

Bloomberg

Transport and Security Specification

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Overview

This document provides network transport and security specifications for the BLOOMBERG PROFESSIONAL® Service. The information given is intended to make the process of configuring a client computer and network easy and reliable, for both initial setup and regular maintenance. It is intended for desktop, systems and network administrators, although is it also relevant for home and/or standalone users.

Bloomberg also provides a range of other documentation on the topic of setting up, configuring and maintaining the BLOOMBERG PROFESSIONAL® Service which may be useful to supplement this document. These are available under the [Documentation](#) section on the [Bloomberg Professional website](#). For further help on procedures, technical questions, and common troubleshooting steps, visit the [Frequently Asked Questions](#) section.

As always with Bloomberg, if any clarification or assistance is required regarding any of the topics covered here or in other documents, Bloomberg Support is on hand 24/7 for any queries. The contact details are given in each page footer.

Standard Network Requirements

Source and Destination Ports

The BLOOMBERG PROFESSIONAL® Service uses the following source and destination port numbers. Please note destination is from the client (terminal) perspective.

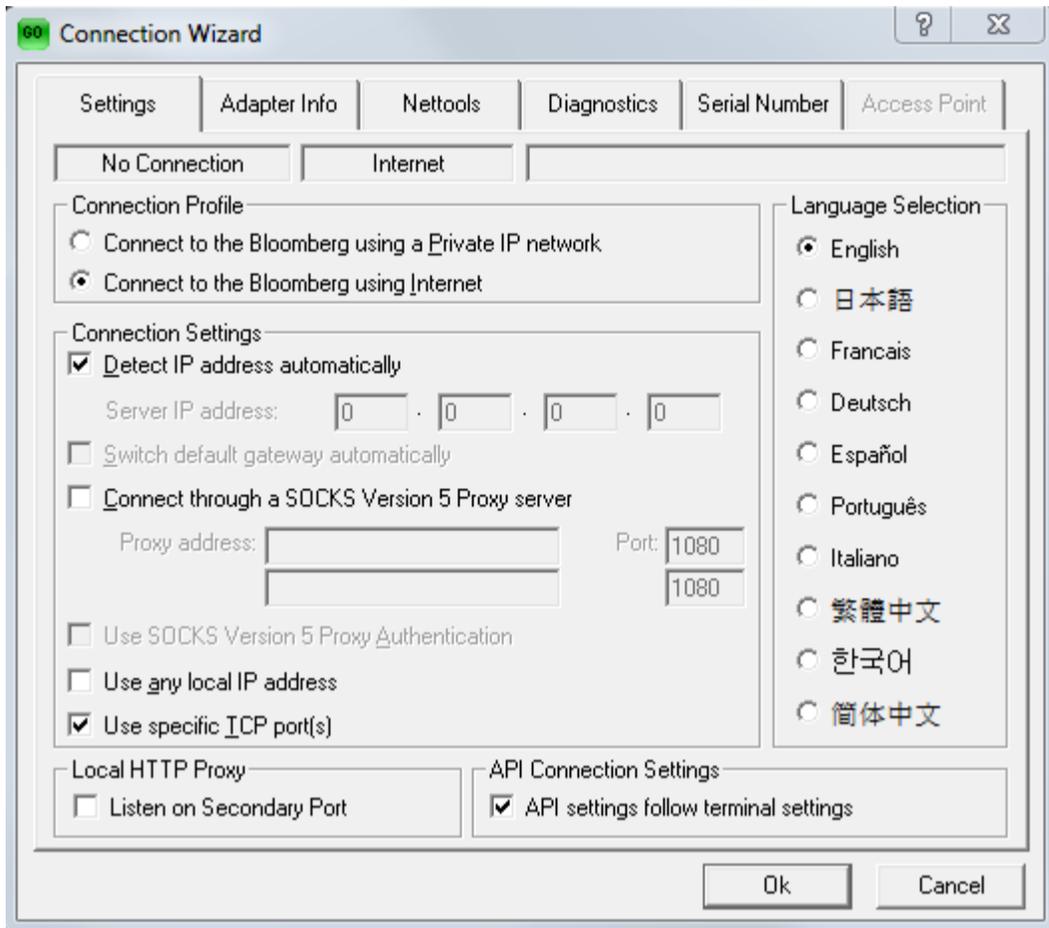
UDP Source Ports	UDP Destination Ports
48129 – 48137 & 49152 - 65535 ¹	48129 — 48137

TCP Source Ports	TCP Destination Ports
8194-8395 & 49152 - 65535 ¹	8194 — 8198
8194-8395 & 49152 - 65535 ¹	8209 — 8220
8194-8395 & 49152 - 65535 ¹	8290 — 8294

¹ Denotes the Microsoft default ephemeral port range used by Windows Vista and later Operating Systems.

