



Educational Workspace Application Design Guide

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The A+ Educational Partner Program was established to support the needs of the academic community. Colleges, universities and K-12 schools benefit by facilitating learning using the latest classroom technology built and designed by Crestron. This A+ design guide was created in order to help educational sales teams working with A+ Partners help understand A+ designs and specific use cases for each design in different types of spaces. We have taken highly technical line drawings designed by our Sales Support Services team and reconstructed them into something that can be viewed and used a bit easier in the field for our sales teams to help them sell and communicate better with our A+ Partners. For any questions or inquiries please reach out to the Sales Strategy & Communication team at SSC@crestron.com



Crestron XiO Cloud™ Solution

Zero touch provisioning and management utilizing Crestron XiO Cloud™ service with direct connection to Microsoft® Azure® IoT Hub



.AV Framework™ Web Based Configuration

Web-based configuration with zero programming utilizing Crestron .AV Framework™



DM NVX™ AV Over IP Solution

Pixel perfect processing with zero latency AV over IP utilizing DM NVX™ endpoints



DM Lite™ AV Solution

A ecosystem of low cost interchangeable signal extenders utilizing DM Lite AV Solution



DigitalMedia™ AV Platform Distribution

A complete end-to-end traditional video distribution system utilizing a Crestron DigitalMedia switcher



AirMedia® Wireless Presentation Platform

Wireless collaboration presentation using a laptop, tablet or smartphone utilizing Crestron AirMedia wireless technology



Dante® Network Audio

Complete media networking solution that enables digital audio distribution via standard ethernet networks that delivers ultra low latency audio



Digital Signage

Digital signage content creation using Appspace® software utilizing NME-100 digital signage endpoints



■ .AV Framework™

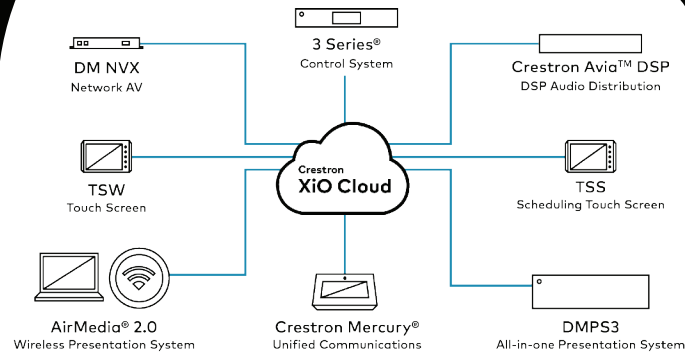
.AV Framework Web Based Configuration

With Crestron .AV Framework web based configuration you can deploy simple, scalable Crestron Enterprise Room Solutions ***without any programming***. If you know how to use a web browser, then you can deploy a Crestron system using .AV Framework web based configuration. You can open the .AV Framework setup and management tool in your favorite web browser to easily select sources and displays, configure device control for Blu-Ray Disc® players, cable TV and video servers. Easily add a TSW-X60 series touch screen and automatically generate the GUI for single or multiple display system. Easily add an MP-B10 button panel for simple control of single display systems. With .AV Framework web based configuration you can also add a Cresnet® occupancy sensor for additional system automation. Easily deploy to multiple rooms by saving your configuration to a standard XML file and then push it out to hundreds or even thousands of rooms at once over the network! With .AV Framework web based configuration you get a consistent user experience in every room by automatically generating a consistent GUI so every room works the same and anyone can easily use it, all with NO PROGRAMMING!

Microsoft Azure[®]

Crestron **XiO CLOUD**[™]

- 100% Direct Cloud Solution
- No Additional Hardware/Software/Infrastructure
- Hyperscale Bandwidth & Global Availability
- Bidirectional Data Monitoring/Management
- AV, UC, VC, IT, Environmental, Scheduling Reporting
- Enterprise Grade Security Down To The Device Level



XiO Cloud Service

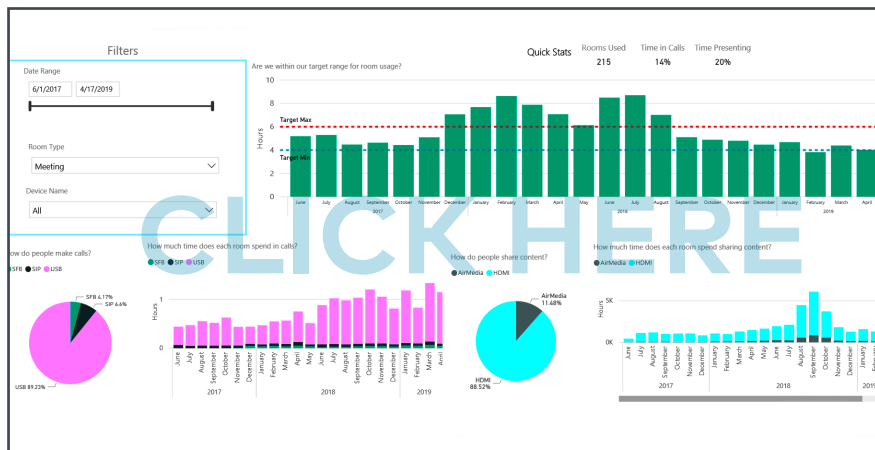
Native support built into dozens of models, covering all workspace functionality

- AV over IP
- AV Distribution & Control
- IoAV Alliance/ OPS Slot Displays
- Native Integrated UC/VC systems
- Audio/DSP
- Wireless Presentation
- Touchscreens
- Open-Platform Room Scheduling
- Digital Signage
- Whiteboard Capture
- 3rd Party Devices (via API/SDK)
- Zero Fees for Maintenance & Updates

XiO Cloud Supported Devices

End-to-End Azure IoT Security and Management:

- Per Device Certificates
- Per Device Enable/Disable
- TLS Security
- X.509 Support
- HTTPS, AMQP, MQTT over webSockets
- IP Whitelisting/Blacklisting
- Device Provisioning Service
- Firmware/Software Updates
- Device to Cloud/Cloud to Device Messaging
- File Upload from Device
- Device Twin Management
- API/SDK Support for 3rd Party Device/Driver Integration



The Crestron XiO Cloud™ service is Crestron's unifying IoT based platform for remotely provisioning, monitoring, and managing Crestron devices across an enterprise or an entire client base. Supports a direct device-to-cloud connection via the Microsoft® Azure® software IoT Hub without requiring any additional hardware.

Use Case

Ease of install with simple design, less parts, connections and clutter providing a consistent user experience that is scalable as part of the complete Crestron® EcoSystem

100% IoT Cloud Solution in Crestron XiO Cloud™ service that is simple for IT to manage and monitor across any sized campus with access to the Crestron Help Desk

Open Platform/Open Architecture. Hardware is decoupled, instructors and students can use whatever software they would like or are already using

Integrated in the DMPS unit, use AirMedia® wireless presentation from laptops, tablets and smartphones for seamless collaboration and sharing

Easily control all room devices and displays from a button panel and control devices via RS-232, CEC or IR

Easily configure with no programming using .AV Framework™ web-based configuration

Supports standard network security policies that Universities already have in place including 802.1x authentication and Active Directory® Credential Management

