Creating an integrated control system in a campus setting is rarely easy. There are multiple rooms in multiple buildings, myriad applications, and end-users with varying degrees of comfort using AV gear. When the University of Rochester sought to create a system to meet its presentation needs for classes, meetings, film screenings, and conferences, it turned to Crestron.

Mat Felthousen, assistant director for university information technology, was asked to develop a system that would ensure a consistent user experience. Felthousen chose Crestron’s QM-RMC room media controller to power the university’s “Central Monitor.”

Central Monitor now enables the university to manage more than 80 rooms from one touchpanel. Authorized users can control and monitor any number of classroom video projectors, public display devices, centralized AV matrix routers, codecs, lighting systems, or remote motorized cameras over an IP network. It can be used standalone for small or specialized IP-based control applications, or as an expansion module for larger systems.

Using Crestron’s XPanel, Central Monitor can also be used to remotely select rooms and monitor, control, and configure equipment. Functions like turning on a projector, adjusting volume, or taking control of a DVD/VCR can be performed from anywhere on the network. XPanel video-sensing information and additional controls, such as lighting, extra projectors, document cameras, microphones, and built-in computing equipment can also be accessed. Crestron RoomView Express software functions as a high-level dashboard that tracks how each room and the associated systems and hardware are being used.

The Crestron QM-RMC/XPanel combination that helps make up Central Monitor can also reconfigure the programming of both the touchpanel and control system to...
facilitate the swapping out of equipment — one projector brand for another, for example. Any change made via the Central Monitor takes effect in the remote room immediately and transparently to the user. The only time there is a noticeable change is when equipment is added, in which case new buttons appear on the touchpanel. If an in-room controller loses its configuration, it will connect to the Central Monitor and reconfigure itself based on a stored string that is generated as a part of the configuration process.

**Universal Program**

Soon after Central Monitor was up and running, Felthousen developed the "Universal Program." Currently used in 50 rooms, Universal Program is a Crestron QM-RMCRX-BA processor-based control system. It can sync up with Central Monitor for an additional level of control, or it can be used standalone to support rooms lacking a network connection. When the program is loaded for the first time in a room without a network connection, the system asks for some basic configuration settings via the touchpanel. Once the room is set up, the configuration is stored in NVRAM (non-volatile random access memory, which won’t lose data when power is turned off), and the information is sent to Central Monitor when a network connection is established.

Universal Program is used in rooms equipped with only a Crestron QM-FTMC-SC FlipTop and a display, or as elaborately as having podiums with any combination of equipment or systems, including a PC, document camera, laptop connection, DVD/VCR, closed-caption decoder, switchers, lighting controls, touchpanels, microphones, projectors, and motorized screens. The Universal Program simplifies equipment installation, configuration, and replacement, whether in combination with Central Monitor or by itself.

When factoring in the pre-programming of the wide variety of equipment and systems available, there are literally millions of combinations the system can configure from any network connection. For example, a student or staff member can swap a faulty DVD/VCR with a unit from the school reserves, and a single touchpanel selection by the help desk via Central Monitor and XPanel will change the remote system programming. This also enables repairs to be conducted in the 10-minute gap between classes, with no reprogramming. The end result has been a vastly reduced response time even though staffing levels have proportionally decreased. Additionally, many problems can be solved by support personnel via remote diagnosis.

The Universal Program also has several built-in safeguards to help preserve the long-term functionality of equipment. The video sensing capabilities of QuickMedia enables timers to automatically shut off a projector after a prescribed amount of time. Likewise, triggers such as extended periods during which the video is muted without interruption will also cause a projector to shut off, thereby avoiding damage to the LCD grid. The Central Monitor also limits the maximum volume of the audio — in real time — so that users cannot cause damage to the equipment or disrupt adjoining classrooms. QuickMedia skew settings are stored in the Central Monitor system along with the configuration of each room, in case a power outage causes the in-room controller to lose these settings.
AV in the Library

A major component of the university’s 2007 library renovation was a distributed and collaborative AV system, for use by both students and the general public. The design is intuitive, and enables remote and local control of the displays. The space functions in a similar manner to technology-enhanced classrooms, yet blends in with the overall aesthetics of the facility.

Eleven displays are distributed across two floors and eight rooms. Four of the rooms are collaborative cubicles equipped with 42-inch LCD panels, QM-WMCs, and QM-RXs. The QuickMedia cabling from each room is fed to a QM-MD8X8 that also receives feeds from both floors. With this design, each room is capable of displaying local signals (from a laptop or AV device) or remote signals fed from two head-end locations in other parts of the library. One room is a self-service, student-only theater, furnished with audio-visual equipment, touchpanel, speakers, projector, and furniture that can be easily rearranged for a variety of uses. Two 65-inch LCD panels are located in an information lounge and receive remote feeds, and will soon be used as part of a digital signage initiative at the University, still fed by QuickMedia technology.

QuickMedia technology with matrix switching allows all displays to receive remote AV signals when not in use locally. Rather than use a touchpanel to control most of the display devices, the video sensing ability of the QM-WMC connection plates is used to trigger events such as turning on the display.

The response from students has been overwhelmingly positive, and the equipment has been in nearly constant use since the opening. There are also discussions underway of expanding the capabilities of the system to include more sources such as HD devices.