Configuring the Connection Wizard

The Connection Wizard is the location for setting the connectivity options for the BLOOMBERG PROFESSIONAL® Service. It is accessed by running `CONN<Go>` in a terminal window.



Settings

Under the *Settings* tab (default), the Connection Profile, Connection Settings, Local HTTP Proxy Settings and API Connection Settings can be configured, in the language chosen under *Language Selection* (English by default):

Connection Profile

Connect to the Bloomberg using a Private IP Network

This should be selected when Bloomberg Routers are installed at the relevant client location either locally or remotely. The network administrator will know if this is the case.

Connect to the Bloomberg using Internet

This should be selected when connecting on a direct internet connection.

Connection Settings

Detect IP address automatically

By default this is checked, allowing the BLOOMBERG PROFESSIONAL® Service to assume the IP address settings from the local computer. If this needs to be configured manually, the box should be unchecked and the local Server IP address entered in the given space.

Switch default gateway automatically

By default this is checked, allowing the client terminal to use another gateway in case of disconnection to its primary route (such as in the case of a dual Bloomberg Router setup).

Connect through a SOCKS Version 5 Proxy server

The details of the local SOCKS Proxy should be entered here. By default it is unchecked. See [SOCKS5 section](#) below for details.

Use any local IP address

By default this is not checked, this feature allows the client terminal to connect to Bloomberg using any of its local IP addresses in cases where it has more than one available, such as when having several Network Interface Cards or when using a [Virtual Private Network](#). When unchecked it can only connect using the default IP address of the computer.

Use specific TCP port(s)

This is a legacy feature which is no longer in use.

Other options

Local HTTP Proxy

By default this is not checked. If required, the BLOOMBERG PROFESSIONAL® Service can be set to listen on a Secondary HTTP Proxy Port in case of failure of the primary.

API Connection Settings

Checked by default. The network connection settings for Bloomberg API will follow the configuration of the [Connection Profile](#) above.

Other tabs

In addition to the main configuration settings under the *Settings* tab, there are additional tabs which enable the change or authentication of a Serial Number (not covered here), or provide further connection information:

The *Adapter Info* tab lists details of TCP/IP configuration and drivers of the local computer.

The *Nettools* tab enables the testing and/or diagnoses of network connectivity failure by providing a simple GUI version of the standard Windows network commands such as *ping*, *tracert* and *netstat*. Under the *Host* field, the main *Gateway Director* addresses are prepopulated in the dropdown to remove the need to find and type them.

The *Diagnostics* tab provides an easy-to-use network diagnostic tool where verbose results are given on four areas of concern (*Connection*, *Performance*, *Smart Client*, and *API*) to be analyzed either by the client network administrator or to be sent to Bloomberg Support for further assistance.

Private Bloomberg Network

Bloomberg Router

The following section outlines client network requirements to access the BLOOMBERG PROFESSIONAL® Service:

- Ethernet network that supports IP
- CAT5 UTP cable from the client hub, router or firewall to the Bloomberg Access Router
- IP address and subnet mask for the local Ethernet interface on the Bloomberg Access Router
(Bloomberg will provide an IP address for clients without an existing IP Address scheme)

One or more Bloomberg Routers are installed at each client site. These routers provide the following benefits:

- **Enhanced Data Delivery**
 The Bloomberg Access Router uses the IP network protocol and addressing scheme along with a dynamic access list to deliver data to and from the Bloomberg Private Network.
- **Seamless Integration**
 Installing a Bloomberg Access Router requires minimal configuration changes and will not impact Client Network topology or performance. Bloomberg requires a CAT5 UTP cable run from the client hub, router or firewall to distribute data to the Bloomberg workstations.
- **Security**
 The Bloomberg Access Router communicates only to the private Bloomberg Network. This is ensured through dynamic access lists on each Bloomberg Router in addition to fixed virtual circuit path definitions based on the underlying Data-Link protocol TLS.

