Comunidad de Soporte de Cisco en Español Webcast en vivo:

Dimensionamiento de recursos Digital Signal Processor en Gateway de voz.

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20 de Enero del 2015

Comunidad de Soporte de Cisco – Webcast en vivo

- El experto del día de hoy es: Alexis Amaro

Ingeniero LATAM TAC México

Tema: *Dimensionamiento de recursos Digital Signal Processor en Gateway de voz.*

Panel de Expertos

Pablo González

Ingeniero LATAM TAC México

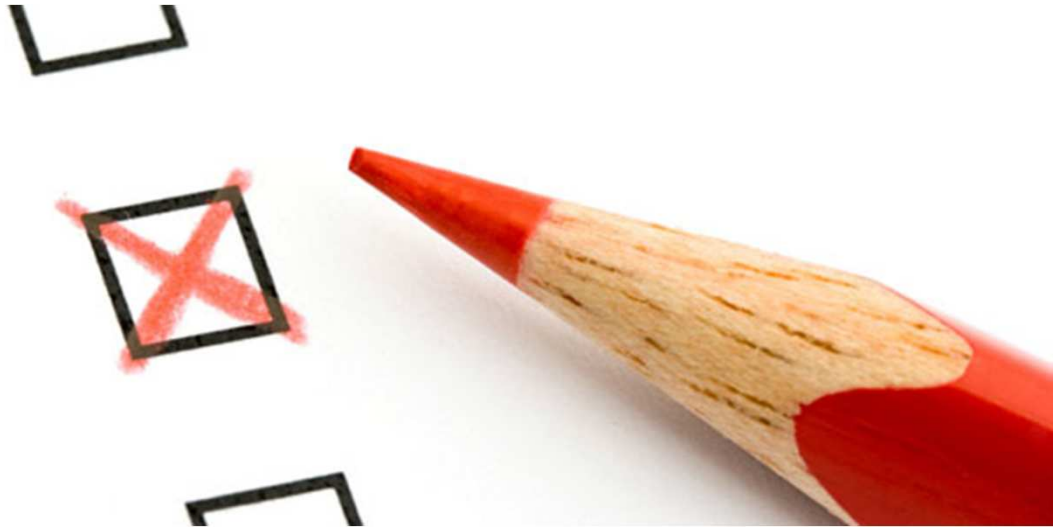
Jesús Flores

Ingeniero LATAM TAC México

Gracias por su asistencia el día de hoy

La presentación incluirá algunas preguntas a la audiencia.

Le invitamos cordialmente a participar activamente en las preguntas que le haremos durante la sesión



Slides de la presentación

Si desea obtener una copia de la presentación de hoy, finalizando el evento puede encontrarlos en:

https://supportforums.cisco.com/es/document/12399926

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Webcasts de la comunidad:

Puede encontrar los Webcast de la Comunidad de Soporte de Cisco en español en:

https://supportforums.cisco.com/es/community/Spanish

¡ Ahora puede realizar sus preguntas al panel de expertos!

Use el panel de preguntas y respuestas (Q&A) para preguntar a los expertos ahora. Ellos empezarán a responder.

Comunidad de Soporte de Cisco en Español Webcast en vivo:

Dimensionamiento de recursos Digital Signal Processor en Gateway de voz.

Alexis Amaro/ Pablo González
Ingeniero TAC/HTTS

20 de Enero del 2015

Agenda

- DSP Credits
- Codec Complexity
- Número de créditos por tipo de recurso
- PRI y Puertos analógicos

Dimensionamiento de recursos DSP

- Qué es un DSP?
- Digital Signal Processor
- Es un sistema basado en un procesador o microprocesador.
- Posee un conjunto de instrucciones, un hardware y un software optimizados para aplicaciones que requieran operaciones numéricas a muy alta velocidad.

DSP Credits

- Cada dsp/core dentro de un PVDM tiene una cantidad alojada fija llamada “créditos”.
- La capacidad del DSP dependerá de la cantidad de créditos alojados.
- Cada operación de media como, voice termination, transcoding, conferencia se le asigna un costo en terminos de créditos.
- Al asignar estos recursos los créditos son restados del total del DSP.

DSP Credits

PVDM	Número de DSP's	Créditos
PVDM3-16	1	240
PVDM3-32	1	480
PVDM3-64	2	480
PVDM3-128	3	645
PVDM3-192 (PVDM3-128 + PVDM3-64)	5	480, 645
PVDM3-256	6	645
PVDM2-8	1/2	120
PVDM2-16	1	240
PVDM2-32	2	240
PVDM2-48	3	240
PVDM2-64	4	240

Cómo determinar los créditos alojados en un DSP?

