

ATC IP Network Users Conference

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Connecting legacy radar, OLDI, CIDIN



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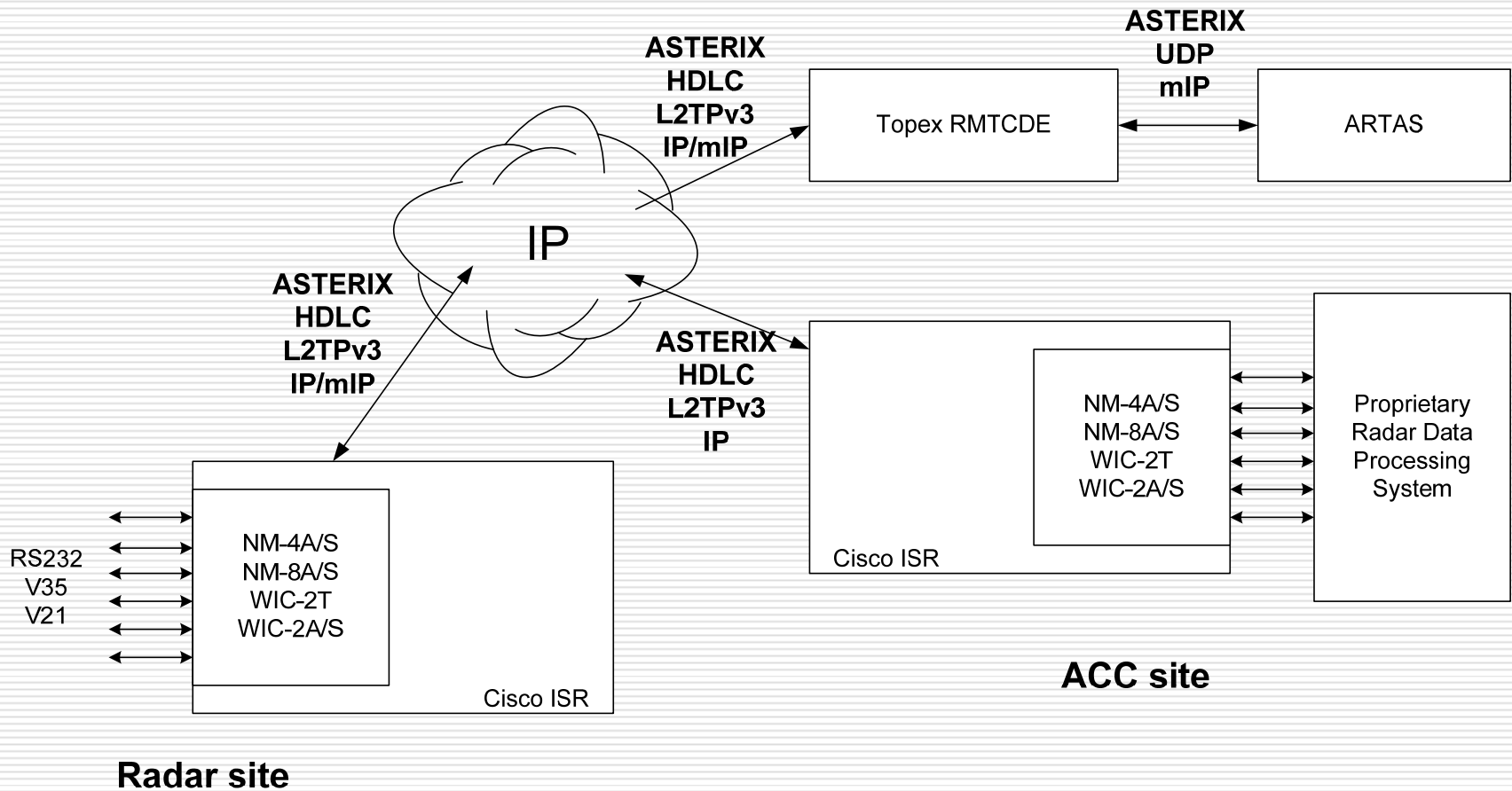
Agenda

- ❑ **Radar - The L2TPv3 pseudowire**
 - ❑ OLDI – TCP to X25 translation
 - ❑ OLDI/CIDIN – XoT
 - ❑ Pitfalls
-

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.