The Bloomberg Router may reside outside LAN firewalls to further ensure LAN integrity.

All connection requests originate from the Bloomberg client applications running on the end-user computer. Bloomberg does not send unsolicited connection requests; connections are initiated from the client computer to the Bloomberg network.

The BLOOMBERG PROFESSIONAL® Software utilizes both UDP and TCP connections (see Source and Destination Ports above) and contains various components and applications such as Bloomberg API, Tradebook, FX and multimedia that utilize multiple ports.

In the event of a Bloomberg hardware/circuit failure, an alternate path is established on the Host end to transport Bloomberg data. For locations with multiple Bloomberg routers and E1/T1 circuits (and above), we support RIP v2, VRRP and HSRP for redundancy between routers.

Network Address Specifications

For a private connection, the Client computer must be able to connect to ALL networks in the following Bloomberg subnets:

208.134.161.0	using the subnet mask of	255.255.255.0
205.183.246.0	using the subnet mask of	255.255.255.0
199.105.176.0	using the subnet mask of	255.255.248.0
199.105.184.0	using the subnet mask of	255.255.254.0
69.184.0.0	using the subnet mask of	255.255.0.0

The above network prefixes are advertised using RIP v2 from the Ethernet ports of the Bloomberg Routers installed at the client site. Alternatively, clients wishing not to receive RIP can configure their networks to route statically to the above prefixes through the Ethernet ports of the Bloomberg Routers.

Capacity and Bandwidth Requirements

The following table outlines recommended bandwidth requirements per number of Bloomberg connections:

Bloomberg Terminal Network capacity and Bandwidth Requirements		
Terminal Count	Router Quantity	Tail Circuit Bandwidth
1 – 2	1	Up to 2 Mbps
3 - 5	1	Up to 4 Mbps
6 - 9	1	Up to 6 Mbps
10 - 30	2	Up to 10 Mbps
31 – 40	2	Up to 20 Mbps
41 – 50	2	Up to 50 Mbps
51- 100	2	Up to 100 Mbps
100+	2	Up to 1000 Mbps

- The bandwidth guideline table is based on statistical analysis of network utilization of existing Bloomberg terminals across the global Bloomberg customer base as well as circuit size offering by various telecom service providers. Individual customer connectivity and bandwidth capacity recommendations are made based on continual automated monitoring as well as evaluation by Bloomberg customer support personnel.
- For customer sites with 1-9 terminals a single router and circuit with backup through the Internet is acceptable. All other customer sites are required to have multiple diverse circuits and dual routers. The bandwidth (bps) recommendations are for a single router. Dual router sites will require double the stated bandwidth.

Internet and BRIN (Bloomberg over Reliable Internet)

Network address specifications

For Internet and BRIN connections, the Client PC must have Internet connectivity and the ability to resolve DNS names in the following domains:

*.bloomberg.net
*.bloomberg.com
*.blpprofessional.com
*.btogo.com

For Internet connections, the Client PC must be able to connect to the following Bloomberg subnets.

For BRIN connections, the Client PC must be able to connect to ANY IP address on the Bloomberg Internet ports.

160.43.250.0	using the subnet mask of	255.255.255.0
206.156.53.0	using the subnet mask of	255.255.255.0
205.216.112.0	using the subnet mask of	255.255.255.0
208.22.56.0	using the subnet mask of	255.255.255.0
208.22.57.0	using the subnet mask of	255.255.255.0
69.191.192.0	using the subnet mask of	255.255.192.0
69.191.176.0	using the subnet mask of	255.255.248.0
160.43.251.0	using the subnet mask of	255.255.255.0
160.43.252.0	using the subnet mask of	255.255.255.0
160.43.253.0	using the subnet mask of	255.255.255.0
69.187.16.0	using the subnet mask of	255.255.240.0
69.187.32.0	using the subnet mask of	255.255.224.0
69.191.250.0	using the subnet mask of	255.255.255.192
69.187.25.0	using the subnet mask of	255.255.255.192
69.191.176.128	using the subnet mask of	255.255.255.224
69.191.178.128	using the subnet mask of	255.255.255.224

The Client PC must be able to connect to the following Bloomberg ports.

