

CUCM 11.5中的本地呼叫队列增强

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简介

思科统一通信管理器(CUCM)提供呼叫队列，将呼叫者置于队列中，直到寻线成员可以应答它们。管理员可以设置默认值，以便呼叫者在呼叫延长到座席之前收到初始问候语通告，或者可以更改默认值，以便仅当呼叫者进入队列后，再按保留音或保留音播放初始通告。如果主叫方在指定时间段内仍处于队列中，则会以配置的间隔播放次通告，直到呼叫可以应答或直到最大等待计时器过期为止。

使用的组件

- 思科统一通信管理器11.5.1版
- 思科IP电话版本8.6.6.0

背景信息

本节介绍在CUCM 11.5增强之前本地呼叫队列的基本功能

当呼叫进入并到达寻线引导时，提供以下功能：

- 呼叫者可以连接到初始的可自定义问候通知，然后继续。
- 如果一个或多个线路成员登录到寻线引导并处于空闲状态，并且没有呼叫排队时，呼叫将扩展到空闲时间最长的线路成员。
- 如果没有线路成员应答呼叫，则该呼叫者不会排在队列中。呼叫被路由到新目标或断开连接，取决于设置When no hunt members answer, are logged或registered。
- 如果线路成员未应答启用队列的呼叫，则该线路成员将从寻线组注销。仅当在线路组中选择了Automatically Logout Hunt Member on No Answer选项时设置窗口。

- 仅当所有成员都忙时，才将呼叫置于队列中。
- 在队列中连接的呼叫者可以听到通话等待音乐和重复（可自定义）的周期公告。
- 线路成员空闲后，多个寻线组中等待时间最长的呼叫者扩展到空闲线路成员。如果空闲线路成员未应答呼叫，则返回呼叫者到队列中的上一个位置。
- 如果已排队呼叫超过其最长等待时间或队列中允许的最大呼叫者数已超过，呼叫可以路由到备用号码，也可以断开，具体取决于方式已配置寻线引导。备用号码可以是以下之一：启用或禁用排队的寻线引导DN语音邮件DN线路DN共享DN
- 行成员可以显示其启用队列的寻线引导的队列状态。队列状态显示提供以下类型的信息：寻线引导模式每个寻线引导上排队的呼叫者数最长等待时间

呼叫队列与现有寻线引导配合使用，但是对于排队或非排队寻线引导，寻线操作的行为没有变化。启用呼叫队列的寻线引导提供以下功能：

- 启用排队的寻线引导呼叫只能由线路成员一次接收一个呼叫。两个无法向线路成员提供启用排队的寻线引导呼叫。线路成员可以接收呼叫直接发送到DN或从非排队寻线引导。
- 不应答由寻线引导路由的呼叫的线路成员将自动注销。A如果线路成员收到启用排队的寻线，则线路成员会自动从设备注销引导呼叫，在超时之前不应答呼叫。在共享线路部署中，配置了相同共享线路的所有设备都将注销。您可以从通过选择无应答时自动注销寻线成员来显示线路组设置窗口。线仅当选此复选框时，成员才会注销。

按照所述的呼叫队列工作时，在许多情况下，最终用户会在初始通知期间听到空无一声或静默，从而导致用户认为呼叫未成功。当一端无法支持呼叫中的早期媒体时，会出现这种情况。

功能概述

从Cisco Unified Communications Manager版本11.5开始，您可以将入站呼叫配置为在播放队列通告之前更改为已连接的呼叫状态，同时呼叫被扩展到启用排队的寻线引导中的寻线成员。

新的**Connect Inbound Call before Playing Queuing Announcement**复选框将添加到以下内容中继和网关配置窗口：