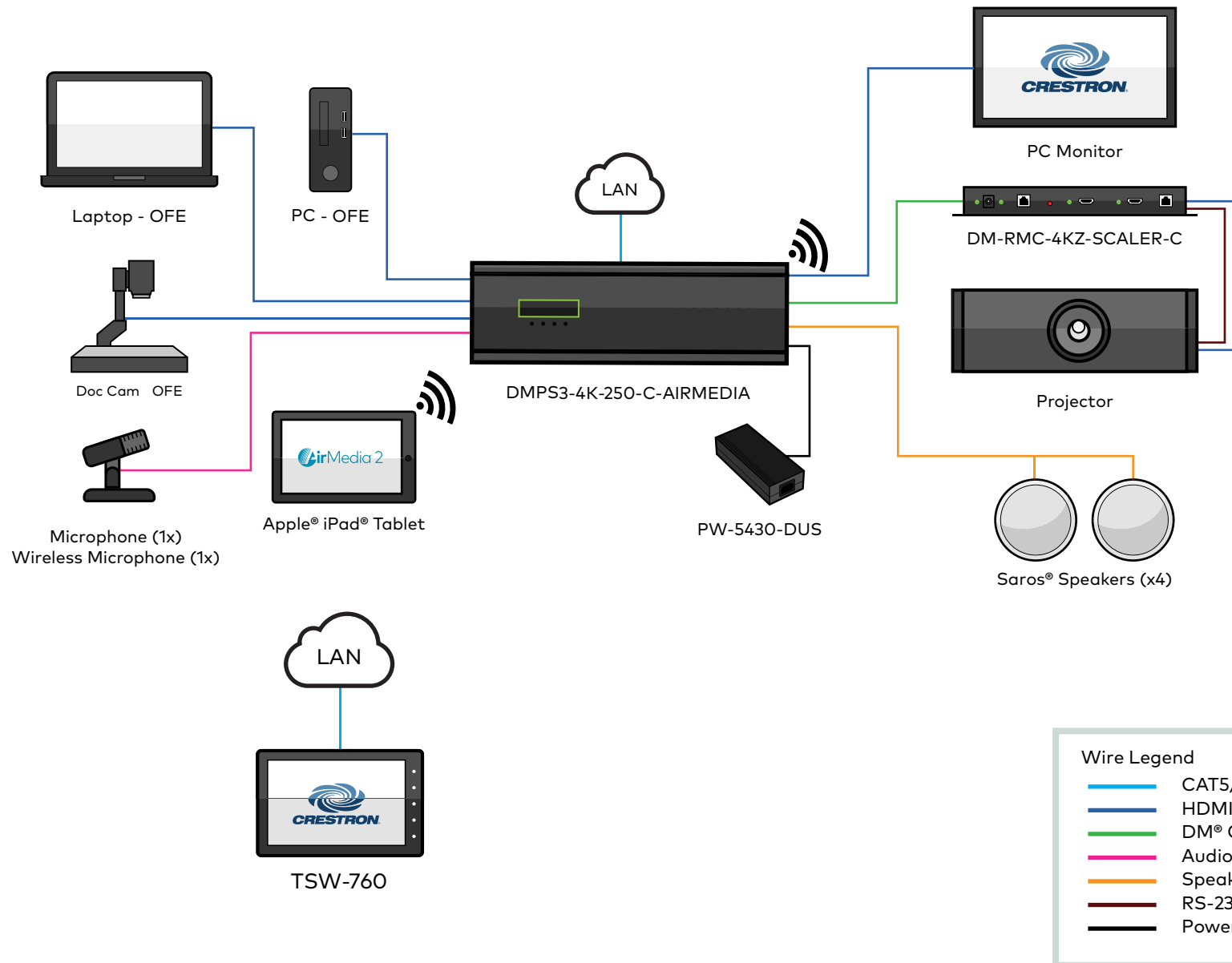
Features



BOM Example

COUNT	NAME
1	DMPS3-4K-250-C-AIRMEDIA
1	DM-RMC-4KZ-SCALER-C
1	TSW-760
1	TSW-760-TTK
4	SAROS IC6T-W-T-EACH
1	PW-5430-DUS

Sample System Drawing



Associated CAD Diagram Coming Soon

Use Case

A simple, yet cost effective design on a single platform with less SKU's providing for a simple install

Commercial grade and purpose built equipment offering enterprise grade security at the device level making for an IT friendly design

Utilize low cost and high performance signal extension using Crestron DM Lite™ as part of the entire Crestron® ecosystem

Securely present wirelessly using a laptop, tablet or smartphone using the AM-200 featuring enterprise grade security

100% IoT cloud solution using Crestron XiO Cloud™ service with a direction connection to Microsoft® Azure® IoT hub with access to the Crestron Help Desk

Listen to crystal clear audio using native brand speakers as part of a single platform solution

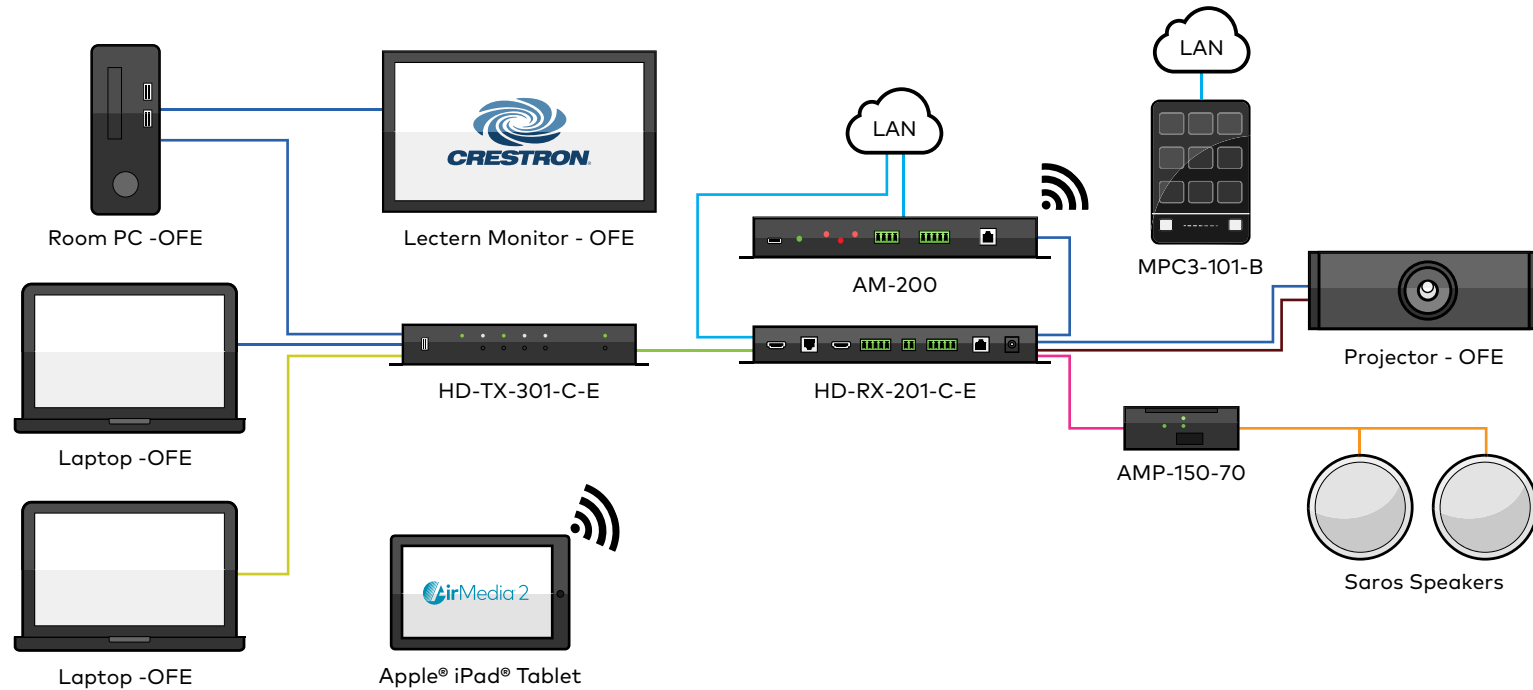
Features



BOM Example

COUNT	NAME
1	AM-200
1	HD-TX-301-C-E
1	HD-RX-201-C-E
1	AMP-150-70
1	MPC3-101-B
2	SAROS IC6T-W-T-EACH

Sample System Drawing



Wire Legend

- CAT5/6
- HDMI® Cables
- DM Lite™ Cables
- VGA
- Speaker
- Audio
- RS-232

Associated CAD Diagram Coming Soon

Use Case

Scalable solution ideal for rooms ranging from 30 to 300 students. Featuring the Crestron DMPS3-4K-350-C DigitalMedia™ Presentation System with built-in AirMedia™ wireless presentation, provides up to nine inputs including AirMedia wireless connectivity.

100% IoT Cloud Solution - Easy to Deploy, Manage and Monitor with easy access to the Crestron Help Desk

Open Platform/Open Architecture. Hardware is decoupled, end user can use whatever software they would like or are already using

Flexible and scalable and easy to deploy across any sized campus

High level enterprise grade security down to the device level using protocols that are already instilled at Universities

A/V/USB/Control multi layer technology to control displays

Hear crystal clear audio through distributed speakers

Preview at the lectern with an optional video monitor

Simple configuration and simply make changes with no programming using .AV Framework web-based configuration

