VPN - Virtual Private Network

A VPN service (Virtual Private Network) is available for HPC, primarily for applications that cannot navigate the bastion host for visualization, and because the performance is frequently better than tunneling through the Bastion host.

This can be an option to using the OnDemand Desktop, which is generally easier to use than the VPN.

A VPN provides a secure connection from your home computer, laptop or mobile device to the HPC network in this case. This example is on a MAC.

1. Access the VPN. This example uses the Cisco AnyConnect Client
   Enter “vpn.hpc.arizona.edu” in the Connect field. Then choose Connect and authenticate.

2. From your terminal window (designated window #1)

   ```
   ssh netid@hpc.arizona.edu
   ocelote
   ```

3. From another terminal window (window #2), use the `ipconfig` (Windows) / `ifconfig` (Mac) command and look for the IP address that was established for this connection. In this example:

   ```
   $ ifconfig
   ...
   utun1: flags=80d1<UP,POINTOPOINT,RUNNING,NOARP,MULTICAST> mtu 1406
   options=6403<RXCSUM,TXCSUM,CHANNEL_IO,PARTIAL_CSUM,ZEROINVERT_CSUM>
   inet 10.141.250.209 -- 10.141.250.209 netmask 0xfffffffe
   ```

4. On the MAC open XQuartz which is an open-source X11 application that ships with OS X

5. On window #1 enter the following command using the IP address from step 3.

   ```
   export DISPLAY=10.141.250.209:0
   ```

6. On the XQuartz window that opened enter “xhost +IP” where IP is the IP on window #1, found with `ifconfig`. In the example below it is 10.140.117.52 which is NOT the same IP you used in step 5. You are effectively connecting the two ends of a tunnel together.

   ```
   netid@login2 ]$ ifconfig
   eth0     Link encap:Ethernet  HWaddr 00:0E:1E:A1:39:40
           inet addr:10.140.117.52  Bcast:10.140.119.255  Mask:255.255.252.0
   ...
7. On window #1 as a test, enter "xterm". Over on the XQuartz window the prompt should change to "netid@login"
   Ctl-C will cancel this session.
8. As a simple application example, enter "firefox http://google.com". At this point you can invoke the command to open your application.
   You can use the scheduler at invoke an interactive session with "qsub -l" (Last letter is a capital 'eye').
   More details are at this link