Virtual Control Solutions for the Modern Workplace

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VIRTUAL CONTROL

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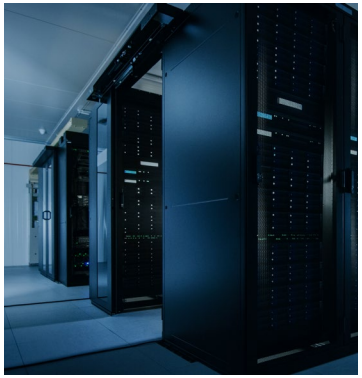
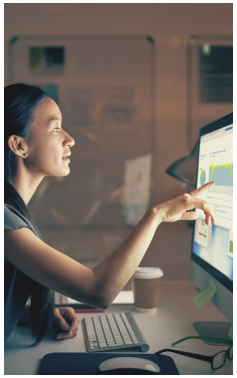




Introduction

The modern workplace now demands a mix of spaces that all need to be digitally outfitted, and with that comes the need for a consistent control experience that can easily be deployed across any enterprise or university setting. Control should enable everything from unified communications to lighting and scheduling at the user's fingertips, from the smallest huddle room to the biggest auditorium. As a company or a school grows, expanded control of those spaces can rapidly become an overwhelming concern for IT departments. The issues are obvious: How can we scale this effectively? How much will this cost? Do I need new infrastructure? How do we manage the management system? What happens to all the "black boxes" we've already got in place?

One solution is Virtual Control — a software-based product with the ability to scale up quickly with zero friction, from interoperability to security to device management issues. **Crestron's VC-4** is just that solution.

Interested? Read on. Then experience all the benefits of Crestron's Virtual Control with a 90-day free trial.

PART ONE ▪ CONTROL

What drives the need for control? ▪ Room automation has never been more in demand
The need for control extends beyond the meeting space or classroom

THE DEMAND FOR CONTROL WITH CONSISTENT USER EXPERIENCE IS INCREASING.

YOUR INTERFACE FOR AN IMMERSIVE IN-ROOM EXPERIENCE

As businesses adapt to the modern workplace, with its emphasis on rooms that need videoconferencing capabilities (and much more), the demand for control solutions that provide consistent user experiences is increasing. While devices with "out of the box" functionality that are dominating the technology landscape promote their ease of use, the reality is that the need for scalable, reliable control systems has never been more vital to an in-room experience. The right control system ties all these technologies together so that there's never an issue for those interacting with an organization's rooms on a day-to-day basis. After all, nothing's worse than tech that goes unused because it's simply too complex or unreliable.

WHAT DRIVES THE NEED FOR CONTROL?

The sheer number of devices and technologies used in spaces, including (but not limited to) displays, videoconferencing systems, lecture capture technologies, source routing from multiple laptops and/or tablets, and in-room PCs.

The need for a consistent user experience across an entire organization or enterprise; from room to room, or space to space.

The need to access specific functionalities from each device to ensure meeting productivity and effectiveness.

The ability to control cameras in a variety of ways (including zoom functions) to highlight messages or speakers.

The need to switch content sources with ease and immediacy.

The ability to adjust audio levels based on specific preferences or to control the volume of speakers or sources.

The need to adjust climate and/or air controls, as HVAC and a room's ambiance are just as mission critical as the technology — a good work environment demands optimal heating or cooling for spaces while in use.

Adjusting lighting (and/or shading) based on the room's use (such as video presentations or live presentations), the need for natural light, or adjustment necessitated by the time of day or weather.

ROOM AUTOMATION HAS NEVER BEEN MORE IN DEMAND

Automated control is a critical piece of any control platform. Automation that utilizes room occupancy sensors (or timed settings) can provide solutions such as:

- Shutting rooms down or powering up based on usage, thereby saving money on heating/cooling and electricity
- Making any space intuitive for a broad variety of users, which increases technology usage and maximizing an organization's investment in technology
- Creating touchless spaces that run "automatically," supporting general health and safety initiatives

THE NEED FOR CONTROL EXTENDS BEYOND THE MEETING SPACE OR CLASSROOM

There are uses for control systems that extend well beyond the spaces mentioned above. In a modern digital environment, there's a diverse amount of interaction with content in a variety of applications, including:

- **Hybrid spaces** where remote and in-room collaboration come together
- **Interactive digital signage** and video walls
- **Directional "way-finding"** to specific points of interest in a building
- **Virtual lobby assistants** for check-ins and social tracing
- **Training centers** where multiple technologies are integrated

PART TWO ▪ VIRTUAL CONTROL OVERVIEW

What virtual control means - and what are its benefits.

VIRTUAL CONTROL SCALES QUICKLY AND SAVES RESOURCES.