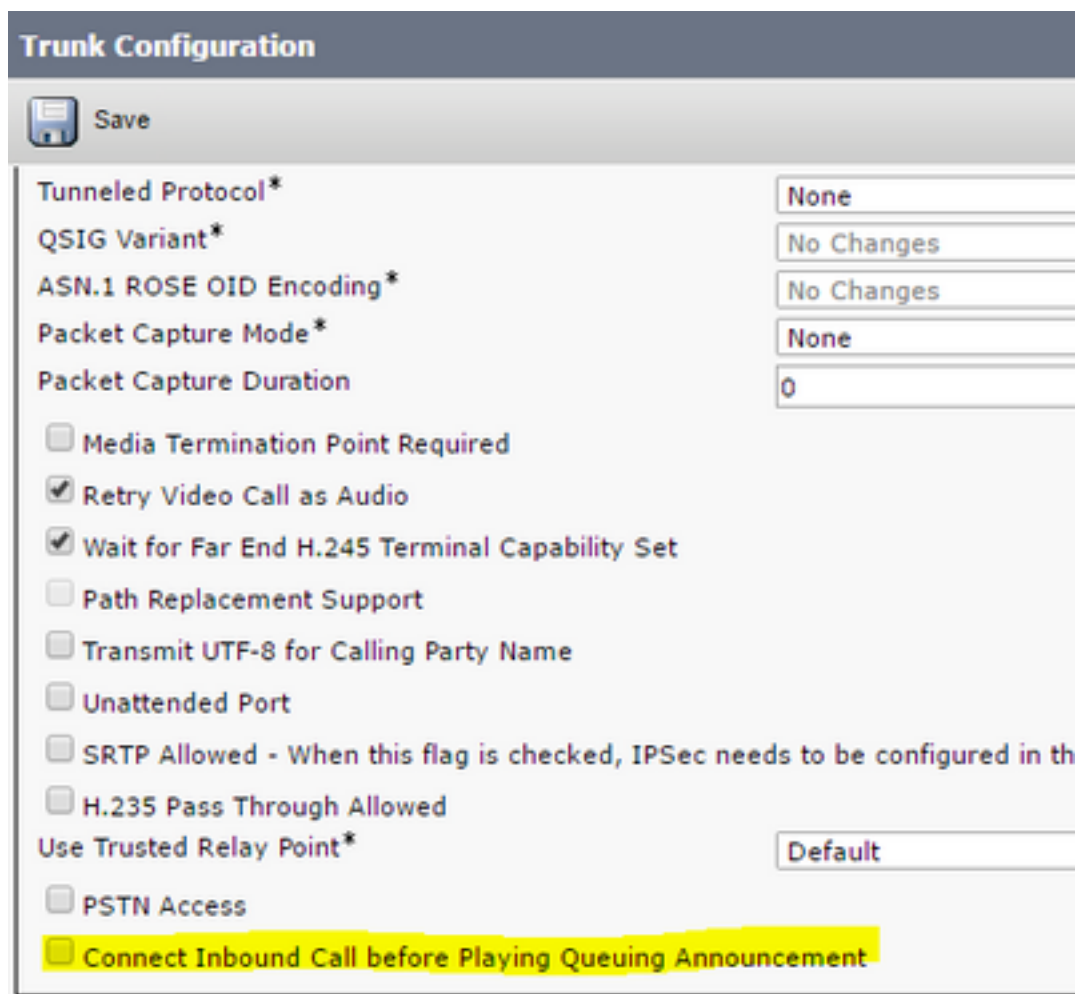
- H.225 干线（网守控制）
- 集群间中继（非网守控制）
- 集群间中继（网守受控）
- H.323网关（网关类型）
- SIP配置文件（中继特定配置）
- MGCP（E1 PRI、T1 PRI、T1 CAS和BRI）

用户选中此框后，CUCM将在100Trying(100Trying)后发送200OK(100Trying)（在SIP的情况下），在H323/MGCP CUCM将在寻线引导呼叫流中发送连接。这将确保用户能够听到初始通知，而不是静默或空气无声，以防另一端无法支持Early Media。

配置

以下是CUCM上新添加参数的配置快照

H.225 干线 (网守控制)




The screenshot shows the 'Trunk Configuration' page in CUCM. At the top, there is a 'Save' button. Below it, several configuration fields are listed:

- Tunneled Protocol*: None
- QSIG Variant*: No Changes
- ASN.1 ROSE OID Encoding*: No Changes
- Packet Capture Mode*: None
- Packet Capture Duration: 0
- Media Termination Point Required
- Retry Video Call as Audio
- Wait for Far End H.245 Terminal Capability Set
- Path Replacement Support
- Transmit UTF-8 for Calling Party Name
- Unattended Port
- SRTP Allowed - When this flag is checked, IPsec needs to be configured in th
- H.235 Pass Through Allowed
- Use Trusted Relay Point*: Default
- PSTN Access
- Connect Inbound Call before Playing Queuing Announcement

群集间干线 (非网守控制)

Trunk Configuration

 Save

Tunneled Protocol*	None
QSIG Variant*	No Changes
ASN.1 ROSE OID Encoding*	No Changes
Packet Capture Mode*	None
Packet Capture Duration	0
<input type="checkbox"/> Media Termination Point Required	
<input checked="" type="checkbox"/> Retry Video Call as Audio	
<input type="checkbox"/> Path Replacement Support	
<input type="checkbox"/> Transmit UTF-8 for Calling Party Name	
<input type="checkbox"/> Unattended Port	
<input type="checkbox"/> SRTP Allowed - When this flag is checked, IPsec needs to be configured	
<input type="checkbox"/> H.235 Pass Through Allowed	
<input type="checkbox"/> Enable SAF	
Use Trusted Relay Point*	Default
<input type="checkbox"/> PSTN Access	
<input checked="" type="checkbox"/> Connect Inbound Call before Playing Queuing Announcement	
<input type="checkbox"/> Run On All Active Unified CM Nodes	

群集间干线 (网守控制)

Trunk Configuration



Save

Tunneled Protocol*	None
QSIG Variant*	No Changes
ASN.1 ROSE OID Encoding*	No Changes
Packet Capture Mode*	None
Packet Capture Duration	0
<input type="checkbox"/> Media Termination Point Required	
<input checked="" type="checkbox"/> Retry Video Call as Audio	
<input type="checkbox"/> Path Replacement Support	
<input type="checkbox"/> Transmit UTF-8 for Calling Party Name	
<input type="checkbox"/> Unattended Port	
<input type="checkbox"/> SRTP Allowed - When this flag is checked, IPsec needs to be configured	
<input type="checkbox"/> H.235 Pass Through Allowed	
Use Trusted Relay Point*	Default
<input type="checkbox"/> PSTN Access	
<input type="checkbox"/> Connect Inbound Call before Playing Queuing Announcement	

H.323 网关

Gateway Configuration

Save

Queue Name: [No Changes]

ASN.1 ROSE OID Encoding*: [No Changes]

Use Trusted Relay Point*: [Default]

Signaling Port*: [1720]

Media Termination Point Required

Retry Video Call As Audio

Wait for Far End H.245 Terminal Capability Set

Path Replacement Support

Transmit UTF-8 for Calling Party Name

SRTP Allowed - When this flag is checked, IPsec needs to be config

H.235 Pass Through Allowed

PSTN Access

Connect Inbound Call before Playing Queuing Announcement

SIP 配置文件

SIP Profile Configuration

Save

Calling Line Identification Presentation*: [Default]

Session Refresh Method*: [Invite]

Early Offer support for voice and video calls*: [Disabled (Default)]

Enable ANAT

Deliver Conference Bridge Identifier

Allow Passthrough of Configured Line Device Caller Information

Reject Anonymous Incoming Calls


Reject Anonymous Outgoing Calls

Send ILS Learned Destination Route String

Connect Inbound Call before Playing Queuing Announcement

MGCP (E1 PRI、T1 PRI、T1 CAS和BRI)

