

IOS PSTN輸入閘道至CVP (通話佇列和收集) 通話流程

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簡介

思科客戶語音門戶(CVP)提供可通過電話訪問的智慧互動式語音響應(IVR)應用。CVP部署分為三種型別：

- 獨立服務
- CVP通話控制
- 呼叫佇列和收集

本文檔從呼叫佇列和收集部署中基於H.323的IOS®入口網關的角度描述了呼叫流程。

在「呼叫佇列和收集」部署中，CVP與智慧聯絡人管理(ICM)互動以做出呼叫路由決策。ICM請求CVP提供語音響應單元(VRU)處理來電，播放選單提示，並收集數字以確定要選擇的技能組。在標識了技能組並且技能組中的座席可用時，ICM請求CVP通過Cisco CallManager將來話呼叫連線到座席IP電話。如果座席不可用，則ICM請求CVP提供呼叫佇列處理（例如，播放呼叫保持提示）。CVP使用VXML網關提供VRU或呼叫佇列處理。

必要條件

需求

本檔案沒有特定需求

採用元件

本文中的資訊係根據以下軟體和硬體版本：

- IOS PSTN輸入閘道：Cisco 2821,IOS 12.4(15)T1
- IOS閘道管理員：Cisco 2651XM，IOS 12.4(7f)
- IOS VXML網關：Cisco AS5400XM，IOS 12.4(15)T1
- 思科語音入口網站：CVP 4.0
- Cisco CallManager 5.1.2
- ASR/TTS伺服器：Nuance ASR v8.5和TTS v4.0.6

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

慣例

如需文件慣例的詳細資訊，請參閱[思科技術提示慣例](#)。

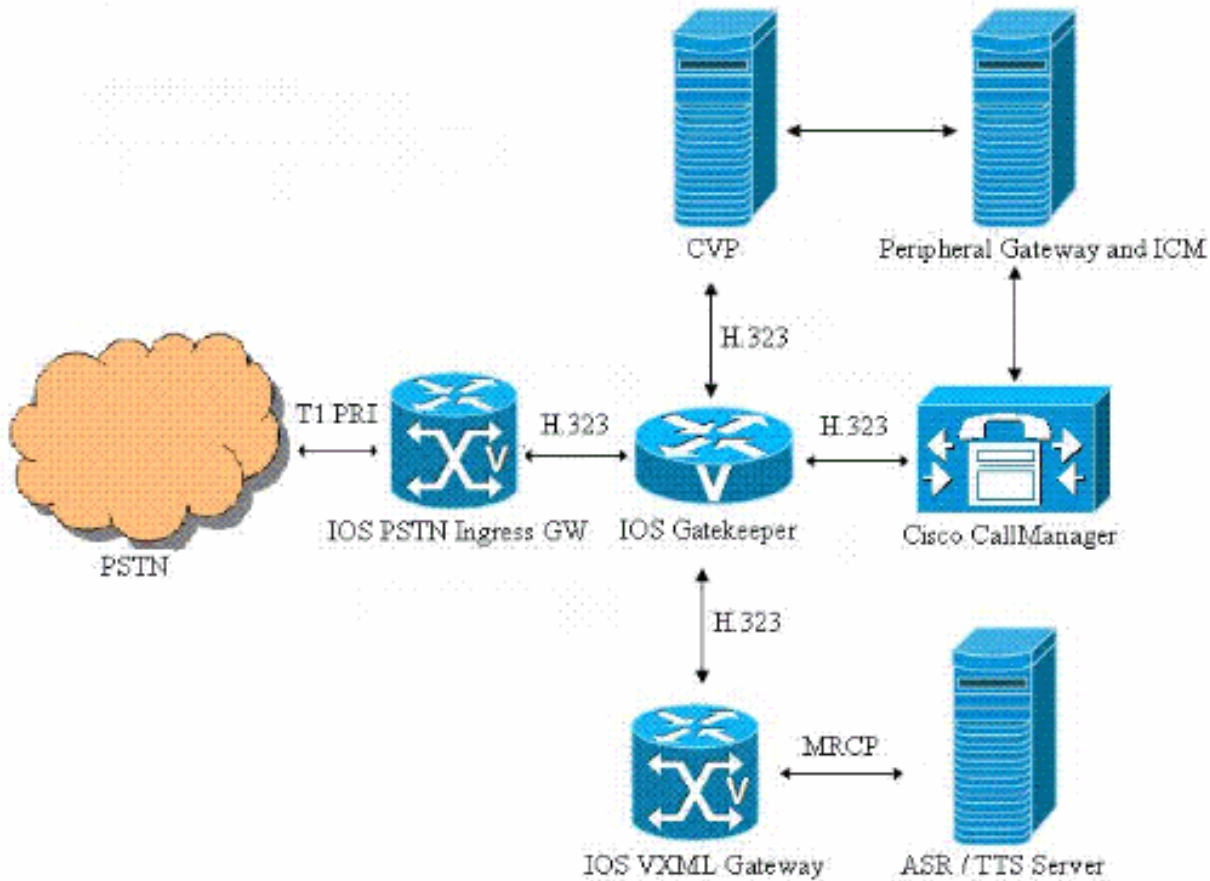
設定

本節提供用於設定本文件中所述功能的資訊。

註：使用[Command Lookup Tool](#)(僅限註冊客戶)查詢有關本文檔中使用的命令的更多資訊。

網路圖表

本檔案會使用以下網路設定：



組態

本檔案會使用以下設定：

- [輸入閘道組態](#)
- [閘道管理員組態](#)
- [VXML網關配置](#)

輸入閘道組態

```
!--- Configure the IOS PSTN Ingress GW to register with
the IOS Gatekeeper. interface GigabitEthernet0/1 ip
address 14.50.201.11 255.255.255.0 h323-gateway voip
interface h323-gateway voip id IPCC-GW ipaddr
14.50.201.14 1719 h323-gateway voip h323-id PSTN-GW
h323-gateway voip bind srcaddr 14.50.201.11 !---
Configure the T1 PRI. controller T1 1/0/0 framing esf
linecode b8zs pri-group timeslots 1-24 !--- Configure
the ISDN switch type and incoming-voice under the D-
channel interface. interface Serial1/0/0:23 no ip
address encapsulation hdlc isdn switch-type primary-ni
isdn incoming-voice voice no cdp enable !--- Configure a
POTS dial-peer that will be used as inbound dial-peer
for calls !--- coming in across the T1 PRI line. dial-
peer voice 2 pots description PSTN PRI Circuit incoming
```

```
called-number . direct-inward-dial port 1/0/0:23 !---  
Configure an outbound voip dial-peer to route calls to  
the CVP. !--- Gateway sends ARQ to Gatekeeper for call  
routing decision. dial-peer voice 1 voip description "To  
IPCC" destination-pattern 800..... session target ras  
tech-prefix 2# dtmf-relay rtp-nte codec g711ulaw no vad
```

閘道管理員組態

```
!--- Configure the local zones and zone prefixes. In  
this example, !--- VXML GW registers with Gatekeeper  
with Tech-Prefix 1# !--- CVP registers with Gatekeeper  
with Tech-Prefix 2# !--- CCM registers with CCM with  
Tech-Prefix 3# !--- CVP handles calls with called number  
in the 800555... range !--- CCM handles calls with called  
numbers in the 75... range (agent dn range) !--- VXML  
Gateway handles calls with called numbers starting with  
8001112222 (network vru label) gatekeeper zone local  
IPCC-GW cisco.com 14.50.201.14 zone local IPCC-VXML  
cisco.com zone local IPCC-CCM cisco.com zone local IPCC-  
CVP cisco.com zone prefix IPCC-CCM 75... zone prefix  
IPCC-CVP 800555.... zone prefix IPCC-VXML 8001112222*  
gw-type-prefix 1#* default-technology no shutdown!
```

VXML網關配置

```
!--- Define Hostname to IP Address mapping for ASR and  
TTS servers. ip host asrtts-en-us 14.50.201.16 !---  
Define the amount of maximum memory to used for  
downloaded prompts. ivr prompt memory 15000 !--- Define  
the RTSP URI of ASR and TTS Server. ivr asr-server  
rtsp://asrtts-en-us/recognizer ivr tts-server  
rtsp://asrtts-en-us/synthesizer !--- Configure an  
application service for CVPErrror.tcl. application  
service cvperror flash:cvperror.tcl paramspace english  
language en paramspace english index 0 paramspace  
english location flash paramspace english prefix en !---  
Configure an application service for CVP bootstrap.vxml  
and bootstrap.tcl. service new-call flash:bootstrap.vxml  
paramspace english language en paramspace english index  
0 paramspace english location flash paramspace english  
prefix en ! service bootstrap flash:bootstrap.tcl  
paramspace english language en paramspace english index  
0 paramspace english location flash paramspace english  
prefix en !--- Configure an application service for CVP  
handoff.tcl. service handoff flash:handoff.tcl  
paramspace english language en paramspace english index  
0 paramspace english location flash paramspace english  
prefix en !--- Specify that the Gateway's RTP stream to  
the ASR / TTS to go around the !--- Content Service  
Switch instead of through the CSS. mrcp client rtpsetup  
enable !--- Specify the maximum memory size for the HTTP  
Client Cache. http client cache memory pool 15000 !---  
Specify the maximum number of file that can be stored in  
the HTTP Client Cache. http client cache memory file 500  
!--- Disable Persistent HTTP Connections. no http client  
connection persistent !--- Configure the VXML GW to  
register with the IOS Gatekeeper. interface  
GigabitEthernet0/0 ip address 14.50.201.15 255.255.255.0  
h323-gateway voip interface h323-gateway voip id IPCC-  
VXML ipaddr 14.50.201.14 1719 h323-gateway voip h323-id
```

```
VXML-GW h323-gateway voip tech-prefix 1# h323-gateway
voip bind srcaddr 14.50.201.15 !--- Configure an inbound
voip dial-peer to block calls with called number !---
starting with 987654. voice translation-rule 1 rule 1
/987654/ // ! ! voice translation-profile block
translate called 1 dial-peer voice 987654 voip
description Dial-peer needed for PM Micro-App
translation-profile incoming block incoming called-
number 987654 !--- Configure a VoIP dial-peer that will
be used as inbound dial-peer for calls coming !--- in
from CVP. The "bootstrap" service is applied under this
dial-peer. !--- The "8001112222" in the destination-
pattern is the VRU label that is configured in ICM.
dial-peer voice 800 voip description ICM VRU Label
translation-profile incoming block service bootstrap
incoming called-number 8001112222T dtmf-relay rtp-nte
h245-signal h245-alphanumeric codec g711ulaw no vad
```