THE EVOLUTION OF CONTROL

Hardware-based control solutions have been the go-to option for decades, and their benefits are commonly known — and hardware is certainly still a viable (and often the most efficient) answer. But as technology advances, control systems have evolved to include software-based solutions. Like video conferencing, video capture, and other solutions that were originally hardware-based, virtual control has evolved to the point where it can scale quickly and save tremendous resources.

Virtual Control, like other software solutions, provides a breadth of benefits, including:

- A single, centralized software package that is easier, faster, and more scalable and easier to manage than multiple appliances distributed throughout an organization (with room for 500 spaces on one server)
- Reduced overall costs of platform ownership
- Scalability into more spaces as an organization grows
- The ability to save room configurations and repeat them for mass deployments
- A reduction of RMAs and service requests
- Easy to customize and update

At its heart, VC-4 is an IT-based architecture that delivers:

- A system that is standards-based and service-oriented
- The ability to leverage existing IT infrastructure for redundancy and fault tolerance
- The same provisioning and maintenance methodology implemented by an organization's IT management

PART THREE ▪ THE ENHANCED EXPERIENCES THAT CONTROL BRINGS

The right control can enhance the experience offered in every space.

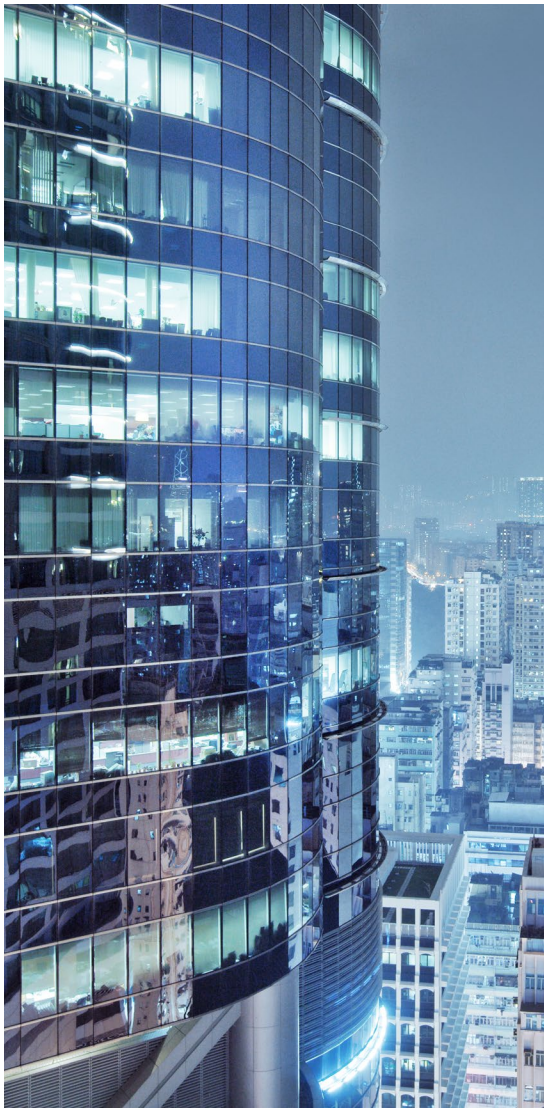
With virtual control solutions, those deploying the system get the same programming and configuration experience as they do with hardware, while those who need to regularly interact with the technology are delivered a consistent experience regardless of the room type. Virtual Control can further enhance those experiences given the nature of its customizability, even at scale.

Enhancements include:

- Customized control options for increased functionality in rooms where VC-4 is deployed, which can drive increased productivity and create a consistent user-experience across an entire enterprise
- Support for better in-room meeting experiences with integrated conferencing
- Control of in-room PCs
- The integration of conferencing with source switching
- The creation of critical room settings via the platform's ability to control lighting, shading, HVAC/climate, and other environmental needs
- The ability to automate rooms; the utilization and integration of sensors to automatically turn rooms and/or applications on and off
- The ability to schedule and program "touchless" meetings
- Increased branding on each user interface, helping to drive a sense of community, culture, and corporate pride

PART FOUR ▪ THE OPERATIONAL BENEFITS OF VIRTUAL CONTROL

Software solutions can make for a more efficient operational model.



A migration to a software-based control solution — particularly one such as VC-4, which can be combined with existing hardware controls — can save an organization resources, from money to man-hours.

