

## Multi-Location FacetPhone Server Configuration Options

This document outlines the basic differences between configuring FacetPhone with multiple control points (one in each office location) and configuring FacetPhone with a single control point for all of the offices. Both options below assume a FacetPhone computer server in each location. The servers will stay synchronized for configuration information and voice mail. And both approaches entail local media gateways handling the lines (FXOs) and extensions (FXSs) for their location. Both approaches involve making VoIP calls over the Internet which has five key network requirements for each connection and location:

1. Low loss
2. Low latency
3. Low jitter
4. Router hardware with Quality of Service (QoS)
5. Adequate bandwidth

Employing a managed MPLS network between the offices is a good solution for this. Please see the FacetPhone networking white papers for more information on determining networking and Internet bandwidth needs to support good voice quality conversations.

### Single Control Point

With the single control point server approach, there will be one physical FacetPhone server managing the calls for all locations. And there will be a single FacetPhone software server residing on the single physical server managing all of the FacetPhone media gateways in all locations. Let's assume the controlling FacetPhone physical server is in Office A. When a call comes in on one of the Office B lines, the local FacetPhone media gateway will answer the phone and give control of the call to the FacetPhone server in Office A. Let's assume that through the auto-attendant that the caller enters a user extension that is located in Office B. The FacetPhone server in Office A will ring the appropriate user phone in Office B. Once the user picks up the call, all of the voice traffic (unless call recording, monitoring or conferencing are being used) will remain local to the Office B network and media gateways. Voice mail access would be over the Internet.

**Backup Server Strategy** – With this approach, you still have a built-in server backup capability. The FacetPhone software with location specific configuration would be installed on each of the physical servers. So if the controlling server in Office A were to fail, then any of the other servers on the WAN could take over control of all of the media gateways and phones in all locations. And again, this will only work if you continue to have good Internet access between the offices.

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Internet Outage Strategy – With the single control point configuration, an Internet outage at any of the offices will prevent users at any location with remote server control from making and receiving calls, and even from making station to station calls. However, if there is an Internet interruption, it is a simple matter to start up the local FacetPhone software server running on the local physical server, “claim” the local FacetPhone media gateways and phones and thereby take over control of all the calls for that location. Of course, with the Internet connectivity down you will not be able to use the Internet for FacetPhone branch to branch or least cost routing calls. But you can use your local phone lines for these calls until the Internet connection is restored.

Pros – The main benefit of this approach is that the FacetPhone system acts as a single system image for the stations, lines, users as well as the graphical user interface and for administration. For example, you can set up FacetPhone to have operators in multiple locations. In this way when a call comes into one location and gets transferred to the operator group, FacetPhone can ring multiple phones in multiple locations at the same time, or sequentially depending on whether or not you are using Automatic Call Distribution. So groups can be defined spanning multiple locations. There would also be a single FP GUI to view and manage call activity across all locations.

Cons – The primary con is that all of the calls in the locations that are remote from the controlling FP server will be dependent on good Internet access in order to establish the call connections. In addition, certain FacetPhone functions require increased bandwidth over the Internet. Things like IVR functions, accessing voice mail, call recording, call monitoring and conferencing all use significant network bandwidth which would be going over the Internet. Please see the FacetPhone networking white papers to help you ascertain your networking and Internet bandwidth needs.

### **Multiple Control Points with Cooperating FacetPhone Servers**

With the cooperating server configuration, the FacetPhone server in each location would be controlling the gateways and phones in their respective locations. For example, the server in Office A would be controlling all the phone lines and extensions in that location. So when a call comes in on one of the Office A lines, the local FacetPhone PBX will switch the call to the appropriate user extension in Office A just as would be expected. In addition, certain inter-office (cooperating server) functionality is also available.

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FacetPhone's Cooperating server software currently provides the following functionality:

- 1) You can call another extension branch to branch over the Internet.
- 2) You can transfer a call from one branch to an extension at another branch.
- 3) You can call out the lines of another branch.
- 4) You can set up least cost routing tables to force calls to certain area codes, exchanges or numbers to go out the lines at a specific branch.

Using the cooperating server approach, the FacetPhone PBX itself cannot automatically transfer calls to any operator in any location based on their status. However, some of this functionality can be accomplished with FacetPhone's IVR scripting.

**Backup Server Strategy** – With this approach, you have a built-in server backup capability. The FacetPhone software with location specific configuration would be installed on each of the physical servers. So if you have a server failure in Office B for example, the Office B software server can be easily invoked on the Office A server. While starting up, the Office B software server in Office A will “claim” the media gateways and phones in the Office B office, and will then be handling all the call management processing for that office until the primary server comes back online. Please note that this approach will only work if you continue to have good Internet access between the offices. Also note that each server can be purchased with additional hardware redundancy as specified by the customer.

**Internet Outage Strategy** – With the multiple cooperating server strategy, an Internet outage at any of the offices will not prevent users at that location from making and receiving calls. However, they will not be able to make Internet based branch to branch or least cost routing calls. They will of course be able to call users in other branches or customers in those remote locations by simply dialing out their local outside lines.

**Pros** – The main benefit of this approach is complete office autonomy with respect to the FacetPhone PBX systems. So the local phone systems will continue to operate even if connectivity to the Internet is broken.

**Cons** – There are some limitations in what functions can be accomplished with the phone system between the offices (see list of specific features supported above). There is not a single graphical user interface to watch all of the system wide activity. Of course users can still bring up a separate FacetPhone GUI for each location. And again, there will be additional inter-office functionality added over time.