UDP Destination Ports	48129-48137
TCP Destination Ports	8194-8198
	8209-8220
	8290-8294

Additional Connection Methods and Tools

Firewalls

It is common practice for any network that has an outside connection to the Internet or elsewhere to have security in place, such as a firewall, either locally on the client terminal, on the network, or both. For the BLOOMBERG PROFESSIONAL® Service to have full functionality, the firewall in question must assume all activity to and from the Bloomberg network is safe and therefore allow connectivity on all the ports and addresses given in the relevant sections above.

Should there be any issue found in relation to loss or slowness of connection to and from the Bloomberg network, the customer firewall is a likely factor and should be verified in the first instance.

Bloomberg Terminal's TLS connections are secured using both Client and Server Certificates. Our servers do not allow TLS connections from any device which does not have a valid Client Certificate.

Virtual Private Network (VPN)

Traveling users can remotely access the Bloomberg Terminal on their usual desktop PC by remoting into their corporate network using an internet connection. In order for the application software to connect over a VPN connection, type `CONN <Go>` within the client Bloomberg application to open the Connection Wizard. Under the *Settings* tab, check the *Connect to Bloomberg using a Private IP Network* and *Use any local IP address* boxes. The VPN server must be configured to forward the network traffic to the Bloomberg Routers on the private network. In some cases, the VPN connection must also pass through a proxy server; therefore, the proxy settings need to be configured as well. The details for this are given below.

Socks5 Proxy Server

For customers using a SOCKS5 Proxy Server, the Client terminal will communicate only with the proxy server and the proxy server will in turn communicate to the Bloomberg servers.



Client to Proxy Server Communication example

The Client terminal will send TCP communication by default to port 1080 on the SOCKS5 Proxy Server. Upon initial connection, the terminal will select the source port for this connection. This destination port 1080 may be different if the proxy server administrator has configured the proxy server to run on a different port. The source ports will be the same as the standard Bloomberg source ports (from TCP port 8194 to 8395 or from TCP port 49152 to 65535).

The client will also send UDP communication to the Proxy Server. The source UDP port for this communication will be 48129, and the SOCKS5 proxy server will pick the destination port upon initial connection. This destination UDP is picked from a range defined by the server administrator. The communication from the proxy server to the client will be from the port picked by the proxy server upon initiation to UDP port 48129. Please note, the SOCKS5 protocol allows the SOCKS5 proxy server to specify a different IP address along with the destination port for UDP connections. The Client terminal will ignore that IP address and send UDP packets to the same SOCKS5 Proxy Server IP address that it is using for its TCP connection. Changing this behavior would impact currently misconfigured Bloomberg customers. Additionally, the UDP packets sent from the SOCKS5 proxy server to the Client terminal must have a source IP address that is the same as the IP address that the Client terminal is using to send UDP packets to the SOCKS5 proxy server. This is a particular concern when the SOCKS5 proxy server has multiple IP addresses.

In order for the Bloomberg software to connect with the proxy server, type CONN within the Bloomberg application to open the connection box and select the *Settings* tab. There are two sets of SOCKS5 Proxy Server settings, one for connections using the Private Bloomberg Network and one for connections using the Internet and BRIN. First, note the current setting of the *Connection Profile* radio button. To view and change the SOCKS5 configuration for connections using the Private Bloomberg Network, select the *Connect to the Bloomberg using a Private IP network* radio button. Check the box *Connect through a SOCKS Version 5 Proxy Server* and enter the appropriate DNS or IP addresses. Similarly, to view and change the SOCKS5 configuration for connections using the Internet and BRIN, select the *Connect to the Bloomberg using Internet* radio button, and then check the box *Connect through a SOCKS Version 5 Proxy Server* and enter the appropriate DNS or IP addresses. Afterwards, be sure to restore the *Connection Profile* radio button to its original setting, which should be the regular connection path for the Bloomberg software to reach Bloomberg. To allow API connectivity, click Start – Programs – Bloomberg - BBLComm Configuration to open the configuration window. Click the SOCKS5 button and enter the appropriate DNS or IP addresses.

The communication between the SOCKS5 servers to Bloomberg is the same as defined above **for Private IP** in the [Source and Destination Ports](#) section, except the source ports used will be defined and limited by the server administrator; **for Internet** in the [Internet](#) section.

