

## Application Note AN-0001

### Patch Panels versus Routing Switchers

For a small TV installation or facility it can be difficult to justify the cost of buying a routing switcher. This brief note shows how routing switchers can help you.

At first sight the simple patch panel looks a better bet; the patch panel is much simpler than a routing switcher and therefore should be more reliable. Further, as the signal passes through a patch panel without any electronics involved the signal quality ought not be degraded at all. However this argument collapses if routes are changed frequently, because the patch panel contacts and cable will eventually wear out, resulting in intermittent contacts, whereas a router should work for many years without needing attention.

Mostly routers are used for the assignment of routes off-line, but sometimes you may need to switch a signal on-air or during a recording. A router can switch between pictures during the vertical blanking interval of the picture allowing cuts to be made between timed signals without visible disturbance.

So much for the technical performance issues, but perhaps the more obvious benefits of a routing switcher become apparent when we consider the ease of use.

Once you have more than say ten signals to be assigned the patch cords can become a tangled mess. Usually nobody unplugs the patch cord after they have finished with a signal, so existing wanted routes are difficult to identify. It can sometimes be difficult even to read the labels on the patch panels because of the mass of patch cords!

This may be acceptable if there is only one user of the equipment, but when there are several people needing to establish routes then the situation can become more difficult. There is the danger that someone will accidentally unplug one of the signals currently in use.

By contrast with a router all the signals are available to any destination. You don't have to worry whether someone else is using the signal; and you don't have to get up and walk over to the patch panel to change the route - it is all there on the desk at the push of a button!

If there are a limited number of machines available then the router panel can be used to quickly see if a particular machine is being used and where, so that the appropriate action can be taken quickly.

Many facilities use freelance operators so it is vital that they can quickly see what's available and how to access it without requiring the presence of the resident engineer, if there is one. Current usage should be easy to identify and new routes easy to make. A routing switcher is a great help here.

So far I have been looking at the video side only. However if you have a mixture of analogue and digital video, perhaps four levels of audio, digital and/or analogue, plus time code and machine control as well, then it is a boon to be able to switch them all together, knowing that all the levels are locked together and yet still have the ability to break one of the levels away to add, say, a test tone for alignment.

Finally a studio equipped with a router can benefit from more advanced features such as memorising studio set-ups which can be recalled instantly - ideal if there are regular jobs which require special set-ups.

In the TV facilities industry the customer is not prepared to pay for routers on the rate card - it is not a glamour box it is part of the basic structure of the facility, as essential as the telephone - but he or she does expect to see a well organised facility staffed by people who know what equipment is available and who know how to access it quickly. As in most businesses time is money and when you are paying by the hour you are even more painfully aware than usual of even the slightest delay. A routing switcher can go a long way towards creating a professional and efficient feel to the facility.