呼叫流示例

本節介紹此配置示例產生的呼叫流：

1. ISDN呼叫通過T1 PRI 1/0/0到達PSTN/VXML網關。
2. IOS網關將POTS撥號對等體2匹配為此呼叫的入站撥號對等體。
3. IOS網關將VoIP撥號對等體1匹配為此呼叫的出站撥號對等體。
4. IOS網關將tech-prefix "2#"前加在被叫號碼上，並向Gatekeeper傳送ARQ。
5. 網守將呼叫路由到CVP。
6. CVP應答呼叫，並在IOS入口網關和CVP之間建立RTP媒體連線。
7. CVP通知ICM新呼叫。
8. ICM運行與此呼叫的被叫號碼關聯的指令碼。
9. ICM請求CVP提供VRU處理以播放選單提示(Main_Welcome_Menu.wav)並收集數字以標識技能組。1個用於TAC2個銷售部門ICM還將網路VRU的ICM標籤(8001112222)傳送給CVP。
10. CVP向網守傳送ARQ請求（目標=網路VRU標籤）。
11. 網守在ACF響應中提供VXML網關的IP地址。
12. CVP向VXML網關傳送H225設定，VXML網關隨後會向CVP建立VXML會話。請參閱以下URL以瞭解VXML網關和CVP以及VXML網關和ASR/TTS伺服器互動：[MRCPv1MRCPv2](#)
13. CVP通過傳送H245空TCS斷開其現有RTP媒體與入口網關的連線。
14. CVP在入口網關和VXML網關之間建立RTP媒體連線。
15. PSTN呼叫者輸入數字「1」以選擇「TAC」技能組。入口網關通過RTP NTE將DTMF傳送到VXML網關(16)VXML網關通過VXML將數字報告給CVP，然後報告給ICM。
16. VXML網關通過VXML向CVP報告數字，然後向ICM報告。
17. 然後，ICM從所選技能組查詢可用的座席，並請求CVP通過傳送座席的ICM標籤(3#75001)將呼叫路由到座席。
18. CVP斷開入口網關和VXML網關之間的現有RTP媒體連線。
19. CVP向網守傳送ARQ請求（目標=代理標籤）。
20. 網守在ACF響應中提供Cisco CallManager的IP地址。
21. CVP向Cisco CallManager傳送H225設定，然後Cisco CallManager會建立對座席IP電話的呼叫。
22. CVP在入口網關和代理電話之間建立RTP媒體連線。
23. PSTN呼叫者在結束與座席的對話後掛斷呼叫。
24. 入口網關斷開與CVP的呼叫，並向網守通知呼叫終止。
25. 然後CVP斷開與CCM的呼叫。

驗證

使用本節內容，確認您的組態是否在IOS閘道管理員中正常運作。

[輸出直譯器工具](#)(僅供[已註冊](#)客戶使用)(OIT)支援某些show命令。使用OIT檢視show命令輸出的分析。

- **show gatekeeper endpoints**

GATEKEEPER ENDPOINT REGISTRATION

```
=====
CallSignalAddr  Port  RASSignalAddr  Port  Zone Name          Type  Flags
-----
14.50.201.11    1720  14.50.201.11   53981 IPCC-GW            VOIP-GW
      ENDPOINT-ID: 8527186C00000002  VERSION: 4  AGE: 32 secs  SupportsAnnexE: FALSE
      g_supp_protos: 0x00000050
      H323-ID: PSTN-GW
      Voice Capacity Max.= Avail.= Current.= 0
14.50.201.15    1720  14.50.201.15   62367 IPCC-VXML          VOIP-GW
      ENDPOINT-ID: 84DB194800000003  VERSION: 4  AGE: 27 secs  SupportsAnnexE: FALSE
      g_supp_protos: 0x00000050
      H323-ID: VXML-GW
      Voice Capacity Max.= Avail.= Current.= 0
172.18.110.75   1720  172.18.110.75  1719  IPCC-CVP           VOIP-GW
      ENDPOINT-ID: 84F5E78C00000001  VERSION: 5  AGE: 3 secs   SupportsAnnexE: FALSE
      g_supp_protos: 0x00000040
      H323-ID: CVP
      Voice Capacity Max.= Avail.= Current.= 0
172.18.110.84   43843 172.18.110.84  49600 IPCC-CCM           VOIP-GW
      ENDPOINT-ID: 852A9F2C00000004  VERSION: 5  AGE: 27 secs  SupportsAnnexE: FALSE
      g_supp_protos: 0x00000050
      H323-ID: CCM-GK-Trunk_1
      Voice Capacity Max.= Avail.= Current.= 0
```

Total number of active registrations = 4

- **show gatekeeper gw-type-prefix**

GATEWAY TYPE PREFIX TABLE

```
=====
```

Prefix: 1#* (Default gateway-technology)

Zone IPCC-GW master gateway list:

14.50.201.11:1720 PSTN-GW

Zone IPCC-VXML master gateway list:

14.50.201.15:1720 VXML-GW

Prefix: 2#*

Zone IPCC-CVP master gateway list:

172.18.110.75:1720 CVP

Prefix: 3#*

Zone IPCC-CCM master gateway list:

172.18.110.84:43843 CCM-GK-Trunk_1

使用本節內容，確認您的組態是否可在IOS PSTN輸入閘道上正常運作。

- **show call active voice brief**

Call is connected to VXML Gateway

11E6 : 228 2061411860ms.1 +160 pid:2 Answer 9999 active

dur 00:00:44 tx:1942/326256 rx:2221/354112

Tele 1/0/0:23 (228) [1/0/0.1] tx:44300/44300/0ms g711ulaw noise:-79 acom:7
i/0:-44/-18 dBm

11E6 : 229 2061411870ms.1 +130 pid:1 Originate 2#8005555555 active

dur 00:00:44 tx:2215/1169571516 rx:1942/310720

IP 14.50.201.15:21134 SRTP: off rtt:0ms pl:35210/40ms lost:0/0/0 delay:55/55/65ms
g711ulaw TextRelay: off

media inactive detected:n media contrl rcvd:n/a timestamp:n/a

long duration call detected:n long duration call duration:n/a timestamp:n/a

Telephony call-legs: 1

SIP call-legs: 0

H323 call-legs: 1

Call agent controlled call-legs: 0

SCCP call-legs: 0

Multicast call-legs: 0

Media call-legs: 0

Total call-legs: 2

Call is connected to Agent IP Phone

11E6 : 228 2061411860ms.1 +160 pid:2 Answer 9999 active

dur 00:01:06 tx:2848/478464 rx:3343/533632

Tele 1/0/0:23 (228) [1/0/0.1] tx:66730/66730/0ms g711ulaw noise:-54 acom:7
i/0:-44/-44 dBm

11E6 : 229 2061411870ms.1 +130 pid:1 Originate 2#8005555555 active

dur 00:01:06 tx:3336/1169571516 rx:2848/455680

IP 14.50.202.26:17156 SRTP: off rtt:1ms pl:10290/0ms lost:0/0/0 delay:55/55/65ms
g711ulaw TextRelay: off

media inactive detected:n media contrl rcvd:n/a timestamp:n/a

long duration call detected:n long duration call duration:n/a timestamp:n/a

Telephony call-legs: 1

SIP call-legs: 0

H323 call-legs: 1

Call agent controlled call-legs: 0

SCCP call-legs: 0

Multicast call-legs: 0

Media call-legs: 0

Total call-legs: 2

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

疑難排解指令

配置IOS網關以在其日誌緩衝區中記錄調試並禁用「日誌控制檯」。

以下命令用於配置網關，以便將調試儲存在網關的日誌緩衝區中：

- service timestamps debug datetime msec
- 服務序列
- 無日誌控制權
- logging buffered 5000000 debug
- 清除日誌

以下是用於對組態進行疑難排解的debug命令：

附註：使用 debug 指令之前，請先參閱[有關 Debug 指令的重要資訊](#)。

- debug isdn q931
- debug voip ccapi inout
- debug ras
- debug h225 asn1
- debug h245 asn1
- debug cch323 h225
- debug cch323 h245
- debug voip rtp session nte named-event