Gateway Configuration

 Save

Confidential Access Level	< None >
<input type="checkbox"/> Handle DTMF Precedence Signals	
<input type="checkbox"/> Encode Voice Route Class	
Load Information	
Port Selection Order*	Top Down
Digit Sending*	DTMF
Network Locale	United States
SMDI Base Port*	0
Use Trusted Relay Point*	Default
Route Class Signaling Enabled*	Off
<input type="checkbox"/> V150 (subset)	
Called Party Transformation CSS	< None >
<input checked="" type="checkbox"/> Use Device Pool Called Party Transformation CSS	
<input type="checkbox"/> PSTN Access	
<input type="checkbox"/> Connect Inbound Call before Playing Queuing Announcement	

日志分析

以下部分重点介绍在选中并取消选中“播放队列通告前连接入站呼叫”时跟踪文件中所看到的差异。

SIP Normal Call Flow

Incoming Invite to the CUCM

```
00455394.002 |18:33:30.036 |AppInfo |SIPtcp - wait_SdlReadRsp: Incoming SIP TCP message from
10.127.227.7 on port 55522 index 16 with 1182 bytes:
[14599,NET]
INVITE sip:0000@10.106.111.105:5060 SIP/2.0
Via: SIP/2.0/TCP 10.127.227.7:5060;branch=z9hG4bK4e222dea4e0
From:
To:
.
.
//Truncated Output
```

100 Trying Sent

```
00455398.001 |18:33:30.037 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.127.227.7 on port 55522 index 16
[14600,NET]
SIP/2.0 100 Trying
Via: SIP/2.0/TCP 10.127.227.7:5060;branch=z9hG4bK4e222dea4e0
From:
```

To:

.
.

//Truncated Output

Digit Analysis takes place

00455415.007 |18:33:30.038 |AppInfo |Digit analysis: match(pi="2", fqcn="",
cn="888819",plv="5", pss="", TodFilteredPss="", dd="0000",dac="0")
00455415.008 |18:33:30.038 |AppInfo |Digit analysis: analysis results
00455415.009 |18:33:30.038 |AppInfo ||PretransformCallingPartyNumber=888819
|CallingPartyNumber=888819
|DialingPartition=
|DialingPattern=0000
|FullyQualifiedCalledPartyNumber=0000

Allocate Annunciater for the Initial Announcement

00455426.001 |18:33:30.039 |AppInfo |QueueControlCdr(17) - get_call_info_SsCallInfoRes,
huntPilotQueueProfile.alwaysplayinitialannouncement=1
00455432.001 |18:33:30.039 |AppInfo |MediaResourceCdpc(22)::waiting_MrmAllocateAnnResourceReq -
CI = 21438416

Media Negotiation takes place for initial announcement

00455454.001 |18:33:30.041 |AppInfo |ARBTRY-ConnectionManager-
wait_MediaConnectRequest(21438414,21438416)
00455478.001 |18:33:30.041 |AppInfo |ARBTRY-ConnectionManager-
wait_MediaConnectReply(21438414,21438416)

183 Session Progress sent for early media with SDP a=sendonly

00455494.001 |18:33:30.143 |AppInfo |SIPTcp - wait_SdlSPISignal: Outgoing SIP TCP message to
10.127.227.7 on port 55522 index 16
[14601,NET]
SIP/2.0 183 Session Progress
Via: SIP/2.0/TCP 10.127.227.7:5060;branch=z9hG4bK4e222dea4e0
From:
To:
.
.

//Truncated Output

.
.

v=0
o=CiscoSystemsCCM-SIP 4705 1 IN IP4 10.106.111.105
s=SIP Call
c=IN IP4 10.106.111.105
t=0 0
m=audio 4000 RTP/AVP 0 8 18
a=X-cisco-media:umoh+ConnSendOnly
a=rtpmap:0 PCMU/8000
a=rtpmap:8 PCMA/8000
a=rtpmap:18 G729/8000
a=fmtp:18 annexb=no
a=sendonly

SIP Call Flow with "Connect Inbound Call before Playing Queuing Announcement" checked

Incoming Invite to the CUCM

00452822.002 |18:22:22.842 |AppInfo |SIPTcp - wait_SdlReadRsp: Incoming SIP TCP message from
10.127.227.7 on port 56658 index 14 with 1182 bytes:
[14494,NET]
INVITE sip:0000@10.106.111.105:5060 SIP/2.0
Via: SIP/2.0/TCP 10.127.227.7:5060;branch=z9hG4bK4d2425c95ba

From:

To:

.

