

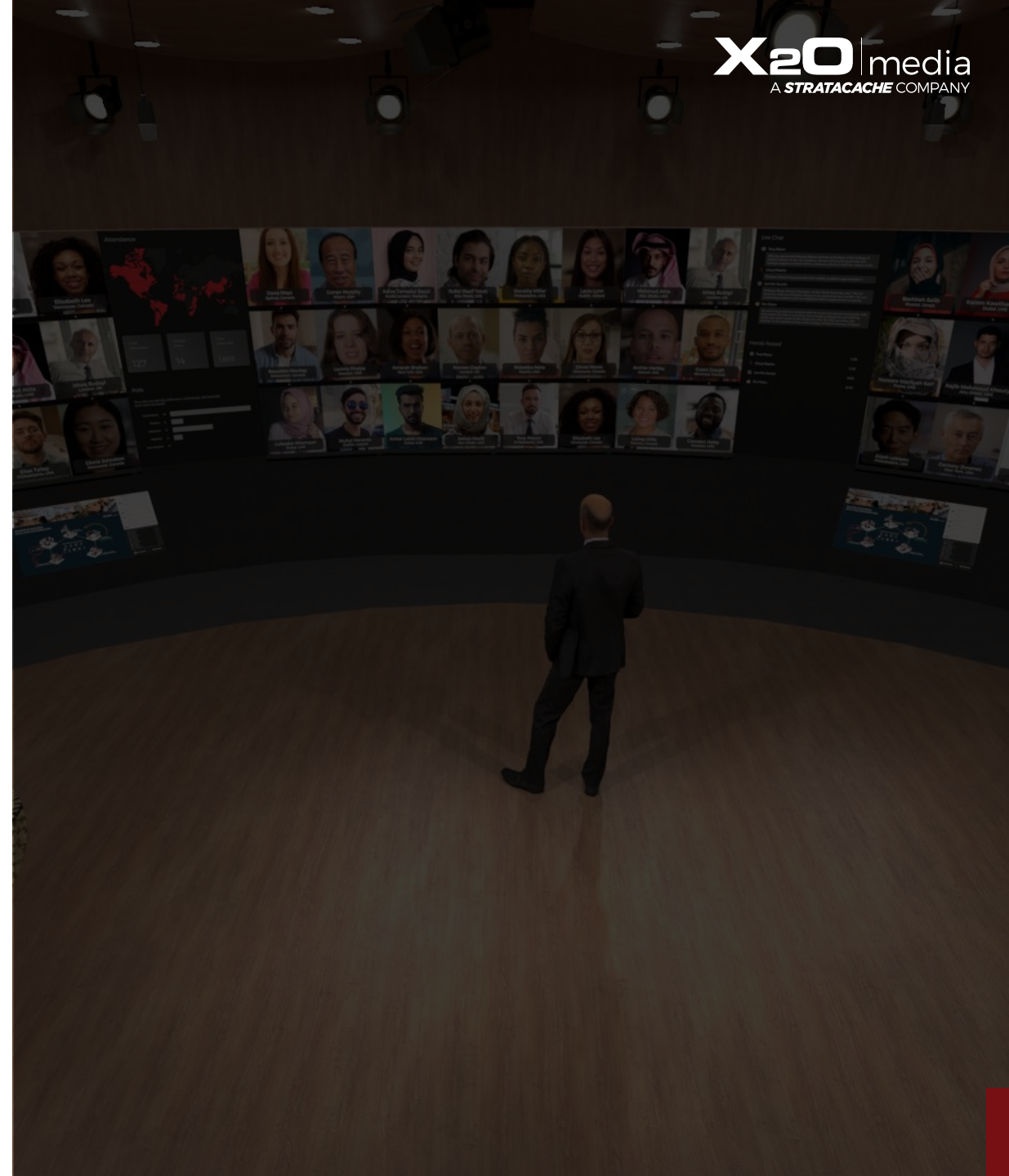
A silhouette of a woman in a business suit stands on the left, holding a tablet. In the center, a desk holds a laptop and a whiteboard. On the right, a chair is partially visible. The background is a large window with a city skyline at dusk.

