

CUCM 11.5中的本機呼叫隊列增強

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簡介

Cisco Unified Communications Manager(CUCM)提供呼叫隊列以將呼叫者置於隊列中，直到尋線成員可以應答呼叫者。管理員可以設定預設值，以便呼叫者在呼叫擴展至座席之前收到初始問候語通知，或者可以更改預設值，以便僅在呼叫者進入隊列之後發出「通話等待音樂」或「通話等待音」時播放初始問候語。如果呼叫者在隊列中保留指定的一段時間，將會按配置的間隔播放輔助通知，直到呼叫可以應答或最大等待計時器超時。

採用元件

- 思科整合通訊管理員版本11.5.1
- Cisco IP電話版本8.6.6.0

背景資訊

本節介紹CUCM 11.5中增強功能之前本機呼叫排隊的基本功能

當呼叫傳入並到達尋線引導時，提供以下功能：

- 來電者可以在繼續之前連線到可自定義的初始問候語通知。
- 如果一個或多個線路成員登入到尋線引導並處於空閒狀態，且沒有呼叫排隊時，呼叫將擴展到空閒時間最長的線路成員。
- 如果沒有線路成員應答呼叫，則該呼叫者不會置於隊列中。呼叫被路由到新的目的地或斷開連線，根據設定當沒有尋線成員應答時，登入或註冊。
- 如果線路成員未應答啟用隊列的呼叫，則該線路成員將從尋線組註銷僅當在行組中選擇了「無應答時自動註銷尋線成員」選項時設定視窗。

- 僅當所有成員都忙時，呼叫才會排入隊列。
- 在隊列中連線的呼叫者可以聽到保留音樂和重複（可自定義）的週期公告。
- 線路成員空閒後，在多個尋線組中等待時間最長的呼叫方將處於擴展至空閒線路成員。如果空閒線路成員未應答呼叫，則返回呼叫者到隊列中的上一個位置。
- 如果排隊的呼叫超過其最大等待時間，或者隊列中允許的最大呼叫者數為超過，呼叫可以路由到備用號碼，也可以斷開連線，這取決於如何已配置尋線引導。替代號碼可以是以下號碼之一：已啟用或已禁用隊列的尋線引導DN語音信箱DN線路DN共用DN
- 線路成員可以顯示其啟用隊列的尋線引導的隊列狀態。顯示隊列狀態提供以下資訊型別：尋線引導模式每個尋線引導上排隊呼叫者的數量最長等待時間

呼叫隊列與現有的尋線引導結合使用，但是對於隊列或非隊列尋線引導，尋線操作的行為沒有變化。已啟用呼叫隊列的尋線引導具有以下功能：

- 支援隊列的尋線引導呼叫只能由線路成員一次接收一個呼叫。二不能向線路成員提供支援隊列的尋線引導呼叫。線路成員可以接收呼叫直接到DN或從非隊列尋線引導。
- 不應答由尋線載入程式路由的呼叫的線路成員將自動註銷。A如果線路成員收到支援隊列的尋線，則該線路成員將自動從裝置註銷引導呼叫，並且在發生超時之前不應答呼叫。在共用線路部署的情況下，使用同一共用線路配置的所有裝置均會註銷。可以從以下位置配置此行為選擇Automatically Logout Hunt Member on No Answer（無應答時自動註銷尋線成員）。線路僅當選中此覈取方塊時，成員才會註銷。