//Truncated Output

100 Trying sent

00452826.001 |18:22:22.843 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.127.227.7 on port 56658 index 14 [14495,NET]

SIP/2.0 100 Trying

Via: SIP/2.0/TCP 10.127.227.7:5060;branch=z9hG4bK4d2425c95ba

From:

To:

.

//Truncated Output

Digit Analysis takes place

00452843.007 |18:22:22.844 |AppInfo |Digit analysis: match(pi="2", fqcn="", cn="888819",plv="5", pss="", TodFilteredPss="", dd="0000",dac="0")

00452843.008 |18:22:22.844 |AppInfo |Digit analysis: analysis results

00452843.009 |18:22:22.844 |AppInfo ||PretransformCallingPartyNumber=888819

|CallingPartyNumber=888819

|DialingPartition=

|DialingPattern=0000

|FullyQualifiedCalledPartyNumber=0000

Annunciater allocated for Initial announcement

00452854.001 |18:22:22.845 |AppInfo |QueueControlCdr(15) - get_call_info_SsCallInfoRes, huntPilotQueueProfile.alwaysplayinitialannouncement=1

00452860.001 |18:22:22.845 |AppInfo |MediaResourceCdpc(19)::waiting_MrmAllocateAnnResourceReq - CI = 21438406

Media Negotiation for the initial announcement

00452882.001 |18:22:22.846 |AppInfo |ARBTRY-ConnectionManager-wait_MediaConnectRequest(21438404,21438406)

00452906.001 |18:22:22.847 |AppInfo |ARBTRY-ConnectionManager-wait_MediaConnectReply(21438404,21438406)

200 OK with SDP a=sendonly sent instead of 183 session progress thus connecting the call rather than an early media.

00452928.001 |18:22:22.848 |AppInfo |SIPtcp - wait_SdlSPISignal: Outgoing SIP TCP message to 10.127.227.7 on port 56658 index 14 [14496,NET]

SIP/2.0 200 OK

Via: SIP/2.0/TCP 10.127.227.7:5060;branch=z9hG4bK4d2425c95ba

From:

To:

.

//Truncated Output

.

v=0

o=CiscoSystemsCCM-SIP 4690 1 IN IP4 10.106.111.105

s=SIP Call

c=IN IP4 10.106.111.105

t=0 0

m=audio 4000 RTP/AVP 0 8 18

a=X-cisco-media:umoh+ConnSendOnly

a=rtpmap:0 PCMU/8000

a=rtpmap:8 PCMA/8000

a=rtpmap:18 G729/8000

a=fmtp:18 annexb=no
a=sendonly

H323正常呼叫流

Incoming H323 Setup Message

```
00091345.011 |09:03:06.341 |AppInfo |SPROCRas - {  
  h323-uu-pdu  
  {  
    h323-message-body setup :  
    {  
      protocolIdentifier { 0 0 8 2250 0 5 },  
      sourceAddress  
      {  
        dialedDigits : "999919",  
        h323-ID : {"999919", {0, 0, 0, 0}, ...}  
      }  
    }  
  }  
.  
.  
//Truncated Output
```

Digit Analysis takes place

```
00091367.006 |09:03:06.384 |AppInfo |Digit analysis: match(pi="2", fqcn="",  
cn="999919",plv="5", pss="", TodFilteredPss="", dd="0000",dac="0")  
00091367.007 |09:03:06.384 |AppInfo |Digit analysis: analysis results  
00091367.008 |09:03:06.384 |AppInfo ||PretransformCallingPartyNumber=999919  
|CallingPartyNumber=999919  
|DialingPartition=  
|DialingPattern=0000
```

