The Integrated Newsroom

By Neil Dormand

The status of the newsroom is rapidly changing from a production and editorial office to a fully-functional capture, edit, and output area. At the same time it must have the necessary flexibility and responsiveness to react to ever-changing program demands without the need for complex and costly infrastructure changes, and incorporate a philosophy of constant evolution. The BBC's News Centre is at the forefront of this process of change. This paper will review the developments that have occurred over the last year and look at those that might be possible over the next three to five years. It covers the lessons learned so far, which will influence the approach that will be taken in the future

Historically, the BBC news operation was spread across many locations, primarily within two major sites (Broadcasting House in central London and Television Centre in West London). However, even within these sites individual production teams had their own offices spread throughout the building. The aim was to co-site these within one cohesive development. The location chosen was a new extension to the television center. The result is not just the biggest single newsroom ever built, but a truly multimedia broadcasting center with radio and television transmissions taking place both from inside the newsrooms and from studios that have been built immediately alongside the production teams.

The scale of the task should not be underestimated. Twelve hundred BBC staff are based in the news center. They work in shifts and "hot-desk" at over 650 workstations. Many of the technical problems that had to be tackled were the direct result of the scale of those requirements in terms of facilities and networking.

The layout and design of the facilities recognizes the newsroom as a working area that is experiencing rapid change and will continue to do so for some time. Part of this change is that the desktop will gradually replace some of the existing specialist facilities in capturing, editing, and broadcasting output for television, radio, and the Internet.

There was a priority on economy of scale and design simplicity, since the whole project was conceived within the context of a flat BBC license fee income. However, with the advent of new digital widescreen television services and the multimedia news provision for online, there was a need to provide increased news output. In excess of four hours of news material is produced every hour in the news center, providing programs for four national mixed-genre radio networks and two television networks, as well as a domestic continuous news radio network, a domestic television news channel, and an international television news channel.

The Environment

When developing the concept surrounding the news center there were major environmental considerations. It would have to continually adapt to innovation in technology and working practices and be flexible enough to meet changing editorial demands. Above all it was to be a place for people to work in.

The technical requirements anticipated at the workstations were bound to change during the period of occupation. In fact one aim of the news center is to drive the move of actual program production from specialist technical facilities to the desktop.

Although we had to plan for flexibility, there were some key editorial changes that we knew would be implemented as part of the move. First, the desire to accommodate a single multimedia newsgathering operation that would supply the raw material for all the BBC's news requirements; second, the co-siting of all daily news activities in one area; and third, more generally, the encouragement of interaction between members of program teams with a similar editorial remit, but working for different output media.

We did not want any restrictions on the positioning of our editorial teams. We operate in a climate of constant change and any strategy that did not have flexibility at its core would be doomed to failure. To this end we started with a philosophy that would allow any activity at any workstation. This was then refined by the constraints of cost, the lack of scaleability of some systems, and the physical dimensions of some of the hardware.

Current Facilities

While the basic infrastructure was planned about two to three years before occupation, the final decision regarding the technology to be used by the journalists was left to the last possible moment, so that advantage could be taken of the latest developments. In addition, a continuous news channel, News 24, had been launched in 1997 using an all-digital newsroom with a highly automated playout suite, and we wanted to gain the experience of this technology. While similar desk and control room layouts were adopted, it was decided that the type of high-technology operation used so successfully on News 24 was not developed enough to suit the requirements of the more traditional single news bulletin.

Journalist Desks

A design of furniture was developed to meet stringent health and safety requirements, maintain the necessary flexibility of use, cope with the arduous nature of a newsroom, achieve the necessary density of occupation, and yet be movable, on castors, by one person. The work surfaces had to accommodate all the anticipated technical equipment, be height-adjustable by their users at both front and rear, and at the same time look visually attractive. Adjustability is a key criterion, with a need to meet specific EU requirements and to accommodate all sizes of people, including those using wheelchairs, at each and every

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desk. Failure to meet these requirements would mean a failure to provide the flexibility necessary for hot-desking throughout the newsroom.

The Basic Workstation

Figure 1 shows the workstation. The basic hardware provision at each desk consists of a multimedia PC with loudspeakers, a 10-in. television, a telephone, and a dual audio and video RF tuner with headphones. The basic networked software is Windows and the standard BBC desktop running MS applications, together with the BBC electronic news production system (ENPS) and internet access. In addition, approximately 30% of workstations have PC-based audio editing using minidisk as an optional external source and Cool Edit Pro or D-Cart software. Around 5% of desks have PC-based video editing facilities, Omnibus automation, and control of the BBC Broadcast Network Control System (BNCS).