- Determinar el tipo de PVDM:
- show inventory
- show diag

- 2. Determinar el número de créditos en un DSP:
- show voice dsp group all
- show voice dsp capabilities slot <x> dsp <y>

1. Tipo de PVDM

GW1#**sh inventory**

NAME: "CISCO3925-CHASSIS", DESCR: "CISCO3925-CHASSIS"

PID: CISCO3925-CHASSIS , VID: V02, SN: FTX1546AKKZ

NAME: "Cisco Services Performance Engine 100 for Cisco 3900 ISR on Slot 0", DESCR: "Cisco Services Performance Engine 100 for Cisco 3900 ISR"

PID: C3900-SPE100/K9 , VID: V04 , SN: FOC153557CU

NAME: "PVDM3 DSP DIMM with 256 Channels on Slot 0 SubSlot 4", DESCR: "PVDM3 DSP DIMM with 256 Channels"

PID: **PVDM3-256** , VID: V01 , SN: FOC15442QRJ

NAME: "PVDM3 DSP DIMM with 256 Channels on Slot 0 SubSlot 5", DESCR: "PVDM3 DSP DIMM with 256 Channels"

PID: **PVDM3-256** , VID: V01 , SN: FOC15442QU7

NAME: "C3900 AC Power Supply 1", DESCR: "C3900 AC Power Supply 1"

PID: PWR-3900-AC , VID: V03, SN: SNI1543C90F

NAME: "C3900 AC Power Supply 2", DESCR: "C3900 AC Power Supply 2"

PID: PWR-3900-AC , VID: V03, SN: SNI1545C81E

GW1#**show diag**

PVDM Slot 0:

256-channel (G.711) Voice/Fax PVDM3 DSP DIMM
PVDM daughter card

Hardware Revision : 1.0

Part Number : 73-11812-03

Board Revision : C0

Deviation Number : 0

Fab Version : 03

PCB Serial Number : FOC15442QRJ

RMA Test History : 00

RMA Number : 0-0-0-0

RMA History : 00

Processor type : 00

PVDM	Número de DSP's	Créditos
PVDM3-256	6	645

Product (FRU) Number : PVDM3-256

Version Identifier : V01

PVDM Slot 1:

256-channel (G.711) Voice/Fax PVDM3 DSP DIMM PVDM daughter card

Hardware Revision : 1.0

Part Number : 73-11812-03

Board Revision : C0

Deviation Number : 0

Fab Version : 03

PCB Serial Number : FOC15442QU7

RMA Test History : 00

RMA Number : 0-0-0-0

RMA History : 00

Processor type : 00

Product (FRU) Number : PVDM3-256

Version Identifier : V01

2. Número de créditos

GW1#show voice dsp group all
DSP groups on slot 0:
dsp 1:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 2:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 3:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 4:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645,
Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE,
complexity: HIGH
Shared credits: 0, reserved credits:
645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

dsp 5:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 17
Group: FLEX_GROUP_VOICE, complexity: FLEX
Shared credits: 4, reserved credits: 0
Signaling channels allocated: 0
Voice channels allocated: 0
credits used (rounded-up): 0
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 549
Transcoding channels allocated: 0
credits used (rounded-up): 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 93
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

dsp 6:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all

DSP groups on slot 0:

dsp 1:

State: UP, firmware: 28.3.10

Max signal/voice channel: 43/43

Max credits: 645, Voice credits: 645, Video credit: 0

num_of_sig_chnls_allocated: 0

Transcoding channels allocated: 20

Group: FLEX_GROUP_XCODE, complexity: HIGH
        Shared credits: 0, reserved credits: 645
        Transcoding channels allocated: 0
        credits used (rounded-up): 0

Slot: 0

Device idx: 0

PVDM Slot: 0     Dsp Type: SP2600
```

- **State: UP, firmware: 28.3.10**

Estado del DSP y el firmware que tiene cargado

- **Max signal/voice channel: 43/43**

Max signal: Total de canales para usar para este DSP en particular

Voice channel: Diseñado para el total de canales para usar en este tipo de DSP basado en la alojación de créditos

GW1#show voice dsp group all
DSP groups on slot 0:
dsp 1:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 2:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 3:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 4:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

dsp 5:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 17
Group: FLEX_GROUP_VOICE, complexity: FLEX
Shared credits: 4, reserved credits: 0
Signaling channels allocated: 0
Voice channels allocated: 0
credits used (rounded-up): 0
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 549
Transcoding channels allocated: 0
credits used (rounded-up): 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 93
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

dsp 6:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

Número de canales

Número de DSP	Max signal/	Voice channel
dsp 1	43	43
dsp 2	43	43
dsp 3	43	42
dsp 4	43	43
dsp 5	43	43
dsp 6	43	42

Voice channels = dsp 1 + dsp 2 + dsp 3 + dsp 4 + dsp 5 + dsp 6

Voice channels = 43 + 43 + 42 + 43 + 43 + 42 = 256

PVDM	Número de DSP's	Créditos
PVDM3-256	6	645

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all

DSP groups on slot 0:

dsp 1:

State: UP, firmware: 28.3.10

Max signal/voice channel: 43/43

Max credits: 645, Voice credits: 645, Video credits: 0

num_of_sig_chnls_allocated: 0

Transcoding channels allocated: 20

Group: FLEX_GROUP_XCODE, complexity: HIGH
        Shared credits: 0, reserved credits: 645
        Transcoding channels allocated: 0
        credits used (rounded-up): 0

Slot: 0

Device idx: 0

PVDM Slot: 0

Dsp Type: SP2600
```

- Max credits: 645, Voice credits: 645, Video credit: 0

Max credits:
Los módulos de DSP de PVDM3 y PVDM2 utilizan el sistema de crédito. Cada módulo tiene asignado un número de “créditos” fijo que representan la capacidad de procesar media streams.

