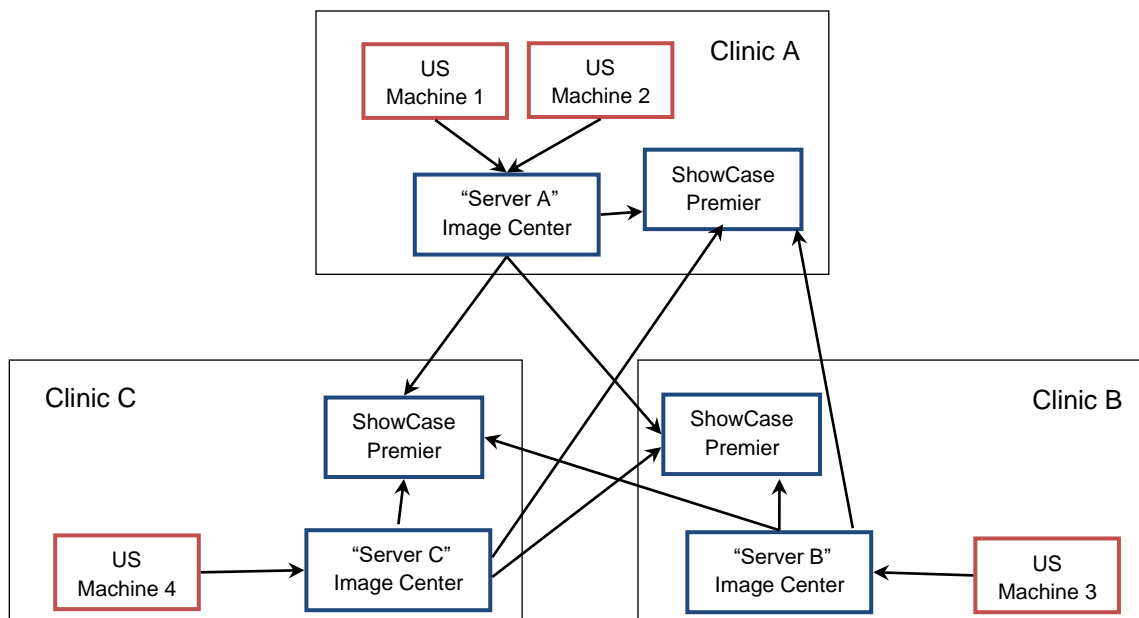# Deploying SHOWCASE® Across Geographically Separate Locations

This guide describes setting up ShowCase Image Center and ShowCase Premier viewing software to work with each other across multiple locations. Two types of deployment are illustrated, one distributed and one centralized.

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

Distributed Deployment – Normal Network

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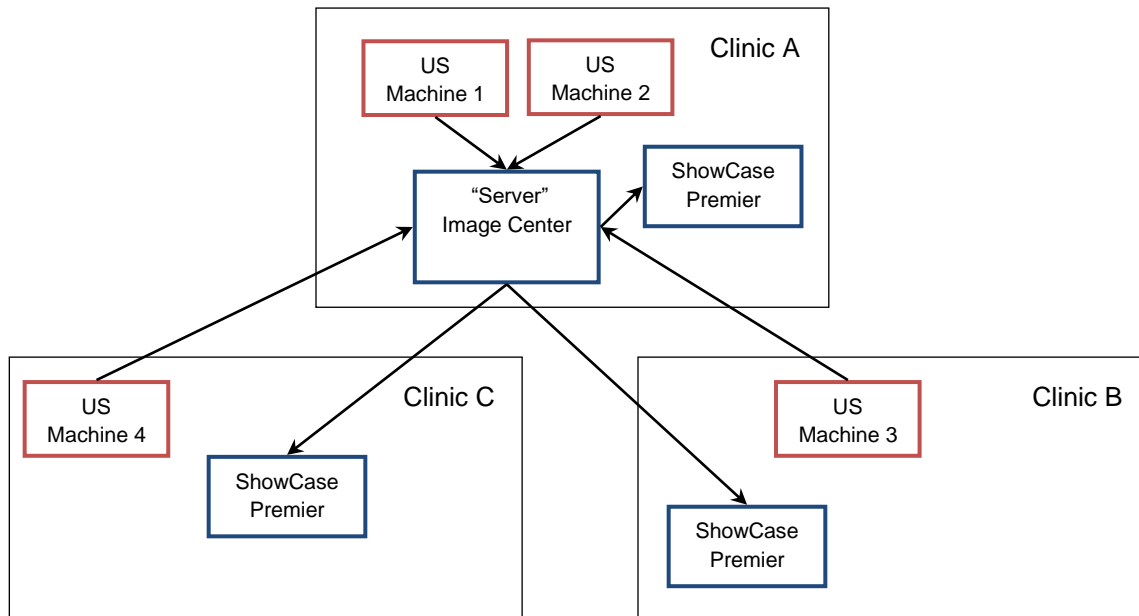