The L2TP pseudowire - The hardware



The L2TP pseudowire

- pseudowire class and interface declarations
-

```
pseudowire-class ASTERIX
encapsulation l2tpv3
sequencing transmit
protocol none
ip local interface Loopback0
ip tos value 128
ip ttl 8
!
interface Serial1/0
description Radar
no ip address
xconnect 226.3.3.3 1 encapsulation l2tpv3 manual pw-class ASTERIX
l2tp id 1 1
```

The L2TP pseudowire

- pseudowire class and interface declarations
-

```
pseudowire-class ASTERIX
 encapsulation l2tpv3
 sequencing transmit
 protocol none
 ip local interface Loopback0
 ip tos value 128
 ip ttl 8
!
interface Loopback0
 ip address 10.A.X.226 255.255.255.255
interface FastEthernet0/0
 ip address 10.A.B.10 255.255.255.0
interface FastEthernet0/1
 ip address 10.A.B+1.10 255.255.255.0
interface Serial1/0
 description Radar
 no ip address
 xconnect 226.3.3.3 1 encapsulation l2tpv3 manual pw-class ASTERIX
 l2tp id 1 1
```

The L2TP pseudowire

- show l2tun session all

%No active L2F tunnels

L2TP Session Information Total tunnels 0 sessions 12

Session id 1 is up, tunnel id 0

Call serial number is 0

Remote tunnel name is

Internet address is 226.3.3.3

Session is manually signalled

Session state is established, time since change 1y16w

143826486 Packets sent, 0 received

117885864 Bytes sent, 0 received

Last clearing of "show vpdn" counters never

Receive packets dropped:

out-of-order: 0

total: 0

Send packets dropped:

exceeded session MTU: 0

total: 0

Session vcid is 1

Session Layer 2 circuit, type is HDLC, name is Serial1/0

Circuit state is UP

Remote session id is 1, remote tunnel id 0

DF bit off, ToS reflect disabled, ToS value 128, TTL value 8

No session cookie information available

UDP checksums are disabled

SSS switching enabled

Sequencing is on

Ns 9608805, Nr 0, 0 out of order packets received

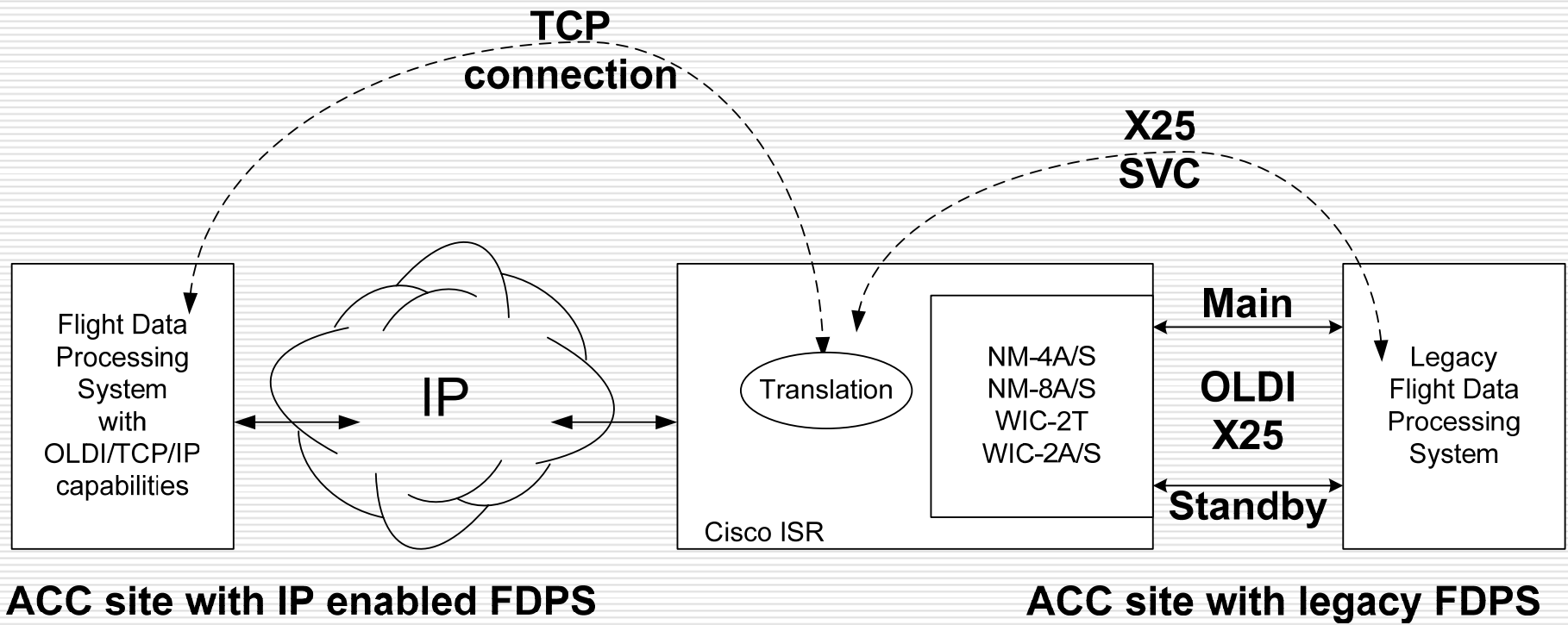
Unique ID is 1

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OLDI – TCP to X25 translation

- The hardware



OLDI – TCP to X25 translation

```
interface Loopback0
ip address 10.A.B.1 255.255.255.240
!
translate use telnet 10.A.B.2
translate ruleset OLDI from telnet to pad
match dest-addr 10.A.B.2 dest-port 9900
substitute telnet dest-port ^9900 into pad dest-addr 28415101
substitute telnet source-addr 10\... into pad source-addr 22631011
set pad pid 0x842001c9
set pad cud 06488001cb06495903000000
!
x25 route ^28415101 interface Serial1/0
```

OLDI – TCP to X25 translation

show translate ruleset

```
Protocol translation rulesets: 5 created, 4 deleted, 3 freed, 0 failed
1 active rulesets
in/out: telnet 1/0, pad 0/1, ppp -/0, autocommand -/0, virtual-template -/0

PT ruleset OLDI, from telnet to pad
administrative locks: 2 (2 readers, 0 writers)
translations: 0 created, 0 active, 0 failed (0 max-user), 0 created for test
match/skip lines: 1
#1 match on 2 telnet tests: dest-addr 10.A.B.12, dest-port 9900
options: none configured
set/test/substitute lines: 3
#1 substitute from: telnet/dest-port ^9900 into: pad/dest-addr 28415101
#2 substitute from: telnet/source-addr 10\... into: pad/source-addr 22631011
#3 set 1 parameter: pad/pid 0x842001c906488001cb06495903000000
```