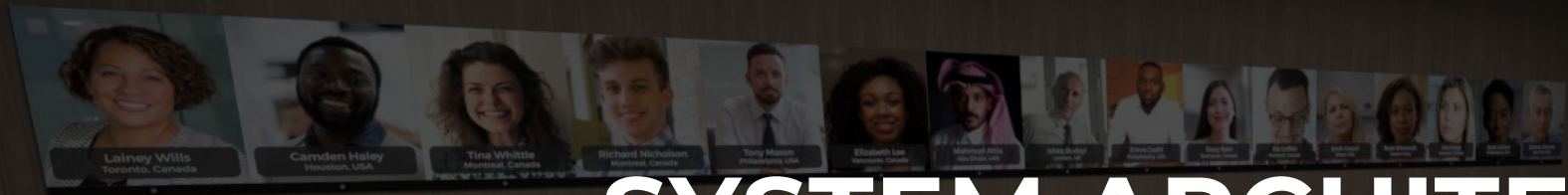
X20 | media
A *STRATACACHE* COMPANY

Collaboration Room Administrator

TODAY'S SCHEDULE

- + System Architecture**
Network topography and requirements
- + Hardware topography**
Display, Audio, Camera
- + Portal apps**
Users, Players, Channels
- + Common issues**
Troubleshooting HW and SW