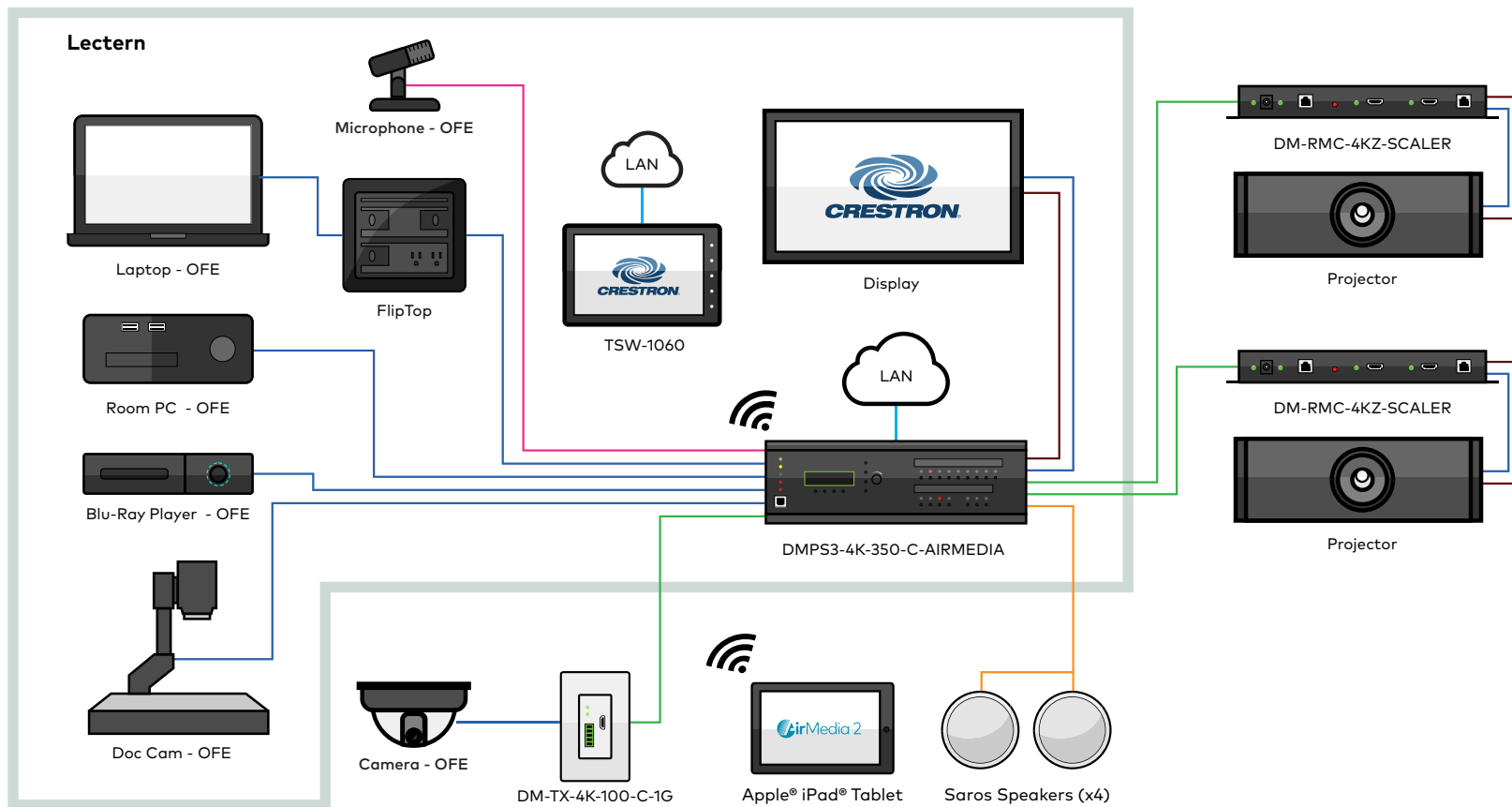
Features



BOM Example

COUNT	NAME
1	DMPS3-4K-350-C-AIRMEDIA
2	DM-RMC-4KZ-SCALER-C
1	DM-TX-4K-100-C-1G
4	SAROS IC6T-W-T-EACH
1	TSW-1060
1	TSW-1060-TTK

Sample System Drawing



Wire Legend

- CAT5/6
- HDMI® Cables
- DM® Cables
- Audio
- Speaker
- RS-232

Associated CAD Diagram Coming Soon

Use Case

Streaming flawless video with lossless audio distributed to multiple monitors

Zero latency 4K video with minimal infrastructure required

Hyperscale global Crestron XiO Cloud™ service in Microsoft® Azure® IoT Hub with worldwide availability and access to the Crestron Help Desk

Lowest total cost of ownership with future expansion and scalability and simply upgrade existing DM chassis to 4K/60 via DM® 4KZ

Source and control content with a commercial grade and purpose built touch screen

Manage and integrate different technologies into the space utilizing a CP3 control processor powered by a 3-Series® control engine

Hear crystal clear audio with native brand speakers all on a single platform

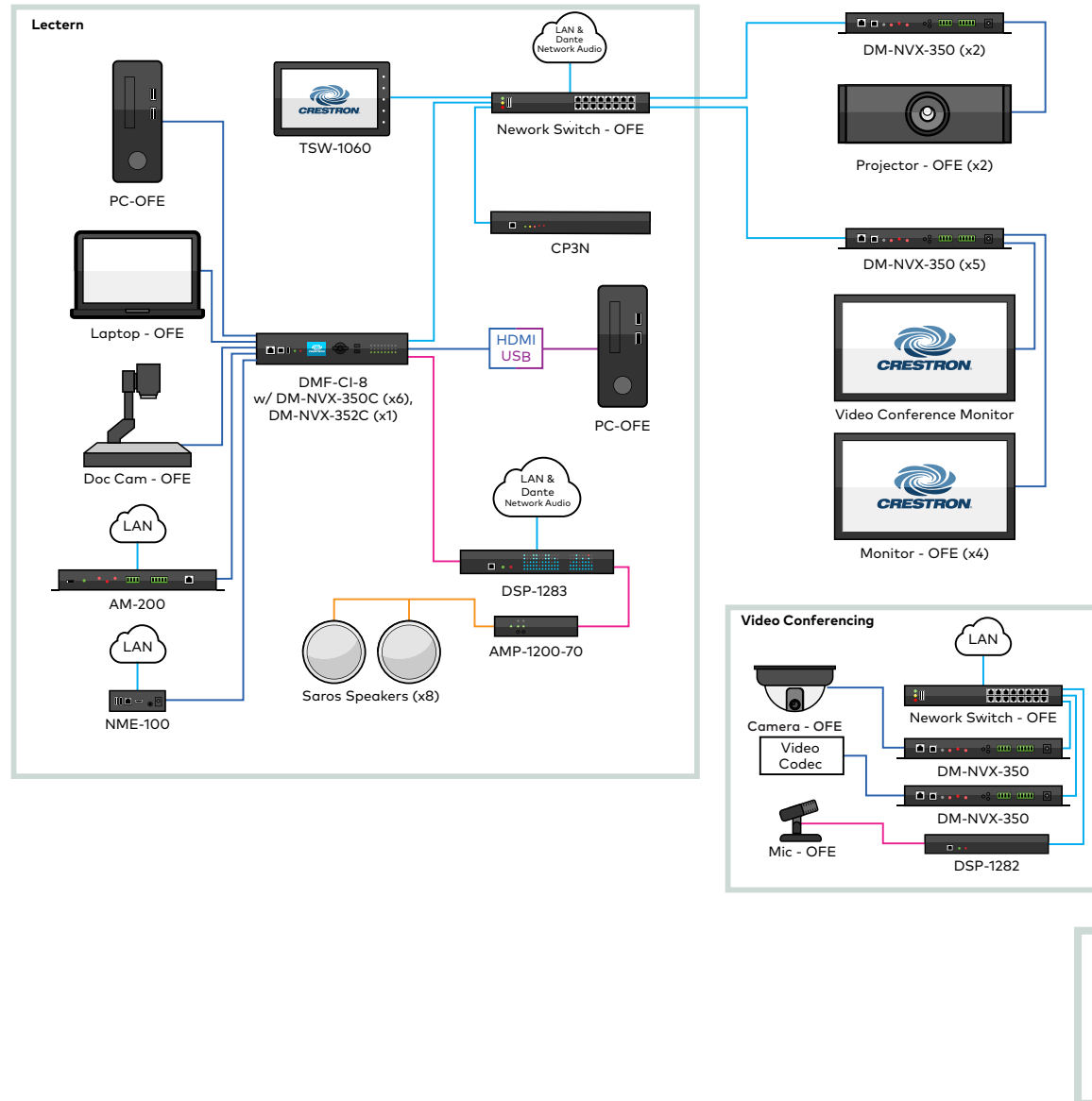
Features



BOM Example

COUNT	NAME
1	CP3N
1	DMF-CI-8
6	DM-NVX-350C
9	DM-NVX-350
1	DSP-1283
1	DSP-1282
8	SAROS ICE6LPT-W-T-EACH
1	AMP-1200-70
1	AM-200
1	TSW-1060
1	TSW-1060-TTK

Sample System Drawing



Associated CAD Diagram Coming Soon

Use Case

IT-Friendly and network compliant design that is easy to manage and service

Enterprise grade security at the device level that Universities are already using

Present wirelessly using an AM-200

Zero latency 4K video distribution to multiple projector so no matter where you are seated you can see content

Utilizing an AMP-1200-70, hear the presenter with full clarity through the native brand speakers in the lecture hall

Easy to deploy, manage and monitor using Crestron XiO Cloud™ service solution and accessibility to the Crestron Help Desk

The 3 Series® CP3N processor handles seamless integration into existing 3rd party features such as occupancy sensing