Voice credits y Video credits:
PVDM 3 es el primer set en soportar Voz y Video.

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all

DSP groups on slot 0:

dsp 1:

State: UP, firmware: 28.3.10

Max signal/voice channel: 43/43

Max credits: 645, Voice credits: 645, Video credits: 0

num_of_sig_chnls_allocated: 0

Transcoding channels allocated: 20

Group: FLEX_GROUP_XCODE, complexity: HIGH
        Shared credits: 0, reserved credits: 645
        Transcoding channels allocated: 0
        credits used (rounded-up): 0

Slot: 0

Device idx: 0

PVDM Slot: 0      Dsp Type: SP2600
```

- **num_of_sig_chnls_allocated: 0**

Número total de canales de voz que el dsp manejara. Este valor se obtiene del número máximo de créditos disponible, complejidad de codec y número de voice-ports configurados.

Codecs Soportados por PVDM3

Low Complexity	Medium Complexity	High Complexity
G.711 (a-law, mu-law) Fax Passthrough Modem Passthrough Clear channel	G.726 Fax Relay G.729A G.729AB G.722 GSMFR	G.729 G.729B G.723 G.728 Modem Relay iLBC GSMEFR

Codec Complexity

- **dspfarm (voice-card)**
- To add a specified voice card to those participating in a digital signal processor (DSP) resource pool, use the dspfarm command in voice-card configuration mode. To remove the specified card from participation in the DSP resource pool, use the no form of this command.
- **dsp services dspfarm**
- To enable digital-signal-processor (DSP) farm services for a particular voice network module, use the dsp services dspfarm command in voice card configuration mode. To disable services, use the no form of this command.

```
#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
(config)#voice-card 0
(config-voicecard)#codec complexity ?
  flex    Set codec complexity Flex.  Flex complexity, higher call density.
  high    Set codec complexity high.  High complexity, lower call density.
  medium  Set codec complexity medium.  Mid range complexity and call density.
  secure  Set codec complexity secure.
```

1ra pregunta a la audiencia

¿Qué complejidad es G729A?

a. Media
b. Baja
c. Alta

Densidad de canales por PVDM3

PVMD	Máximo # canales – Low Complexity	Máximo # canales – Medium Complexity	Máximo # canales – High Complexity
PVDM3-16	16	12	10
PVDM3-32	32	22	14
PVDM3-64	64	44	28
PVDM3-128	128	97	60
PVDM3-192	193	140	88
PVDM3-256	258	194	121

Alojación de créditos por PVDM3

PVMD	créditos – g711	créditos – Medium Complexity	créditos – High Complexity
PVDM3-16	15	20	24
PVDM3-32	15	22	34
PVDM3-64	15	22	34
PVDM3-128	15	20	32
PVDM3-192	15	20	32
PVDM3-256	15	20	32

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all

DSP groups on slot 0:

dsp 1:

State: UP, firmware: 28.3.10

Max signal/voice channel: 43/43

Max credits: 645, Voice credits: 645, Video credits: 0

num_of_sig_chnls_allocated: 0

Transcoding channels allocated: 20

Group: FLEX_GROUP_XCODE, complexity: HIGH
        Shared credits: 0, reserved credits: 645
        Transcoding channels allocated: 0
        credits used (rounded-up): 0

Slot: 0

Device idx: 0

PVDM Slot: 0    Dsp Type: SP2600
```

- num_of_sig_chnls_allocated: 0

Número total de canales de voz que el dsp manejara. Este valor se obtiene del número máximo de créditos disponible, complejidad de codec y número de voice-ports configurados.

PVDM	Número de DSP’s	créditos
PVDM3-256	6	645

Ejemplo:
FLEX Mode = Cada canal utilizará 15 créditos (g711)
645/15 = 43

Si se tienen 60 canales PRI:
dsp1 alojará 43 créditos
dsp2 alojará 17 créditos faltantes

2da pregunta a la audiencia

¿Cuál es el costo en créditos de G711a en un PVDM3-32?

a. 22
b. 20
c. 15

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all

DSP groups on slot 0:

dsp 1:

State: UP, firmware: 28.3.10

Max signal/voice channel: 43/43

Max credits: 645, Voice credits: 645, Video credits: 0

num_of_sig_chnls_allocated: 0

Transcoding channels allocated: 20

Group: FLEX_GROUP_XCODE, complexity: HIGH
      Shared credits: 0, reserved credits: 645
      Transcoding channels allocated: 0
      credits used (rounded-up): 0

Slot: 0

Device idx: 0

PVDM Slot: 0      Dsp Type: SP2600
```

- **Transcoding channels allocated: 20**

Número total de canales para transcoding. Dsp 1 en este caso tiene alojado para 20 canales.

