CONFIGURING THE SOUNDSTATION VTX 1000™ AS A DOWNLOAD SERVER

APPLICATION NOTE

Revision 1.0

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INTRODUCTION

The SoundStation VTX 1000 is the world's first speakerphone that can update its internal software from the field. This is done by configuring it to call a "software download server" over a normal analog phone line. What makes this especially convenient is that a standard SoundStation VTX 1000 can also be configured to operate as such a server, so that no additional computers, networks, or other equipment are necessary when at least two SoundStation VTX 1000's are available.

In some situations, such as large companies, dealers and distributors, or regional offices, it may be desirable to have more than one SoundStation VTX 1000 configured as a server. Polycom's Milpitas office, for example, has twelve SoundStation VTX 1000's configured on a local hunt group within the facility PBX.

The purpose of this paper is to explain how to configure a SoundStation VTX 1000 to operate as a server, and how to configure more complex multi-server installations for best performance and reliability.

WHEN IS A SERVER NEEDED?

A server is needed to install new software into a SoundStation VTX 1000 system. Polycom may provide occasional updates to the operating software within the SoundStation VTX 1000. As of the time of this paper, three releases have been published, incorporating new countries, performance enhancements, and new features. We anticipate that desirable new elements will continue to arrive periodically.

While it is not mandatory to update SoundStation VTX 1000 units already in the field, specific aspects of a release may make it a candidate for one or more users. Polycom has found that when it provides a new release for the SoundStation VTX 1000, most users are generally eager to get their units updated with the new software.

A reasonable expectation, then, is that all SoundStation VTX 1000 units within the scope of the server will want to be upgraded once or twice in the first year, and perhaps once a year thereafter.

HOW MANY SERVERS DO YOU NEED?

How many servers are needed depends on how many users will be updating their software, and how many server locations are being developed. The question really comes

down to these two: how many server locations will there be, and how many users will be using each of these locations?

For most applications, a single server location will work fine. Multiple locations may be desirable when users are located in larger clusters that are geographically remote from one another, or when telephone calls are unreliable or unduly expensive from a particular cluster to a centralized server. One or two locations in Europe, for example, may be adequate for most of Europe, while a separate server location may be needed for each of the wider-spaced Asian countries.

The number of server units at a particular location is related to the number of users that will be accessing that location. One server is not needed for every client, however, for the same reason that one cross-country phone line is not needed for every inhabitant in that country: the real usage averages out, so a large number of clients can be supported by a relatively small number of servers (or lines). This is the subject of a standard line-usage measurement called the "Erlang", which is detailed in a number of books and websites. As a rule of thumb, however, adequate service will likely be achieved by following the guidelines in Table One.

Number of users	Number of servers
1-3	1
4-10	2
11-25	3
26-100	4
101-300	5
301-500	6
501-1000	8
1001-2000	10
2001-5000	Contact Polycom

Table One: Server count vs. User count in SOUNDSTATION VTX 1000 software updating

As additional SoundStation VTX 1000 units are deployed in the region, it may be necessary to increase the number of servers. Growing complaints about busy signals when calling the server will be one indicator that this has happened: clients will start to run into each other if there are too few servers.

GETTING RELIABLE SERVER OPERATION

Whether single or multiple servers are being installed, there are some basic requirements for reliable operation.

We will start with a review of how a server operates. While it is operating in server mode, the SoundStation VTX 1000 will not operate as a speakerphone. It will automatically answer the phone line, handshake the far-end client, and begin training and downloading. Once this is complete, it will hang up and await the next call. The whole procedure takes about 15 minutes.

A SoundStation VTX 1000 in server mode will answer within four rings.

A SoundStation VTX 1000 in client mode will ring about 20 times before giving up. Such a long ring time is allowed so that long delays in establishing a connection don't interfere with achieving a successful download.

Because one or more servers are performing a function that users are counting on, it is recommended that all servers be checked once a day.

