

General Information

Multiple Location Support is a term used when one or more @COM Business Manager systems are used in multiple locations with the ability to call between each phone independent of their location. Many manufactures also refer to this has a multi-site solution, but because multi-site solution incorporate more features than just calling each other the term Multiple Location Support ^(MLS) is used in @COM Business Managers.

Multiple Location Support enables companies with branch offices to call between these offices as if they were located within the same location using a routed IP network over glasfiber or DSL to connections between these locations. There are two main configurations; "MLS with a Single Server ^(MLS-SS)" or "MLS with Multiple Servers ^(MLS-MS)" which uses a separate @COM Business Managers for each branch office whilst the other just one for all branch offices.

General information

Single Server or Multiple Servers configuration?

Depending on your wishes a configuration with *multiple* @COM Business Managers might be preferred over a configuration with a *single* @COM Business Manager. Deciding when to use which configuration can be hard. To make the right choice we have created this table:

Single Server Configuration	Multiple Server Configuration
+ All features supported	- Per site all features are supported, but between sites there is only support for: <ul style="list-style-type: none"> o Number & Name display o Audible status messages when extensions do not answer, are busy, unreachable or Do Not Disturb is activated
+ Programming of the @COM Business Manager is done via a single webbased user interface	- Per site all @COM Business Managers need to be programmed via their own webbased user interface
+ The @COM Flexworking feature works over all locations	- The @COM Flexworking feature cannot be used in between different servers
+ A single global address book for all phones.	- Each location has its own global address book that needs to be maintained.
- If the system at main location fails, the telephony service fails at all locations	+ If a system fails only the telephony service at that location is affected
- If the public telephony network fails, all locations cannot dial to public telephone numbers anymore.	+ Each location can have its own public telephony network access which in case of failure causes only that locations to have no access to public phone numbers
- If an IP network link (DSL/Glasfiber) fails, one or more locations will have full loss of all telephony services	+ If an IP network link (DSL/Glasfiber) fails, only the telephony service between that location and other locations is affected
- Expensive network connection at the main location if route optimisation is not possible due to the need of enough bandwidth to provide for the sum of all simultaneous calls at the sub-locations	+ Cheaper network connections because only calls between locations are routed via these network connections (Provided each location also has its own PSTN access.)
- Support for DHCP Relay throughout the IP network is needed, possibly increasing the cost of the IP network links.	+ No DHCP Relay support needed, saving the possible extra costs on the IP network links.

Single Server Network Setup ^(MLS-SS)

In a single server setup the @COM Business Manager is often located in the main office. Using an IP-VPN network all branch offices are connected to this server. Within the branch offices there are only phones and maybe a gateway connecting to the public telephony network ^(PSTN).
(See the network overview on the other side of the paper)

Multiple Server Network Setup ^(MLS-MS)

With a Multiple Server setup every office has its own @COM Business Manager with phones and gateways to the public telephony network ^(PSTN). These @COM Business Managers are connected over an IP network which is usually an IP-VPN. Because only calls between these locations will travel over the IP network links, these links do not need to offer the amount of bandwidth needed in a Single Server configuration. Additionally this solution provides more stability since there is no single point of failure. However not all features can be fully exchanged between systems.

Technical information

Network Setup

To setup Multiple Location Support special care and attention must be spent on the network setup. This is THE most important step to successful operation. The reason for this is that when connecting multiple sites together we often use low-bandwidth IP connection which must be configured with QoS.

QoS stands for Quality of Service and enables IP networks to make sure that IP packets used for voice are not lost during transmission leading to unwanted drop-outs in calls. With the @COM Business Manager the QoS is usually done via labeling the IP packages using the so called DiffServ technique. This technique requires that al equipment within the network is capable of prioritizing IP traffic based in the DiffServe method. Using other techniques such as Layer 2 prioritization ^(IEEE 801.2p) vLAN's or separate networks links will not always be sufficient because they operate on the Layers 1 & 2 and the @COM Business Manager creates IP traffic (at layer 3) which must not all be prioritized, just the VoIP packets need to be.

These branch offices are usually connected with each other using "Virtual Private Networks" techniques usually referred to as IP-VPN networks. This IP-VPN network is a fully routed network with private address spaces allowing VoIP traffic to take to shortest route from point A to B. IP-VPN is used particularly in a Single Server configuration. If an IP-VPN network cannot be created is advisable to use a Multiple Server configuration.

Note:

Proper setup of the network and its QoS configuration is clearly a job that must not be under estimated. For more information please read the "VoIP Networking Requirements" and "Multiple Location Support" documentation or seek professional advice from your vendor.

