

Using Busy Lamp Field and Hunt Groups

Engineering Advisory 985

This Engineering Advisory applies to customers using VVX business media phones on various call control platforms. It is intended to provide information and guidance on the best practices for implementing systems where multiple phones are deployed as members of a Hunt Group, or in Busy Lamp Field (BLF) configurations. The document will also provide guidance on recommended limits on call loads and configuration sizes that can be supported.

This engineering advisory applies to the following Polycom phones:

- VVX 250, VVX 3xx, VVX 4xx, VVX 5xx and VVX 6xx business media phones and business IP phones running UC Software 5.6.0 or later
- VVX Expansion Modules (Color, Paper display and EM50) running UC Software 5.6.0 or later

Definitions

The following terms are used in this engineering advisory:

- **Busy Lamp Field (BLF)** – The BLF feature allows a user to monitor the status (Active, Ringing, or Idle) of remote lines. When a remote phone is ringing, it is possible to pick up that call on behalf of the remote user.
- **Hunt Group** – A group of extensions organized together to process incoming calls. Similar functionality is also called “Ring Groups” in some call control platforms
- **Attendant phone** – A phone that is used to monitor a remote line. In the case where a Hunt Group is combined with BLF, every phone in the Hunt Group becomes an Attendant phone.

BLF/Hunt Group Configurations

The following topics answer questions about configuring the BLF and Hunt Group feature.

Differences in BLF implementations supported

VVX phones support 2 forms of BLF

- **Resource list BLF** - this form is used primarily with the BroadSoft call platform. The server will aggregate all states of the monitored users and provide their status over a single dialog subscription requested by the phone. This is also referred as “dynamic BLF” because the monitored users to be updated in real-time on the UI via changes made to the resource list on the server side.
- **Multi-subscription BLF** – also known as “static BLF” because the monitored users are statically assigned in the configuration file. Each monitored user represents a separate and unique dialog

subscription and changes to any single monitored resource. This form of BLF is commonly used with Metaswitch, GENBAND, Asterisk, SIPx, and other open standard SIP call servers.

Information and guidance provided in this document are applicable to both dynamic BLF and statically configured BLF.

What does BLF/Hunt Group configuration mean?

Hunt Groups allow a defined group of users to handle incoming calls received by an assigned Hunt Group's phone number. Group administrators can choose from any of the following hunt schemes, each of which rings the specified phones in a different manner:

- Circular - Incoming calls "hunt" through agents in the order they appear in the list, starting with the agent following the last agent to receive a call. When the search reaches the end of the list, it loops back to the top and continues until it has tried all agents.
- Regular - Incoming calls "hunt" through agents in the order they appear in the list, starting from the top each time.
- Simultaneous - Incoming calls alert all agents at the same time. The first agent to answer handles the call.
- Uniform - Incoming calls "hunt" through all agents in order, starting with the agent who has been idle the longest and ending with the agent who most recently answered a call.
- Weighted Call Distribution - Incoming calls are assigned to idle agents based on percentages you assign on the Hunt Group's Profile – Weighted Call Distribution page.

In the context of this document, a BLF/Hunt Group configuration consists of several phones deployed on a single network where each phone is a member of the Hunt Group. Each member of the Hunt Group is configured to monitor each other member of the Hunt Group using Busy Lamp Field. When a call comes in, all attendants of the Hunt Group ring and all BLF displays are triggered to show that all attendants are ringing.

This simultaneous configuration is mainly configured to identify the phones in the Hunt Group and the BLF monitoring relationship. The Polycom VVX phones require some additional set up to configure how the various lines are displayed on the phone user interface. See the Polycom UC Software Administrator Guide on [Polycom Support](#) for further details on how to set up phones to use BLF.

What does a simultaneous Hunt Group policy look like?

The following figure shows a phone that is monitoring attendant phones in a Hunt Group.



Are there any other specific Hunt Group or BLF configurations that apply?

There are many different call distribution policies that can be set via the call control platform. For Hunt Groups, there are options such as the ring policy, the number of rings that will occur before a call is offered to the next member of the Hunt Group, and call forwarding rules.

