365.

To upgrade your Support Plan, select “Manage Accounts” and click “Upgrade” under Service Level (figure 7-6). Next, pick a Support Plan that best meets your company needs (figure 7-7).

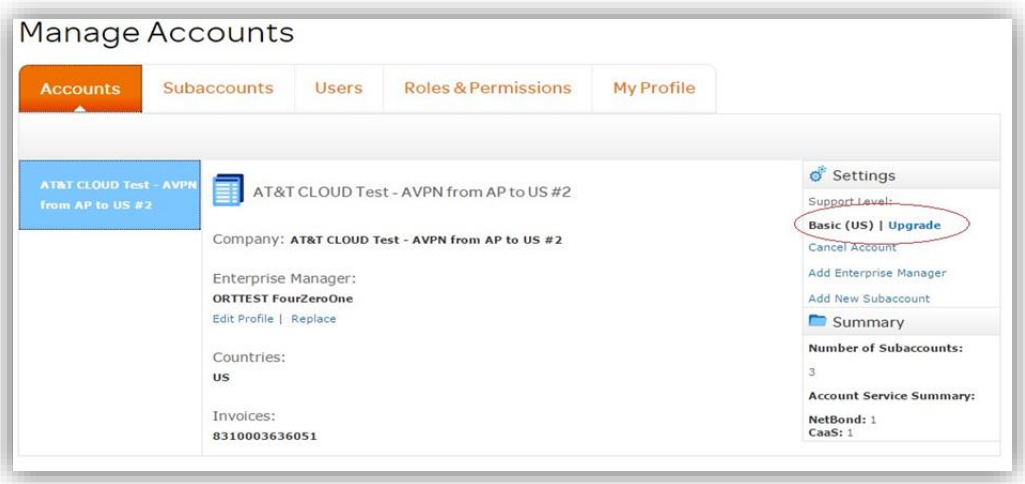

Figure 7-7: Upgrade a Support Plan

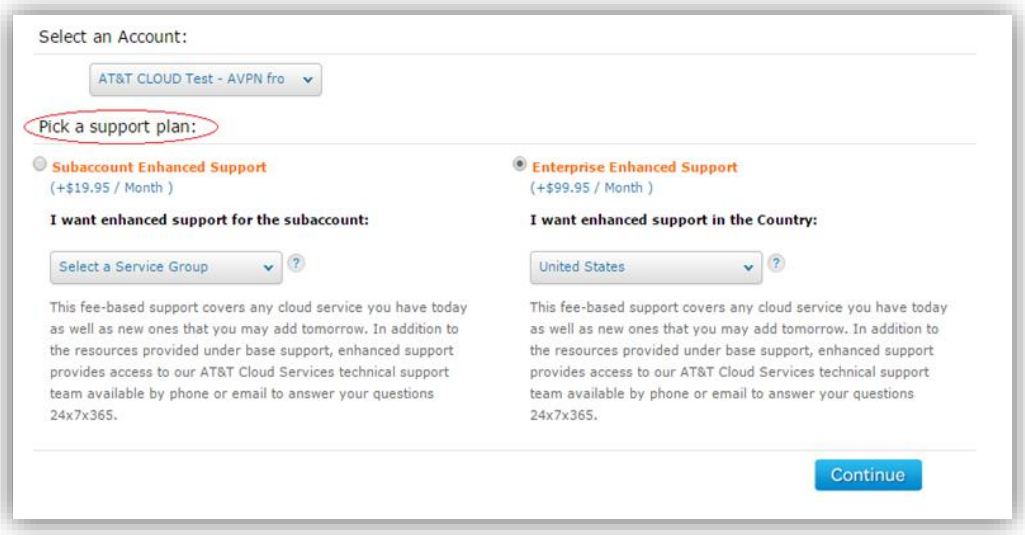

Figure 7-8: Pick a Support Plan