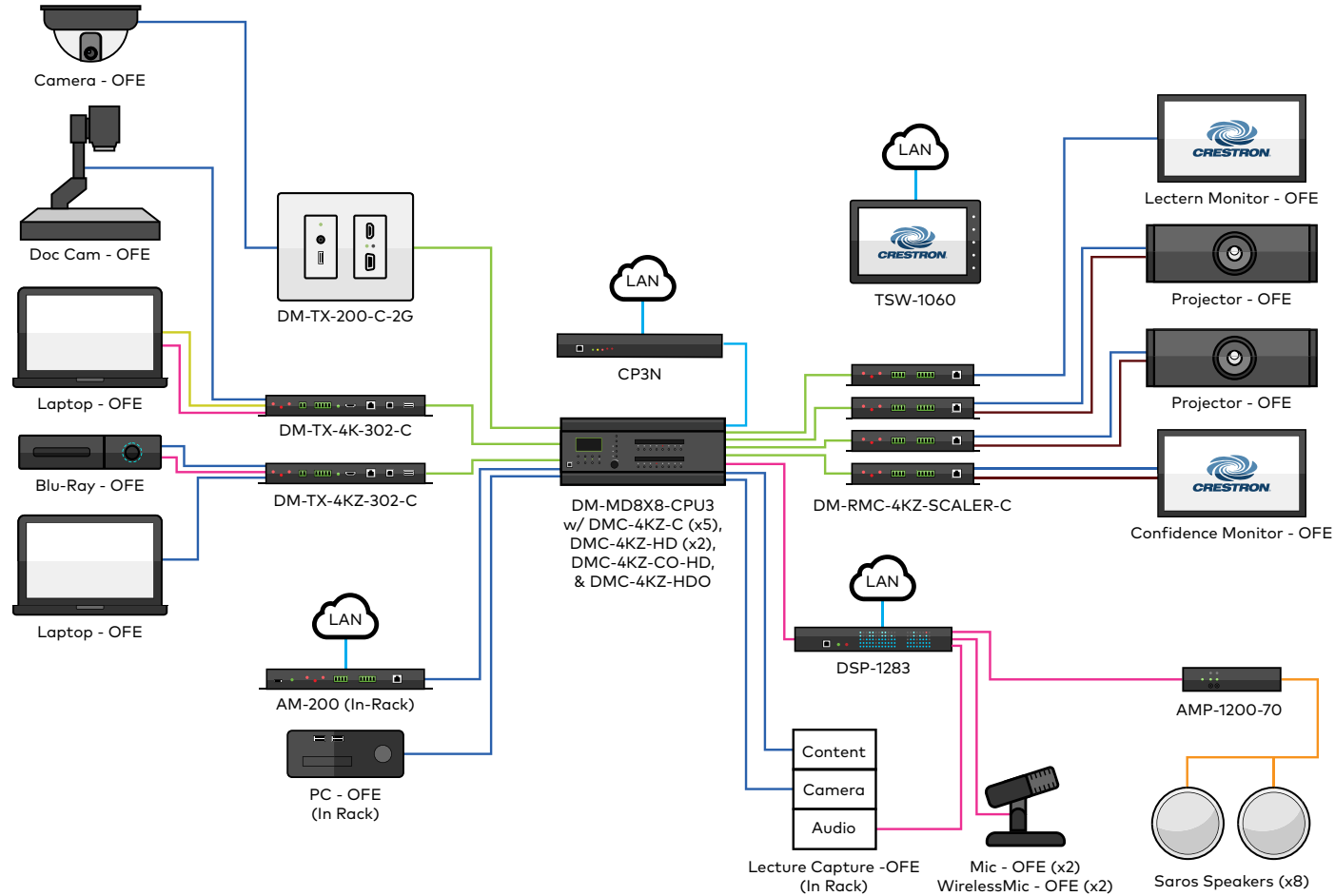
Features



BOM Example

COUNT	NAME
1	CP3N
1	DM-MD8X8-CPU3
5	DMC-4KZ-C
2	DM-4KZ-HD
1	DMC-4KZ-CO-HD
1	DMC-4KZ-HDO
4	DM-RMC-4KZ-SCALER-C
1	DSP-1283
1	AMP-1200-70
8	SAROS ICE6LPT-W-T-EACH
1	DM-TX-200-C-2G
2	DM-TX-4KZ-302-C
1	AM-200
1	TSW-1060
1	TSW-1060-TTK

Sample System Drawing



Wire Legend

- CAT5/6
- HDMI® Cables
- DM® Cables
- VGA
- Speaker
- Audio
- RS-232

Associated CAD Diagram Coming Soon

Use Case

Simply deploy, manage and monitor all of the devices anytime/ anywhere

Run full motion video signage 24/7 with the purpose built commercial grade NME-100 digital signage player. Providing a consistent branding and experience on all monitors

Easily create and manage digital signage content utilizing implemented AppSpace® software, does not require BYOD

Broadcast messaging across the building or entire campus

Crestron NVX-D80 drops into native OPS slots in the back of professional displays from manufacturers like LG, NEC, Philips, Avocor, Samsung, Smart, and many more

- o Based on OPS (Open pluggable Specification) which is the Intel spec industry-wide digital signage standard, instantly transforms a display into a native DM NVX endpoint

- o OPS standardizes slot size, display connection and power supply specifications

- o OPS simplifies device installation, usage, and maintenance while making it easier to upgrade or swap digital signage equipment

- o NVX/D80 combines 4K/60/444 over 1GB networks with multi-layer technology, enterprise grade security, and 100% IoT-Cloud provisioning and management

Allows for any items to be passively placed on a screen when not in use. Convey company information or any content via AppSpace software

All provisioned and managed on Crestron XiO Cloud™ service solution

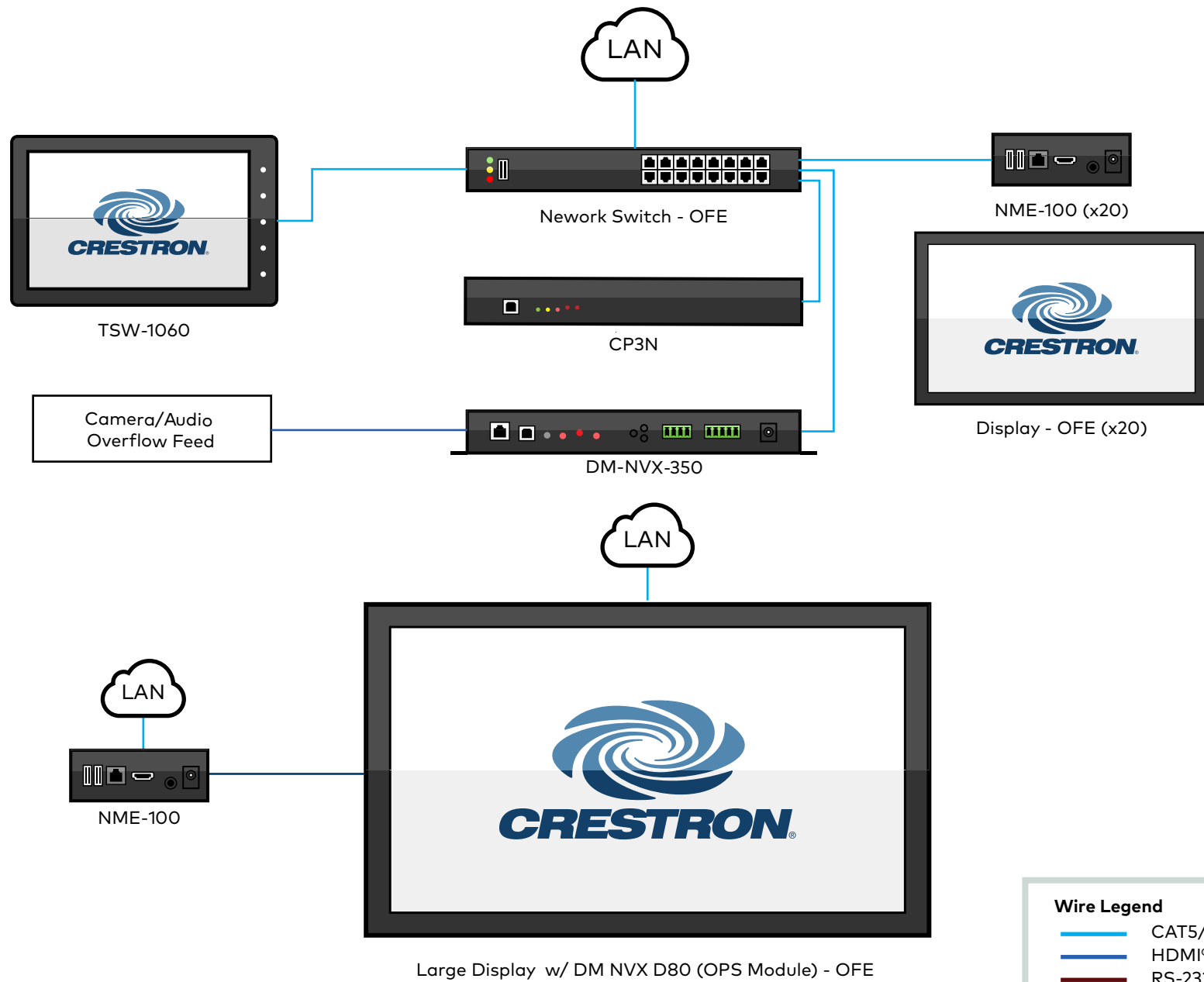
Features



BOM Example

COUNT	NAME
1	CP3N
1	DM-NVX-350
21	NME-100
1	DM-NVX-D80
1	TSW-1060
1	TSW-UMB-60

Sample System Drawing



Associated CAD Diagram Coming Soon

Use Case

Flexible, multi purpose space that can be utilized for different events and town halls

Utilizing DM NVX™ endpoints, distribute flawless 4K60 4:4:4 HDR video throughout the space to multiple displays

Enterprise grade security at the device level makes for a network compliant and IT-friendly solution

Zero-Touch/Zero-Programming provisioning and data gathering in Microsoft® Azure® IoT Hub

Simple and consistent user experience for presenters

Integrate seamlessly into existing equipment in the space such as ceiling mics and displays

Distribute presentations and Town Hall's throughout an entire building as part of the Crestron® IoT EcoSystem