On the endpoint, there are parameters that can be set for BLF and Hunt Groups. For example, you can select different ring types to use when a call to a monitored line alerts an Attendant Phone. For more detail, see the following:

- [Using Statically Configured Busy Lamp Field with Polycom SoundPoint IP and VVX Phones \(EA 62475\)](#)
- [Understanding Enhanced BLF on SoundPoint IP Phones \(EA 37381\)](#)
- [Using Polycom VVX Expansion Modules with Polycom VVX Business Media Phones \(Feature Profile 78960\)](#)

Limitations on BLF/Hunt Group Configurations

The following sections list possible limitations when using and configuring BLF and Hunt Groups.

Are there any limits on BLF/Hunt Group Configurations?

In case of dynamic BLF, there is a limit of 50 BLF lines that can be supported in BroadWorks R21, which also sets the limit for a VVX phone.

There is no such limit for the statically configured BLF and maximum phone capabilities can be utilized.

Can all VVX Business Media Phones and IP Phones handle the maximum number of BLF lines out of the box?

Due to screen limitations of the varying phone hardware models, there are limits on the number of BLF lines that can be monitored. These limits are purely a factor of the number of physical line keys available on each phone. If more than the maximum number of lines is configured, the phone will not monitor those additional lines. To reach the maximum number of BLF lines, Expansion Modules must be attached to the phone.

Limitation of the Display of BLF Monitoring Lines

Polycom Phone Model	Limitation on BLF Monitoring Lines
VVX 250	3
VVX 3xx	5
VVX 4xx	11
VVX 5xx	11
VVX 6xx	15

Can I use Expansion Modules (EM) with VVX Business Media Phones for monitoring BLF lines?

The following VVX models can support up to three VVX Expansion Modules (Color or Paper) and can monitor up to 50 BLF lines.

- VVX 300, 301, 310, 311
- VVX 400, 401, 410, 411, 450
- VVX 500, 501
- VVX 600, 601

Are there limits to the number of phones in a Hunt Group?

While there are generally no limits to the number of phones in a standard Hunt Group, there are limits on a phone's ability to handle the load generated by this configuration, especially when using a simultaneous distribution policy. Generally, the more powerful the phone, the larger you can make the BLF/Hunt Group.

Note that the expected call load also has an impact. The higher the expected number of incoming calls to a BLF/Hunt Group within a fixed timeframe, the greater the risk of unwanted behavior.

The following table shows the recommended maximum hunt group size supported on phone models running UC Software 5.6.0 or later without a connected expansion module.

Recommended Limit to BLF/Hunt Group Size in Moderate Call Load Scenarios

Polycom Phone Model	Recommended Hunt Group Size
VVX 250	3

VVX 3xx	5
VVX 4xx	11
VVX 5xx	11
VVX 6xx	11

Test Methodology

- Dynamic BLF
 - Simultaneous calls are made from dialer phones to a Hunt Group number through a driver.
 - Ring time is the amount of time test phones will keep ringing.
 - The number of SIP NOTIFY messages received by a phone under test = (BLF Lines * Number of simultaneous calls.)
- Static BLF
 - Simultaneous calls are made from test drivers to the phones to simulate hunt group calls.
 - Ring time is the amount of time test phones will keep ringing.
 - The number of SIP NOTIFY messages received by a phone under test = (BLF Lines * Number of simultaneous calls.)

Test Environment

The following benchmark numbers are derived in a basic setup where all devices are in the same LAN with UDP as SIP transport, and RTP for media and provisioning server is configured with FTP. The monitoring device is configured with only 1 registration line. Registration and subscription expiration times are 1 hour.

Notes:

- Multiple registration lines with shorter expiration times may impact BLF performance. Polycom recommends extending expiration timers if possible.
- Unlike dynamic BLF, static BLF represents a separate subscription for each monitored user. This might impact in BLF performance during the re-subscription process in case of statically configured BLF. The impact depends on the number of BLF lines configured and the phone hardware model. Polycom recommends extending expiration timers if possible.
- For deployments where HTTPS, TLS, and/or SRTP are configured, performance will be impacted due to additional processing overheads.