調試輸出

本節提供此呼叫流程示例的調試輸出：

1. [來自PSTN的來電800-555-5555](#)
2. [輸入閘道與傳入撥號對等體2相符](#)
3. [輸入閘道與傳出撥號對等體1相符](#)
4. [輸入GW會預先設定技術首碼「#2」，並向閘道管理員傳送認可請求\(ARQ\)](#)
5. [輸入GW在POTS支路中傳送ISDN呼叫繼續](#)
6. [輸入GW收到來自GK的准入確認。目的IP地址是CVP的IP地址\(172.18.110.75\)](#)
7. [GW向CVP傳送H225 FastStart設定消息](#)
8. [GW收到來自CVP的H225連線消息](#)
9. [GW向網守傳送資訊請求響應\(IRR\)](#)
10. [GW建立與CVP的H245 TCP連線，並向CVP傳送終端功能集\(TCS\)和主從確定消息](#)
11. [GW接收來自CVP的TCS和MSD消息](#)
12. [輸入GW將TCS Ack和MSD Ack傳送到CVP](#)
13. [輸入GW接收來自CVP的TCS和MSD ACK](#)
14. [現在，CVP將媒體連線重定向到VXML網關。輸入GW從CVP接收空TCS](#)
15. [輸入GW通過向CVP傳送CloseLogicalChannel\(CLC\)來關閉其邏輯通道](#)
16. [輸入GW將TCS ACK傳送到CVP](#)
17. [輸入GW將頻寬要求傳送到閘道管理員，以便更新用於通話的當前頻寬\(零\)](#)
18. [CVP通過將CLC傳送到輸入GW來關閉其邏輯通道](#)
19. [輸入GW從CVP接收TCS和MSD。此TCS提供有關VXML網關的終端功能的資訊](#)
20. [輸入GW將其TCS和MSD傳送到CVP](#)
21. [輸入GW將MSD確認和TCS確認傳送到CVP](#)
22. [輸入GW將BRQ傳送到閘道管理員，以便更新呼叫使用的目前頻寬\(2*64=128 kbps\)](#)
23. [輸入GW將OLC請求傳送到CVP](#)
24. [輸入GW從CVP接收OLC。CVP為RTCP連線提供VXML網關的IP地址](#)

25. [輸入GW將OLC Ack響應傳送到CVP](#)
26. [輸入GW收到來自CVP的OLC Ack。CVP提供用於RTP連線的VXML網關的IP地址。在輸入GW和VXML GW之間建立了RTP連線](#)
27. [網關檢測DTMF數字「1」，並通過基於RTP NTE\(RFC 2833\)的DTMF中繼事件將其傳送到VXML GW](#)
28. [現在，CVP將呼叫重定向到應答該呼叫的座席IP電話。輸入GW接收空TCS](#)
29. 執行步驟15 - 18 (未顯示調試輸出)
30. [輸入GW從CVP接收TCS和MSD。此TCS提供有關IP電話的終端功能的資訊](#)
31. 執行步驟20 - 23 (未顯示調試輸出)
32. [輸入GW從CVP接收OLC。CVP為RTCP連線提供CallManager的IP地址](#)
33. [GW將OLC Ack響應傳送到CVP](#)
34. [GW從CVP接收OLC Ack。CVP提供用於RTP連線的座席IP電話的IP地址。輸入GW和IP電話之間的RTP連線已建立](#)
35. [完成與座席的對話後，PSTN呼叫方會掛斷呼叫。輸入GW從PSTN接收ISDN斷開連線](#)
36. [輸入GW通過向CVP傳送H225 Release Complete消息來終止IP支路上的H323呼叫](#)
37. [GW將DisengageRequest\(DRQ\)傳送給閘道管理員](#)
38. [GW和CVP之間的H245連線在CLC和EndSession命令交換後關閉](#)

注意：由於空間限制，本節中整個輸出中的某些行已移至第二行。

[來自PSTN的來電800-555-5555](#)

```
*Aug 17 17:21:15.777: ISDN Se1/0/0:23 Q931: RX <- SETUP pd = 8 callref = 0x0088
```

```
Bearer Capability i = 0x8090A2

Standard = CCITT

Transfer Capability = Speech

Transfer Mode = Circuit

Transfer Rate = 64 kbit/s

Channel ID i = 0xA98381

Exclusive, Channel 1

Progress Ind i = 0x8583 - Origination address is non-ISDN

Calling Party Number i = 0x0080, '9999'

Plan:Unknown, Type:Unknown

Called Party Number i = 0xA1, '8005555555'

Plan:ISDN, Type:National
```

```
*Aug 17 17:21:15.781: //-1/182F2991800A/CCAPI/cc_api_display_ie_subfields:
```

```
cc_api_call_setup_ind_common:

cisco-username=

----- ccCallInfo IE subfields -----
```

cisco-ani=9999
cisco-anitype=0
cisco-aniplan=0
cisco-anipi=0
cisco-anisi=0
dest=8005555555
cisco-desttype=2
cisco-destplan=1
cisco-rdie=FFFFFFFF
cisco-rdn=
cisco-rdntype=-1
cisco-rdnplan=-1
cisco-rdnpi=-1
cisco-rdnsi=-1
cisco-redirectreason=-1 fwd_final_type =0
final_redirectNumber =
hunt_group_timeout =0

輸入閘道與傳入撥號對等體2相符

*Aug 17 17:21:15.781: //-1/182F2991800A/CCAPI/cc_api_call_setup_ind_common:

Interface=0x46964DF8, Call Info(

Calling Number=9999,(Calling Name=)(TON=Unknown, NPI=Unknown, Screening=Not Screened, Presentation=Allowed),

Called Number=8005555555(TON=National, NPI=ISDN),

Calling Translated=FALSE, Subscriber Type Str=RegularLine, FinalDestinationFlag=TRUE,

Incoming Dial-peer=2, Progress Indication=ORIGINATING SIDE IS NON ISDN(3),
Calling IE Present=TRUE,

Source Trkgrp Route Label=, Target Trkgrp Route Label=, CLID Transparent=FALSE),
Call Id=-1

輸入閘道與傳出撥號對等體1相符

*Aug 17 17:21:15.793: //228/182F2991800A/CCAPI/ccIFCallSetupRequestPrivate:

Interface=0x46A5D878, Interface Type=1, Destination=, Mode=0x0,

Call Params(Calling Number=9999,(Calling Name=)(TON=Unknown, NPI=Unknown, Screening=Not Screened, Presentation=Allowed),

Called Number=8005555555(TON=National, NPI=ISDN), Calling Translated=FALSE,

Subscriber Type Str=RegularLine, FinalDestinationFlag=TRUE, Outgoing Dial-peer=1,
Call Count On=FALSE,

Source Trkgrp Route Label=, Target Trkgrp Route Label=, tg_label_flag=0,
Application Call Id=)

輸入GW會預先設定技術首碼「#2」，並向閘道管理員傳送認可請求(ARQ)

*Aug 17 17:21:15.797: H225 NONSTD OUTGOING PDU ::=

value ARQnonStandardInfo ::=

```
{
  sourceAlias
  {
  }
  sourceExtAlias
  {
  }
  callingOctet3a 128
  interfaceSpecificBillingId "ISDN 1/0/0:23"
  gtd '49414D2C0D0A50524E2C6973646E2A2C2C4E492A...'H
  ingressNetwork scn : NULL
}
```

*Aug 17 17:21:15.797: H225 NONSTD OUTGOING ENCODE BUFFER::= 80000010A901800E18495
3444E20312F302F303A323380AC00A949414D2C0D0A50524E2C6973646E2A2C2C4E492A2A2A2C0D0A
5553492C726174652C632C732C632C310D0A5553492C6C6179312C756C61770D0A544D522C30300D0
A43504E2C30342C2C312C383030353535353535350D0A43474E2C30302C2C752C792C312C39393939
0D0A4350432C30390D0A4643492C2C2C2C2C2C792C0D0A4743492C3138326632393931346331643
1316463383030613030313765306162613833380D0A0D0A0100

*Aug 17 17:21:15.801:

*Aug 17 17:21:15.801: RAS OUTGOING PDU ::=

value RasMessage ::= admissionRequest :

```
{
```

```
requestSeqNum 15287

callType pointToPoint : NULL

callModel direct : NULL

endpointIdentifier {"84B3CC1C00000004"}

destinationInfo

{
    dialedDigits : "2#8005555555"
}

srcInfo

{
    dialedDigits : "9999",
    h323-ID : {"PSTN-GW"}
}

bandwidth 1280

callReferenceValue 67

nonStandardData

{
    nonStandardIdentifier h221NonStandard :

    {
        t35CountryCode 181
        t35Extension 0
        manufacturerCode 18
    }

    data '80000010A901800E184953444E20312F302F303A...'H
}

conferenceID '182F29914C1D11DC800A0017E0ABA838'H

activeMC FALSE

answerCall FALSE

canMapAlias TRUE

callIdentifier

{
    guid '182FC5B94C1D11DC8298DF9092AE2C6A'H
```

```
}  
  
willSupplyUUIEs FALSE  
  
}
```

輸入GW在POTS支路中傳送ISDN呼叫繼續

```
*Aug 17 17:21:15.805: ISDN Se1/0/0:23 Q931: TX -> CALL_PROC pd = 8 callref = 0x8088  
  
Channel ID i = 0xA98381  
  
Exclusive, Channel 1
```

輸入GW收到來自GK的准入確認。目的IP地址是CVP的IP地址(172.18.110.75)

```
*Aug 17 17:21:15.861: RAS INCOMING PDU ::=
```

```
value RasMessage ::= admissionConfirm :
```

```
{  
  
requestSeqNum 15287  
  
bandWidth 1280  
  
callModel direct : NULL  
  
destCallSignalAddress ipAddress :  
  
{  
  
ip 'AC126E4B'H  
  
port 1720  
  
}  
  
irrFrequency 240  
  
nonStandardData  
  
{  
  
nonStandardIdentifier h221NonStandard :  
  
{  
  
t35CountryCode 181  
  
t35Extension 0  
  
manufacturerCode 18  
  
}  
  
data '00020180CCCC400B004100720075006E002D0050...'H
```

```
}  
  
willRespondToIRR FALSE  
  
uuiesRequested  
  
{  
  
  setup FALSE  
  
  callProceeding FALSE  
  
  connect FALSE  
  
  alerting FALSE  
  
  information FALSE  
  
  releaseComplete FALSE  
  
  facility FALSE  
  
  progress FALSE  
  
  empty FALSE  
  
}  
  
usageSpec  
  
{  
  
  {  
  
    when  
  
    {  
  
      end NULL  
  
      inIrr NULL  
  
    }  
  
    callStartingPoint  
  
    {  
  
      connect NULL  
  
    }  
  
    required  
  
    {  
  
      nonStandardUsageTypes  
  
      {  
  
      }  
  
    }  
  
  }  
  
}
```

```
        startTime NULL
        endTime NULL
        terminationCause NULL
    }
}
}
```