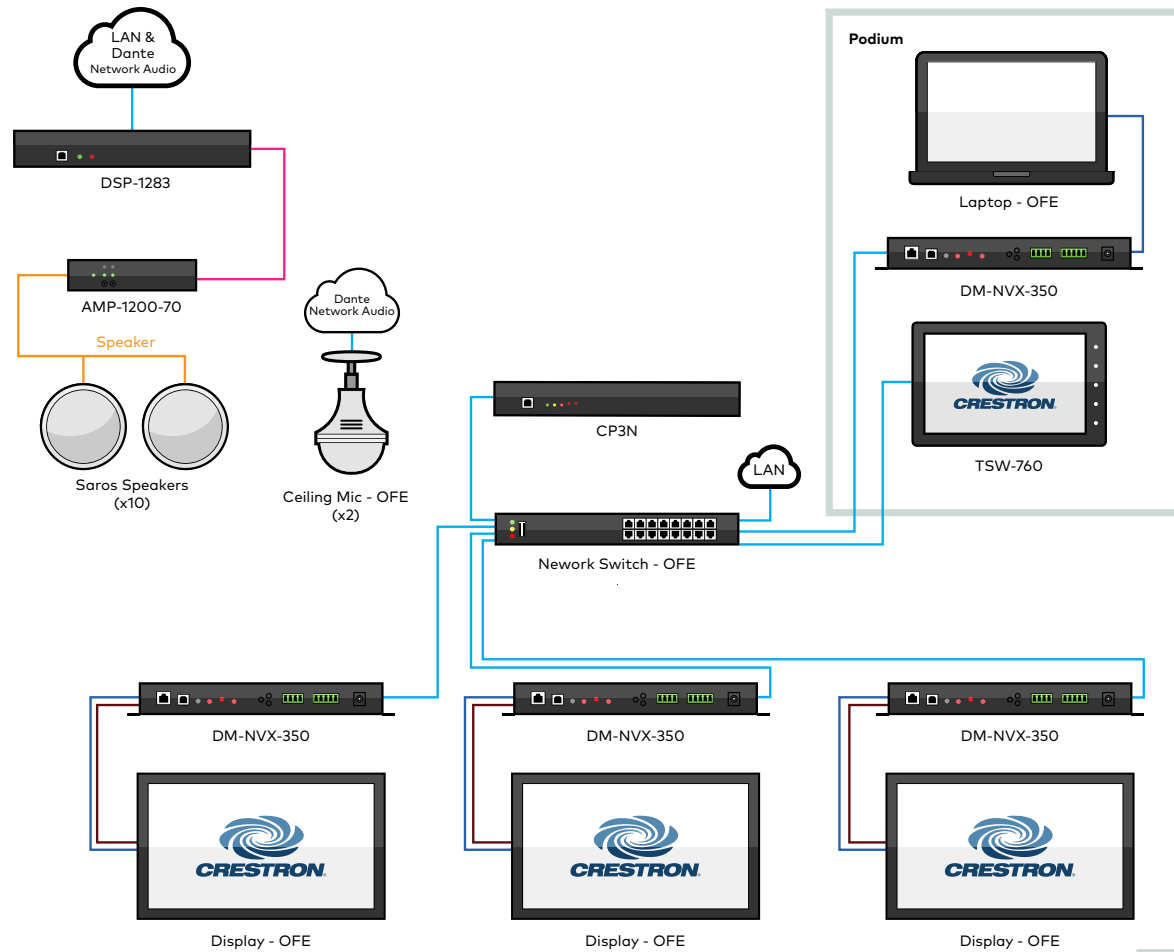
Features



BOM Example

COUNT	NAME
1	CP3N
4	DM-NVX-350
1	DSP-1281
1	AMP-1200-70
10	SAROS-IC6LPT
1	TSW-760
1	TSW-760-TTK

Sample System Drawing



Wire Legend

- CAT5/6
- HDMI® Cable
- USB
- Audio
- Speaker
- RS-232

Associated CAD Diagram Coming Soon

Use Case

Flexible space for instructional trainings and simulations such as different medical fields

Simple collaboration for students and instructors with simple content routing from anywhere utilizing a familiar device such as a tablet

Route unique sources such as a medical mannequin

Distribute impeccable 4K60 4:4:4 HDR video throughout the space utilizing DM NVX™ AV over IP

Turn any static screen into digital signage using the commercial grade NME-100 digital signage unit utilizing Appspace® software

Simple integration into existing owner furnished equipment such as IP cameras, monitors and mics

Enterprise grade security at the device level such as 802.1x and Active Directory® credential management

Lowest total cost of ownership using DM NVX™ AV over IP and Crestron XiO Cloud™ service with the ability to expand the system in the future

Features



BOM Example

COUNT	NAME
1	CP3N
1	DSP-1283
1	DM-XIO-DIR-160
1	NME-100
3	DM-NVX-350
2	DM-NVX-352
1	AMP-225
1	AMP-150-70
4	SAROS SR6T-B-T-EACH
4	SAROS IC6T-W-T-EACH
2	TSW-1060
1	TSW-1060-TTK
1	TSW-560P
2	TSW-UMB-60

Use Case

Crucial lag free game play allows for gamers to play without compromise utilizing DM NVX™ AV over IP with 4K60 4:4:4 HDR video

Use existing 1Gb/Cat5e cabling so universities do not need to change their network infrastructure

Using a DSP-860, AMP-2100-70 and Saros® Speakers, hear gameplay audio distributed loud and clear

Seamless integration with Xbox® consoles, Playstation® consoles and others for the ultimate gaming experience

Multi-layer technology including control and routing of USB devices

As part of the Crestron® IoT Ecosystem, devices enable a simple system design with less SKU's

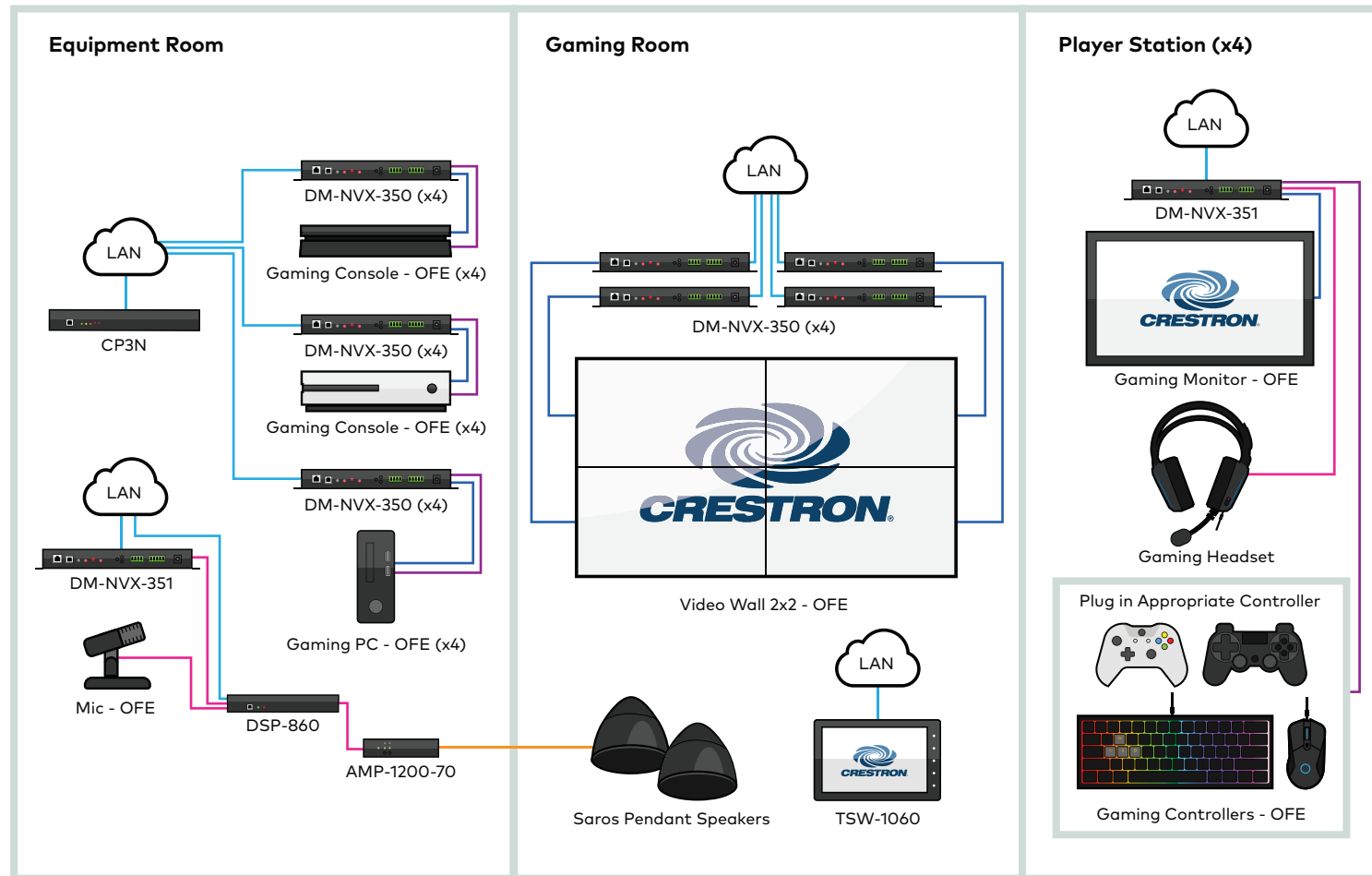
Features



BOM Example

COUNT	NAME
1	CP3N
16	DM-NVX-350
2	DM-NVX-351
1	DSP-860
1	AMP-1200-70
8	SAROS PD6T-W-T-EACH
1	TSW-1060
1	TSW-UMB-60

Sample System Drawing



Associated CAD Diagram Coming Soon

Use Case

Easily control content in the room from multiple sources using a commercial grade touch screen with enterprise grade security

Flexible 4K60 HDR video distribution using DM NVX and wirelessly present with an AM-200

Simply output final content from the DMPS into a broadcast feed for distribution

Manage and monitor all devices with direct connection to Crestron XiO Cloud™ service running in Microsoft® Azure® IoT hub

