



# Alliance for Community Media

ARIZONA CALIFORNIA COLORADO HAWAII NEVADA NEW MEXICO

## West Region

### **ACM West Conference 2023 Tips & Solutions for Hybrid Meetings**

# INTRODUCTION

## Brian Rose, VP of Engineering at Triton Technology Solutions

- B** Has been in radio and television broadcast operations and systems engineering and integration for more than twenty-five years and has been at Triton Technology Solutions for more than eleven years.
- B** Led the design and/or build teams for projects ranging from broadcast production systems in the home of the New York City Ballet and the San Diego Padres to video production facilities and master control systems for clients including the cities of Irvine, Costa Mesa, Santa Barbara, Escondido, Laguna Niguel, Calabasas, the county of Santa Barbara, and many more.
- B** Had to quickly learn a lot about Zoom, GoToMeeting, BlueJeans, and many more soft codecs early in 2020 and how to integrate them effectively into production systems and large meeting spaces.



# HISTORY

- B** In March of 2020, Triton started getting calls from existing and new clients about integrating primarily Go2Meeting and Zoom soft codecs into their Council Chamber presentation and production systems.
- B** Triton's engineers quickly determined that this type of integration was more complex than initially thought especially when it comes to the video source sent back to the far end.
- B** We also determined other "gotchas" and then solutions related to speaker timers, voting, changes to the Brown Act for California clients and other public meeting factors that may not be present in other types of remote meetings.



# 5 Tips for Successful Hybrid or Virtual Meetings

1. **Have separate PC clients with discrete feeds in the meeting for the room and the production system**
2. **Don't use soft codec for audio processing in large spaces with many microphones**
3. **Use a dedicated camera or production switcher auxiliary output to feed soft codec PC**
4. **Feed audio system in room with dedicated audio from meeting via audio DSP or mixer so you can switch presentation feed in room away from meeting video and participants in room can still hear audio**
5. **Ensure Clerk and staff understand that if the meeting is joined from any device in the room, they cannot use audio on that device in the room in any way**



## Tip 2: Have separate PC clients in the meeting for the room and the production system

1. **This allows the presentation system and the production system to have different view layouts of the meeting and allows the production to use the remote participant view for the production longer or differently than the presentation use in the Chamber or meeting room.**
2. **You will have a backup feed for the meeting in case of PC lockup or failure. We have both presentation PC audio and Production feed audio available on the production audio mixer in most cases.**
3. **It can prevent staff from muting your audio or changing your settings from the presentation system PC.**

## Tip 2: Don't use soft codec for audio processing in large spaces with many microphones

1. We have had mix-minus and AEC processing issues in mostly large spaces with lots of microphones or the use of boundary or ceiling microphones in the system if you use the codec's processing.
2. Use a dedicated DSP to do AEC (acoustic echo cancellation) and create mix-minus for your meeting especially if the above conditions exist.
3. Echo cancellation systems usually as a part of a DSP or soft codec software examines the sound going into the microphone and compares it with the sound coming from the far end; it then cancels out the sound detected in both signals as that can only be the sound from the far end.

## Tip 3: Use a dedicated camera or production switcher auxiliary output to feed soft codec PC

1. Do this in both your production system PC and your presentation system PC if you have both
2. This is very helpful for room's that are used without the production system for remote meetings especially if a primary camera is fed to presentation system and the users can control the PTZ camera from control system panel or IR remote for camera.
3. In the case of using the production switcher auxiliary feed, we have automated the aux switching to follow program except when the PC with the remote meeting is selected as the source on the program bus, it switches to the main wide camera view. We have done this with specifically with Ross Video Carbonite switchers using virtual GPIO, but it could be done on other switchers as well.



## Tip 4: Feed audio system in room with dedicated audio from meeting so you can switch presentation feed in room away from meeting video and participants in room can still hear audio

1. **This was not immediately determined when we started adding remote contribution capabilities to these systems.**
2. **We discovered that when they are in use especially when most or all remote participants are audio only when using Zoom or other soft codecs, users don't want a screen of empty boxes on the screen in the Chamber.**