Annunciator Allocated for initial announcement

```
00091378.001 |09:03:06.388 |AppInfo |QueueControlCdr(1) - get_call_info_SsCallInfoRes,  
huntPilotQueueProfile.alwaysplayinitialannouncement=1  
00091384.001 |09:03:06.388 |AppInfo |MediaResourceCdpc(1)::waiting_MrmAllocateAnnResourceReq -  
CI = 25333775
```

Call Proceeding Message sent

```
00091386.005 |09:03:06.389 |AppInfo |{  
  h323-uu-pdu  
  {  
    h323-message-body callProceeding :  
    {  
      protocolIdentifier { 0 0 8 2250 0 5 },  
    }  
  }  
.  
.  
//Truncated Output
```

Media Negotiation takes place for the initial announcement

```
00091407.001 |09:03:06.392 |AppInfo |ARBTRY-ConnectionManager-  
wait_MediaConnectRequest(25333773,25333775)  
  
00091447.001 |09:03:06.411 |AppInfo |ARBTRY-ConnectionManager-  
wait_MediaConnectReply(25333773,25333775)
```

H323 Progress message sent for early media, which is followed by the H245 messages for media negotiation

```
00091456.005 |09:03:06.411 |AppInfo |SPROCRas - {  
  h323-uu-pdu  
  {  
    h323-message-body progress :  
    {  
      protocolIdentifier { 0 0 8 2250 0 5 },  
    }  
  }  
}
```

.
.
//Truncated Output

H323 Call flow with the "Connect Inbound Call before Playing Queuing Announcement" checked

Incoming setup message to the CUCM

```
00092572.010 |09:07:25.234 |AppInfo |SPROCRas - {
  h323-uu-pdu
  {
    h323-message-body setup :
    {
      protocolIdentifier { 0 0 8 2250 0 5 },
      sourceAddress
      {
        dialedDigits : "999919",
        h323-ID : {"999919", {0, 0, 0, 0}, ...}
      },

```

.
.
//Truncated Output

Digit Analysis takes place

```
00092594.006 |09:07:25.236 |AppInfo |Digit analysis: match(pi="2", fqcn="",
cn="999919",plv="5", pss="", TodFilteredPss="", dd="0000",dac="0")
00092594.007 |09:07:25.236 |AppInfo |Digit analysis: analysis results
00092594.008 |09:07:25.236 |AppInfo ||PretransformCallingPartyNumber=999919
|CallingPartyNumber=999919
|DialingPartition=
|DialingPattern=0000
```

Annunciator is invoked for initial announcement

```
00092605.001 |09:07:25.236 |AppInfo |QueueControlCdr(2) - get_call_info_SsCallInfoRes,
huntPilotQueueProfile.alwaysplayinitialannouncement=1
00092611.001 |09:07:25.237 |AppInfo |MediaResourceCdpc(2)::waiting_MrmAllocateAnnResourceReq -
CI = 25333779
```

H323 Proceeding message sent out

```
00092612.005 |09:07:25.237 |AppInfo |{
  h323-uu-pdu
  {
    h323-message-body callProceeding :
    {
      protocolIdentifier { 0 0 8 2250 0 5 },

```

.
.
//Truncated Output

Media negotiation takes place

```
00092634.001 |09:07:25.238 |AppInfo |ARBTRY-ConnectionManager-
wait_MediaConnectRequest(25333777,25333779)
00092674.001 |09:07:25.240 |AppInfo |ARBTRY-ConnectionManager-
wait_MediaConnectReply(25333777,25333779)
```

Connect message is sent out instead of H323 Progress message placing the call in connected state rather than early media. The H245 messages will be exchanged post this message.

```
00092686.006 |09:07:25.240 |AppInfo |SPROCRas - {
  h323-uu-pdu
  {
    h323-message-body connect :
    {
      protocolIdentifier { 0 0 8 2250 0 5 },

```

```
h245Address ipAddress :  
  {  
    ip '0A6A6F69'H,  
    port 34408  
  },  
.  
.  
//Truncated Output
```

故障排除

目前没有针对此配置的故障排除信息。