If a SoundStation VTX 1000 download is interrupted, the system usually terminates the call properly. It has been noted, however, that in rare instances, a SoundStation VTX 1000 server may hang up the call and refuse to answer thereafter. If this happens, remove power from the server to reset it, then restore power and re-configure the unit as a server.

Be sure that the software version in the server is the version you want to distribute. A server will update other units only with whatever it has itself. If uncertain, contact your Polycom representative.

CONFIGURING A SINGLE SERVER

The simplest situation is when a single server is being configured. This is suitable when a single client will be updated, or when multiple clients can perform updates according to a coordinated schedule to avoid conflicts. When this is the situation, the SoundStation VTX 1000 server is just connected to an analog phone line, either directly or through a PBX.

Two important points:

a. The SoundStation VTX 1000 server must be directly accessible, such as through a direct line to the local phone office, or a direct-dial line. If the caller has to separately enter an extension, or go through an operator, the system will not work.
b. Call waiting and caller ID must be disabled on the line used by the server. As with a computer modem, these functions will disrupt usage.

CONFIGURING MULTIPLE SERVERS IN A CLUSTER

Each server must have a dedicated phone line. As before, all phone lines connected to servers must have Call Waiting and Caller ID disabled.

While multiple servers can be connected to multiple standard phone lines, this becomes inconvenient for users. It is best to configure multiple servers in a "hunt group" on the PBX, in the same kind of configuration that is often used for service centers (any call goes to the next available service rep). This allows all outside clients to dial the same single phone number, and the PBX takes of routing multiple simultaneous clients to multiple servers.

For reliable operation, the following points are important.

a. The PBX should automatically roll an incoming call over to the next server if one has not answered within six rings (to prevent one failed server from locking up the system).

b. The PBX should automatically roll an incoming call over to the next server if one is busy (this is normal operation for a PBX set to this mode).

c. The PBX should allow at least three rings before giving up on a server

d. As above, check all servers daily. For this reason, it is strongly advised to not locate dedicated servers in a site remote from supervising personnel.

e. Once the system is fully configured, do some test downloads over the next few days to confirm that the system is consistent and robust. Also test the "corner cases": unplug one of the servers and see that the PBX skips over it, take one of the servers off hook and see that the PBX treats it as a busy line, etc.

f. Servers should have some form of power backup to be sure they can continue operating in the event of a power failure. A conventional UPS (un-interruptible power system), such as would be used with an office computer, may be suitable for this depending on the duration of power failures that are experienced.

CONCLUSION

Following these guidelines, you should achieve long and reliable performance from your SOUNDSTATION VTX 1000 server systems. Here is a convenient review of the top points, suitable for framing:

FOR SOUNDSTATION VTX 1000 SERVER HEALTH

Check Your Servers Daily!

Have the Correct Software in Your Servers!

Be Sure Your Clients Have the Correct Number!

Be Sure Your Clients Can Dial Your Servers Directly!

Test Your Server Site Before Telling Clients It's Ready!

TROUBLESHOOTING

Here are some typical problems, and what to do about them.

PROBLEM	CAUSE	SOLUTION
Client gets wrong software version	Server has wrong software loaded.	Check server software version, and get correct software installed.
	Software update was not successful	Check that client is configured in client mode, server is operating correctly
	Client is calling wrong server	Confirm that the right server is being called
Client cannot connect	Server is disconnected or PBX problem	Check server configuration. Call server from a standard phone and confirm modem tones
	Server software is hung up	Re-boot server
	Call distance is too long	Try dialing a SoundStation VTX 1000 server closer to home
Update starts but does not complete	Call distance is too long	Try dialing a SoundStation VTX 1000 server closer to home
	Caller ID or Call Waiting are enabled	Disable Caller ID and Call Waiting on all phone lines used by the servers
LEDs don't light up on client	Client software is confused	Re-boot client
Display immediately reports "NO DIALTONE"	Phone line is not working	Return client to normal mode, take off hook to listen for dial tone
	Client unit is confused	Re-boot client