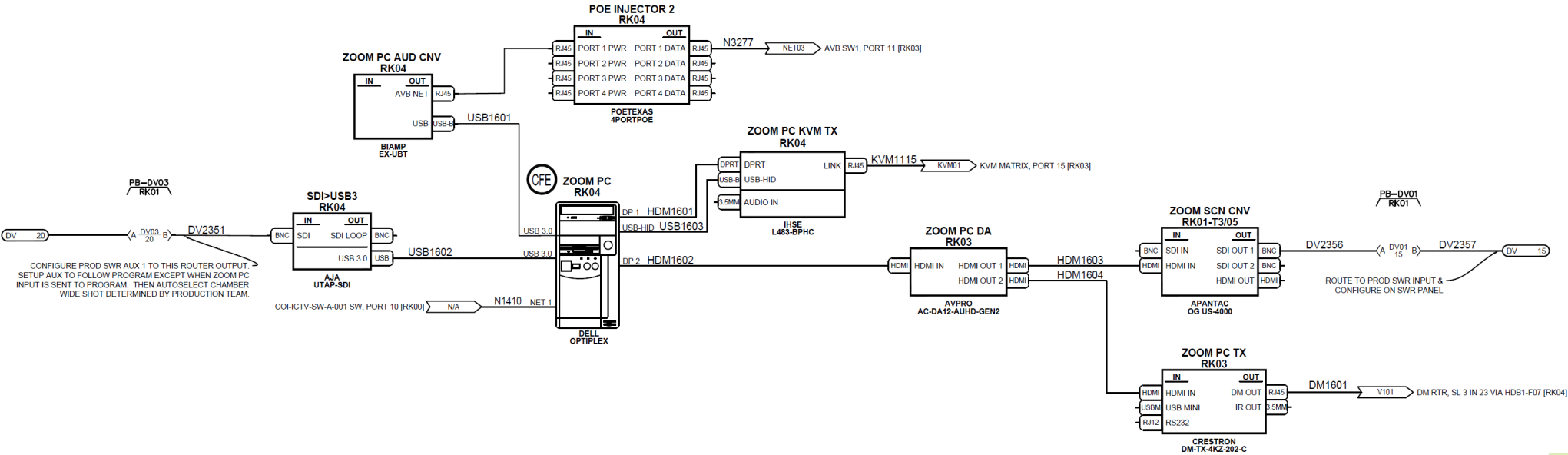


## Tip 5: Ensure Clerk and staff understand that if the meeting is joined from any device in the room, they cannot use audio on that device in the room in any way

1. **This seemed obvious, but was hard to troubleshoot in two cases in which we were called in by the client for “odd sounding audio and echoes” in the room during meetings with remote participants**
2. **We tested the system with remote participants and did not have any issues. I asked if anyone had their laptop, phone, or tablet connected to the meeting that was in the room and we figured out the problem. In both cases, a member in the room had thoughtfully muted their speaker, but their microphone was still on.**



# Design Example - Production System

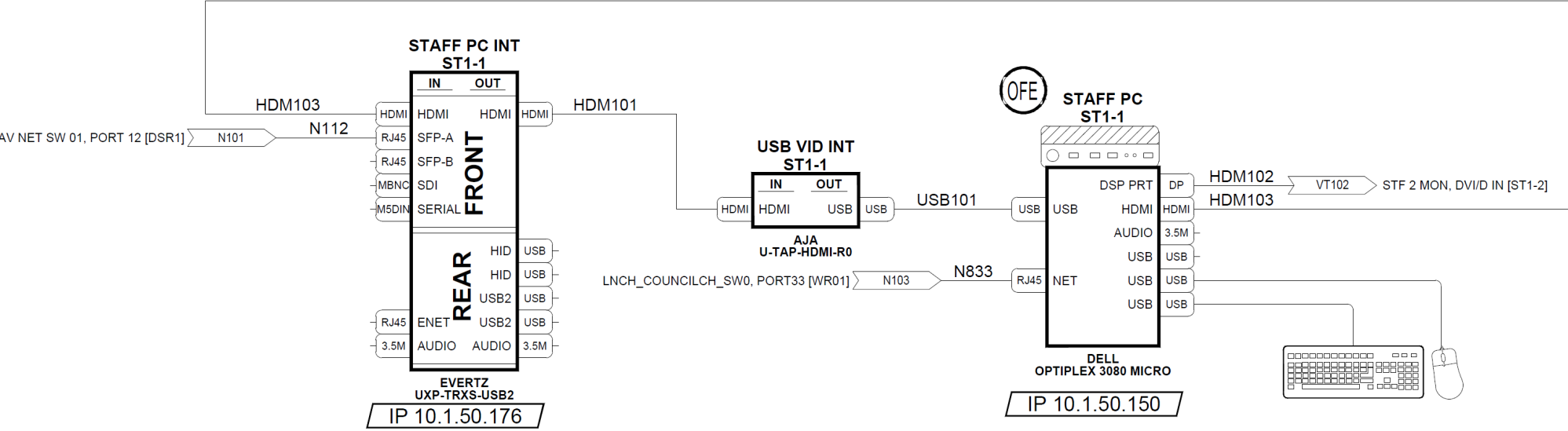


CONFIGURE PROD SWR AUX 1 TO THIS ROUTER OUTPUT. SETUP AUX TO FOLLOW PROGRAM EXCEPT WHEN ZOOM PC INPUT IS SENT TO PROGRAM. THEN AUTOSELECT CHAMBER WIDE SHOT DETERMINED BY PRODUCTION TEAM.

ROUTE TO PROD SWR INPUT & CONFIGURE ON SWR PANEL



# Design Examples - Presentation System



# TRITON

A green horizontal line with two small rectangular notches at the top, positioned under the 'R' and 'I' of the word 'TRITON'.

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BECAUSE TECHNOLOGY NEVER ENDS

QUESTIONS?

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THANK YOU