使用如所述呼叫排隊的工作時，在初始通知期間，終端使用者會聽到死氣或靜音，從而引起使用者認為呼叫沒有成功。如果一端無法在呼叫中支援早期媒體，則會出現這種情況。

功能概述

從Cisco Unified Communications Manager 11.5版開始，您可以將入站呼叫配置到當呼叫擴展到

支援隊列的尋線引導中的尋線成員。

新的Connect Inbound Call before Playing Queuing Announcement覈取方塊新增到以下內容中繼和網關配置視窗：

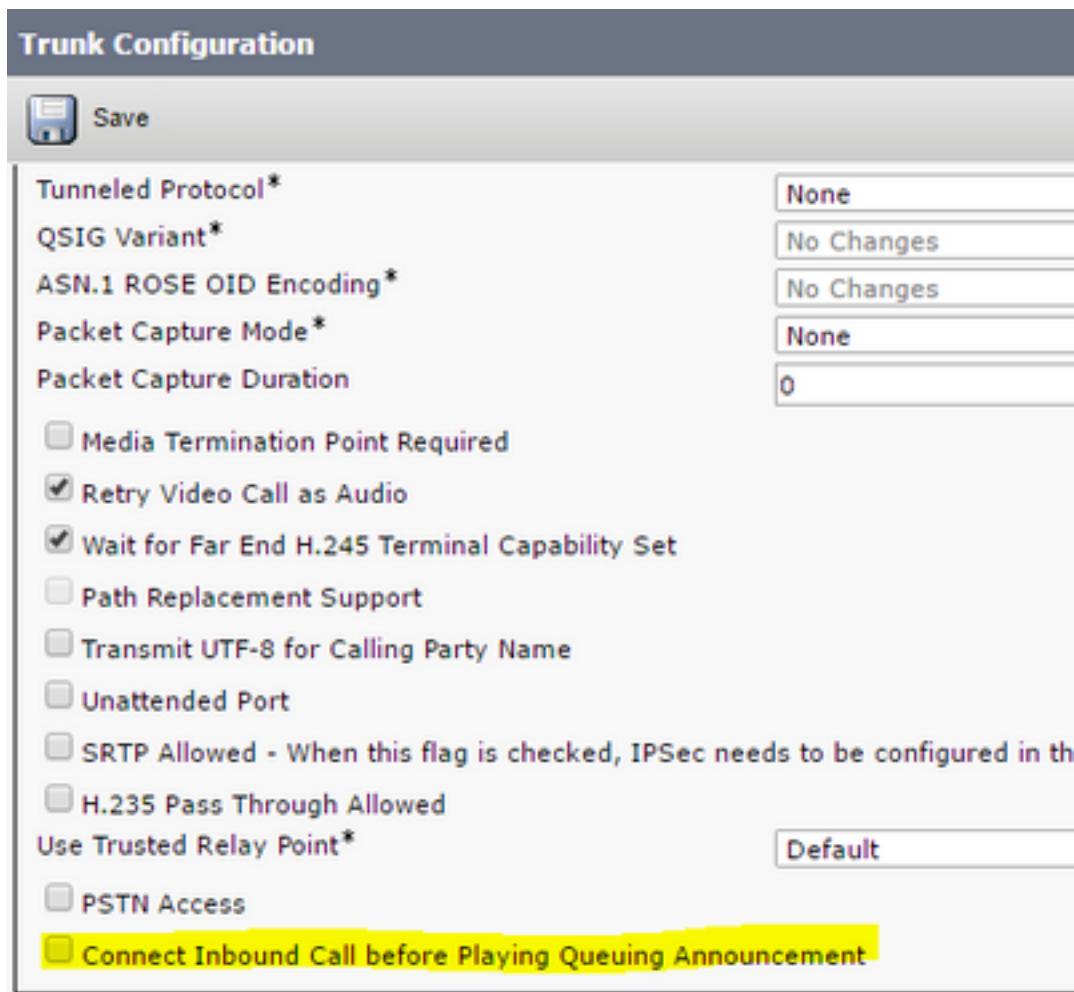
- H.225中繼（閘道管理員控制）
- 叢集間中繼（非閘道管理員控制）
- 集群間中繼（網守控制）
- H.323網關（網關型別）
- SIP配置檔案（中繼特定配置）
- MGCP（E1 PRI、T1 PRI、T1 CA和BRI）

使用者選中此框後，CUCM將在100Testing後傳送200OK，對於SIP，以及H323/MGCP CUCM將在尋線引導呼叫流中傳送Connect。這將確保使用者能夠聽到初始通知，而不是靜默或空洞的聲音，以防另一端不支援Early Media。

組態

下面是CUCM上新新增引數的配置快照

H.225中繼 (閘道管理員控制)




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

- 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

叢集間中繼 (非閘道管理員控制)

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	

叢集間中繼 (閘道管理員控制)

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 闢道

Gateway Configuration

Save

ASN.1 ROSE OID Encoding*
 Use Trusted Relay Point*
 Signaling Port*
 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配置檔案

SIP Profile Configuration

Save

Calling Line Identification Presentation*
 Session Refresh Method*
 Early Offer support for voice and video calls*
 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 CA和BRI)

Gateway Configuration

Save

Confidential Access Level < None >

Handle DTMF Precedence Signals

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

V150 (subset)

Called Party Transformation CSS < None >

Use Device Pool Called Party Transformation CSS

PSTN Access

Connect Inbound Call before Playing Queuing Announcement

日誌分析

以下部分重點介紹在選中和取消選中「Connect Inbound Call before Playing Queuing Announcement」（播放隊列通知之前連線入站呼叫）時，在跟蹤檔案中看到的差異。

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
```

疑難排解

目前尚無適用於此組態的具體疑難排解資訊。