GW向CVP傳送H225 FastStart設定消息

*Aug 17 17:21:15.865: H245 FS OLC OUTGOING PDU ::=

value OpenLogicalChannel ::=

```
{
    forwardLogicalChannelNumber 1
    forwardLogicalChannelParameters
    {
        dataType audioData : g711Ulaw64k : 20
        multiplexParameters h225LogicalChannelParameters :
        {
            sessionID 1
            mediaControlChannel unicastAddress : ipAddress :
            {
                network '0E32C90B'H
                tsapIdentifier 18491
            }
            silenceSuppression FALSE
        }
    }
}
```

*Aug 17 17:21:15.869: H245 FS OLC OUTGOING ENCODE BUFFER::=

0000000C6013800B050001000E32C90B483B00

*Aug 17 17:21:15.869:

*Aug 17 17:21:15.869: H245 FS OLC OUTGOING PDU ::=

value OpenLogicalChannel ::=

```
{
  forwardLogicalChannelNumber 1
  forwardLogicalChannelParameters
  {
    dataType nullData : NULL
    multiplexParameters none : NULL
  }
  reverseLogicalChannelParameters
  {
    dataType audioData : g711Ulaw64k : 20
    multiplexParameters h2250LogicalChannelParameters :
    {
      sessionID 1
      mediaChannel unicastAddress : ipAddress :
      {
        network '0E32C90B'H
        tsapIdentifier 18490
      }
      mediaControlChannel unicastAddress : ipAddress :
      {
        network '0E32C90B'H
        tsapIdentifier 18491
      }
      silenceSuppression FALSE
    }
  }
}
```

*Aug 17 17:21:15.869: H245 FS OLC OUTGOING ENCODE BUFFER::=
400000060401004C60138012150001000E32C90B483A000E32C90B483B00

*Aug 17 17:21:15.869:

*Aug 17 17:21:15.869: //229/182F2991800A/H323/generic_send_setup:

generic_send_setup: is_overlap = 0, info_complete = 0

*Aug 17 17:21:15.869: //229/182F2991800A/H323/generic_send_setup: sending calling IE

*Aug 17 17:21:15.869: //229/182F2991800A/H323/generic_send_setup: ===== PI = 3

*Aug 17 17:21:15.869: //229/182F2991800A/H323/generic_send_setup: Send infoXCap=128,
infoXRate=16, rateMult=0, xMode=128, info_layer1_prot=163

*Aug 17 17:21:15.869: //229/182F2991800A/H323/generic_send_setup:
src address = 14.50.201.11; dest address = 172.18.110.75

*Aug 17 17:21:15.869: H225 NONSTD OUTGOING PDU ::=

value H323_UU_NonStdInfo ::=

```
{  
  version 2  
  protoParam qsigNonStdInfo :  
  {  
    iei 4  
    rawMesg '04038090A21803A983811E0285836C0600803939...'H  
  }  
  progIndParam progIndIEinfo :  
  {  
    progIndIE '00000003'H  
  }  
}
```

*Aug 17 17:21:15.873: H225 NONSTD OUTGOING ENCODE BUFFER::= E001020001042304038090A21803
A983811E0285836C060080393939700BA13830303535353535350A8006000400000003

*Aug 17 17:21:15.873:

*Aug 17 17:21:15.873: H225.0 OUTGOING PDU ::=

value H323_UserInformation ::=

```
{
  h323-uu-pdu
  {
    h323-message-body setup :
    {
      protocolIdentifier { 0 0 8 2250 0 4 }
      sourceAddress
      {
        h323-ID : {"PSTN-GW"}
      }
      sourceInfo
      {
        vendor
        {
          vendor
          {
            t35CountryCode 181
            t35Extension 0
            manufacturerCode 18
          }
        }
      }
      gateway
      {
        protocol
        {
          voice :
          {
            supportedPrefixes
```

```
    {
        {
            prefix dialedDigits : "1#"
        }
    }
},          h323 :
{
    supportedPrefixes
    {
    }
}
}
}
mc FALSE
undefinedNode FALSE
}
activeMC FALSE
conferenceID '182F29914C1D11DC800A0017E0ABA838'H
conferenceGoal create : NULL
callType pointToPoint : NULL
sourceCallSignalAddress ipAddress :
{
    ip '0E32C90B'H
    port 22143
}
callIdentifier
{
    guid '182FC5B94C1D11DC8298DF9092AE2C6A'H
}
fastStart
{
```

```
'0000000C6013800B050001000E32C90B483B00'H,  
'400000060401004C60138012150001000E32C90B...'H  
}  
mediaWaitForConnect FALSE  
canOverlapSend FALSE  
multipleCalls TRUE  
maintainConnection TRUE  
symmetricOperationRequired NULL  
}  
h245Tunneling TRUE  
nonStandardControl  
{  
  
  {  
    nonStandardIdentifier h221NonStandard :  
    {  
      t35CountryCode 181  
      t35Extension 0  
      manufacturerCode 18  
    }  
    data 'E001020001042304038090A21803A983811E0285...'H  
  }  
}  
}
```

[GW收到來自CVP的H225連線消息](#)

*Aug 17 17:21:15.913: H225.0 INCOMING PDU ::=

value H323_UserInformation ::=

```
{  
  h323-uu-pdu
```

```
{
  h323-message-body connect :
  {
    protocolIdentifier { 0 0 8 2250 0 5 }
    h245Address ipAddress :
    {
      ip 'AC126E4B'H
      port 19698
    }
    destinationInfo
    {
      gateway
      {
        protocol
        {
          voice :
          {
            supportedPrefixes
            {
              {
                prefix dialedDigits : "2#"
              }
            }
          }
        }
      }
      mc FALSE
      undefinedNode FALSE
    }
    conferenceID '182F29914C1D11DC800A0017E0ABA838'H
    callIdentifier
```

```
{
  guid '182FC5B94C1D11DC8298DF9092AE2C6A'H
}

fastStart

{
  '400080060401004C6013801215000100AC126E4B...'H,
  '0000000C6013801215000100AC126E4B406000AC...'H
}

multipleCalls FALSE

maintainConnection TRUE

presentationIndicator presentationAllowed : NULL

screeningIndicator 2

featureSet

{
  replacementFeatureSet FALSE

  neededFeatures
  {
  }

  desiredFeatures
  {
  }

  supportedFeatures
  {
  }
}

h245Tunneling FALSE
}
```

```
*Aug 17 17:21:15.917: //-1/xxxxxxxxxxxxx/H323/cch323_h225_receiver:
Received msg of type SETUPCFM_CHOSEN

*Aug 17 17:21:15.917: //229/182F2991800A/H323/setup_cfm_ind: ===== PI = 0

*Aug 17 17:21:15.917: //229/182F2991800A/H323/setup_cfm_ind:
Set new event H225_EV_FS_SETUP_CFM_IND

*Aug 17 17:21:15.917: //229/182F2991800A/H323/setup_cfm_ind:
Rcvd CONNECT Display Info IE = rtpmscvp

*Aug 17 17:21:15.917: //229/182F2991800A/H323/cch323_h225_receiver:
SETUPCFM_CHOSEN: src address = 14.50.201.11; dest address = 172.18.110.75

*Aug 17 17:21:15.917: //229/182F2991800A/H323/run_h225_sm:
Received event H225_EV_FS_SETUP_CFM_IND while at state H225_REQ_FS_SETUP

*Aug 17 17:21:15.917: //229/182F2991800A/H323/cch323_h225_set_new_state:
Changing from H225_REQ_FS_SETUP state to H225_FS_ACTIVE state

*Aug 17 17:21:15.917: H245 FS OLC INCOMING ENCODE BUFFER ::=
400080060401004C6013801215000100AC126E4B406000AC126E4B406100

*Aug 17 17:21:15.917:

*Aug 17 17:21:15.917: H245 FS OLC INCOMING PDU ::=
```

```
value OpenLogicalChannel ::=
```

```
{
    forwardLogicalChannelNumber 129
    forwardLogicalChannelParameters
    {
        dataType nullData : NULL
        multiplexParameters none : NULL
    }
    reverseLogicalChannelParameters
    {
        dataType audioData : g711Ulaw64k : 20
        multiplexParameters h2250LogicalChannelParameters :
        {
            sessionID 1
            mediaChannel unicastAddress : ipAddress :
            {
                network 'AC126E4B'H
                tsapIdentifier 16480
            }
        }
    }
}
```



```
    }  
    mediaControlChannel unicastAddress : ipAddress :  
    {  
        network 'AC126E4B'H  
        tsapIdentifier 16481  
    }  
    silenceSuppression FALSE  
}  
}  
}
```

```
*Aug 17 17:21:15.921: H245 FS OLC INCOMING ENCODE BUFFER::=  
0000000C6013801215000100AC126E4B406000AC126E4B406100
```

```
*Aug 17 17:21:15.921:
```

```
*Aug 17 17:21:15.921: H245 FS OLC INCOMING PDU ::=
```

```
value OpenLogicalChannel ::=
```

```
{  
    forwardLogicalChannelNumber 1  
    forwardLogicalChannelParameters  
    {  
        dataType audioData : g711Ulaw64k : 20  
        multiplexParameters h2250LogicalChannelParameters :  
        {  
            sessionID 1  
            mediaChannel unicastAddress : ipAddress :  
            {  
                network 'AC126E4B'H  
                tsapIdentifier 16480  
            }  
        }  
    }  
}
```

```
mediaControlChannel unicastAddress : ipAddress :  
  
  {  
  
    network 'AC126E4B'H  
  
    tsapIdentifier 16481  
  
  }  
  
  silenceSuppression FALSE  
  
}  
  
}
```