```
dspfarm profile 1 transcode
 codec g729br8 ……..……HC
 codec g711ulaw ……..……LC
 codec g711alaw ……..……LC
 codec g729ar8 ……...MC
 codec g729abr8 ……MC
 maximum sessions 97
 associate application SCCP
```

GW1#show voice dsp group all

DSP groups on slot 0:

dsp 1:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 2:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 3:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 4:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

dsp 5:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 17
Group: FLEX_GROUP_VOICE, complexity: FLEX
Shared credits: 4, reserved credits: 0
Signaling channels allocated: 0
Voice channels allocated: 0
credits used (rounded-up): 0
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 549
Transcoding channels allocated: 0
credits used (rounded-up): 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 93
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

dsp 6:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

Número de canales para Transcoding

Número de DSP	Número de canales Transcoding
dsp 1	20
dsp 2	20
dsp 3	20
dsp 4	20
dsp 5	17
dsp 6	0

PVMD	créditos – High Complexity
PVDM3-256	32

Max credits: 645, Voice credits: 645, Video credits: 0

Número de total de transcoding channels por dsp = Max credits / HC

Número de total de transcoding channels por dsp = 645/32 = **20.15**

Para obtener 97 sesiones:
Transcoding channels = dsp 1 + dsp 2 + dsp 3 + dsp 4 + dsp 5 + dsp 6

Transcoding channels = 20 + 20 + 20 + 20 + 17 + 0 = 97

3ra pregunta a la audiencia

¿Cuántos DSP tiene un PVDM3-64?

a. 1
b. 2
c. 3

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all

DSP groups on slot 0:

dsp 1:

State: UP, firmware: 28.3.10

Max signal/voice channel: 43/43

Max credits: 645, Voice credits: 645, Video credits: 0

num_of_sig_chnls_allocated: 0

Transcoding channels allocated: 20

Group: FLEX_GROUP_XCODE, complexity: HIGH
      Shared credits: 0, reserved credits: 645
      Transcoding channels allocated: 0
      credits used (rounded-up): 0

Slot: 0

Device idx: 0

PVDM Slot: 0   Dsp Type: SP2600
```

- **Group**

Despliega el tipo de recurso del dsp a utilizar y su complejidad.

- **Shared credits: 0, reserved credits: 645**

Créditos compartidos, y créditos resevados en el dsp

- **Transcoding channels allocated: 0**

Número de canales utilizados para transcoding en tiempo real

- **credits used (rounded-up): 0**

Número de créditos utilizados para transcoding en tiempo real

GW1#show voice dsp group all
DSP groups on slot 0:

dsp 1:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 2:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 3:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 4:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 20
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 645
Transcoding channels allocated: 0
credits used (rounded-up): 0
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

dsp 5:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 17
Group: FLEX_GROUP_VOICE, complexity: FLEX
Shared credits: 4, reserved credits: 0
Signaling channels allocated: 0
Voice channels allocated: 0
credits used (rounded-up): 0
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 549
Transcoding channels allocated: 0
credits used (rounded-up): 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 93
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

dsp 6:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all
dsp 5:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 17
        Group: FLEX_GROUP_VOICE, complexity: FLEX
        Shared credits: 4, reserved credits: 0
        Signaling channels allocated: 0
        Voice channels allocated: 0
        credits used (rounded-up): 0
        Group: FLEX_GROUP_XCODE, complexity: HIGH
        Shared credits: 0, reserved credits: 549
        Transcoding channels allocated: 0
        credits used (rounded-up): 0
        Group: FLEX_GROUP_CONF, complexity: CONFERENCE
        Shared credits: 0, reserved credits: 93
        Codec: CONF_G729, maximum participants: 8
        Sessions per dsp: 7
        Conference sessions:
        Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600
```

Dsp 5 cuenta con los 3 grupos:

Group: FLEX_GROUP_VOICE, complexity: FLEX
Group: FLEX_GROUP_XCODE, complexity: HIGH
Group: FLEX_GROUP_CONF, complexity: CONFERENCE

Número de DSP	Número de canales Transcoding
dsp 5	17

Cada sesión de HC Transcoding utiliza 32 (alrededor de 32.29) créditos

17 * 32.29 = 548.93 = 549 créditos XCODE
549 - 645 = 96 créditos disponibles

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all
dsp 5:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 17
        Group: FLEX_GROUP_VOICE, complexity: FLEX
        Shared credits: 4, reserved credits: 0
        Signaling channels allocated: 0
        Voice channels allocated: 0
        credits used (rounded-up): 0
        Group: FLEX_GROUP_XCODE, complexity: HIGH
        Shared credits: 0, reserved credits: 549
        Transcoding channels allocated: 0
        credits used (rounded-up): 0
        Group: FLEX_GROUP_CONF, complexity: CONFERENCE
        Shared credits: 0, reserved credits: 93
        Codec: CONF_G729, maximum participants: 8
        Sessions per dsp: 7
        Conference sessions:
        Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600
```

Group: FLEX_GROUP_CONF, complexity: CONFERENCE

```
dspfarm profile 2 conference
 codec g711ulaw
 codec g711alaw
 codec g729ar8
 codec g729abr8
 codec g729r8
 codec g729br8
 maximum sessions 50
 associate application SCCP
```