The ultrasound machines at each clinic send studies to the Image Center in that clinic. Each copy of ShowCase Premier would have three Image Center tabs (three study lists), one for each location. Clinic C's ShowCase Premier would have a Local Image Center C tab and Remote Image Center A and B tabs. The Clinic C copy of Premier would already have local copies of the Local Image Center studies and would pull copies of the studies from the A and B Image Centers.

The principal advantage of this deployment is that it can be deployed over a conventional low to medium cost internet connection. 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 must be maintained in three separate locations. There is also added cost to having an Image Center at each location. However, the Image Center cost is often less than the cost of the network infrastructure required for a more centralized deployment.

Centralized Deployment – Dedicated Network

This example shows a **Centralized** deployment. Centralized deployments require very reliable inter-office network connections, typically several bonded T1 lines.

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

The advantage of a centralized deployment is 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:

1. Sending studies from the ultrasound machines to the Image Center machine requires a high-quality, expensive internet connection. One ShowCase customer uses 3 dedicated, bonded T1 lines to connect their clinics.
2. Studies must make the trip to the Image Center and 'back' to the copies of ShowCase Premier at each site. An average cardiology study of 150MB must travel across the network to be read at Clinic B.

Most customers find that drawback #1 prevents them from choosing centralized deployment. Ultrasound machines are designed to send studies over a LAN, and do not perform well on 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 to the Image Center. Watch for transmission timeouts at the ultrasound machine. Try reading from a different site to see if this works for your specific needs.

Hardware and Licensing Details

Server
The Image Center 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 need depends on the number of studies performed each day and the number of years of studies you need to have on-line. On average, a study uses 150 MB of disk space. To budget two years of disk space, use the formula:

150 MB x (# studies/day) x (250 working days/year) x (2 years) = ? 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 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 have the ability to access the Image Center.) Each copy of Premier requires its own license. The ShowCase Premier computers require little hard disk space. Conventional video cards work quite well with ShowCase. Avoid USB or ethernet video, as they cause viewing problems.

Local viewing stations need read-only access to the Image Directories in the Image Center. Remote viewing stations are configured to locally cache studies for viewing, so the disk space requirements are small if the cache folder is periodically cleaned of the locally stored studies.

ShowCase Premier licenses can be "shared" to allow a physician to use a single license in the office and at home. See the "ShowCase Licensing" guide for restrictions and configuration information.

VPN

If your practice does not already have a Virtual Private Network (VPN), you may wish to try the Hamachi software VPN made by LogMeIn. It is reliable, easy to deploy, and fairly inexpensive. (The Hamachi VPN is only practical in the Distributed Deployment scenario.)

Note on Remote Desktop: Remote Desktop solutions are not intended use of ShowCase and are not supported. Gray scale quality is inadequate, and the video bandwidth required to play clips at diagnostic quality is not 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 you to go to the Download section of www.triltech.com to download the free 30-day trial of our Image Center and ShowCase products. Install them on your existing hardware and network and try them out. Practical, real-world tests on your network under regular daily load are essential to deciding whether Distributed or Centralized deployment works best for you.

A set of Quick Guides and other helpful materials are available on our web site and can help you get started. If you have additional questions, contact us at support@triltech.com.

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