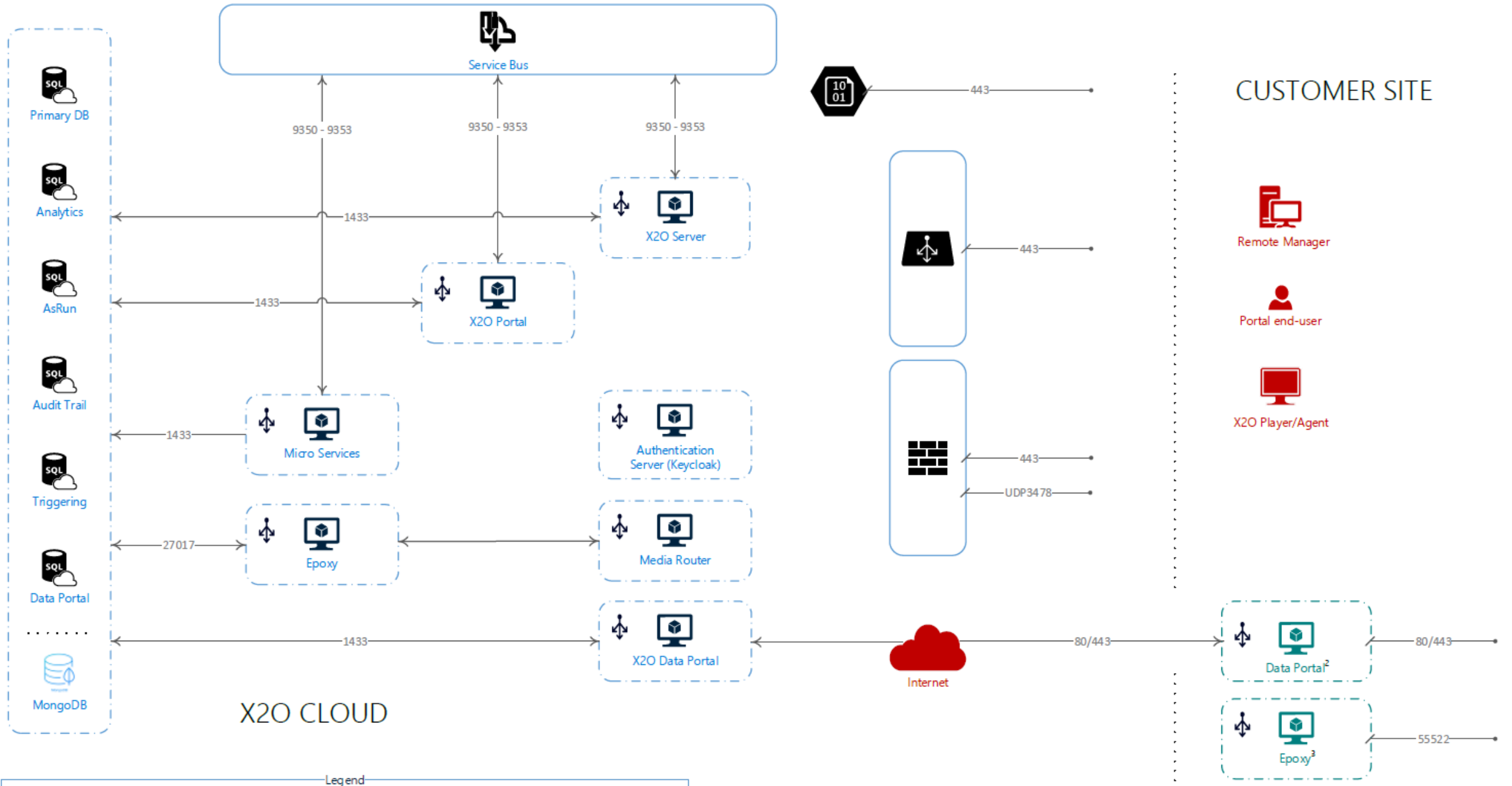
SYSTEM ARCHITECTURE



Cloud-based SAAS

- EMEA Cloud
- NA Cloud





² On-premise Data Portal is recommended and may optionally connect to the X2O Cloud (requires SHA-2 2048 bit SSL certificate)

³ On-premise Epoxy Messaging Server is optional

Servers

Component	Hostname	IP Address
Portal	Emea.x2ocloud.com	52.236.158.7
X2O Server	Server-emea.x2ocloud.com	52.157.253.220
General Epoxy	Epoxy-emea.x2ocloud.com	51.137.4.157
JServer	Jserver-emea.x2ocloud.com	51.105.154.205
Keycloak	Keycloak-emea.x2ocloud.com	104.45.74.209
Asset Storage	storagex2oeuprolqsdecg.blob.core.windows.net	20.38.108.228
Video Router		
Epoxy Server		

Ports

Protocol	Port	Purpose
TCP	80/443	Room UI and fallback mechanism for WebRTC streams
TCP	55580	Edge Device (Optional)
UDP	53	
UDP	80/443	
UDP	3478	WebRTC Streams

Bandwidth requirements (Download)

- +** **32 remote participants**
32 x 1,5 mbps = 48 mbps
- +** **Confidence monitor**
3 x 1,5 mbps = 4,5 mbps
- +** **Screenshare**
1 x 1,5 mbps = 1,5 mbps
- +** **Total**
Approx 54 mbps



Bandwidth requirements (Upload)

- +** **16 perspective cameras**
16 x 1,5 mbps = 24 mbps
- +** **2 Room cameras**
2 x 1,5 mbps = 3 mbps
- +** **In-Room participant cam**
2 x 600 kbps = 1,2 mbps
- +** **Screenshare**
1,8 mbps
- +** **Audio + data**
500 kbps
- Total**
Approx 31 mbps



Bandwidth requirements (Remote participant)

+ HQ Download (4 mbps)

1 HQ stream = 1,5 mbps
4 last speaker = 1,2 mbps
3 Thumbnails = 300 kbps
Audio + Data = 200 kbps

+ HQ Upload (2 mbps)

1 Webcam = 1,5 mbps
Actions + Audio = 500 kbps

+ LQ Download (0,5 mbps)

1 LQ stream = 70 kbps
3 Thumbnails = 210 kbps
Audio + Data = 200 kbps

+ LQ Upload (0,5 mbps)