The RF broadband distribution, delivering 100 audio and 150 video feeds to each workstation, is carried on a star network from apparatus rooms on each floor. This system has been used instead of tree and branch distribution so that the coaxial cable may, in the future, be used to carry other data with remote switching inside the relevant floor apparatus room. A custom-built tuner was developed with each source being selected using a three digit code.

Infrastructure

An underfloor cabling system was designed to give sufficient density of services, yet allow the insertion or removal of desks without the need of expensive technicians to disconnect or reroute the services. The key to the flexibility of the cabling system is the use of a modified slab-box and an associated cable tower. The box carries a variety of services and is connected to a network of cable trays running beneath the raised newsroom floor using flexible armored conduit. It is oriented so that it will clip to the lower part of a tower sited within a group of desks.

A network of horizontal and vertical category 5 cables allows cabling back to IT hub rooms and broadcast areas. In this way different routes can be chosen for any service and the resilience can be maximized in each area. Telephone services are provided on category 3 cables.

The central technical area on the lower ground floor of the building houses a 384 x 320 video matrix and an 1800 x 1800 sound router, as well as the 576 x 576 and 384 x 384 communications routers. Here all incoming feeds are checked and bundled, ensuring that when a destination within the building selects the feed, all associated sound and communication circuits will be present.

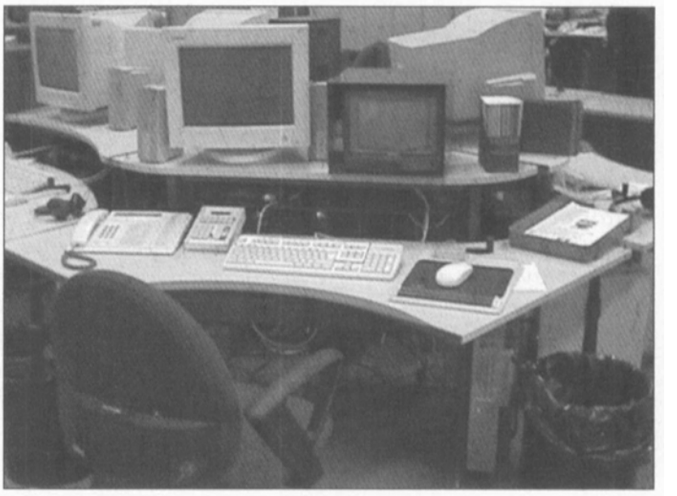


Figure 1. Basic news center workstation.

Other facilities include 6 radio studios and 13 journalist-operated radio workshops. In addition to 3 television output suites, there are 7 Beta and 18 Avid edit suites for the traditional BBC 1 output, with News 24 and BBC World using Omnibus Edition editing systems. Graphics preparation utilizes Quantel Paintboxes and Harriets. Captions are generated automatically following the insertion of the name by the journalist in ENPS.

The Experience

People

The advantages of the one bi-media newsroom are already apparent. Not only does it unlock the potential for greater efficiency, it allows a clearer chain of editorial control, a more cohesive collective identity, and breaks down artificial barriers to staff mobility and cross-fertilization. Co-siting was always a hugely ambitious project: in the space of five months, the news center went from an empty shell to a headquarters housing 1200 journalists producing output across 13 networks for 24 hours a day. The program teams that moved there had to do so with no break in transmission, and the strong interdependability of programs and services on one another and on newsgathering meant that the move, once begun, needed to be completed in a tight time schedule.

The physical move itself went well, but as is inevitable in any new facility, there were teething problems with the technology and some of the installation while usable was not complete. Although there had been extensive piloting by the program teams before they moved in, problems did not occur until the facilities were operated at full capacity on live programs. What made it more difficult for the teams was that there were no engineers or operators between them and the technology; therefore, the impact of a failure more directly affected them. To counter this, experienced technicians were temporarily introduced to resolve problems and to help the journalists.

All the staff had to undergo an intense period of change. Not only was there the new building with which they had to become familiar, but they had to learn the new technology which inevitably required new techniques. While digital systems such as D-Cart had been in use for some years, they had also had 1/4-in. tape at their disposal. This is no longer the case, and all audio editing is performed on the desktop.

