



## Fusion 1000 Series Signalling Gateways CAS Application Note

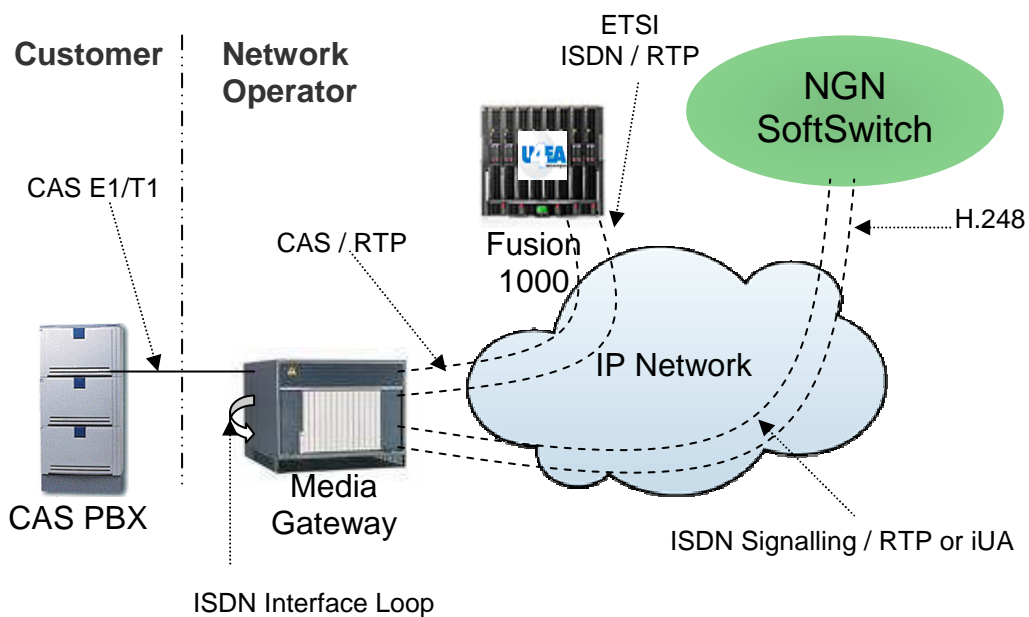
### CAS Interfaces using the Fusion 1000 Series Signalling Gateways

This Application Note describes some options for using the Fusion 1000 to provide CAS support specifically for South American Network Operators moving to a next generation infrastructure.

**NOTE:** Some of these features and capabilities are still in development.



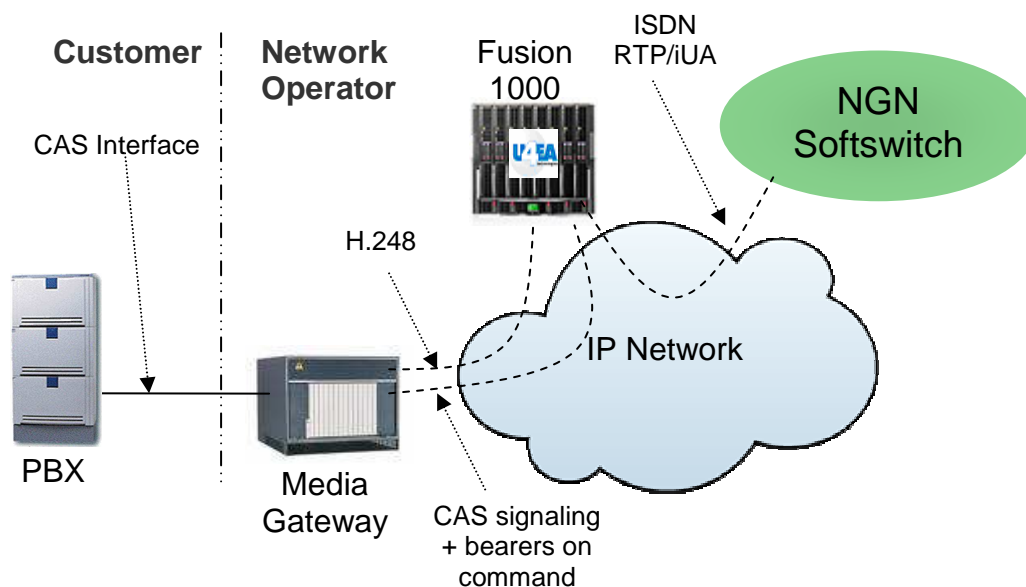
#### Option 1 – Static Mapping



In this configuration the Fusion 1000 receives an entire E1 CAS interface (30 bearer channels and 1 signalling channel) from the Media Gateway carried over 31 64K RTP streams. The Fusion 1000 terminates the CAS signalling and converts it to an ISDN signalling protocol and forwards this and the bearer channels over another 31 RTP connections back to the Media Gateway.

The Media Gateway then loops the ISDN over RTP connections either internally or externally to present an ISDN interface to the Media Gateway. This ISDN interface is then handled by the Media Gateway / Softswitch combination as a normal ISDN connection using RTP or IUA to carry the signalling and H.248 to control the media paths.