Número de DSP	Número de créditos Conference
dsp 5	92

Entendiendo el output “show voice dsp group all”

```
GW1#show voice dsp group all
dsp 5:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 17
        Group: FLEX_GROUP_VOICE, complexity: FLEX
        Shared credits: 4, reserved credits: 0
        Signaling channels allocated: 0
        Voice channels allocated: 0
        credits used (rounded-up): 0
        Group: FLEX_GROUP_XCODE, complexity: HIGH
        Shared credits: 0, reserved credits: 549
        Transcoding channels allocated: 0
        credits used (rounded-up): 0
        Group: FLEX_GROUP_CONF, complexity: CONFERENCE
        Shared credits: 0, reserved credits: 93
        Codec: CONF_G729, maximum participants: 8
        Sessions per dsp: 7
        Conference sessions:
        Sess01: credits allocated: 92
Slot: 0
Device idx: 1
PVDM Slot: 0
Dsp Type: SP2600
```

show voice dsp capabilities slot <x> dsp <y>

#show voice dsp capabilities slot 0
DSP Type: SP2600 -43
Card 0 DSP id 5 Capabilities:
Credits 645, G711Credits 15, HC Credits 32, MC Credits 20,
FC Channel 43, HC Channel 20, MC Channel 32,
Conference 8-party credits:
G711 40 , G729 92 , G722 92 , ILBC 129

Cada conferencia 8 participantes utiliza 92 (alrededor 92.25) créditos en g729

- **Sessions per dsp: 7**

Número de sesions soportadas por el dsp asumiendo que todos los créditos estén disponibles
645 / 92 = 7

dsp 7:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Slot: 0
Device idx: 0
PVDM Slot: 1
Dsp Type: SP2600

dsp 8:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Conference sessions:
Sess01: Credits allocated: 92
Slot: 0
Device idx: 0
PVDM Slot: 1
Dsp Type: SP2600

dsp 9:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Slot: 0
Device idx: 0
PVDM Slot: 1
Dsp Type: SP2600

dsp 10:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Slot: 0
Device idx: 1
PVDM Slot: 1
Dsp Type: SP2600

dsp 11:
State: UP, firmware: 28.3.10
Max signal/voice channel: 43/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Slot: 0
Device idx: 1
PVDM Slot: 1
Dsp Type: SP2600

dsp 12:
State: UP, firmware: 28.3.10
Max signal/voice channel: 42/43
Max credits: 645, Voice credits: 645, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 0
Group: FLEX_GROUP_CONF, complexity: CONFERENCE
Shared credits: 0, reserved credits: 645
Codec: CONF_G729, maximum participants: 8
Sessions per dsp: 7
Slot: 0
Device idx: 1
PVDM Slot: 1
Dsp Type: SP2600

Número de créditos para Conference

Número de DSP	Número de créditos Conference
Dsp 5	93 + 4
Dsp 6	645
Dsp 7	645
Dsp 8	645
Dsp 9	645
Dsp 10	645
Dsp 11	645
Dsp 12	645

PVMD	Créditos – High Complexity Conference
PVDM3-256	92

Max credits: 645, Voice credits: 645, Video credits: 0

Total de créditos conference = 97 + 645 + 645 + 645 + 645 + 645 + 645 + 645 = 4612

maximum sessions 50 * 92 créditos = 4600

Entendiendo el output “show voice dsp capabilities slot <x> dsp <y>”

C2921-Voice#show voice dsp capabilities slot 0 dsp 1 (PVDM3-32)

DSP Type: SP2600 -32

Card 0 DSP id 1 Capabilities:

Credits 480 , G711Credits 15, HC Credits 34, MC Credits 22,

FC Channel 32, HC Channel 14, MC Channel 21,

Conference 8-party credits:

G711 36 , G729 96 , G722 96 , ILBC 120

Número de Créditos	Número de canales
G711Credits 15	480 / 15 = 32
HC Credits 34	480 / 34 = 14.11
MC Credits 22	480 / 22 = 21.81

Créditos Conferencia	Número de conferencias
G711 36	480 / 36 = 13.3
G729 96	480 / 96 = 7.01
G722 96	480 / 96 = 7.01
ILBC 120	480 / 120 = 5

Entendiendo el output “show voice dsp capabilities slot <x> dsp <y>”

C2921-Voice#show voice dsp capabilities slot 0 dsp 12 (PVDM3-256)

DSP Type: SP2600 -43

Card 0 DSP id 1 Capabilities:

Credits 645 , G711Credits 15, HC Credits 32, MC Credits 20,

FC Channel 43, HC Channel 20, MC Channel 32,

Conference 8-party credits:

G711 40 , G729 92 , G722 92 , ILBC 129

Número de Créditos	Número de canales
G711Credits 15	645 / 15 = 43
HC Credits 32	645 / 32 = 20.15
MC Credits 20	645 / 20 = 32.25

Créditos Conferencia	Número de conferencias
G711 40	645 / 40 = 16.12
G729 92	645 / 92 = 7.01
G722 92	645 / 92 = 7.01
ILBC 129	645 / 129 = 5

PRI y Puertos análogos

- El número de puertos equivale al total de número de canales que el dsp soporta.
- Depende de la complejidad del codec
- El canal D no cuenta para recursos
- Cada Puerto FXO/FXS tomará 1 canal
- Cada Slot de PRI tomará un canal

Ejemplo

PVDM	Número de DSP's	Créditos
PVDM3-16	1	240

- Asumamos un PVDM3-16 con 200 créditos disponibles y configurado para high complexity:

(config-voicecard)#**codec complexity high**

PVDM	Máximo # canales – Low Complexity	Máximo # canales – Medium Complexity	Máximo # canales – High Complexity
PVDM3-16	16	12	10

PVDM	créditos – g711	créditos – Medium Complexity	créditos – High Complexity
PVDM3-16	15	20	24

Ejemplo

Número de Canales disponibles = Créditos disponibles / HC = 200 / 24 = 8.33

Se tendrían 8 canales disponibles, por lo que la configuración quedaría de la siguiente manera:

```
controller E1 0/0/0
 pri-group timeslots 1-8
```

Si yo realizó 8 llamadas usando G711 cuántos créditos utilizaría de los 200?