GW向網守傳送資訊請求響應(IRR)

*Aug 17 17:21:15.925: H225 NONSTD OUTGOING PDU ::=

value IRRperCallnonStandardInfo ::=

```
{  
  
  startTime 1187371275  
  
}
```

*Aug 17 17:21:15.925: H225 NONSTD OUTGOING ENCODE BUFFER ::= 7046C5D90B

*Aug 17 17:21:15.925:

*Aug 17 17:21:15.925: RAS OUTGOING PDU ::=

value RasMessage ::= infoRequestResponse :

```
{  
  
  requestSeqNum 15288  
  
  endpointType  
  
  {  
  
    vendor  
  
    {  
  
      vendor
```

```
{
  t35CountryCode 181
  t35Extension 0
  manufacturerCode 18
}
}
gateway
{
  protocol
  {
    voice :
    {
      supportedPrefixes
      {
        {
          prefix dialedDigits : "1#"
        }
      }
    },
    h323 :
    {
      supportedPrefixes
      {
        }
      }
    }
  }
  mc FALSE
  undefinedNode FALSE
}
endpointIdentifier {"84B3CC1C00000004"}
rasAddress ipAddress :
```

```
{
  ip '0E32C90B'H
  port 50363
}
callSignalAddress
{
  ipAddress :
  {
    ip '0E32C90B'H
    port 1720
  }
}
endpointAlias
{
  h323-ID : {"PSTN-GW"}
}
perCallInfo
{
  {
    nonStandardData
    {
      nonStandardIdentifier h221NonStandard :
      {
        t35CountryCode 181
        t35Extension 0
        manufacturerCode 18
      }
      data '7046C5D90B'H
    }
    callReferenceValue 67
    conferenceID '182F29914C1D11DC800A0017E0ABA838'H
  }
}
```

```
originator TRUE

h245

{

}

callSignaling

{

}

callType pointToPoint : NULL

bandwidth 1280

callModel direct : NULL

callIdentifier

{

  guid '182FC5B94C1D11DC8298DF9092AE2C6A'H

}

substituteConfIDs

{

}

usageInformation

{

  nonStandardUsageFields

  {

  }

  connectTime 1187371275

}

}

}

needResponse FALSE

unsolicited TRUE

}
```

[GW建立與CVP的H245 TCP連線，並向CVP傳送終端功能集\(TCS\)和主從確定消息](#)

```
value MultimediaSystemControlMessage ::= request : terminalCapabilitySet :
{
  sequenceNumber 1
  protocolIdentifier { 0 0 8 245 0 7 }
  multiplexCapability h2250Capability :
  {
    maximumAudioDelayJitter 20
    receiveMultipointCapability
    {
      multicastCapability FALSE
      multiUniCastConference FALSE
      mediaDistributionCapability
      {
        {
          centralizedControl FALSE
          distributedControl FALSE
          centralizedAudio FALSE
          distributedAudio FALSE
          centralizedVideo FALSE
          distributedVideo FALSE
        }
      }
    }
    transmitMultipointCapability
    {
      multicastCapability FALSE
      multiUniCastConference FALSE
      mediaDistributionCapability
      {
```

```
{
    centralizedControl FALSE
    distributedControl FALSE
    centralizedAudio FALSE
    distributedAudio FALSE
    centralizedVideo FALSE
    distributedVideo FALSE
}
}
}
receiveAndTransmitMultipointCapability
{
    multicastCapability FALSE
    multiUniCastConference FALSE
    mediaDistributionCapability
    {
        {
            centralizedControl FALSE
            distributedControl FALSE
            centralizedAudio FALSE
            distributedAudio FALSE
            centralizedVideo FALSE
            distributedVideo FALSE
        }
    }
}
mcCapability
{
    centralizedConferenceMC FALSE
    decentralizedConferenceMC FALSE
}
```

```
rtcpVideoControlCapability FALSE

mediaPacketizationCapability
{
    h261aVideoPacketization FALSE
}

logicalChannelSwitchingCapability FALSE

t120DynamicPortCapability FALSE
}

capabilityTable
{

    {
        capabilityTableEntryNumber 34
        capability receiveRTPAudioTelephonyEventCapability :
        {
            dynamicRTPPayloadType 101
            audioTelephoneEvent "0-16"
        }
    },
    {
        capabilityTableEntryNumber 25
        capability receiveAndTransmitDataApplicationCapability :
        {
            application nonStandard :
            {
                nonStandardIdentifier h221NonStandard :
                {
                    t35CountryCode 181
                    t35Extension 0
                    manufacturerCode 18
                }
            }
            data '52747044746D66526556C6179'H
        }
    }
}
```



```
    }
    maxBitRate 0
  }
},
{
  capabilityTableEntryNumber 31
  capability receiveUserInputCapability : hookflash : NULL
},
{
  capabilityTableEntryNumber 30
  capability receiveUserInputCapability : dtmf : NULL
},
{
  capabilityTableEntryNumber 27
  capability receiveUserInputCapability : basicString : NULL
},
{
  capabilityTableEntryNumber 3
  capability receiveAudioCapability : g711Ulaw64k : 20
}
}
capabilityDescriptors
{
  {
    capabilityDescriptorNumber 1
    simultaneousCapabilities
    {
      {
        3
      },
    }
  }
}
```

```
    {
      34,
      30,
      27,
      25
    },

    {
      31
    }
  }
}
}
```

```
*Aug 17 17:21:15.961: H245 MSC OUTGOING ENCODE BUFFER ::=
027001060008817500078013800014000100000100000100000CC0010
00100058000218A061404302D31368000184810B50000120C52747044
746D6652656C6179000080001E83015080001D83014080001A8301108
0000220C01300800102000002030021001D001A001800001E
```

```
*Aug 17 17:21:15.961:
```

```
*Aug 17 17:21:15.961: //229/182F2991800A/H323/h245_cap_out_set_new_state:
changing from IDLE state to AWAITING_RESPONSE state
```

```
*Aug 17 17:21:15.961: //229/182F2991800A/H323/cch323_run_h245_ms_sm:
Received event H245_EVENT_MSD while at state H245_MS_NONE
```

```
*Aug 17 17:21:15.961: H245 MSC OUTGOING PDU ::=
```

```
value MultimediaSystemControlMessage ::= request : masterSlaveDetermination :
{
  terminalType 60
  statusDeterminationNumber 9348
}
```

[GW接收来自CVP的TCS和MSD消息](#)

*Aug 17 17:21:15.965: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= request : terminalCapabilitySet :  
  
  {  
  
    sequenceNumber 1  
  
    protocolIdentifier { 0 0 8 245 0 11 }  
  
    capabilityTable  
  
    {  
  
      {  
  
        capabilityTableEntryNumber 1  
  
        capability receiveAndTransmitAudioCapability : g711Ulaw64k : 20  
  
      },  
  
      {  
  
        capabilityTableEntryNumber 2  
  
        capability receiveAndTransmitUserInputCapability : basicString : NULL  
  
      },  
  
      {  
  
        capabilityTableEntryNumber 3  
  
        capability receiveAndTransmitUserInputCapability : dtmf : NULL  
  
      },  
  
      {  
  
        capabilityTableEntryNumber 4  
  
        capability receiveAndTransmitUserInputCapability : hookflash : NULL  
  
      },  
  
      {  
  
        capabilityTableEntryNumber 5  
  
        capability receiveAndTransmitUserInputCapability : ia5String : NULL  
  
      },  
  
      {  
  
        capabilityTableEntryNumber 729
```

```
    capability receiveAndTransmitAudioCapability : g729 : 2
  }
}
capabilityDescriptors
{
  {
    capabilityDescriptorNumber 1
    simultaneousCapabilities
    {
      {
        1,
        2,
        3,
        4,
        5,
        729
      },
      {
        1,
        729
      },
      {
        1
      }
    }
  }
}
```

*Aug 17 17:21:15.969: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= request : masterSlaveDetermination :  
  
  {  
  
    terminalType 50  
  
    statusDeterminationNumber 767617  
  
  }
```

[輸入GW將TCS Ack和MSD Ack傳送到CVP](#)

*Aug 17 17:21:15.969: H245 MSC OUTGOING PDU ::=

```
value MultimediaSystemControlMessage ::= response : terminalCapabilitySetAck :  
  
  {  
  
    sequenceNumber 1  
  
  }
```

*Aug 17 17:21:15.969: //229/182F2991800A/H323/MSDetermination:
Am MASTER, ccb->h245.h245_mdStatus = 0x1

*Aug 17 17:21:15.969: H245 MSC OUTGOING PDU ::=

```
value MultimediaSystemControlMessage ::= response : masterSlaveDeterminationAck :  
  
  {  
  
    decision slave : NULL  
  
  }
```

[輸入GW接收來自CVP的TCS和MSD ACK](#)

*Aug 17 17:21:15.973: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= response : terminalCapabilitySetAck :  
  