Benchmark Results without a Connected Expansion Module

<i>Polycom Phone Model</i>	<i>Number of BLF Lines in Hunt group</i>	<i>Min. call ring time (in sec)</i>	<i>Time gap between disconnection and re-dial</i>	<i>Number of simultaneous Hunt group calls (Notifies received by phone)</i>	<i>Results / Remarks</i>
VVX 250	3	2	8	2 (6)	Responsive
VVX 3XX	5	2	8	2 (10)	Responsive
VVX 4XX	11	2	8	2 (22)	~1 sec delay
VVX 50X	11	2	8	2 (22)	Responsive
VVX 60X	11	2	8	2 (22)	Responsive

<i>Polycom Phone Model</i>	<i>Number of BLF Lines in Hunt group</i>	<i>Min. call ring time (in sec)</i>	<i>Time gap between disconnection and re-dial</i>	<i>Number of simultaneous Hunt group calls (Notifies received by phone)</i>	<i>Results / Remarks</i>
VVX 250	3	2	8	4 (12)	~ 2 sec delay
VVX 3XX	5	2	8	4 (20)	~ 2 sec delay
VVX 4XX	11	2	8	4 (44)	~ 4 sec delay
VVX 50X	11	2	8	4 (44)	~ 2 sec delay
VVX 60X	11	2	8	4 (44)	~ 2 sec delay

Can I use Expansion Modules in a BLF/Hunt Group configuration to monitor more lines?

Yes. The following table shows the recommended maximum hunt group size supported on phone models running UC Software 5.6.0 or later with a connected expansion module. To ensure there is no performance degradation on the phones, do not exceed the limits listed in the following table; otherwise, the user will notice a deterioration in phone performance.

Recommended Limits to BLF/Hunt Group Size in Moderate Call Load Scenarios

Polycom Phone Model	Recommended Hunt Group Size
VVX 3xx	12
VVX 4xx	16
VVX 5xx	24
VVX 6xx	24

Benchmark Results with Connected Expansion Module

<i>Polycom Phone Model</i>	<i>Number of BLF Lines in Hunt group</i>	<i>Min. call ring time (in sec)</i>	<i>Time gap between disconnection and re-dial</i>	<i>Number of simultaneous Hunt group calls (Notifies received by phone)</i>	<i>Results / Remarks</i>
VVX 3XX	12	2	8	2 (24)	~ 1 sec delay
VVX 4XX	16	2	8	2 (32)	~ 2 sec delay
VVX 50X	24	2	8	2 (48)	~ 1 sec delay
VVX 60X	24	2	8	2 (48)	~ 1 sec delay

<i>Polycom Phone Model</i>	<i>Number of BLF Lines in Hunt group</i>	<i>Min. call ring time (in sec)</i>	<i>Time gap between disconnection and re-dial</i>	<i>Number of simultaneous Hunt group calls (Notifies received by phone)</i>	<i>Results / Remarks</i>
VVX 3XX	12	5	10	2 (24)	Responsive
VVX 4XX	16	5	10	2 (32)	Responsive
VVX 50X	24	5	10	2 (48)	Responsive
VVX 60X	24	5	10	2 (48)	Responsive

What will happen if I exceed the recommended size?

This is largely dependent on the call load. For example, if the load is small, one or two calls a minute, it is likely that there will be no adverse impacts. As the load increases to multiple calls every 10-15 seconds (moderate load), the phones may begin to have problems managing the load. Common indications of this include degraded user interface performance and responsiveness. Ultimately, significant increases in load will culminate in “stuck” BLF statuses and missed call alerts. The network will also begin to be impacted when many incoming calls at a high rate are directed to a large BLF/Hunt Group.

What is my alternative to using a BLF configuration?

Shared Call Appearances (SCA) can achieve a very similar solution when there is a need for multiple phones to monitor incoming calls, but Simultaneous Call Distribution is not recommended with this configuration.

What is my alternative to using a simultaneous configuration?

You can set the Group Policy, while configuring Hunt Group, to Weighed Call Distribution, Uniform, Circular, or Regular instead of Simultaneous, to alleviate load on the Call Center system.

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