AUTO-PROMOTION APOLLO/ARTEMIS V1.16

Feature Description
Auto-promotion is a simple interface to enable Calrec engineers to set router hierarchy within a customer's Hydra2 network. This hierarchy allows slave routers to automatically promote themselves to take over the 'master' status in the highly unlikely event of a connection issue with the original master router. A system of priorities and time delays is used to select which routers can auto promote and in what order.

Two priority levels are available: 1 and 2. The routers that would ideally take over the 'master' status first should be set to priority '1' and those which would take over in the event of a secondary failure should be set to priority '2'. Time delays can be set within these levels to further control the order of takeover. If users want to have the ability to reset the master router without another router auto promoting and taking over, a minimum time delay of 60 s should be chosen between each priority level.

The Hydra database, which contains port labels, remote patching information and a basic description of the Hydra2 network, is replicated from the master router to all other priority '1' routers on the network. To minimize network traffic, this database is not replicated to level '2' routers until a level '1' router has auto-promoted.

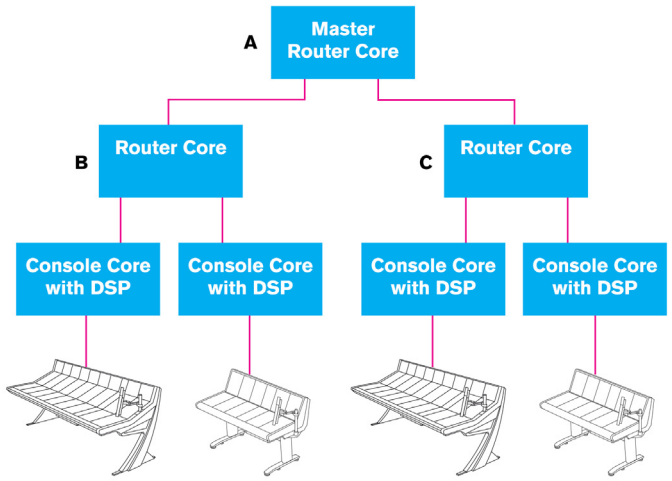
AWACS messages are generated to inform users that a router has auto promoted.

Benefits
Auto-promotion complements existing redundancy mechanisms and works with them to provide even greater levels of security. The primary motivation for its development came from clients who were concerned that relying on a simple master router created vulnerability. Although splitting master routers can offer some protection, by allowing the primary and secondary components to be separated geographically, it may not always be practical, desirable or affordable to do this. In some cases (Al Jazeera, Doha), it may not be considered sufficient protection. Auto-promotion provides contingency in the event that the entire master router, including both primary and secondary parts, are lost.

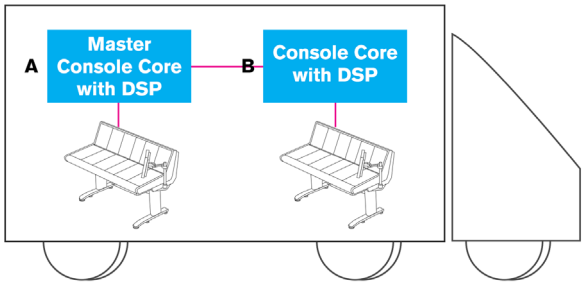
When a master router is lost, other routers in the network become aware due to the lack of heartbeats. The router(s) with the shortest time delay then take over. In example 1 below, the effect is that the network cleaves into two separate parts. Aside from a short period of reconfiguration (a gap in audio of around 10 s) the now independent parts of the network continue unaffected. Of course, any routes that passed through the original master router will be lost, but everything else will work as before.

In another example, a network of two consoles, as sometimes found in OB trucks, gain a significant benefit from auto promotion. In this case there is no independent Router Core, and one of the console cores has to be designated the master. Without auto-promotion, if this console suffers a major failure or is switched off, then the other console will continue to work.

AUTO-PROMOTION EXAMPLE 1



AUTO-PROMOTION EXAMPLE 2



Configuring Auto-Promotion

Auto-promotion is configured using a small XML file which is held placed on the master router's primary router card and then sent to all other routers on the network. An example of the XML file can be seen to the here on the right.

To configure Auto-promotion:

1. Create an XML file called AutoPromote.xml.
2. Edit the XML to replicate the image to the right, replacing the rack IP addresses for those on the network you are working on.
3. Set a level and wait time for each rack.
4. Use Telnet to connect to the master router using its IP address on port 55555.
5. Place the XML file here: /home/montana.
6. Use an SPI command to send the XML file to all routers on the network.
7. Reset the entire network.

AUTO PROMOTE XML FILE