Connectivity without Local Terminal Installation

Bloomberg Anywhere Non-Configured

BLOOMBERG ANYWHERE allows you to access your Bloomberg login from any desktop or Internet based terminal, ANYWHERE in the world with the same settings and defaults you have on your own desktop.

Basic Connectivity Requirements

The following is a list of minimum requirements for Bloomberg Anywhere Non-Configured:

Network Requirements

- HTTP Port 80 must be allowed to access any proxy server or firewall
- HTTPS Port 443 must be allowed to access any proxy server or firewall
- Broadband Internet access

Supported Browsers

- Windows: Microsoft Edge, Internet Explorer 9 and later, Chrome or Firefox
- Mac: Safari, Chrome or Firefox
- Linux: Firefox

Citrix Browser Plug In

- Bloomberg Anywhere requires a Citrix client, which can be installed [here](#)

Citrix Client System Requirements

Windows

- Windows 7 or later, Server 2008 or later
- A working Internet connection
- Citrix Receiver 4.4.1000 or later

Mac

- Mac OS X 10.9 or later
- A working Internet connection
- Citrix Receiver 12.3 or later

Linux

- Linux kernel version 2.6.29 or later
- glibcxx 3.4.15 or later
- glibc 2.11.3 or later
- gtk 2.20.1 or later
- libcap1 or libcap2
- udev support

for the self-service user interface (UI):

- libwebkit or libwebkitgtk 1.0
- libxml2 2.7.8
- libxerces-c 3.1

- ALSA (libasound2), Speex, and Vorbis codec libraries.
- At least 20 MB of free disk space for the installed version of Receiver and at least 40 MB if you expand the installation package on the disk.
- At least 1 GB RAM for system-on-a-chip (SoC) devices that use HDX MediaStream Flash Redirection.
- 256 color video display or higher.
- TCP/IP networking
- Citrix Receiver 13.3 or later

Technical Specifications for the Connection Process

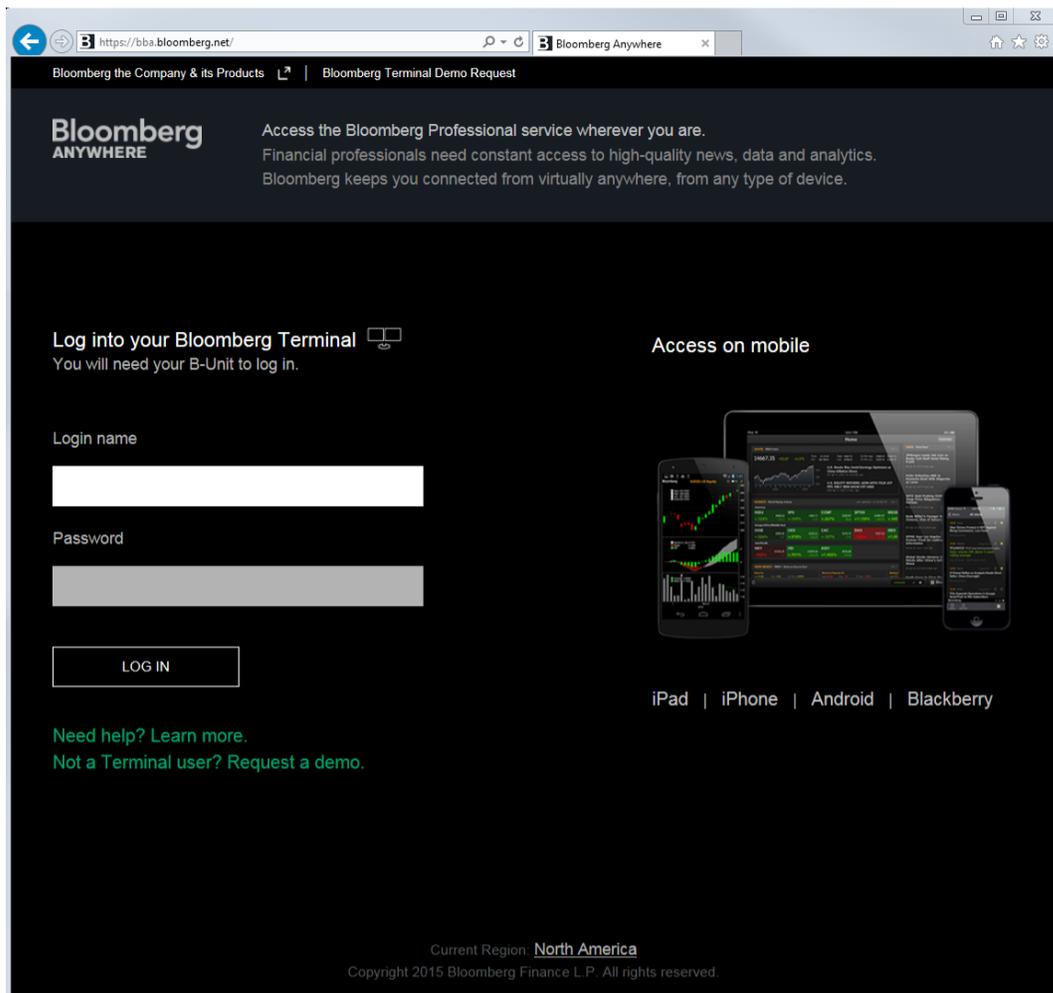
Bloomberg Anywhere Non-Configured uses a Citrix XenApp environment to achieve connectivity to Bloomberg. A Citrix server emulates the user's mouse movements and keyboard commands, processes the user's interactions locally on the server and —paints the results back to the user's desktop. These servers are on a private Bloomberg network and are not accessible from the Internet.