Audio + actions = 500 kbps

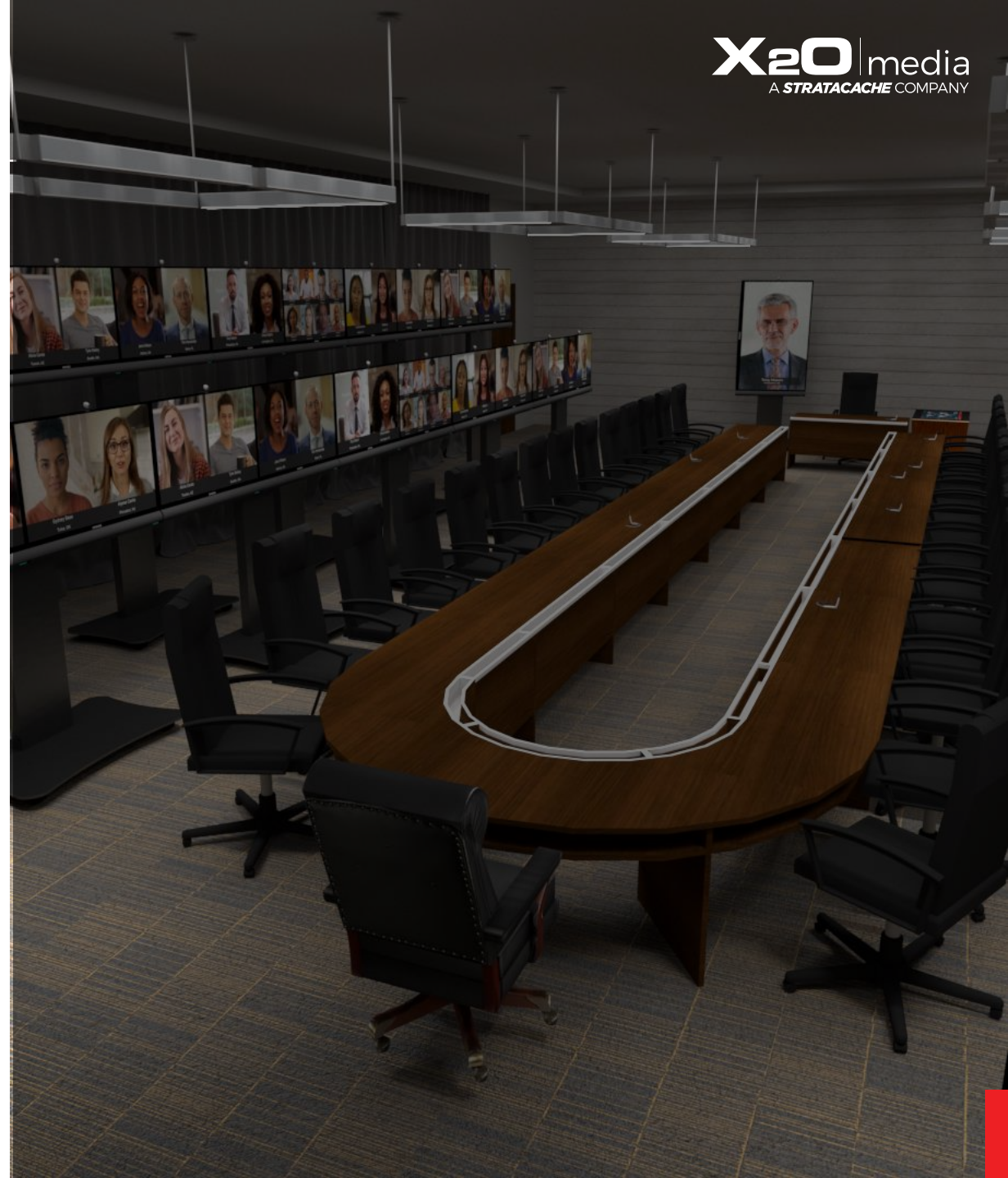


HARDWARE TOPOGRAPHY

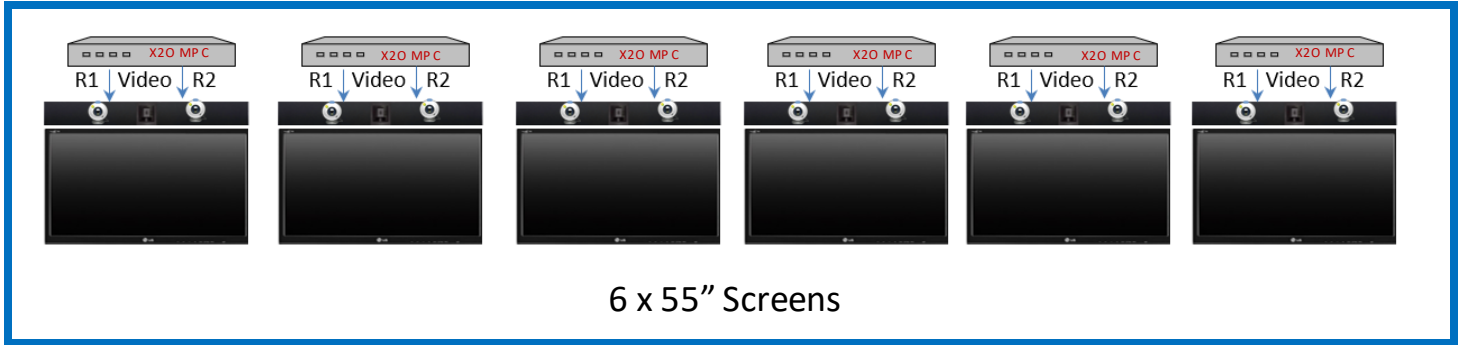
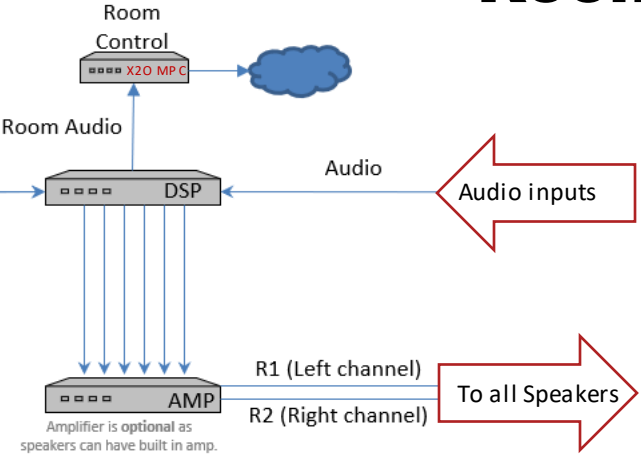


Hardware topography

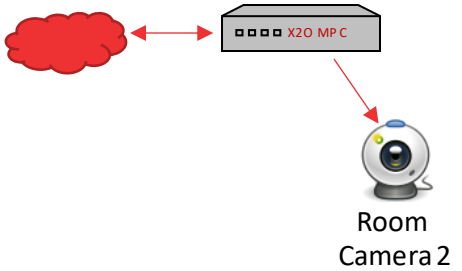
- Displays
 - Participant wall
 - Whiteboard
 - Confidence wall
- Microphone
 - HQ Room audio
 - Merged audio
 - Ceiling mics & headsets
- Cameras
 - Perspective cameras
 - Room cameras



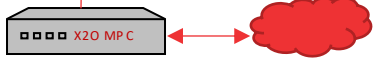