  {  
  
    sequenceNumber 1  
  
  }
```

```
*Aug 17 17:21:15.973: h245_decode_one_pdu: H245ASNDecodePdu rc = 0, bytesLeftToDecode = 0
*Aug 17 17:21:15.973: h245_decode_one_pdu: Read Pkt body: more_pdus:0 rc:0 asn_rc:0
*Aug 17 17:21:15.973: //229/182F2991800A/H323/cch323_run_h245_cap_out_sm:
Received H245_EVENT_CAP_CFM while at state AWAITING_RESPONSE
*Aug 17 17:21:15.973: //229/182F2991800A/H323/h245_cap_out_set_new_state:
changing from AWAITING_RESPONSE state to IDLE state
*Aug 17 17:21:15.973: //229/182F2991800A/H323/run_h245_iwf_sm:
received IWF_EV_CAP_CFM while at state IWF_AWAIT_CAP_MSD_RESP
*Aug 17 17:21:15.977: //229/182F2991800A/H323/h245_iwf_set_new_state:
changing from IWF_AWAIT_CAP_MSD_RESP state to IWF_AWAIT_MSD_RESP state
*Aug 17 17:21:15.977: h323chan_chn_process_read_socket
*Aug 17 17:21:15.977: h323chan_chn_process_read_socket: fd=4 of type CONNECTED has data
*Aug 17 17:21:15.977: h323chan_chn_process_read_socket: h323chan accepted/connected fd=4

*Aug 17 17:21:15.977: h245_decode_one_pdu: more_pdus = 0, bytesLeftToDecode = 2
*Aug 17 17:21:15.977: H245 MSC INCOMING ENCODE BUFFER ::= 2080
*Aug 17 17:21:15.977:
*Aug 17 17:21:15.977: H245 MSC INCOMING PDU ::=
```

```
value MultimediaSystemControlMessage ::= response : masterSlaveDeterminationAck :
{
    decision master : NULL
}
```

[現在，CVP將媒體連線重定向到VXML網關。輸入GW從CVP接收空TCS](#)

```
*Aug 17 17:21:15.985: H245 MSC INCOMING PDU ::=
```

```
value MultimediaSystemControlMessage ::= request : terminalCapabilitySet :
{
    sequenceNumber 2
    protocolIdentifier { 0 0 8 245 0 11 }
}
```

輸入GW通過向CVP傳送CloseLogicalChannel(CLC)來關閉其邏輯通道

*Aug 17 17:21:15.985: H245 MSC OUTGOING PDU ::=

```
value MultimediaSystemControlMessage ::= request : closeLogicalChannel :  
  
  {  
  
    forwardLogicalChannelNumber 1  
  
    source user : NULL  
  
  }
```

輸入GW將TCS ACK傳送到CVP

*Aug 17 17:21:15.985: H245 MSC OUTGOING ENCODE BUFFER::= 0400000000

*Aug 17 17:21:15.985:

*Aug 17 17:21:15.985: //229/182F2991800A/H323/h245_olc_out_set_new_state:
Changing from H245_OLC_OUT_STATE_ESTABLISHED state to H245_OLC_OUT_STATE_IDLE state

*Aug 17 17:21:15.985: //229/182F2991800A/H323/h245_iwf_set_new_state:
changing from IWF_OLC_DONE state to IWF_OLC_IN_DONE state

*Aug 17 17:21:15.985: //229/182F2991800A/H323/cch323_run_h245_cap_in_sm:
Received H245_EVENT_CAP_RESP while at state AWAITING_RESPONSE

*Aug 17 17:21:15.985: H245 MSC OUTGOING PDU ::=

```
value MultimediaSystemControlMessage ::= response : terminalCapabilitySetAck :  
  
  {  
  
    sequenceNumber 2  
  
  }
```

輸入GW將頻寬要求傳送到閘道管理員，以便更新用於通話的當前頻寬(零)

*Aug 17 17:21:15.985: H245 MSC OUTGOING ENCODE BUFFER::= 218002

*Aug 17 17:21:15.985:

*Aug 17 17:21:15.985: //229/182F2991800A/H323/h245_cap_in_set_new_state:
changing from AWAITING_RESPONSE state to IDLE state

*Aug 17 17:21:15.989: RAS OUTGOING PDU ::=

```
value RasMessage ::= bandwidthRequest :  
  
  {
```

```
requestSeqNum 15289
endpointIdentifier {"84B3CC1C00000004"}
conferenceID '182F29914C1D11DC800A0017E0ABA838'H
callReferenceValue 67
bandWidth 0
callIdentifier
{
  guid '182FC5B94C1D11DC8298DF9092AE2C6A'H
}
answeredCall FALSE
}
```

[CVP通過將CLC傳送到輸入GW來關閉其邏輯通道](#)

*Aug 17 17:21:15.989: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= request : closeLogicalChannel :
{
  forwardLogicalChannelNumber 129
  source user : NULL
  reason unknown : NULL
}
```

*Aug 17 17:21:15.989: h245_decode_one_pdu: H245ASNDecodePdu rc = 0, bytesLeftToDecode = 0

*Aug 17 17:21:15.989: h245_decode_one_pdu: Read Pkt body: more_pdus:0 rc:0 asn_rc:0

*Aug 17 17:21:15.989: H245 MSC OUTGOING PDU ::=

```
value MultimediaSystemControlMessage ::= response : closeLogicalChannelAck :
{
  forwardLogicalChannelNumber 129
}
```

[輸入GW從CVP接收TCS和MSD。此TCS提供有關VXML網關的終端功能的資訊](#)

*Aug 17 17:21:16.129: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= request : terminalCapabilitySet :
{
  sequenceNumber 3
  protocolIdentifier { 0 0 8 245 0 11 }
  multiplexCapability h2250Capability :
  {
    maximumAudioDelayJitter 20
    receiveMultipointCapability
    {
      multicastCapability FALSE
      multiUniCastConference FALSE
      mediaDistributionCapability
      {
        {
          centralizedControl FALSE
          distributedControl FALSE
          centralizedAudio FALSE
          distributedAudio FALSE
          centralizedVideo FALSE
          distributedVideo FALSE
        }
      }
    }
    transmitMultipointCapability
    {
      multicastCapability FALSE
      multiUniCastConference FALSE
      mediaDistributionCapability
```

```
{

  {

    centralizedControl FALSE

    distributedControl FALSE

    centralizedAudio FALSE

    distributedAudio FALSE

    centralizedVideo FALSE

    distributedVideo FALSE

  }

}

receiveAndTransmitMultipointCapability

{

  multicastCapability FALSE

  multiUniCastConference FALSE

  mediaDistributionCapability

  {

    {

      centralizedControl FALSE

      distributedControl FALSE

      centralizedAudio FALSE

      distributedAudio FALSE

      centralizedVideo FALSE

      distributedVideo FALSE

    }

  }

}

mcCapability

{

  centralizedConferenceMC FALSE
```

```

    decentralizedConferenceMC FALSE
}
rtcpVideoControlCapability FALSE
mediaPacketizationCapability
{
    h261aVideoPacketization FALSE
}
logicalChannelSwitchingCapability FALSE
t120DynamicPortCapability FALSE
}
capabilityTable
{
    {
        capabilityTableEntryNumber 34
        capability receiveRTPAudioTelephonyEventCapability :
        {
            dynamicRTPPayloadType 101
            audioTelephoneEvent "0-16"
        }
    },
    {
        capabilityTableEntryNumber 31
        capability receiveUserInputCapability : hookflash : NULL
    },
    {
        capabilityTableEntryNumber 30
        capability receiveUserInputCapability : dtmf : NULL
    },
    {
        capabilityTableEntryNumber 27
        capability receiveUserInputCapability : basicString : NULL
    }
}

```

```
},
{
    capabilityTableEntryNumber 3
    capability receiveAudioCapability : g711Ulaw64k : 20
}
}
capabilityDescriptors
{
    {
        capabilityDescriptorNumber 1
        simultaneousCapabilities
        {
            {
                3
            },
            {
                34,
                30,
                27
            },
            {
                31
            }
        }
    }
}
```

[輸入GW將其TCS和MSD傳送到CVP](#)

*Aug 17 17:21:16.141: H245 MSC OUTGOING PDU ::=

value MultimediaSystemControlMessage ::= request : terminalCapabilitySet :

```
{
  sequenceNumber 2
  protocolIdentifier { 0 0 8 245 0 7 }
  multiplexCapability h2250Capability :
  {
    maximumAudioDelayJitter 20
    receiveMultipointCapability
    {
      multicastCapability FALSE
      multiUniCastConference FALSE
      mediaDistributionCapability
      {
        {
          centralizedControl FALSE
          distributedControl FALSE
          centralizedAudio FALSE
          distributedAudio FALSE
          centralizedVideo FALSE
          distributedVideo FALSE
        }
      }
    }
    transmitMultipointCapability
    {
      multicastCapability FALSE
      multiUniCastConference FALSE
      mediaDistributionCapability
```

```
{

  {

    centralizedControl FALSE

    distributedControl FALSE

    centralizedAudio FALSE

    distributedAudio FALSE

    centralizedVideo FALSE

    distributedVideo FALSE

  }

}

receiveAndTransmitMultipointCapability

{

  multicastCapability FALSE

  multiUniCastConference FALSE

  mediaDistributionCapability

  {

    {

      centralizedControl FALSE

      distributedControl FALSE

      centralizedAudio FALSE

      distributedAudio FALSE

      centralizedVideo FALSE

      distributedVideo FALSE

    }

  }

}

mcCapability

{

  centralizedConferenceMC FALSE
```

```
    decentralizedConferenceMC FALSE
}
rtcpVideoControlCapability FALSE
mediaPacketizationCapability
{
    h261aVideoPacketization FALSE
}
logicalChannelSwitchingCapability FALSE
t120DynamicPortCapability FALSE
}
capabilityTable
{
    {
        capabilityTableEntryNumber 34
        capability receiveRTPAudioTelephonyEventCapability :
        {
            dynamicRTPPayloadType 101
            audioTelephoneEvent "0-16"
        }
    },
    {
        capabilityTableEntryNumber 25
        capability receiveAndTransmitDataApplicationCapability :
        {
            application nonStandard :
            {
                nonStandardIdentifier h221NonStandard :
                {
                    t35CountryCode 181
                    t35Extension 0
                    manufacturerCode 18
                }
            }
        }
    }
}
```