OLDI – TCP to X25 translation

test translate telnet detail

```
(Testing translate command OLDI ...)
dest-addr (IP address): 10.A.B.2
Normalized Telnet dest-addr: 10.A.B.2
dest-port (integer): 9900
Normalized Telnet dest-port: 9900
Ruleset OLDI match/skip line 1 compared: match
(processing set/test/substitute line 1)
(set/test/subst line 1, parameter dest-addr set to 28415101)
(processing set/test/substitute line 2)
source-addr (IP address): 10.X.Y.1
Normalized Telnet source-addr: 10.X.Y.1
(set/test/subst line 2, parameter source-addr set to 22631011)
(processing set/test/substitute line 3)
(set/test/subst line 3, item 1, parameter pid set to 0x842001c906488001cb06495903000000)
(parsed pad parameter dest-addr: 28415101)
(parsed pad parameter source-addr: 22631011)
(parsed pad parameter pid: 0x842001c906488001cb06495903000000)
Ruleset OLDI; telnet parameter read:
telnet/dest-addr: 10.A.B.2
telnet/dest-port: 9900
telnet/source-addr: 10.X.Y.1
Parameters set:
pad/dest-addr: 28415101
pad/source-addr: 22631011
pad/pid: 0x842001c906488001cb06495903000000
(translation requires 0 bytes variable-sized memory)
```

```
Translate From: Telnet 10.A.B.2 Port 9900
To: PAD 28415101 Source 22631011 Pid 0x842001C906488001CB06495903000000
```

