

ATC IP Network Users Conference

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Connecting legacy voice



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Agenda

- **Edge to edge IP**
- Hybrid IP+TDM approach
- Coanda 1910

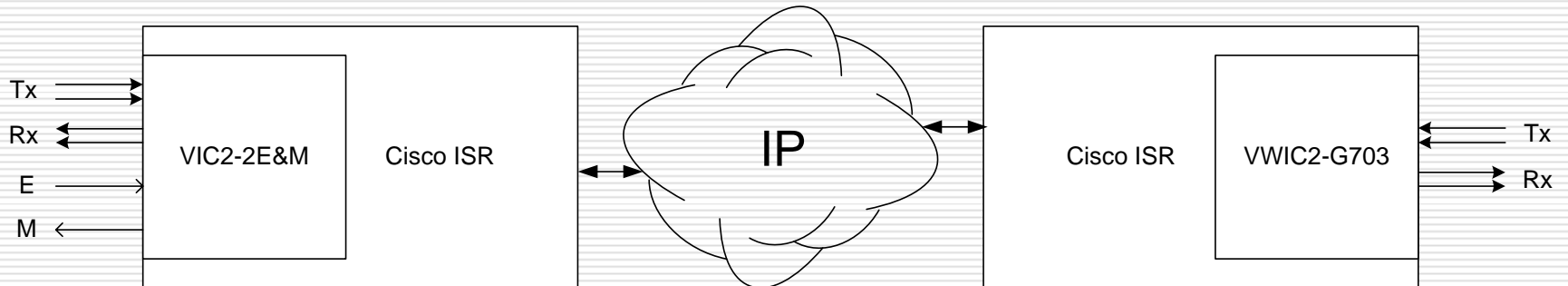
Disclaimer!

- ❑ The following examples are excerpts from real configuration files.
- ❑ However, some lines might have been deleted to simplify the understanding.
- ❑ Applying them into a Cisco box for real usage may not be sufficient, supplementary fine tuning might still be needed.

Edge to edge IP - The hardware

Radio site

VCS site



Edge to edge IP

step 1 of 4 - E1 groups definition

```
controller E1 3/0
ds0-group 0 timeslots 1 type e&m-immediate-start
ds0-group 1 timeslots 2 type e&m-immediate-start
ds0-group 2 timeslots 3 type e&m-immediate-start
ds0-group 3 timeslots 4 type e&m-immediate-start
ds0-group 4 timeslots 5 type e&m-immediate-start
ds0-group 5 timeslots 6 type e&m-immediate-start
ds0-group 6 timeslots 7 type e&m-immediate-start
[...]
ds0-group 23 timeslots 24 type e&m-immediate-start
ds0-group 24 timeslots 25 type e&m-immediate-start
ds0-group 25 timeslots 26 type e&m-immediate-start
ds0-group 26 timeslots 27 type e&m-immediate-start
ds0-group 27 timeslots 28 type e&m-immediate-start
ds0-group 28 timeslots 29 type e&m-immediate-start
ds0-group 29 timeslots 30 type e&m-immediate-start
description Topex Concentrator A/G #1 Flux 0
```

Edge to edge IP

step 2 of 4 – trunk definition

```
voice-port 3/0:0
  connection trunk 21001
  description FIC1
!
voice-port 3/0:1
  connection trunk 37502
  description NERDI-TOP2
!
[...]
!
voice-port 3/0:28
  connection trunk 22207
  description TWRBSA2
```

Edge to edge IP

step 3 of 4 – POTS definition

```
dial-peer voice 11001 pots
  destination-pattern 11001
  port 3/0:0
!
dial-peer voice 11002 pots
  destination-pattern 11002
  port 3/0:1
!
[...]
!
dial-peer voice 11029 pots
  destination-pattern 11029
  port 3/0:28
```

Edge to edge IP

step 4 of 4 – VoIP definition

```
dial-peer voice 21 voip
 destination-pattern 21...
 session target ipv4:10.A.B.1
 codec g729br8 bytes 30
```