```
    }
    data '52747044746D6652656C6179'H
  }
  maxBitRate 0
}
},
{
  capabilityTableEntryNumber 31
  capability receiveUserInputCapability : hookflash : NULL
},
{
  capabilityTableEntryNumber 30
  capability receiveUserInputCapability : dtmf : NULL
},
{
  capabilityTableEntryNumber 27
  capability receiveUserInputCapability : basicString : NULL
},
{
  capabilityTableEntryNumber 3
  capability receiveAudioCapability : g711Ulaw64k : 20
}
}
capabilityDescriptors
{
  {
    capabilityDescriptorNumber 1
    simultaneousCapabilities
    {
      {
```



```
    3
  },
  {
    34,
    30,
    27,
    25
  },
  {
    31
  }
}
}
}
}
```

```
*Aug 17 17:21:16.149: H245 MSC OUTGOING ENCODE BUFFER ::=
027002060008817500078013800014000100000100000100000CC0010
00100058000218A061404302D31368000184810B50000120C52747044
746D6652656C6179000080001E83015080001D83014080001A8301108
0000220C01300800102000002030021001D001A001800001E
```

```
*Aug 17 17:21:16.149:
```

```
*Aug 17 17:21:16.149: //229/182F2991800A/H323/h245_cap_out_set_new_state:
changing from IDLE state to AWAITING_RESPONSE state
```

```
*Aug 17 17:21:16.149: //229/182F2991800A/H323/cch323_run_h245_ms_sm:
Received event H245_EVENT_MSD while at state H245_MS_NONE
```

```
*Aug 17 17:21:16.149: H245 MSC OUTGOING PDU ::=
```

```
value MultimediaSystemControlMessage ::= request : masterSlaveDetermination :
```

```
{
  terminalType 60
```

statusDeterminationNumber 3855

}

輸入GW將MSD確認和TCS確認傳送到CVP

*Aug 17 17:21:16.153: H245 MSC OUTGOING PDU ::=

value MultimediaSystemControlMessage ::= response : masterSlaveDeterminationAck :

{

decision slave : NULL

}

*Aug 17 17:21:16.153: H245 MSC OUTGOING ENCODE BUFFER::= 20A0

*Aug 17 17:21:16.153:

*Aug 17 17:21:16.153: //229/182F2991800A/H323/cch323_run_h245_ms_sm:
MS_Determine_indication to Appl: Sent MSD ACK!

*Aug 17 17:21:16.153: //229/182F2991800A/H323/h245_ms_set_new_state:
Changing from H245_MS_OUTGOING_WAIT state to H245_MS_INCOMING_WAIT state

*Aug 17 17:21:16.153: //229/182F2991800A/H323/run_h245_iwf_sm:
received IWF_EV_MSD_ACK_SENT while at state IWF_AWAIT_MSD_RESP

*Aug 17 17:21:16.153: //229/182F2991800A/H323/h245_iwf_common_msacksent:
Negotiated codecs and dtmf are initialised in ccb

*Aug 17 17:21:16.153: h323chan_chn_process_read_socket

*Aug 17 17:21:16.153: h323chan_chn_process_read_socket: fd=4 of type CONNECTED has data

*Aug 17 17:21:16.153: h323chan_chn_process_read_socket: h323chan accepted/connected fd=4

*Aug 17 17:21:16.153: h245_decode_one_pdu: more_pdus = 0, bytesLeftToDecode = 3

*Aug 17 17:21:16.153: H245 MSC INCOMING ENCODE BUFFER::= 218002

*Aug 17 17:21:16.153:

*Aug 17 17:21:16.153: H245 MSC INCOMING PDU ::=

value MultimediaSystemControlMessage ::= response : terminalCapabilitySetAck :

{

sequenceNumber 2

}

輸入GW將BRQ傳送到閘道管理員，以便更新呼叫使用的目前頻寬(2*64=128 kbps)

*Aug 17 17:21:16.157: RAS OUTGOING PDU ::=

value RasMessage ::= bandwidthRequest :

{

requestSeqNum 15290

endpointIdentifier {"84B3CC1C00000004"}

conferenceID '182F29914C1D11DC800A0017E0ABA838'H

callReferenceValue 67

bandWidth 1280

callIdentifier

{

guid '182FC5B94C1D11DC8298DF9092AE2C6A'H

}

answeredCall FALSE

}

*Aug 17 17:21:16.173: RAS INCOMING PDU ::=

value RasMessage ::= bandwidthConfirm :

{

requestSeqNum 15290

bandWidth 1280

}

輸入GW將OLC請求傳送到CVP

*Aug 17 17:21:16.173: H245 MSC OUTGOING PDU ::=

value MultimediaSystemControlMessage ::= request : openLogicalChannel :

{

forwardLogicalChannelNumber 2

```

forwardLogicalChannelParameters
{
  dataType audioData : g711Ulaw64k : 20
  multiplexParameters h2250LogicalChannelParameters :
  {
    sessionID 1
    mediaControlChannel unicastAddress : ipAddress :
    {
      network '0E32C90B'H
      tsapIdentifier 18491
    }
    silenceSuppression FALSE
  }
}
}

```

[輸入GW從CVP接收OLC。CVP為RTCP連線提供VXML網關的IP地址](#)

*Aug 17 17:21:16.177: H245 MSC INCOMING PDU ::=

```

value MultimediaSystemControlMessage ::= request : openLogicalChannel :
{
  forwardLogicalChannelNumber 258
  forwardLogicalChannelParameters
  {
    dataType audioData : g711Ulaw64k : 20
    multiplexParameters h2250LogicalChannelParameters :
    {
      sessionID 1
      mediaControlChannel unicastAddress : ipAddress :
      {
        network '0E32C90F'H
        tsapIdentifier 21135
      }
    }
  }
}

```

```
    }
  }
}
}
```

GW將OLC Ack響應傳送到CVP

*Aug 17 17:21:16.181: H245 MSC OUTGOING PDU ::=

```
value MultimediaSystemControlMessage ::= response : openLogicalChannelAck :
{
  forwardLogicalChannelNumber 258
  forwardMultiplexAckParameters h2250LogicalChannelAckParameters :
  {
    mediaChannel unicastAddress : ipAddress :
    {
      network '0E32C90B'H
      tsapIdentifier 18490
    }
    mediaControlChannel unicastAddress : ipAddress :
    {
      network '0E32C90B'H
      tsapIdentifier 18491
    }
    flowControlToZero FALSE
  }
}
```

GW從CVP接收OLC Ack。CVP提供用於RTP連線的VXML網關的IP地址。在輸入GW和VXML GW之間建立了RTP連線

*Aug 17 17:21:16.185: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= response : openLogicalChannelAck :
{
```

```
forwardLogicalChannelNumber 2

forwardMultiplexAckParameters h2250LogicalChannelAckParameters :
{
  sessionID 1

  mediaChannel unicastAddress : ipAddress :
  {
    network '0E32C90F'H
    tsapIdentifier 21134
  }

  mediaControlChannel unicastAddress : ipAddress :
  {
    network '0E32C90F'H
    tsapIdentifier 21135
  }
}
}
```

[網關檢測DTMF數字「1」，並通過基於RTP NTE\(RFC 2833\)的DTMF中繼事件將其傳送到VXML GW](#)

```
s=DSP d=VoIP payload 0x65 ssrc 0x1D5E sequence 0x2543 timestamp 0x16EE0
Pt:101 Evt:1 Pkt:03 00 00 <Snd>>>

s=DSP d=VoIP payload 0x65 ssrc 0x1D5E sequence 0x2544 timestamp 0x16EE0
Pt:101 Evt:1 Pkt:03 00 00 <Snd>>>

s=DSP d=VoIP payload 0x65 ssrc 0x1D5E sequence 0x2545 timestamp 0x16EE0
Pt:101 Evt:1 Pkt:03 00 00 <Snd>>>

s=DSP d=VoIP payload 0x65 ssrc 0x1D5E sequence 0x2546 timestamp 0x16EE0
Pt:101 Evt:1 Pkt:03 01 90 <Snd>>>

s=DSP d=VoIP payload 0x65 ssrc 0x1D5E sequence 0x2547 timestamp 0x16EE0
Pt:101 Evt:1 Pkt:03 03 20 <Snd>>>

s=DSP d=VoIP payload 0x65 ssrc 0x1D5E sequence 0x2548 timestamp 0x16EE0
Pt:101 Evt:1 Pkt:83 03 38 <Snd>>>

s=DSP d=VoIP payload 0x65 ssrc 0x1D5E sequence 0x2549 timestamp 0x16EE0
Pt:101 Evt:1 Pkt:83 03 38 <Snd>>>
```

s=DSP d=VoIP payload 0x65 ssrc 0x1D5E sequence 0x254A timestamp 0x16EE0

Pt:101 Evt:1 Pkt:83 03 38 <Snd>>

現在，CVP將呼叫重定向到應答該呼叫的座席IP電話。GW接收空TCS

*Aug 17 17:22:05.349: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= request : terminalCapabilitySet :  
  
