

# The Workflow



Norddeutscher Rundfunk recently re-equipped its complex of four studios assigned to Channel 1 with a series of Draco switches

## A time to switch?

The evolution of keyboard, video and mouse (KVM) switchers from point to point to continuous operation for broadcast applications

By **Ronni Guggenheim**, managing director, IHSE

ENGINEERS WITHIN the professional broadcast world are comfortably familiar with video routers for the control of uncompressed video and audio signals within live studio and editing locations. However, there is less familiarity with the use of KVM (Keyboard, Video and Mouse) enterprise and video matrix switchers to carry out the same function for computer signals.

These devices are becoming more common throughout the broadcast industry as computer-based tools are used with greater frequency in editing, production and playout operations. Organisations throughout the world including SRF, ZDF, NDR, Technicolor, Skywalker,



Key to the NDR upgrade was the requirement for all computer terminals to be instantly connected and switched with the data centre several floors below

Facilities House and ORF have already deployed IHSE's Draco range of KVM matrix switches in their facilities to carry out a range of functions, allowing the creation of virtual editing suites, virtual studios and streamlining studio and outside broadcast vehicle operations.

KVM computer extenders provide the ability to separate the user from the computing equipment, while still providing full access to, and control of the device. These single channel point-to-point extenders are widely used in situations of limited space and where enhanced security is required.

The latest generations of KVM matrix switches offer up to 288 ports in a single housing and allow dynamic and pre-configured connection between banks of consoles and

computers, allowing multi-user, multi-computer configurations to be built, much as video routers do for video signals. This means that working environments such as studios and edit suites can be supplied with generic consoles which can be dynamically and selectively connected to remote workstations, rather than having fixed interconnections to dedicated computers.

So these rooms become truly multi-purpose, allowing editors and production staff to set up and store preferred configurations, which can be replicated at other times in other rooms. The high speed technology offered by the KVM matrix switches enable the creation of virtual edit suites supporting a range of software-based tools including Avid

Symphony, DS, and Media Composer, as well as DaVinci Resolve and Final Cut Pro workstations. With this setup, the entire resources of the production house become immediately accessible at any end-point.

### NDR and SRF

NDR, Norddeutscher Rundfunk, Germany's northern TV and radio broadcaster, recently re-equipped its complex of four studios assigned to Channel 1 with a series of Draco switches as the station embraced digital, computer-based technology to manage and manipulate a wide variety of sources and displays. Key to the upgrade was the requirement for all computer terminals in each studio to be instantly connected and switched between individual computers housed in the data centre several floors below.

Personalised settings and configuration allow the terminals to be quickly configured to a particular presenter's requirements enabling them to arrange data and control applications, such as programme sequences, email, traffic webcams and internet access onto the screens to their own personal preference, making it easier for them to access information quickly while on air.

In Switzerland, Schweizer Radio und Fernsehen (SRF) provides TV and radio services with a bouquet of six radio channels and three TV channels. Here, a 288-port Draco tera currently supports 135 computers and 56 user terminals over their CatX network. Each user has access to computers at HD resolution up to 1920x1200 using DVI-D interfaces, along with full control through keyboard and mouse HID (Human Interface Device) and USB2.0 connection for additional storage devices, tablets and other peripherals.

For SRF, bespoke software features were designed by the engineering team at IHSE to meet SRF's specific requirements, including virtual mapping of computers so that there was a link from users to virtual machines, rather than physical ones, allowing greater granularity of routing, spreading of resources and enhanced security through access restriction to users. The assignment of users to virtual machines is controlled dynamically by the studio BFE system, achieving faster response than could be achieved through physical mapping via the matrix switch alone.

Investment in KVM systems of this type is large: in terms of financial, system installation and operational overhead. So it is important to carefully consider the features, specification and characteristics of the technology during the evaluation phase. General features required in the broadcast industry to enable 24/7 operation are a prerequisite, such as dual redundant power supplies, hot-swapping of devices, multi-access control paths and continued operation in failure mode.

Image quality is paramount. IHSE KVM matrix switches employ up to 2TB switching backplanes and use dedicated networks to distribute video with very low levels of compression. The standard range delivers full screen motion video in realtime with a bit rate of 1Gbps, which is suitable for a wide range of applications with no apparent artefacts. In most cases this provides acceptable and usable image quality. The newer eXtreme Video (XV) versions operate at a higher rate of almost 3Gbps for even higher quality distribution for the few remaining cases where it is absolutely necessary. **TVBE**