They also had to adapt to ENPS, which replaced the aged Basys newsroom system. A decision had been made that no journalist would make the change to ENPS at the time of the move, and that at least a month would elapse between the two events. However, some had only the minimum time on the system and were still becoming fully proficient in its use while learning other new technology.

It is easy to underestimate the effect of too much change at once. No matter

how much preparation and training people are given, it is not until they have to operate under the pressure of program conditions that the cracks begin to occur. Good communication with the staff is paramount to ensure that everyone feels part of the development.

Technology

A project of this size and complexity requires tight management of suppliers, especially to ensure coordination between them. The scale of the installation was the largest that many of the manufacturers had been involved with before. While some achieved what they promised, many had difficulty scaling up their product to the extent that was needed; this is a problem unique to organizations the size of the BBC. Since cost prohibits a full scale pilot system, it must be taken on some trust that the systems are deliverable.

Digital technology is not fully matured for large installations. Due to the inevitable copying problems that slow up the production process, we have not achieved a common file format for audio within our radio operation. For video, the digital storage and manipulation systems do not yet exist for an operation the size of BBC News, certainly not at a price that makes it a good investment.

Standard IT infrastructure does not yet provide the quality of service required for broadcasting and the limits of the PC soon become apparent. It is important that these limitations are fully understood by the users and a program of education undertaken.

The Next Steps

Moving into the news center was not the end to development, only the beginning. While some areas such as News 24 are highly automated, they are isolated installations and it is not easy to share material throughout the enterprise. The future concept for technology is a single infrastructure that will act as an artery from which the various consumer services will branch.

The System will enable

- Incoming material, text, audio, and video complete with metadata, to be available to all users on the production system as soon as it arrives at base. It will not only be within a work group but across the enterprise and available to more than one person at once, including those operating remotely.
- Journalists to edit text, audio, and video as well as create graphics at the desktop and assign the item to the particular outlet as required or store it on a "virtual shelf" for later use. Graphics will automatically be created in a style for the particular outlet assigned.
- Journalists to have research capability at the desktop, with online access to archive material. Rights and billing information should be available at source. They will also be able to access servers at remote locations and pull broadcast media to their local server automatically.

While much of this is possible now, applications tend to run in isolation with little or no integration.

Technical Description

It is anticipated that incoming broadcast-quality material will be compressed in realtime and made available to the workstations for various types of low-resolution access. For video, this may be as key frames, web-quality resolution, and "editable-quality" low resolution, about 1.5 Mbits. Key events (such as goals) can be flagged for ease in producing highlights.

A media management database will keep track of these versions with the broadcast-quality version and will know that they are the same media objects in terms of their content. Audio and video desktop editing software will generate edit decision lists using the browse material. These will be applied to the broadcast material.

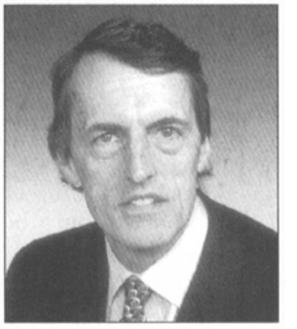
Media object links in ENPS will enable pointers to the edited media objects to be associated with scripts and dragged and dropped into running orders. This, in turn, will conform the edited version to the appropriate output store for that program. At the same time any graphics generated will be conformed to the correct style. As material ceases to be part of "work in progress," it is stored "nearline" and eventually "offline," and its location is still tracked by the media management database. This historic media can then be recalled from the archives by a command entered at the desktop.

Conclusion

The move to the News Centre and the introduction of ENPS are the first steps towards a fully integrated production process. We plan to pilot a system to test the concept and win the hearts and minds of the program staff before making the investment in a full-scale installation. Success will be gained only if the system provides the quality of service and reliability that broadcasters are used to at a price that justifies the investment.

The workstation must be powerful enough to enable the journalist to work at a speed to meet the tightest of deadlines and, above all, the technology must not get in the way of the production process. To achieve this, manufacturers must fully understand the business of news production and users must learn to understand the technology so that they can influence its evolution.

THE AUTHOR



Neil Dormand is general manager, technology and production services, BBC News, and has over 30 years experience in the broadcast industry. He joined BBC as a trainee cameraman, and during the first 13 years, performed in most of the television operational positions.

Dormand took an operational management role for the launch of the first U.K. breakfast television program. Many new operational techniques were introduced at this time, not least the widespread use of lightweight electronic cameras. Following this, he gained wide experience in resource management and the introduction of change.

Since its inception, Dormand has been involved with the news center and ENPS projects, and for the last five years has been the senior technical manager in news.