8 llamadas * 15 créditos = 120 créditos

Sobran 80 créditos, se podrían realizar otras 5 llamadas?

No, la capacidad del dsp se calcula por so complejidad, y no por el codec de la llamada

DSP Hunting

show voice dsp sorted-list slot <x>

#show voice dsp sorted-list slot 0
DSP id selection list for different service for Card 0:
==========
=
Note: analog voice ports allocate DSPs with least credits to
most credits during boot up for this voice card
Voice :01,02,03
Conf 0 :03,02,01
Xcode :01,02,03

Dsp 1, 2 y 3 serán utilizados para voz. Dsp 3, 2 y 1 para conferencias.

Debido a que hay más créditos disponibles en dsp 3 los recursos de conferencia serán asignados a este, y debido a que no son los suficientes y hay disponible en los demás procede con el 2 y el 1.

Numeración de DSP

Cada slot es numerado con una máxima cantidad de dsp, incluso si no hay dsp's disponibles.

Tomemos la siguiente combinación:
Slot0: PVDM3-256
Slot1: PVDM3-16
Slot2: PVDM3-64
La numeración sería de la siguiente manera..
Slot0: dsp 1, 2, 3, 4, 5, 6
Slot1: dsp 7
Slot2: dsp 13, 14

La razón de la numeración es la siguiente: Slot 1 tiene la capacidad de alojar un máximo de 6 dsps. Sin embargo, solo uno fue instalados.

La numeración será reservada y el IOS contará 7, 8, 9, 10, 11, 12. El siguiente dsp se le asignará el número 13.

Ejercicio

1. Utilizar High Complexity para el voice-card 0
2. Transcoder Universal de 56 sesiones
3. Utilizar los dos FXO's
4. Configurar una controladora E1 para PRI

¿Cuántos canales podrán ser configurados en dicha controladora?

NAME: "CISCO2921/K9", DESCR: "CISCO2921/K9 chassis, Hw Serial#: FTX1634AJQX, Hw Revision: 1.0"
PID: CISCO2921/K9 , VID: V07 , SN: FTX1634AJQX
NAME: "VWIC3-4MFT-T1/E1 - 4-Port RJ-48 Multiflex Trunk - T1/E1 on Slot 0 SubSlot 0", DESCR: "VWIC3-4MFT-T1/E1 - 4-Port RJ-48 Multiflex Trunk - T1/E1"
PID: VWIC3-4MFT-T1/E1 , VID: V01 , SN: FOC163103V2
NAME: "2nd generation two port FXO voice interface daughtercard on Slot 0 SubSlot 2", DESCR: "2nd generation two port FXO voice interface daughtercard"
PID: VIC2-2FXO= , VID: V , SN: FOC091046ME
NAME: "PVDM3 DSP DIMM with 32 Channels on Slot 0 SubSlot 4", DESCR: "PVDM3 DSP DIMM with 32 Channels"
PID: PVDM3-32 , VID: V01 , SN: FOC16301L1Q
NAME: "PVDM3 DSP DIMM with 64 Channels on Slot 0 SubSlot 5", DESCR: "PVDM3 DSP DIMM with 64 Channels"
PID: PVDM3-64 , VID: V01 , SN: FOC163116T6
NAME: "PVDM3 DSP DIMM with 64 Channels on Slot 0 SubSlot 6", DESCR: "PVDM3 DSP DIMM with 64 Channels"
PID: PVDM3-64 , VID: V01 , SN: FOC163116H8

Solución

NAME: "CISCO2921/K9", DESCR: "CISCO2921/K9 chassis, Hw Serial#: FTX1634AJQX, Hw Revision: 1.0"
PID: CISCO2921/K9 , VID: V07 , SN: FTX1634AJQX

NAME: "VWIC3-4MFT-T1/E1 - 4-Port RJ-48 Multiflex Trunk - T1/E1 on Slot 0 SubSlot 0", DESCR: "VWIC3-4MFT-T1/E1 - 4-Port RJ-48 Multiflex Trunk - T1/E1"
PID: VWIC3-4MFT-T1/E1 , VID: V01 , SN: FOC163103V2

NAME: "2nd generation two port FXO voice interface daughtercard on Slot 0 SubSlot 2", DESCR: "2nd generation two port FXO voice interface daughtercard"
PID: VIC2-2FXO= , VID: V , SN: FOC091046ME

NAME: "PVDM3 DSP DIMM with 32 Channels on Slot 0 SubSlot 4", DESCR: "PVDM3 DSP DIMM with 32 Channels"
PID: PVDM3-32 , VID: V01 , SN: FOC16301L1Q

NAME: "PVDM3 DSP DIMM with 64 Channels on Slot 0 SubSlot 5", DESCR: "PVDM3 DSP DIMM with 64 Channels"
PID: PVDM3-64 , VID: V01 , SN: FOC163116T6