To access Bloomberg Anywhere Non-Configured, go to <https://bba.bloomberg.net>.

You might get a *Security Alert* dialogue box which will inform the user: "You are about to view pages over a secure connection. Any information you exchange with this site cannot be viewed by anyone else on the Web."

Click *OK* to initiate a process where the website used for initial connectivity attempts to detect which type of client the user's PC has.

The user is then prompted to enter login credentials, which include login name, password and B-Unit screen sync.



The Website authenticates the user's credentials with Bloomberg. If Citrix Receiver client is detected, the website will use this client to connect. If not, the Website will give the user the option of installing the Citrix Receiver client.

Security Features for Bloomberg Anywhere Non-Configured

Bloomberg's software and systems architecture are under continuous information and software security review by a dedicated internal team of software security and information security personnel. Bloomberg also contracts with outside suppliers and auditors for security reviews and audits. Following are specific security features:

- Initial connections are to a secure website that is hosted on Bloomberg networks.
- The website utilizes dual factor authentication through Bloomberg Username/Password and B-unit.
- The Citrix XenApp servers that run the BLOOMBERG PROFESSIONAL® are on a private network that is not accessible from the Internet. All communications to these servers go through the Citrix Secure Gateway using TCP 443/TLS.
- Connectivity from the Citrix Presentation Servers and the Bloomberg network are secured and firewalled in the same manner as all existing configured Bloomberg connections using private network or Internet. Client side X.509 certificates, TLS based communication and Bloomberg proprietary session authentication secures this connectivity.
- All of the Internet facing DMZs utilize the same infrastructure as existing Bloomberg Internet facing DMZs. Both firewalls and intrusion detection systems are utilized. These systems are continuously operated and monitored by two separate teams (one internal and one outsourced).
- User activity logs such as login attempts, source IP addresses, Serial Numbers used and Citrix Servers used are coupled with existing BLOOMBERG PROFESSIONAL® software logs and recorded, correlated and processed through use of various management systems.

Virtualization

- Bloomberg terminal client's minimum and recommended software and hardware requirements are documented under BBPC <Go> on the terminal. Additional information is also available in the document titled "Software Compatibility Matrix".
- Support of the Bloomberg professional service on various VDI platforms is contingent on the ability of the VDI solution to provide (at a minimum) the same (or better) performance and fidelity of the minimum PC requirements.
- Bloomberg professional client software may be installed in VDI environments only if the terminal license is a "Bloomberg Anywhere" license.
- Traditional Bloomberg licenses ("Open Licenses") are not permitted on VDI environments and will most likely not work.
- In general, virtualization and desktop remoting technologies have adverse performance effects on the end user experience and may interfere with operation of the regular monthly Bloomberg terminal enhancements. Customers deploying the Bloomberg terminal software in a VDI environment should limit the network latency (distance from thin client to server/blade) to 35ms. (round trip 56 byte ping time)
- Bloomberg conducts limited functionality testing with leading VDI solutions and can provide limited technical recommendations for specific VDI solutions.



Appendix – network illustration