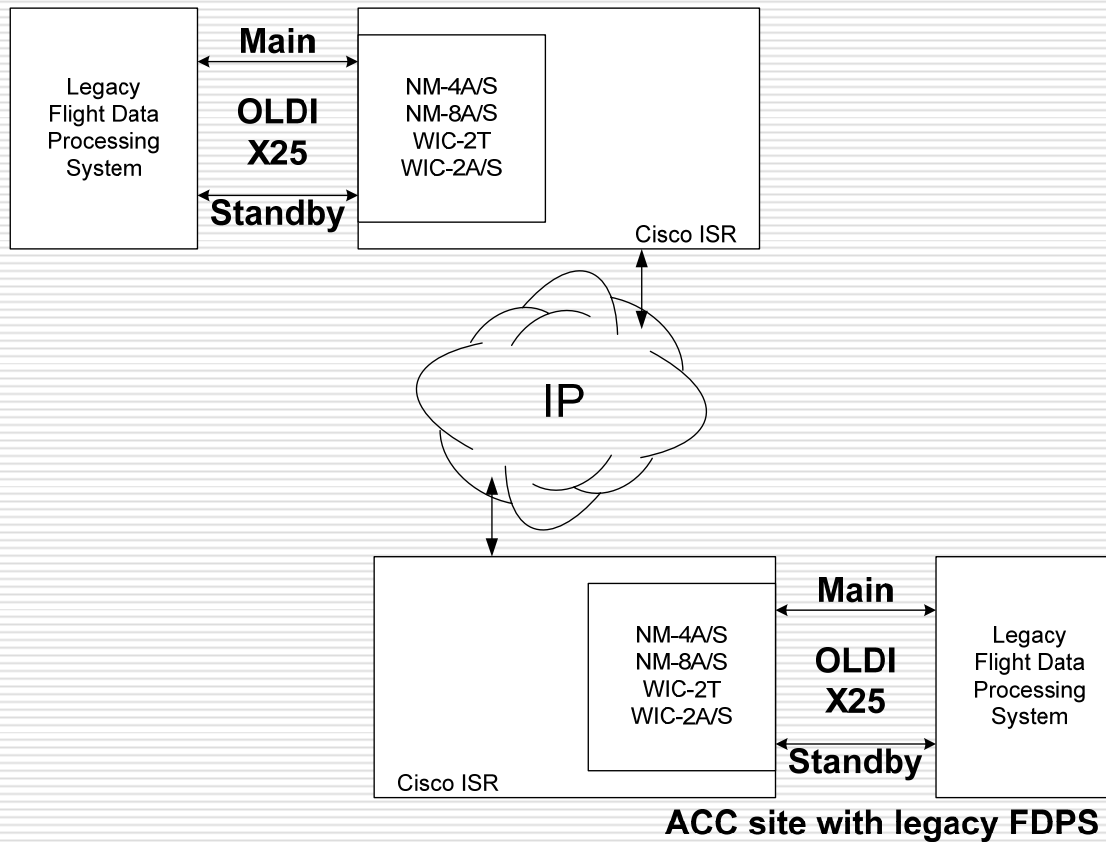
```
Ruleset OLDI
0/1 users active
```

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-

OLDI/CIDIN – XoT - The hardware

ACC site with legacy FDPS



OLDI/CIDIN – XoT - interfaces

```
interface Loopback25
  description XOT Source/Target
  ip address 10.A.B.25 255.255.255.255
  delay 1
```

```
interface Serial3/0
  description X25-OLDI-Main
  no ip address
  encapsulation x25 dce ietf
  x25 ips 1024
  x25 ops 1024
  clock rate 64000
  lapb T1 2900
  lapb T2 200
  lapb N2 10
```

```
!
interface Serial3/1
  description InterLinX25
  no ip address
  encapsulation x25 dce ietf
  x25 ips 1024
  x25 ops 1024
  clock rate 128000
```

OLDI/CIDIN – XoT

- interfaces (continued)

```
interface Serial3/2
description CIDIN X.25 BG
no ip address
encapsulation x25 dce ietf
no ip mroute-cache
x25 ltc 20
x25 win 7
x25 wout 7
x25 ips 256
x25 ops 256
x25 pvc 10 xot 10.x.y.z interface Serial 1/3 pvc 3 xot-source Loopback25
lapb N1 2176
!
interface Serial3/3
description X25-OLDI-ODESSA (Ucraina 4W-Motorola)
no ip address
encapsulation x25 ietf
x25 htc 10
x25 t20 60
x25 t21 60
x25 ips 1024
x25 ops 1024
lapb T1 2900
lapb T2 200
lapb N2 10
```

OLDI/CIDIN – XoT

- interfaces (continued)

```
x25 hunt-group LRCK-OLDI-X25 rotary
  xot 10.p.q.25
  xot 10.p.q.121
!
x25 hunt-group LUKK-OLDI-X25 rotary
  interface Serial3/3
  xot 10.m.n.1
!
x25 route ^22631011 interface Serial3/0
x25 route ^22631011 interface Serial3/1
x25 route ^28412101 xot 10.f.g.1 xot-source Loopback25
x25 route ^22631019 xot 10.r.t.25 xot-source Loopback25
x25 route ^22631039 xot 10.r.t.25 xot-source Loopback25
x25 route ^28412151 xot 10.f.g.1 xot-source Loopback25
x25 route ^025580000007 hunt-group LUKK-OLDI-X25 xot-source Loopback25
x25 route ^22631031 hunt-group LRCK-OLDI-X25 xot-source Loopback25
```

OLDI/CIDIN – XoT

show x25 route

#	Match	Substitute	Route to	match/use
1	dest ^22631011		Serial3/0	112341/18297
2	dest ^22631011		Serial3/1	94044/93510
3	dest ^28412101		xot 10.10.16.1	2302/2302
4	dest ^22631019		xot 10.12.16.25	0/0
5	dest ^22631039		xot 10.12.16.25	0/0
6	dest ^28412151		xot 10.10.16.1	556/556
7	dest ^025580000007		hunt-group LUKK-OLDI-X25	8738/5543
8	dest ^22631031		hunt-group LRCK-OLDI-X25	60323/58405

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 - **Pitfalls**
-

Pitfalls

- Virtualisation
 - VPN = oversubscription. The contractual clauses will protect you in case of failure but won't give you absolution
 - Beware of service providers selling you something they don't really possess
 - The more complex the service you buy, the more likely to fail. Buy bare telecommunications services only.

 - Plug&Play
 - The "autoconfiguration" feature of different elements is recipe for trouble
 - Don't rely solely on STP when using multiple redundant links

 - Misunderstandings
 - Master the concepts you are dealing with. The reality is one but the perceptions multitude.
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Nice farewell words

- Thank you for listening.
 - Have a safe way home.
 - See you to the 2nd edition.
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