Room Design Example



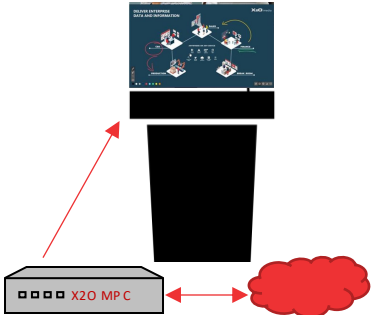
In-Room Participants



Confidence Monitor



Optional Touchscreen Lectern Monitor



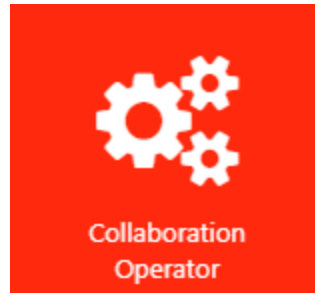
65" Whiteboard



PORTAL APPS

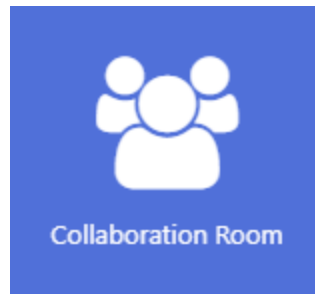


Portal apps



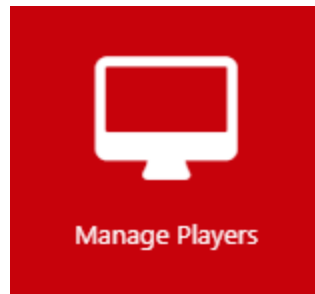
Collaboration Operator

Used to create meetings, upload content, create polls, move people from seat to seat, operate the live session.