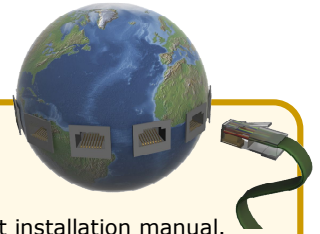
Multi-Site or Multiple Location Support?

The difference is all in the name, but with a little twist... PBX systems with Multi-Site support have been around for years. Therefore many people have an already existing knowledge about their features and more. However with the coming of SIP telephony many new features have become available whilst others have disappeared which makes comparisons problematic. Also... an official multi-site always consists of two or more servers with a specific set of minimum functionality whilst in some SIP environments two servers are no longer needed.

Are you still with us? 😊

Probably not, so let's keep it simple:

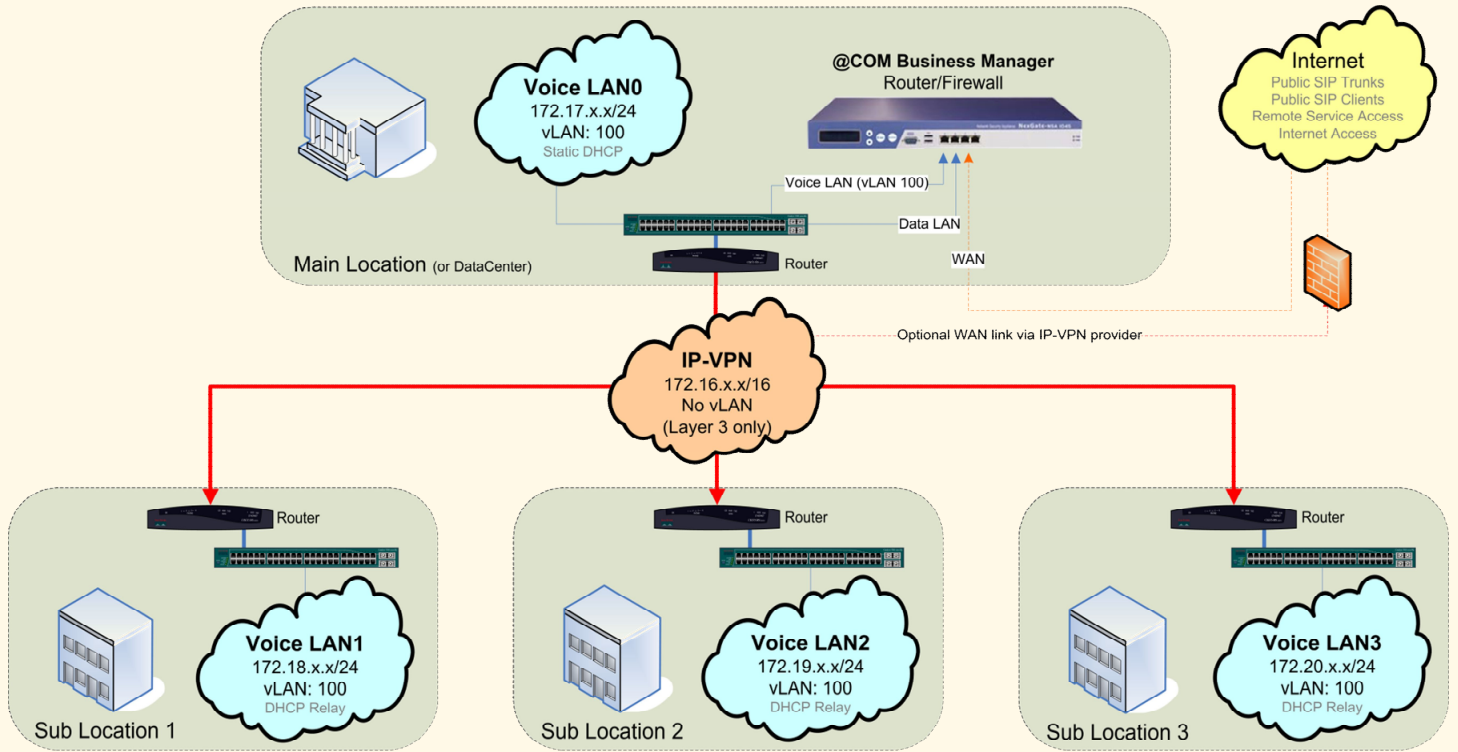
To prevent people from making unintended assumptions we no longer refer to these kinds of solutions as Multi-Sites instead we named it "Multiple Location Support".



Technical System Overview

Shown here are drawings of the two different configurations each with their own specific remark concerning the network requirements. More specific information is available in the Multiple Location Support installation manual.

Multiple Location Support with a Single Server configuration (MLS-SS):



Multiple Location Support with a Multiple Server configuration (MLS-MS):