## Option 2 – H.248 Media Control

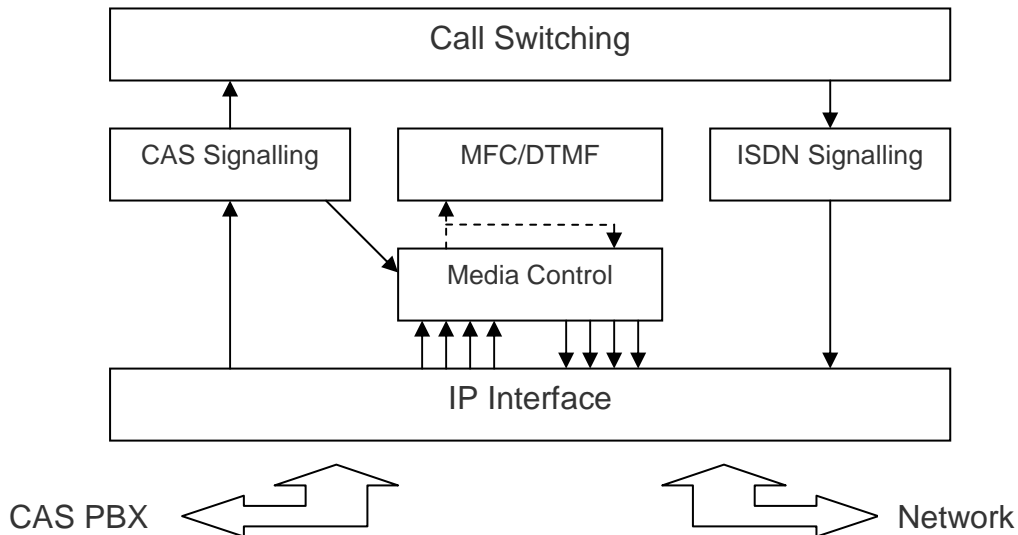


In this configuration the Fusion 1000 receives only the signalling channel of an E1 CAS interface (timeslot 16) from the Media Gateway carried over a 64K RTP stream. The Fusion 1000 terminates the CAS signalling and converts it to an ISDN signalling protocol and forwards this to the Softswitch.

The Fusion 1000 instructs the Media Gateway to send it the bearer channels from the E1 CAS interface during the call establishment phase using H.248 so that the Fusion 1000 can handle the inband tone signalling. During the active call phase the Media Gateway forwards the bearer channels to the appropriate destination.

## How it works

The following diagram shows a single CAS conversion within the Fusion 1000.



- The CAS signalling from timeslot 16 on the interface to the PBX is terminated by the Fusion 1000.
- The Call Switching maps calls and call features between the CAS and the ISDN interfaces.
- The Fusion 1000 generates ISDN signalling on timeslot 16 to the network.
- The CAS Signalling instructs the Media Control to either connect bearer channels from the PBX to a tone detector / generator or else through to the ISDN interface depending on the call phase.

## Further Configurations

Other configuration options that could be considered are

V5 signalling between the Fusion 1000 and Media Gateway (Option 1) or Softswitch (Option 2)

SIP signalling between the Fusion 1000 and Softswitch (Option 2)

## Considerations

The Static Configuration option (Option 1) is equivalent in performance and capacity to the previous LongReach Networks AXD320 CAS solution that was developed specifically for the South American market and is simple to add to an existing or proposed Next Generation network implementation.

The H.248 Media Control option (Option 2) while having potentially greater performance and capacity introduces a number of additional complexities into the network design.

## Specifications

### Signalling Protocols

Brazil CAS  
Argentinian CAS  
Mexican CAS  
ETSI ISDN  
QSIG  
DPNSS  
DASS2 PBX  
DASS2 Multiplexer  
1TR6  
VN4  
VN6  
NI2  
4/5ESS  
TR41459  
Fetex 150  
TS14  
INS1500  
CR13  
Mercury CAS  
V5.1  
SIP

### Transport Protocols

RTP / UDP (64K clear channel)  
IUA / SCTP  
DUA / SCTP  
V5UA / SCTP  
SIP / UDP  
SIP / TCP  
SIP / SCTP

### In-band Signalling

DTMF  
MFC

### Bearer Coding

G.711 A-Law  
G.711 u-Law

### Call Control

Number analysis and modification

Information element analysis and modification  
Message modification  
Call resubmission (crank-back)  
Feature transparency.

### Capacity (indicative only)

Option 1 - 16 conversions per blade  
Option 2 - 63 conversions per blade

### Performance

1800 calls / minute per blade

### Connectivity

Dual Gigabit Ethernet per blade  
Optional Fibre Channel  
Infiniband  
Virtual Connect (options provided by underlying blade system)

### Processors

Intel Xeon 2.4GHz (Fusion 1001) or 3 GHz (Fusion 1008/1016)  
1 GB RAM per processor

### Operating Systems

x86 or x86\_64 Linux. Tested with Red Hat Enterprise Linux, other distributions may be supported on request.

### Dimensions

All Fusion 1000 series fit in a standard 19" rack

Fusion 1001 43.2mm 1U high x 426mm width x 610mm deep  
Fusion 1008 265mm (6U) high x 445mm width x 813mm deep  
Fusion 1016 442mm (10U) high x 445mm width x 813mm deep