!

```
dial-peer voice 22 voip
 destination-pattern 22...
 session target ipv4:10.A.B.2
 codec g729br8 bytes 30
```

!

```
dial-peer voice 37 voip
 destination-pattern 37...
 session target ipv4:10.M.N.2
 codec g729br8 bytes 30
```

Edge to edge IP

show call active voice brief

Telephony call-legs: 97

SIP call-legs: 0

H323 call-legs: 95

MGCP call-legs: 0

Multicast call-legs: 0

Total call-legs: 192

11E1 : 39840ms.1 +300 pid:11001 Answer 11001 active

dur 4w6d tx:37060301/117058674 rx:5221823/52676802

Tele 3/0:0 (1) [3/0:0] tx:-1310557716/22630170/0ms
g729br8 noise:-70 acom:20 i/0:-70/-74 dBm

11E1 : 39950ms.1 +190 pid:21 Originate 21001 active

dur 4w6d tx:5221823/52676802 rx:37060310/117058776

IP 10.A.B.1:17148 rtt:8ms pl:947170/90ms lost:31/1/8
delay:80/80/100ms g729br8

Edge to edge IP

show voice port summary

PORT	CH	SIG-TYPE	ADMIN	OPER	IN STATUS	OUT STATUS	EC
3/0:0	01	e&m-imd	up	up	trunked	trunked	n
3/0:1	02	e&m-imd	up	up	trunked	trunked	n
3/0:2	03	e&m-imd	up	up	trunked	trunked	n
3/0:3	04	e&m-imd	up	up	trunked	trunked	n
[...]							
3/0:14	15	e&m-imd	up	up	trunked	trunked	n
3/0:16	17	e&m-imd	down	down	idle	idle	n
[...]							
3/0:28	29	e&m-imd	down	down	idle	idle	n

Edge to edge IP

show voice port summary

PORT	CODEC	VAD	VTSP	STATE	VPM STATE
3/0:0.1	g729br8	y	S_CONNECT		S_TRUNKED
3/0:1.2	g729br8	y	S_CONNECT		S_TRUNKED
3/0:2.3	g729br8	y	S_CONNECT		S_TRUNKED
3/0:3.4	g729br8	y	S_CONNECT		S_TRUNKED
[...]					
3/0:14.15	g729br8	y	S_CONNECT		S_TRUNKED
3/0:16.17					*shutdown*
[...]					
3/0:28.29					*shutdown*

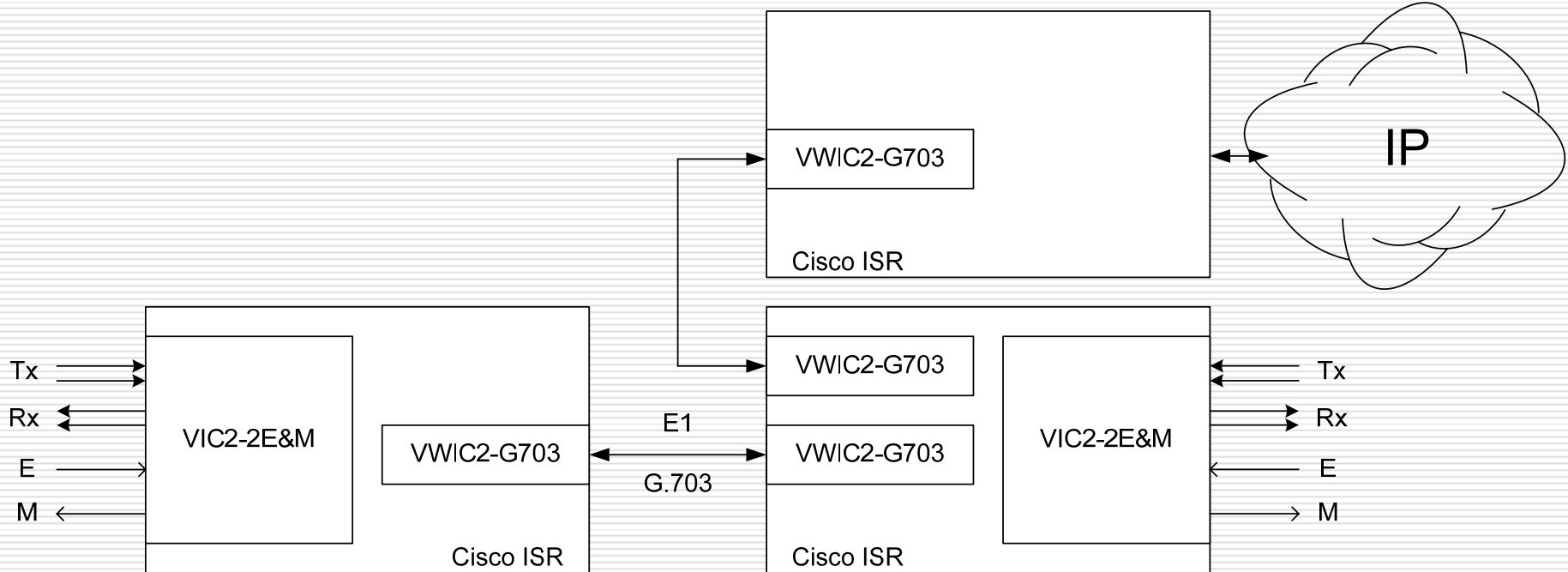
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- **Hybrid IP+TDM approach**
- Coanda 1910