The Operational Benefits

- VC-4 software control affords the ability to **configure and manage multiple spaces at once** with up to 500 rooms on a single server, allowing a firm's IT professionals to utilize the time saved to redeploy their services to other projects — and allows system managers to configure and manage multiple spaces (and devices) remotely
- Software-based controls, such as Crestron VC-4, enables deployment specialists to design and configure a room, **save the configuration, and push it out at scale**
- Since every room is **managed from a centralized server**, software solutions deliver greater assurance that all the connected spaces have the proper security patches. Sending any updates to that single server affects all the rooms it supports
- Software control **reduces associated risks with not updating individual hardware appliances one-to-one per every room** across a vast physical landscape
- **Software extends the overall lifecycle** of the control platform. Additionally, VC-4 is not a subscription-based product, so your organization only needs to make a single, perpetual license purchase per room
- **Software updates are dynamic**, as drivers can simply be added or replaced with no new programming required and can be deployed "en masse" to certain room types rather than point to each individual appliance
- Crestron's VC-4 also enables organizations to **leverage redundancy and security measures** for increased reliability, as the software runs on a local server (or servers) on an organization's network

BROADER BENEFITS

Software-based control can help IT management streamline and simplify control for devices, displays, lighting, shading, and thermostats across an entire organization. Control all networked devices and power down AV devices and displays — such as digital signage or networked-based devices and equipment — easily from a centralized location.

Command the room

Similarly, within individual spaces, users can have the same in-room control on a simple web interface, such as a touchscreen. The user can control the space, creating the perfect environment for performance and productivity by adjusting lighting, shades, and temperature. Users can also easily switch between multiple sources for seamless presentations in real time.

PART FIVE ▪ THE ARCHITECTURE OF VIRTUAL CONTROL

The architecture of a software control solution, such as **Crestron Virtual Control**, is remarkably easy to design and deploy across any enterprise

VIRTUAL CONTROL CAN BE DEPLOYED ALONGSIDE EXISTING HARDWARE.

A SINGLE SERVER SOLUTION

With VC-4, a single on-premises (or private cloud) server is used to control up to 500 different spaces (as opposed to hardware solutions that are generally one-to one — a single device per room — in the spaces they support).

All functionality on VC-4 is executed from the server and not in the public cloud. This means that a firm's data has added protection — everything can be stored locally on premises or in a private cloud. In this manner, VC-4 software supports the latest protocols rather than a third-party cloud service. As a result, sensitive data never leaves your network infrastructure.

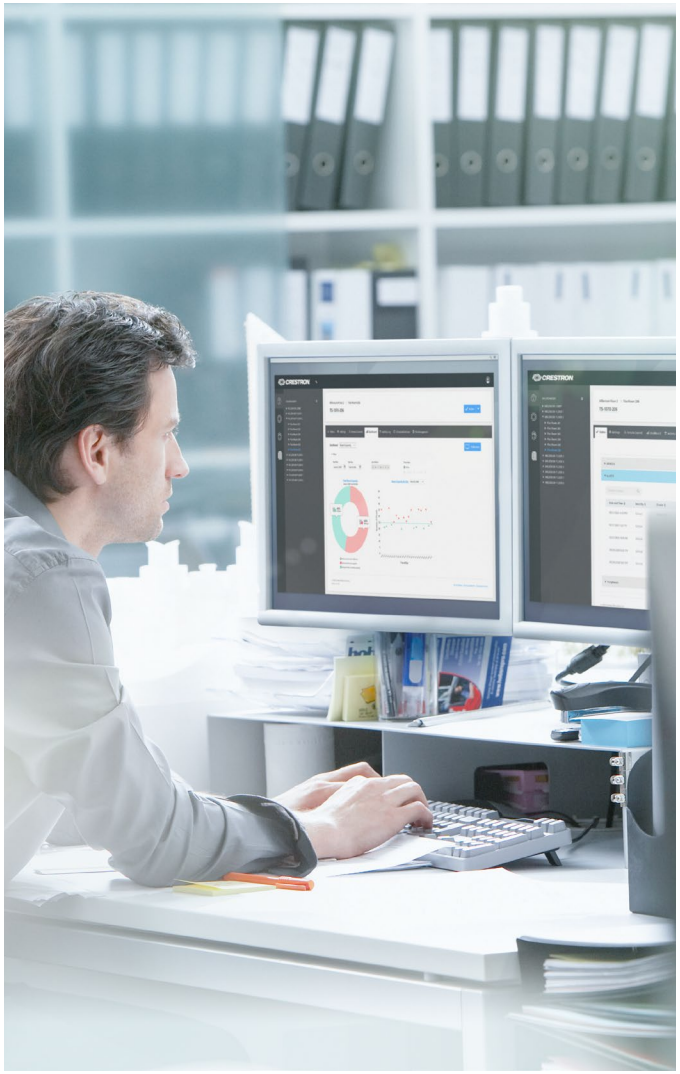
A HYBRID SOFTWARE/HARDWARE SOLUTION

Virtual control can be deployed alongside existing hardware deployments, giving you the ability to utilize a mix of hardware and software. This enables an organization to leverage existing investments in technology while expanding control into new environments. Additionally, there's parity between the two, as the programming and configuration of each solution remains consistent — as does the user experience. The only difference? One option uses a local processor, while the other delivers results from a centralized server.