NAME: "PVDM3 DSP DIMM with 64 Channels on Slot 0 SubSlot 6", DESCR: "PVDM3 DSP DIMM with 64 Channels"
PID: PVDM3-64 , VID: V01 , SN: FOC163116H8

Partes	Cantidad
VWIC3-4MFT-T1/E1	4
VIC2-2FXO	2
PVDM3-32	1
PVDM3-64	2

Solución

NAME: "PVDM3 DSP DIMM with 32 Channels on Slot 0 SubSlot 4", DESCR: "PVDM3 DSP DIMM with 32 Channels"
PID: PVDM3-32 , VID: V01 , SN: FOC16301L1Q
NAME: "PVDM3 DSP DIMM with 64 Channels on Slot 0 SubSlot 5", DESCR: "PVDM3 DSP DIMM with 64 Channels"
PID: PVDM3-64 , VID: V01 , SN: FOC163116T6
NAME: "PVDM3 DSP DIMM with 64 Channels on Slot 0 SubSlot 6", DESCR: "PVDM3 DSP DIMM with 64 Channels"
PID: PVDM3-64 , VID: V01 , SN: FOC163116H8

Partes	Cantidad
VWIC3-4MFT-T1/E1	4
VIC2-2FXO	2
PVDM3-32	1
PVDM3-64	2

PVDM	Número de DSP's	Créditos
PVDM3-32	1	480
PVDM3-64	2	480

Total Créditos = PVDM3-32 + 2 * (2*PVDM3-64) = 480 + 2 * (2*480) = 2400 créditos
ó 5 dsp's * 480

de Dsp's = 1 PVDM3-32 + 4 PVDM3-64 = 5 dsp's

Solución

1. Utilizar High Complexity para el voice-card 0

```
voice-card 0
 codec complexity high
 dspfarm
 dsp services dspfarm
```

PVMD	Máximo # canales – High Complexity
PVDM3-32	14
PVDM3-64	28

PVMD	créditos – High Complexity
PVDM3-32	34
PVDM3-64	34

```
DSP Type: SP2600 -14
Card 0 DSP id 1 Capabilities:
   Credits  480 ,  G711Credits 15,  HC Credits  34,  MC Credits  22,
   FC Channel  32,  HC Channel  14,  MC Channel  21,
   Conference 8-party credits:
    G711  36 ,  G729  96 ,  G722  96 ,  ILBC  120
```

Solución

PVMD	Máximo # canales – High Complexity
PVDM3-32	14
PVDM3-64	28

PVMD	créditos – High Complexity
PVDM3-32	34
PVDM3-64	34

DSP Type: SP2600 -14
Card 0 DSP id 1 Capabilities:
Credits 480 , G711Credits 15, HC Credits 34, MC Credits 22,
FC Channel 32, HC Channel 14, MC Channel 21,
Conference 8-party credits:
G711 36 , G729 96 , G722 96 , ILBC 120

5 dsp's con un total de 14 canales por dsp debido a la complejidad

14 canales * 5 dsp's = 70 canales

Solución

2. Transcoder Universal de 56 sesiones

```
dspfarm profile 900 transcode universal
 codec g729br8
 codec g729r8
 codec pass-through
 codec g711ulaw
 codec g711alaw
 codec g729ar8
 codec g729abr8
 maximum sessions 56
 associate application SCCP
```

Total de 70 canales HC – 56 sesiones Xcoder = 14 canales

Solución

3. Utilizar los dos FXO's

NAME: "2nd generation two port FXO voice interface daughtercard on Slot 0 SubSlot 2", DESCR: "2nd generation two port FXO voice interface daughtercard"
PID: VIC2-2FXO= , VID: V , SN: FOC091046ME

Total de 70 canales HC – 56 sesiones Xcoder = 14 canales

14 canales – 2 FXO's = 12 canales

¿Cuántos canales podrán ser configurados en dicha controladora?

12

Solución

4. Configurar una controladora E1 para PRI

```
C2921-Voice(config)#controller e1 0/0/0
C2921-Voice(config-controller)#pri-group timeslots 1-12

C2921-Voice(config-controller)#pri-group timeslots 1-13
% Not enough DSP resources available to configure pri-group
on controller E1 0/0/0
% The remaining dsp resources are enough for 12 time slots.
% For current codec complexity, 1 extra  dsp(s) are required
to create this voice port.
```

