



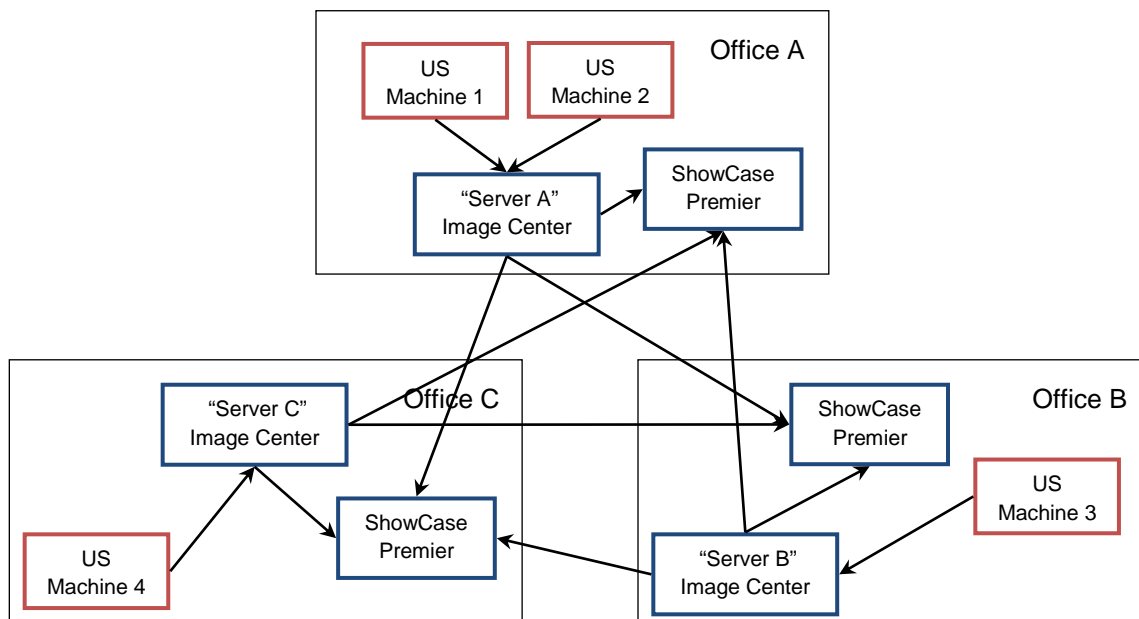
Deploying ShowCase Across Geographically Separate Offices

This guide describes ShowCase deployment across geographically separated offices.

The key factor in making decisions about a multi-office deployment is the quality of the network connecting the various offices. As an example, let's assume there are three scanning locations, location A has two ultrasound machines and is the 'central' office, location B has one ultrasound machine, and location C has one ultrasound machine. Physicians and techs want to be able to read studies at each location.

Distributed Deployment – Normal Network

The most common solution our customers implement is a distributed deployment, which looks like this:



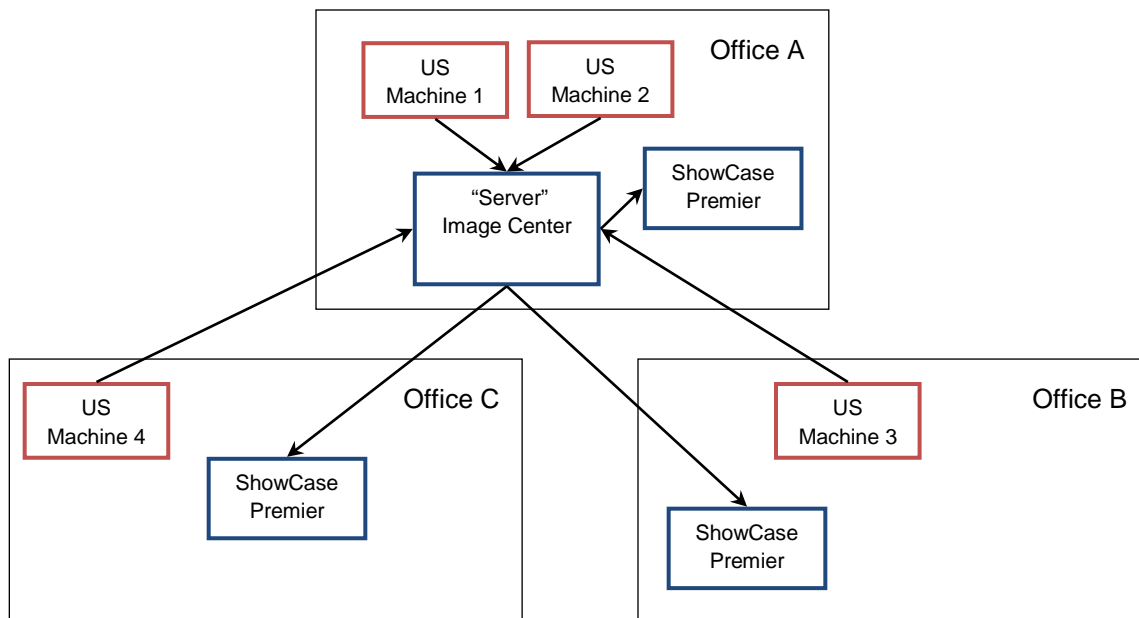
The ultrasound machines at each office send studies to the Image Center in that office. Each copy of Premier will have three Image Center tabs, one for each location, e.g. the Office C Premier will have an A, B, and C tab. The A and B tabs are configured as 'remote' and the C tab is configured as local. The Office C copy of Premier will have to pull the studies from the A and B Image Centers to read them.