CUSTOMIZABLE AND SCALABLE

VC-4 allows for the choice of very advanced and customized programming options for organizations as well as standardized and repeatable room designs that require very little deployment times. With VC-4, an IT department can program a room design once — and deploy that design to as many rooms as needed. The creation (and curation) of an entire library of custom rooms is simple with VC-4 — an IT department can create files for "custom" rooms, which includes source names and drivers, making it easy to modify, update, or customize room configurations.

With VC-4, an organization can add new applications, not just rooms. In addition to, say, 300 standardized spaces, it's a simple matter to add rooms with other functions, from training and boardrooms to employee gyms. Scalability is never restricted to merely "more of the same."



EASE OF PROGRAMMING AND DEPLOYMENT

One of the most attractive aspects of the VC-4 control platform? It's standards-based.

VC-4's programming language features both SIMPL and C#, and both are used in Crestron's hardware solutions. As a result, no new training is needed for Virtual Control. As a worldwide leader in control systems, Crestron has over 20,000 certified programmers globally trained in both languages which means virtual control can be deployed and managed immediately from the industry's top programmers.

VC-4 runs on the Red Hat® Enterprise Linux® Operating System which gives a consistent, stable foundation across hybrid deployments. Along with Red Hat, VC-4 can be deployed on other trusted free operating systems, such as AlmaLinux and Rocky Linux™.

VC-4 is built on a service-oriented architecture, which allows you to leverage a powerful REST API to integrate VC-4 with many of your existing software tools to deploy and manage rooms at scale. The benefits of REST are, of course, that it's a stateless and lightweight protocol that is easy to implement. For example, by utilizing the REST API your real-estate management system could be used to add additional rooms in VC-4, making onboarding new spaces in your enterprise easy and streamlined.

PART SIX ▪ IN SUMMATION

Crestron's VC-4 Virtual Control solution has been market-tested, and it's packed with features and benefits — most notably, scalability.

CRESTRON VC-4: A WORLD OF BENEFITS

The Crestron line of control products feature both hardware and software solutions, and both provide an identical in-room experience — your organization sacrifices nothing by choosing one over the other. Both feature the same programming and configuration processes and languages, which means no additional training or programs need to be learned, and both are market tested — in fact, Crestron's VC-4 Virtual Control has been in-market for years and adopted by organizations that prefer software solutions. For those customers, VC-4's benefits are broad, providing enough scalability to deploy 500 rooms on a single server — and the redundancy that software solutions of this type can bring to an organization. Meanwhile, Crestron's appliance-based solutions have been the gold standard in control platforms for decades, used by global enterprises, universities, and governments alike.

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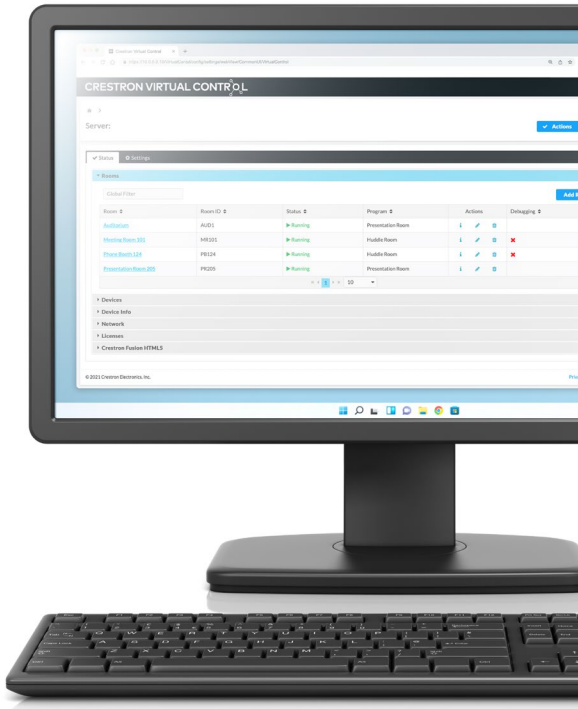
VIRTUAL CONTROL

The **Crestron VC-4 software** delivers an unrivaled power of choice to customers as it complements our industry-leading hardware solutions. Regardless of what version a customer chooses, the functionality, programming/configuration process, and reliability of that solution remains consistent.



TRY IT FREE

Experience all the benefits of Crestron's Virtual Control with a 90-day, no-cost, risk-free trial.