  {  
  
    sequenceNumber 4  
  
    protocolIdentifier { 0 0 8 245 0 11 }  
  
  }
```

輸入GW從CVP接收TCS和MSD。此TCS提供有關IP電話的終端功能的資訊

*Aug 17 17:22:09.569: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= request : terminalCapabilitySet :  
  
  {  
  
    sequenceNumber 5  
  
    protocolIdentifier { 0 0 8 245 0 11 }  
  
    multiplexCapability h2250Capability :  
  
    {  
  
      maximumAudioDelayJitter 60  
  
      receiveMultipointCapability  
  
      {  
  
        multicastCapability FALSE  
  
        multiUniCastConference FALSE  
  
        mediaDistributionCapability  
  
        {  
  
          {  
  
            centralizedControl FALSE  
  
            distributedControl FALSE
```

```
        centralizedAudio FALSE
        distributedAudio FALSE
        centralizedVideo FALSE
        distributedVideo FALSE
    }
}
}
transmitMultipointCapability
{
    multicastCapability FALSE
    multiUniCastConference FALSE
    mediaDistributionCapability
    {
        {
            centralizedControl FALSE
            distributedControl FALSE
            centralizedAudio FALSE
            distributedAudio FALSE
            centralizedVideo FALSE
            distributedVideo FALSE
        }
    }
}
receiveAndTransmitMultipointCapability
{
    multicastCapability FALSE
    multiUniCastConference FALSE
    mediaDistributionCapability
    {
        {
```



```
        centralizedControl FALSE
        distributedControl FALSE
        centralizedAudio FALSE
        distributedAudio FALSE
        centralizedVideo FALSE
        distributedVideo FALSE
    }
}
}
mcCapability
{
    centralizedConferenceMC FALSE
    decentralizedConferenceMC FALSE
}
rtcpVideoControlCapability FALSE
mediaPacketizationCapability
{
    h261aVideoPacketization FALSE
}
logicalChannelSwitchingCapability FALSE
t120DynamicPortCapability FALSE
}
capabilityTable
{
    {
        capabilityTableEntryNumber 1
        capability receiveAudioCapability : g711Ulaw64k : 40
    },
    {
        capabilityTableEntryNumber 2
        capability receiveAndTransmitUserInputCapability : dtmf : NULL
    }
}
```

```
    },
    {
        capabilityTableEntryNumber 3
        capability receiveAndTransmitUserInputCapability : basicString : NULL
    },
    {
        capabilityTableEntryNumber 44
        capability receiveAndTransmitUserInputCapability : hookflash : NULL
    }
}
capabilityDescriptors
{
    {
        capabilityDescriptorNumber 0
        simultaneousCapabilities
        {
            {
                1
            },
            {
                2,
                3
            },
            {
                44
            }
        }
    }
}
```

```
}
```

```
}
```

```
*Aug 17 17:22:09.589: H245 MSC INCOMING PDU ::=
```

```
value MultimediaSystemControlMessage ::= request : masterSlaveDetermination :
```

```
{
```

```
terminalType 50
```

```
statusDeterminationNumber 767617
```

```
}
```

[輸入GW從CVP接收OLC。CVP為RTCP連線提供CallManager的IP地址](#)

```
*Aug 17 17:22:09.597: H245 MSC INCOMING PDU ::=
```

```
value MultimediaSystemControlMessage ::= request : openLogicalChannel :
```

```
{
```

```
forwardLogicalChannelNumber 259
```

```
forwardLogicalChannelParameters
```

```
{
```

```
dataType audioData : g711Ulaw64k : 20
```

```
multiplexParameters h2250LogicalChannelParameters :
```

```
{
```

```
sessionID 1
```

```
mediaControlChannel unicastAddress : ipAddress :
```

```
{
```

```
network 'AC126E54'H
```

```
tsapIdentifier 4001
```

```
}
```

```
}
```

```
}
```

```
}
```

[GW將OLC Ack響應傳送到CVP](#)

*Aug 17 17:22:09.613: H245 MSC OUTGOING PDU ::=

value MultimediaSystemControlMessage ::= response : openLogicalChannelAck :

```
{
  forwardLogicalChannelNumber 259
  forwardMultiplexAckParameters h2250LogicalChannelAckParameters :
  {
    mediaChannel unicastAddress : ipAddress :
    {
      network '0E32C90B'H
      tsapIdentifier 18490
    }
    mediaControlChannel unicastAddress : ipAddress :
    {
      network '0E32C90B'H
      tsapIdentifier 18491
    }
    flowControlToZero FALSE
  }
}
```

[GW從CVP接收OLC Ack。CVP提供用於RTP連線的座席IP電話的IP地址。輸入GW和IP電話之間的RTP連線已建立](#)

*Aug 17 17:22:09.609: H245 MSC OUTGOING PDU ::=

value MultimediaSystemControlMessage ::= request : openLogicalChannel :

```
{
  forwardLogicalChannelNumber 3
  forwardLogicalChannelParameters
  {
    dataType audioData : g711Ulaw64k : 20
    multiplexParameters h2250LogicalChannelParameters :
    {
```

```
sessionID 1

mediaControlChannel unicastAddress : ipAddress :

{

    network '0E32C90B'H

    tsapIdentifier 18491

}

silenceSuppression FALSE

}

}

}
```

*Aug 17 17:22:09.633: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= response : openLogicalChannelAck :

{

    forwardLogicalChannelNumber 3

    forwardMultiplexAckParameters h2250LogicalChannelAckParameters :

    {

        sessionID 1

        mediaChannel unicastAddress : ipAddress :

        {

            network '0E32CA1A'H

            tsapIdentifier 17156

        }

        mediaControlChannel unicastAddress : ipAddress :

        {

            network '0E32CA1A'H

            tsapIdentifier 17157

        }

    }

}
```

完成與座席的對話後，PSTN呼叫方會掛斷呼叫。輸入GW從PSTN接收ISDN斷開連線

*Aug 17 17:22:56.329: ISDN Se1/0/0:23 Q931: RX <- DISCONNECT pd = 8 callref = 0x0088

Cause i = 0x8290 - Normal call clearing

*Aug 17 17:22:56.329: %ISDN-6-DISCONNECT: Interface Serial1/0/0:0 disconnected from 9999 , call lasted 100 seconds

*Aug 17 17:22:56.333: ISDN Se1/0/0:23 Q931: TX -> RELEASE pd = 8 callref = 0x8088

*Aug 17 17:22:56.333: //228/182F2991800A/CCAPI/cc_api_call_disconnected:

Cause Value=16, Interface=0x46964DF8, Call Id=228

*Aug 17 17:22:56.333: //228/182F2991800A/CCAPI/cc_api_call_disconnected:

Call Entry(Responded=TRUE, Cause Value=16, Retry Count=0)

[輸入GW通過向CVP傳送H225 Release Complete消息來終止IP支路上的H323呼叫](#)

*Aug 17 17:22:56.337: H225.0 OUTGOING PDU ::=

value H323_UserInformation ::=

```
{
  h323-uu-pdu
  {
    h323-message-body releaseComplete :
    {
      protocolIdentifier { 0 0 8 2250 0 4 }
      callIdentifier
      {
        guid '182FC5B94C1D11DC8298DF9092AE2C6A'H
      }
    }
    h245Tunneling FALSE
    nonStandardControl
    {
      {
        nonStandardIdentifier h221NonStandard :
        {
```

```

    t35CountryCode 181
    t35Extension 0
    manufacturerCode 18
  }
  data '6001020001082C080282901C269E810003677464...'H
}
}
tunnelledSignallingMessage
{
  tunnelledProtocolID
  {
    id tunnelledProtocolAlternateID :
    {
      protocolType "gtd"
    }
  }
  messageContent
  {
    '52454C2C0D0A50524E2C6973646E2A2C2C4E492A...'H
  }
  tunnellingRequired NULL
}
}
}

```

GW將DisengageRequest(DRQ)傳送給閘道管理員

*Aug 17 17:22:56.341: RAS OUTGOING PDU ::=

value RasMessage ::= disengageRequest :

```

{
  requestSeqNum 15295
  endpointIdentifier {"84B3CC1C00000004"}
}

```

conferenceID '182F29914C1D11DC800A0017E0ABA838'H

callReferenceValue 67

disengageReason normalDrop : NULL

nonStandardData

{

nonStandardIdentifier h221NonStandard :

{

t35CountryCode 181

t35Extension 0

manufacturerCode 18

}

data '40001A52454C2C0D0A50524E2C6973646E2A2C2C...'H

}

callIdentifier

{

guid '182FC5B94C1D11DC8298DF9092AE2C6A'H

}

answeredCall FALSE

usageInformation

{

nonStandardUsageFields

{

{

nonStandardIdentifier h221NonStandard :

{

t35CountryCode 181

t35Extension 0

manufacturerCode 18

}

data '4800'H

}


```
}  
  
connectTime 1187371275  
  
endTime 1187371375  
  
}  
  
terminationCause releaseCompleteCauseIE : '08028090'H  
  
}
```

GW和CVP之間的H245連線在CLC和EndSession命令交換後關閉

*Aug 17 17:22:56.357: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= request : closeLogicalChannel :  
  
{  
  
forwardLogicalChannelNumber 259  
  
source user : NULL  
  
reason unknown : NULL  
  
}
```

*Aug 17 17:22:56.357: h245_decode_one_pdu: H245ASNDecodePdu rc = 0, bytesLeftToDecode = 0

*Aug 17 17:22:56.357: h245_decode_one_pdu: Read Pkt body: more_pdus:0 rc:0 asn_rc:0

*Aug 17 17:22:56.357: H245 MSC OUTGOING PDU ::=

```
value MultimediaSystemControlMessage ::= response : closeLogicalChannelAck :  
  
{  
  
forwardLogicalChannelNumber 259  
  
}
```

*Aug 17 17:22:56.357: H245 MSC INCOMING PDU ::=

```
value MultimediaSystemControlMessage ::= command : endSessionCommand : disconnect : NULL
```

*Aug 17 17:22:56.357: h245_decode_one_pdu: H245ASNDecodePdu rc = 0, bytesLeftToDecode = 0

*Aug 17 17:22:56.357: h245_decode_one_pdu: Read Pkt body: more_pdus:0 rc:0 asn_rc:0

*Aug 17 17:22:56.357: H245 MSC OUTGOING PDU ::=

value MultimediaSystemControlMessage ::= command : endSessionCommand : disconnect : NULL

[相關資訊](#)

- [語音技術支援](#)
- [語音和整合通訊產品支援](#)
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