A standards based IT friendly design with no additional infrastructure needed

Save time and money by easily configuring using .AV Framework™ web-based configuration with no programming needed

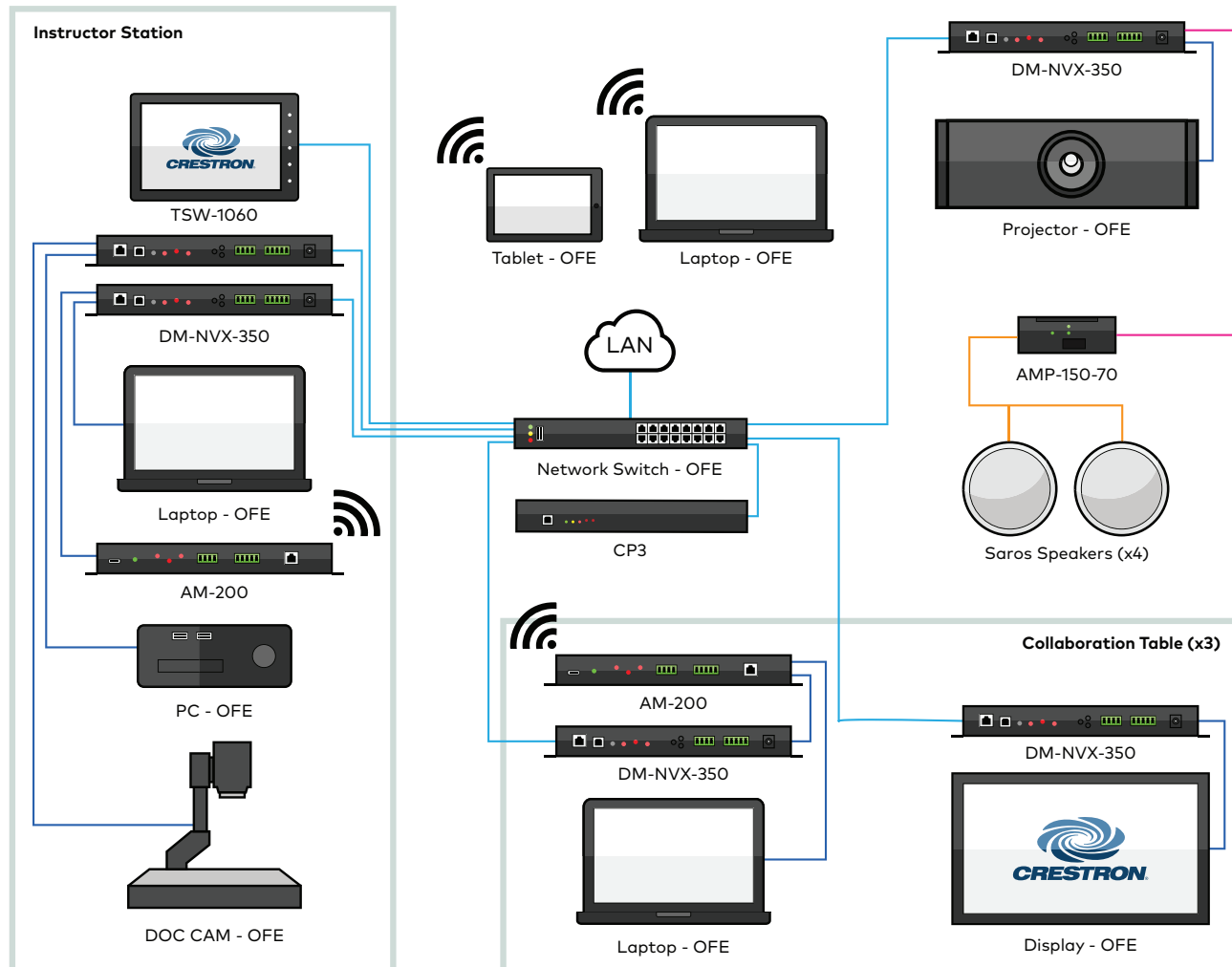
Features



BOM Example

COUNT	NAME
1	CP3
9	DM-NVX-350
1	AMP-150-70
1	SAROS IC6T-W-T-EACH
4	AM-200
1	TSW-1060
1	TSW-1060-TTK

Sample System Drawing



Wire Legend

- CAT5/6
- HDMI Cables
- Speaker
- Audio

Associated CAD Diagram Coming Soon

Use Case

A multi-purpose space to host numerous different kinds of events all within the Crestron® IoT EcoSystem

Control content from anywhere using a purpose built, commercial grade wireless touch screen with enterprise grade security

Simple design with less SKU's all on a single platform

Seamlessly collaborate with students and colleagues with a smart camera, microphone and speaker all on a single device using the UC-SB1-CAM soundbar

Display content on multiple displays

Award winning 24/7 Global Tech-Support with Crestron True Blue support

Save time, labor and money with no programming and easily configure using .AV Framework™ web based configuration

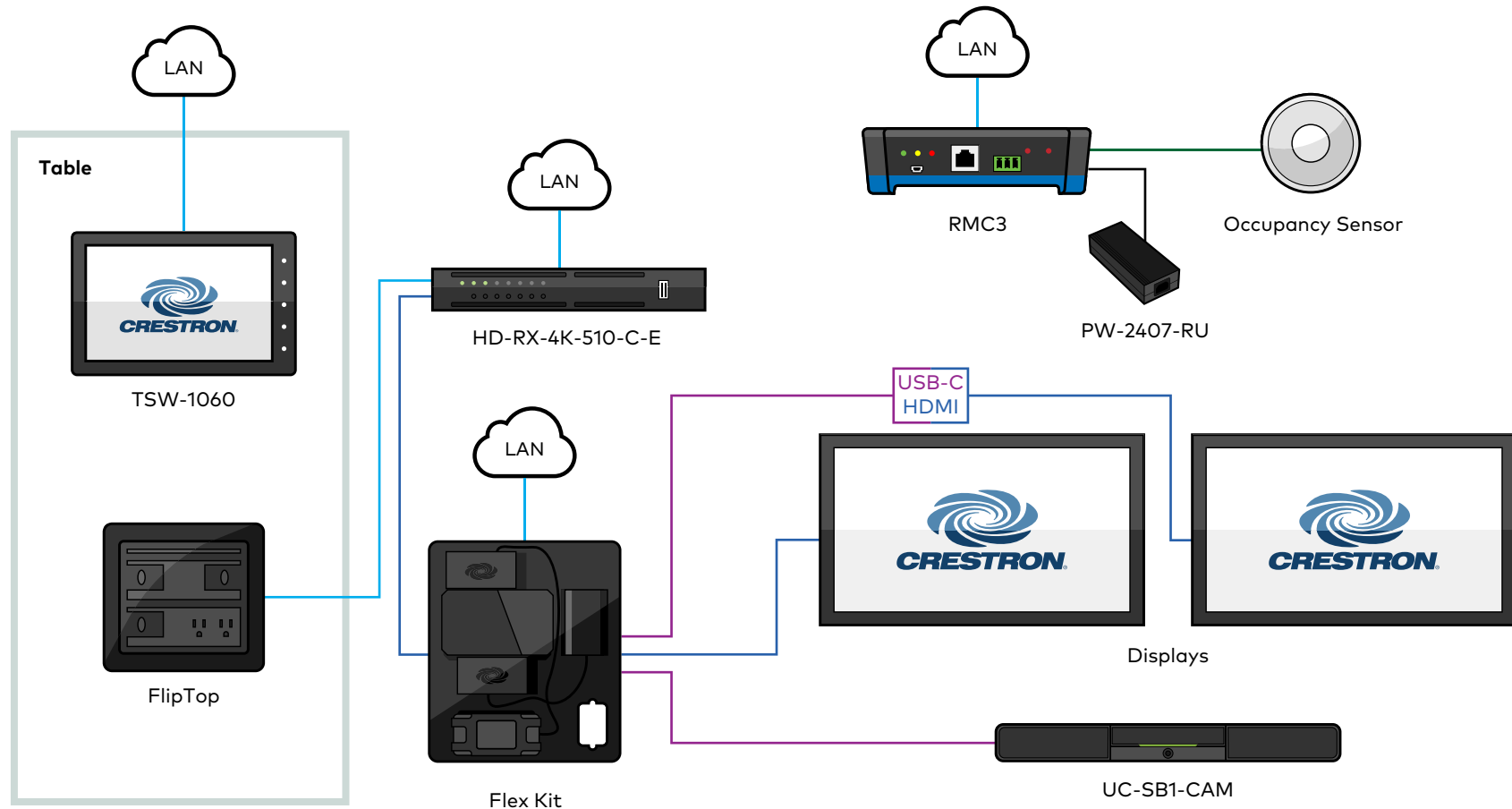
Features



BOM Example

COUNT	NAME
1	RMC3
1	GLS-ODT-C-CN
1	HD-RX-4K-510-C-E
1	FLIP TOP
1	PW-2407-RU
1	UC-B160-T
	UC-SB1-CAM-FLEX
	UC-ENGINE
	TSW-1060
	TSW-1060-TTK

Sample System Drawing



Wire Legend

- CAT5/6
- HDMI® Cables
- USB
- Cresnet® Cables

Associated CAD Diagram Coming Soon

Use Case

Easily control all sources with a C2N-CBD keypad

Creates an easy to use and consistent user experience

Simple design with less SKU's as part of a full end to end Crestron® EcoSystem

Integrates seamlessly with existing products the customer wants to use or already has