C2921-Voice#show voice dsp group all
DSP groups on slot 0:
dsp 1:
State: UP, firmware: 36.2.1
Max signal/voice channel: 14/14
Max credits: 480, Voice credits: 480, Video credits: 0
num_of_sig_chnls_allocated: 2 …….. 2 FXO's
Transcoding channels allocated: 12
Group: FLEX_GROUP_VOICE, complexity: HIGH
Shared credits: 68, reserved credits: 0
Signaling channels allocated: 2
Voice channels allocated: 0
Credits used (rounded-up): 0
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 412
Transcoding channels allocated: 0
Credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 0
Dsp Type: SP2600

dsp 7:
State: UP, firmware: 36.2.1
Max signal/voice channel: 14/14
Max credits: 480, Voice credits: 480, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 14
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 480
Transcoding channels allocated: 0
Credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 1
Dsp Type: SP2600

dsp 8:
State: UP, firmware: 36.2.1
Max signal/voice channel: 14/14
Max credits: 480, Voice credits: 480, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 14
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 480
Transcoding channels allocated: 0
Credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 1
Dsp Type: SP2600

dsp 13:
State: UP, firmware: 36.2.1
Max signal/voice channel: 14/14
Max credits: 480, Voice credits: 480, Video credits: 0
num_of_sig_chnls_allocated: 0
Transcoding channels allocated: 14
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 480
Transcoding channels allocated: 0
Credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 2
Dsp Type: SP2600

dsp 14:
State: UP, firmware: 36.2.1
Max signal/voice channel: 14/14
Max credits: 480, Voice credits: 480, Video credits: 0
num_of_sig_chnls_allocated: 12 …….. E1 PRI
Transcoding channels allocated: 2
Group: FLEX_GROUP_VOICE, complexity: HIGH
Shared credits: 411, reserved credits: 0
Signaling channels allocated: 12
Voice channels allocated: 0
Credits used (rounded-up): 0
Group: FLEX_GROUP_XCODE, complexity: HIGH
Shared credits: 0, reserved credits: 69
Transcoding channels allocated: 0
Credits used (rounded-up): 0
Slot: 0
Device idx: 0
PVDM Slot: 2
Dsp Type: SP2600

Haga sus preguntas ahora

Utilize el panel de Q & A para realizar sus preguntas

Pregunte al Experto con: Alexis Amaro

SI tiene dudas adicionales pregunte a él nos ayudará a responder sus preguntas a partir de hoy hasta el próximo viernes 30 enero del 2015

https://supportforums.cisco.com/es/discussion/12399826

Podrá ver la grabación de este evento, y leer las preguntas y respuestas en 5 días hábiles.

Sesiones de Webcast

Español

Tema: *Introducción a seguridad a nivel Capa 2 y su implementación*

Martes 24 de Febrero:

10:00 a.m.	Ciudad de México
11:30 a.m.	Caracas
1:00 p.m.	Buenos Aires
4:00 p.m.	Madrid

Estará presentando por el experto VIP: *Julio Carvajal*

Durante esta sesión se dará Introducción a seguridad en nivel Capa 2 y su implementación, aprenda y haga sus preguntas a cerca del tema.

Pregunte al Experto
Español

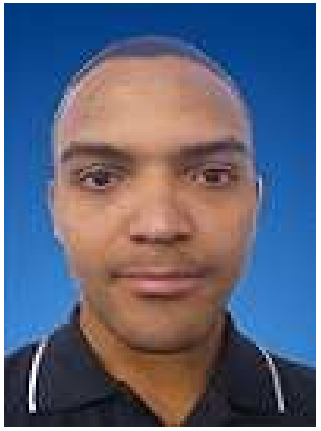
https://supportforums.cisco.com/es/discussion/12386281

Esta es su oportunidad de aprender y hacer todas las preguntas que tenga acerca de Configuración de redes inalámbricas en AireOS, métodos de autenticación, cifrado y opciones avanzadas.

Hasta el 23 de Enero del 2015

Próximo Webcast
(Portugues)

Tema: Cisco UCS y la Arquitetura de la Infraestrutura Unificada en el Data Center



Martes 21 de Enero:

11:00 a.m. Brasilia
6:00 a.m. Cd de México

Presentado por el experto de Cisco: **Richard Barbosa**

Durante esta presentacciónse verá el desafío de la implementacción de la infrastructura unificada en DC con Cisco UCS, diseño de redes y SAN, tips del troubleshooting y sugerencias.

Reconocimientos en la Comunidad

El reconocimiento al **“Partcipante Destacado de la Comunidad”** se otorga a los miembros que demuestran liderazgo y colaboración con la Comunidad, está diseñado para reconocer y agradecer a aquellas personas que colaboran con contenido técnico de calidad y ayudan a posicionar nuestra comunidad como el destino número uno para las personas interesadas en tecnología Cisco.

Califique el contenido de la Comunidad de Soporte de Cisco en Español.

Ahora puede calificar discusiones, documentos, blogs y videos!!...

Esto es con el fin de que nos ayude a distinguir contenido de calidad y también para reconocer los esfuerzos de los integrantes de la Comunidad de Soporte de Cisco en español.

Soporte Técnico Móvil, tenga acceso a las Comunidades de Soporte Globales.

La Comunidad de Soporte de Cisco cuenta con una aplicación de Acceso Móvil hacia la Comunidades Globales > Español, Portugués, Japonés, Ruso, y Polaco.

Lo invitamos a colaborar activamente en CSC en español y en nuestras redes sociales

https://supportforums.cisco.com/community/spanish

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¡Únete a la Comunidad de Soporte de Cisco!

Aquí puedes resolver dudas técnicas, encontrar información en documentos, blogs y videos con contenidos técnicos totalmente en español, además de poder colaborar e interactuar en tiempo real con los expertos en tecnología.


Documentos


Discusiones


Blogs


Móvil


Video


Pregunte al Experto

Gracias por su tiempo

Por favor tome un momento para llenar su evaluación


CISCO