Hybrid IP+TDM approach - The hardware

Remote VCS

Local VCS



Hybrid IP+TDM approach

step 1 of 4 - E1 groups definition

```
controller E1 0/1/0
  ds0-group 1 timeslots 1 type e&m-immediate-start
  ds0-group 2 timeslots 2 type e&m-immediate-start
  ds0-group 3 timeslots 3 type e&m-immediate-start
  ds0-group 4 timeslots 4 type e&m-immediate-start
  tdm-group 0 timeslots 5-15,17-31
```

!

```
controller E1 0/1/1
  clock source internal
  channel-group 0 timeslots 27-31
  tdm-group 1 timeslots 1-26
  description (TS1-TS26=BP, TS27-TS31=Core)
```

Hybrid IP+TDM approach

step 2 of 4 – digital voice ports

voice-port 0/1/0:1

!

voice-port 0/1/0:2

!

voice-port 0/1/0:3

!

voice-port 0/1/0:4

Hybrid IP+TDM approach

step 3 of 4 – analogue voice ports

```
voice-port 0/2/0
  operation 4-wire
  type 5
  signal immediate
  description MFC#1
!
voice-port 0/2/1
  operation 4-wire
  type 5
  signal immediate
  description MFC#2
!
voice-port 0/3/0
  operation 4-wire
  type 5
  signal immediate
  description MFC#3
!
voice-port 0/3/1
  operation 4-wire
  type 5
  signal immediate
  description MFC#4
```

Hybrid IP+TDM approach step 4 of 4 – Xconnectors

```
!  
interface Serial0/1/1:0  
  ip address 10.A.B.1 255.255.255.252  
!  
connect MFC#1 voice-port 0/2/0 E1 0/1/0 1  
!  
connect MFC#2 voice-port 0/2/1 E1 0/1/0 2  
!  
connect MFC#3 voice-port 0/3/0 E1 0/1/0 3  
!  
connect MFC#4 voice-port 0/3/1 E1 0/1/0 4  
!  
connect -name- E1 0/1/0 0 E1 0/1/1 1  
!
```

Hybrid IP+TDM approach

show connection all

ID	Name	Segment 1	Segment 2	State
1	MFC#1	voice-port 0/2/0	E1 0/1/0 01	UP
2	MFC#2	voice-port 0/2/1	E1 0/1/0 02	UP
3	MFC#3	voice-port 0/3/0	E1 0/1/0 03	UP
4	MFC#4	voice-port 0/3/1	E1 0/1/0 04	UP
5	-name-	E1 0/1/0 00	E1 0/1/1 01	UP

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- Hybrid IP+TDM approach
- **Coanda 1910**

Coanda-1910

- 2010 is the 100th anniversary from the world 1st jet flight