The principle advantage of this deployment is that it can be deployed over conventional low to medium cost internet connections. Network traffic is kept to a minimum, and is used only for remote viewing.

The disadvantage of this deployment is that study storage and backups have to be maintained in three separate locations, plus the added cost of an Image Center at each location. However, this is often considerably cheaper than the network infrastructure required for a more centralized deployment, which will be discussed next.

Centralized Deployment – Dedicated Network

Here is an example of a **Centralized** deployment. Centralized deployments require reliable inter-office network connections, typically several bonded T1 lines.



All ultrasound machines send the studies to one server at Office A, and each reading station gets its studies from this server in Office A.

Centralized deployment has the advantage that all of your data is stored in one location, which makes it easier to manage and back up. This deployment has two major drawbacks, however:

1. Sending studies from the ultrasound machines to the Image Center (or other PACS) requires a high-quality internet connection. The only customers we know of that have had success with this deployment use 3 dedicated, bonded T1 lines to connect their offices, which can be expensive.
2. Studies must make the trip to the Image Center and 'back' to the copies of Premier at each site. An average cardiology study is about 150MB. When you read studies from Office C or B, that 150MB must travel across the network before you can read the study.

For most customers, we find that drawback #1 prevents this deployment from being realized. Typically, the problem manifests at the ultrasound machine, which is designed to send studies over a LAN, and is not designed for slow or 'choppy' networks. When it comes to gauging the quality of a network, numbers can be deceiving. We always recommend trying your network out before committing to a Centralized deployment. Download our 30 day trial. Send some studies. Watch for transmission timeouts at the ultrasound machine. Try reading remotely. Does it work? Does it suit your workflow?

Hardware and Licensing Details

Server

The Image Center computer can be run on a conventional computer, but for larger practices it is a good idea to use a higher end computer or server grade hardware or a VM. The amount of disk space you will need depends on the number of studies you do each day and how many years you need to keep the studies around. On average, a study takes up 150 MB of disk space. To budget two years of disk space, use the formula:

$$150 \text{ MB} \times (\# \text{ studies/day}) \times (250 \text{ working days/year}) \times (2 \text{ years}) = ? \text{ MB}$$

Example: 150MB x 40 studies/day x 250 working days x 2 years = 3,000,000 MB or 3 Terabytes

This storage can be a hard drive, RAID, NAS, etc. The folders that the Image Center uses to store data are called Image Directories, and these will need to be shared (read-only) on the network for local access.

Viewing Stations

ShowCase Premier is installed on each computer that needs to access studies from the Image Center. (ShowCase Basic does not work with the Image Center.) Each copy of Premier requires its own license. The Premier computers require very little hard disk space. Conventional video cards work quite well with ShowCase. Avoid USB or ethernet video, as it will cause viewing problems.

As mentioned above, local viewing stations will need read-only access to the Image Directories in the Image Center. Remote viewing stations are configured to locally cache studies for viewing, and even there the disk space requirements are minimal, as long as the cache folder is periodically cleaned of locally stored studies.

Extra license activations are available (at no cost) for physicians reading from home, with the understanding that the original office license is not in use during home viewing. This extra activation does not apply to remote clinics.

VPN

If your practice does not already have a VPN, we recommend the LogMeIn Hamachi software VPN. It is reliable, easy to deploy, and fairly inexpensive at about \$40/year for 32 machine licenses. Use of Hamachi is only practical in the Distributed Deployment scenario.

A Note On Remote Desktop

Remote Desktop solutions fall outside of the intended use of ShowCase and are not supported. The video bandwidth required to play clips at diagnostic quality cannot be supported by Remote Desktop solutions such as Windows Terminal Server, Citrix, GoToMyPC, etc.

Free 30 Day Trial

At Trillium, we are strong believers in “try before you buy.” We encourage all of our potential customers to go to <http://www.triltech.com/download.html> and download the free 30-day trial of our Image Center and ShowCase viewing software and install it on your existing hardware and network. This is especially true if you are trying to deploy a Centralized network. Practical, real-world tests on your network, under regular daily load are essential to proving whether Centralized deployment will work for you.

A comprehensive set of quick guides is available to get you started, or, if you have any questions during the trial, please feel free to contact us at support@triltech.com.

Related Documentation (available on <http://www.triltech.com/download.html>)

Installing Image Center, Configuring Image Center, Image Center Hardware, Configure Premier for Local Access, Configure Premier for Remote Access, Using Premier for Remote Access.