Commercial grade and purpose built devices with Crestron XiO Cloud™ provisioning with no additional infrastructure, hardware or software needed

Simple install with less parts, cables and connections

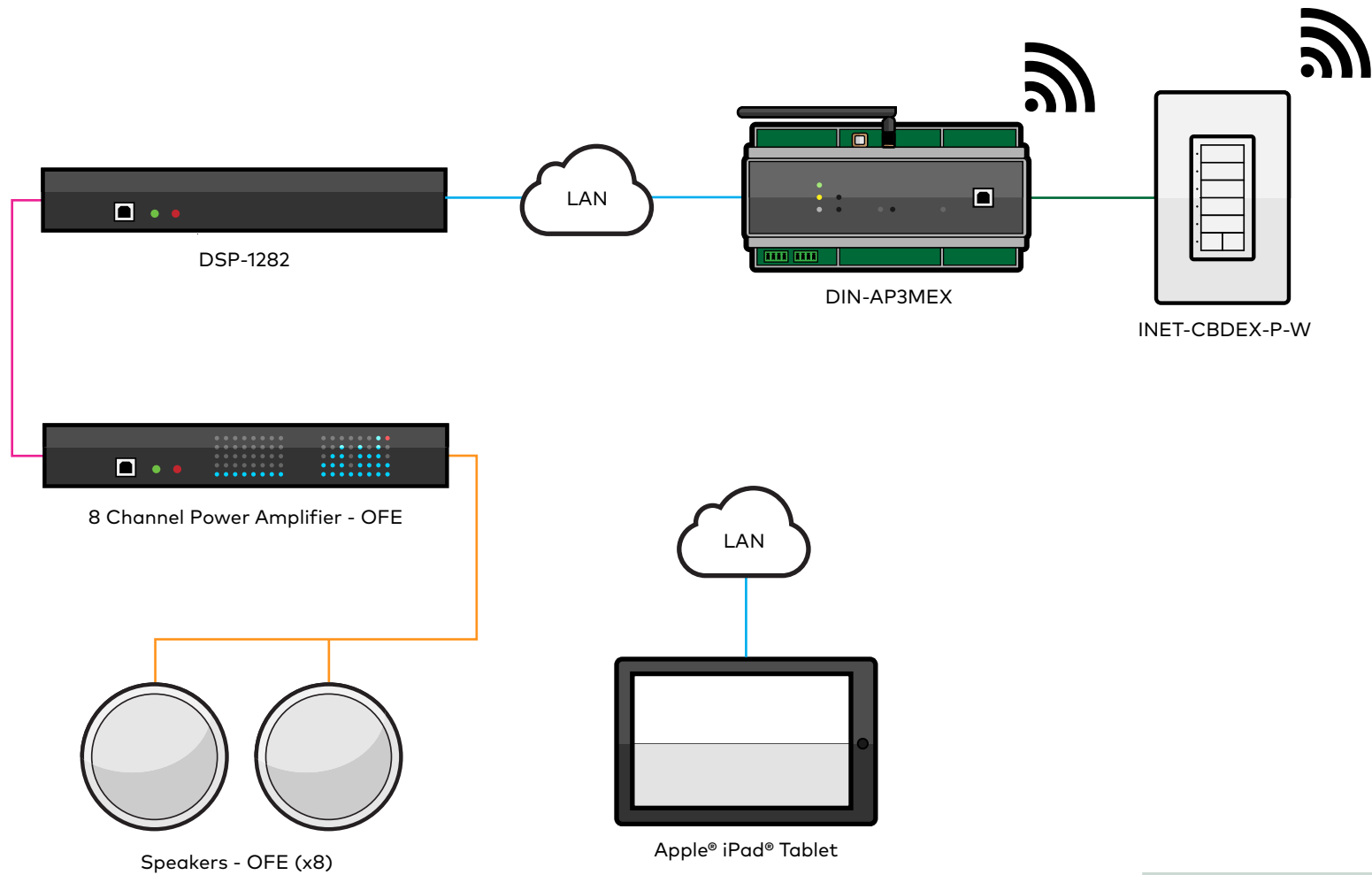
Features



BOM Example

COUNT	NAME
1	DIN-AP3MEX
1	INET-CBDEX-P-W
1	DSP-1282

Sample System Drawing



Associated CAD Diagram Coming Soon

Use Case

Versatile space offering fully integrated audio and video into an existing space utilizing owner furnished equipment

Easily control content using the remarkable TSR-310 remote with voice activation and a touch screen

Display up to 4K/60 4:4:4 HDR video to the projector

Experience a true 7.1 surround sound for fully emersive audio experience

Lowest total cost of ownership using Digital Media with the ability to change and expand the system in the future as needs change for the space

Commercial grade and purpose built equipment offering enterprise grade security at the device level making for an IT friendly design

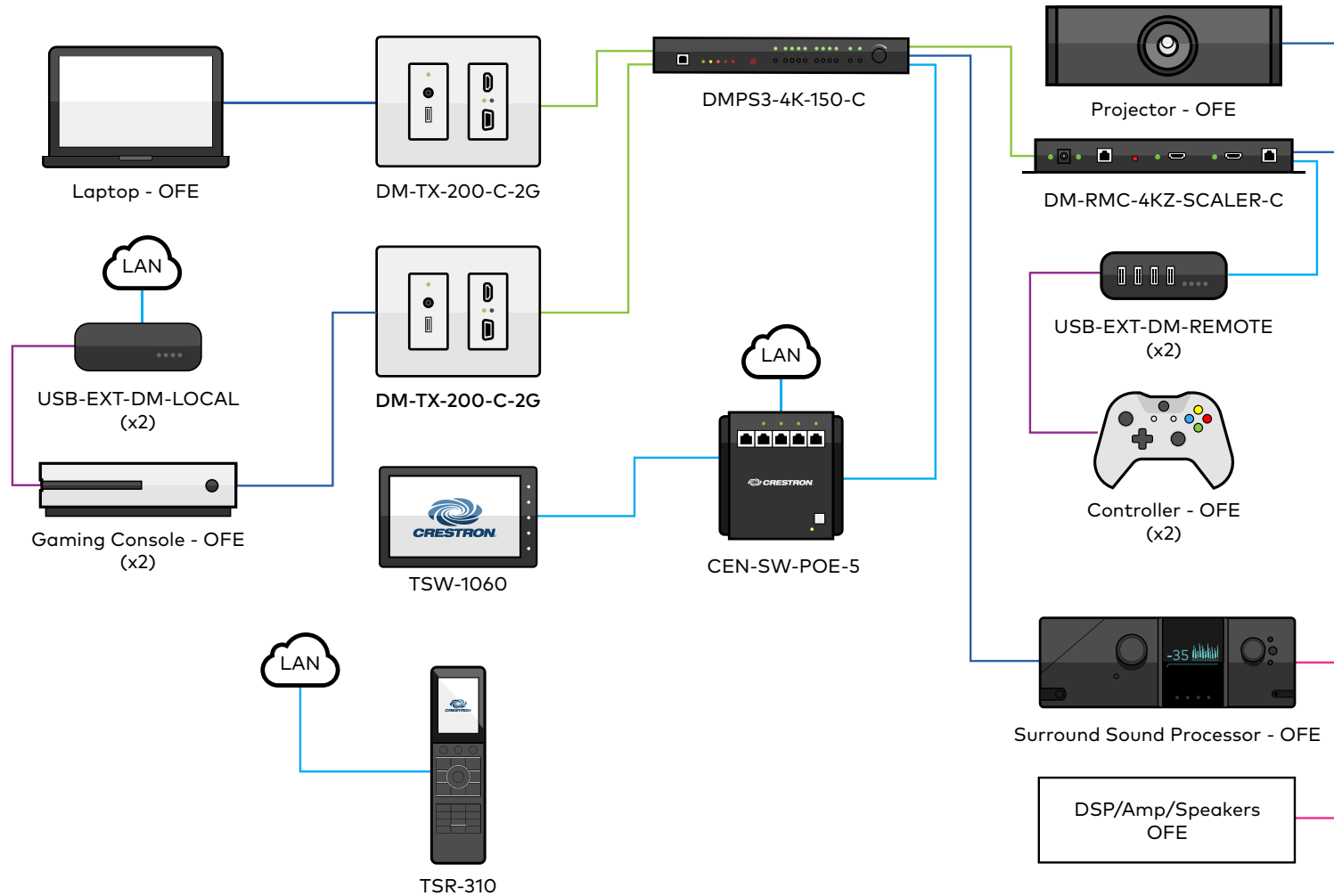
Features



BOM Example

COUNT	NAME
1	DMP5-4K-150-C
1	CEN-SW-POE-5
1	DM-RMC-4KZ-SCALER-C
2	USB-EXT-DM-REMOTE
2	USB-EXT-DM-LOCAL
2	HD-TX-200-C-2G
1	TSW-1060
1	TSW-UMB-60
1	TSR-310

Sample System Drawing



Wire Legend

- CAT5/6
- HDMI Cables
- DM Cables
- USB
- Audio

Associated CAD Diagram Coming Soon

Use Case

Multi purpose space with simple content routing utilizing a commercial grade and purpose built touch screen

Distribute flawless 4K60 HDR content anywhere in the divisible space using DM NVX™ AV over IP