Collaboration Room

Where the students log in to view their session.



Manage Players

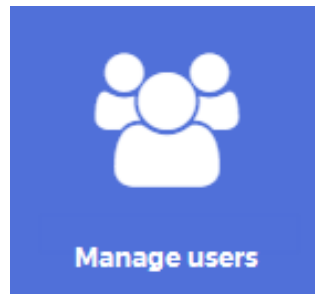
Used to see screenshots of live player output and to restart players.

Portal apps



Manage Channels

Used to load the proper screen configuration according to the number of users.



Manage Users

Used to update user accounts, lock/unlock accounts, ...

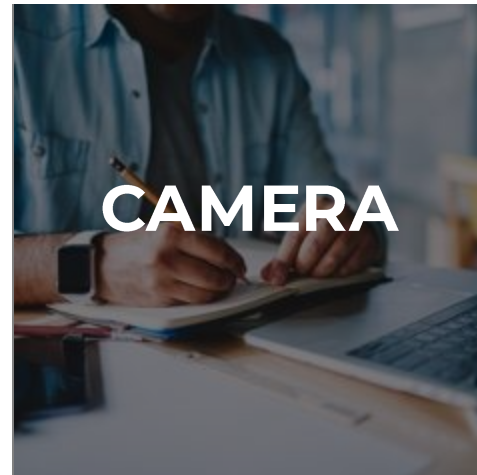
COMMON ISSUES & FAQ



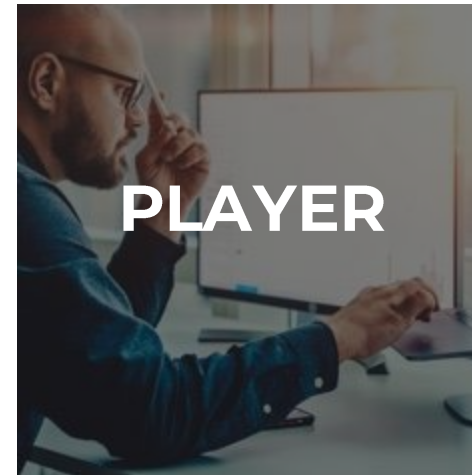
Hardware and Software



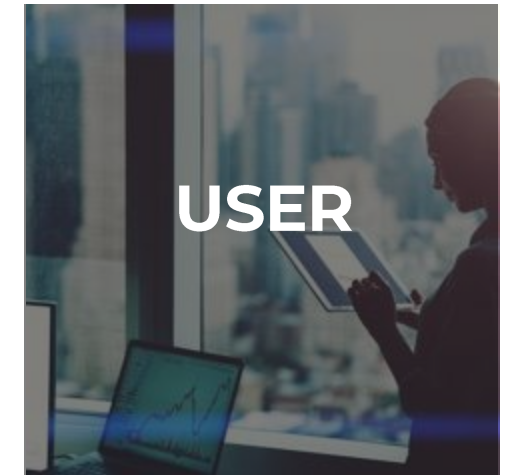
- No audio from 1 screen
- Audio from 1 seat too low/loud
- No audio at all



- Image blurry/out of focus
- Colored bars
- Slow camera switching



- Empty seats restart every minute
- Stays on windows desktop when session is started
- Wrong channels loaded

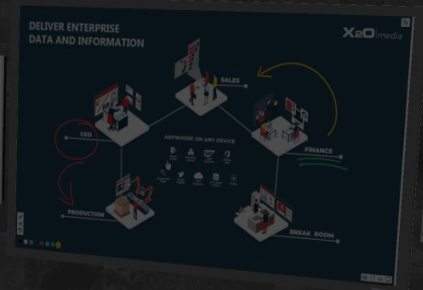


- Account locked
- Account disabled
- Did not receive invite
- Causes echo in the room

FAQ

- Can I change my profile picture?
- I have limited bandwidth, can I still join?
- I cannot be heard by other remote participants
- Can I use the credentials of my colleague?
- How can I fix audio feedback?
- Which browsers are supported?
- Which devices are supported?
- Can I connect from my corporate VPN?





THANK YOU