Multi-layer/native technology using less SKU's all on a single platform

Lowest total cost of ownership utilizing DM NVX™ AV over IP with the ability to change or expand the system

Multiple form factor options scalable to all workspace types across the enterprise

Native room and AV control capabilities

Enterprise grade security at the device level such as 802.1x and Active Directory™ credential management

Easily display content securely and wirelessly using AirMedia® wireless presentation

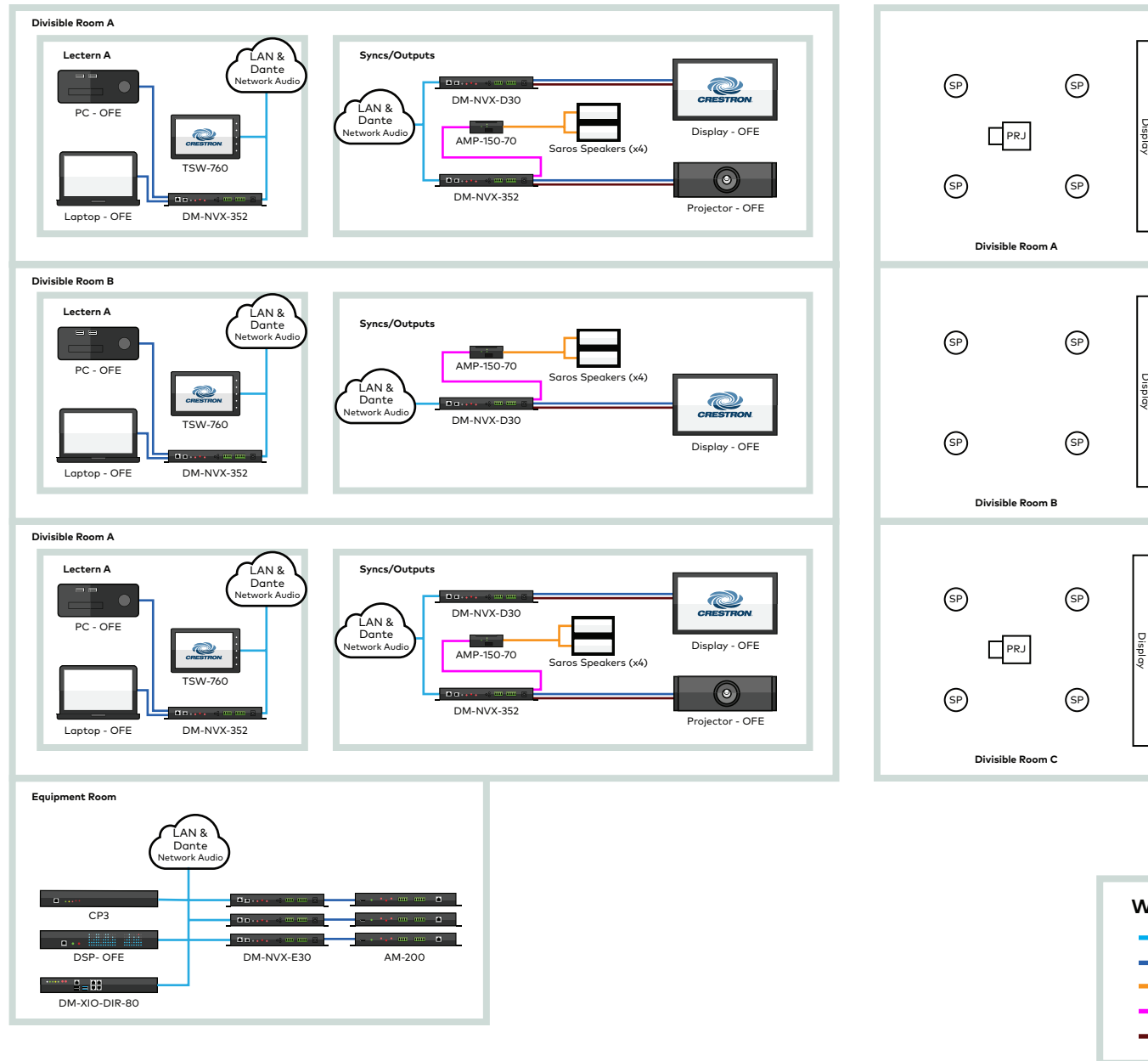
Features



BOM Example

COUNT	NAME
1	CP3
1	DM-XIO-DIR-80
3	DM-NVX-D30
3	DM-NVX-E30
5	DM-NVX-352
3	AM-200
3	AMP-150-70
12	SAROS ICT5T-12
3	TSW-760
3	TSW-760-TTK

Sample System Drawing



Associated CAD Diagram Coming Soon

Use Case

Simple all in one classroom design featuring DM Lite™ 4K multi-format 5x1 AV switch and receiver with local power supply

Flexible and scalable design with no programming using .AV Framework™ web based configuration

Customers can choose from up to 7 different types of transmitters

Built in Crestron® scaler that is superior to projector and display scalers

PoE+ control processor using the MPC3-302

Single platform design from transmitters to processor and native brand speakers

Enterprise grade security at the device level such as 802.1x and Active Directory™ credential management

Customers have the option to purchase what they want, integrates seamlessly with plenum enclosures and projector mounts from 3rd party top industry providers

Zero touch deployed and managed from a 100% Cloud solution in Azure® IoT Hub

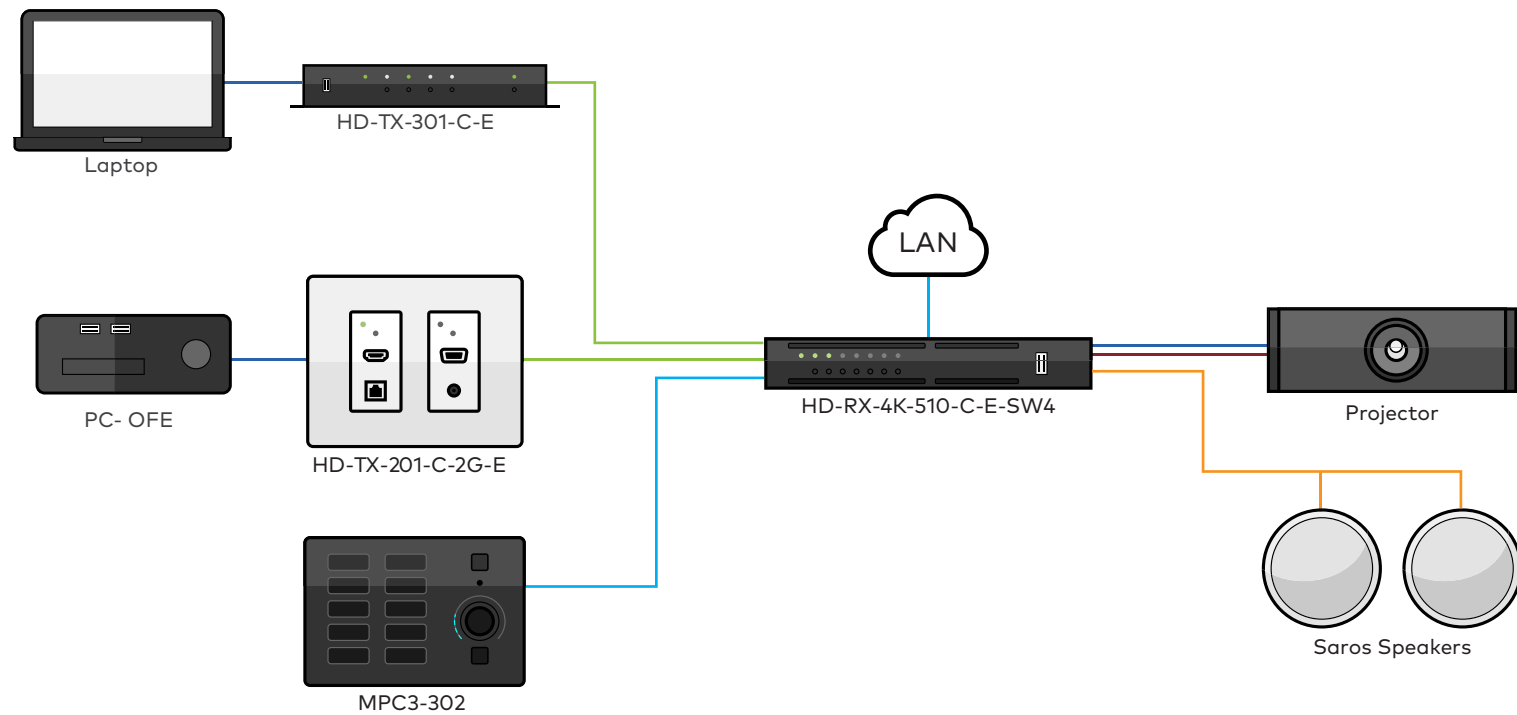
Features



BOM Example

COUNT	NAME
1	HD-TX-301-C-E
1	HD-TX-201-C-2G-E
1	MPC3-302
1	HD-RX-4K-510-C-E-SW4
2	SAROS ICI6T-W-T-EACH

Sample System Drawing



Wire Legend

- CAT5/6
- HDMI Cables
- DM™ Lite Cables
- Speaker

Associated CAD Diagram Coming Soon

[Application Drawings](#)

[Revit® Files](#)

[CAD Blocks](#)

[CSI Specs](#)