



Virtual Event Playbook

Advanced Production

Accessible ◆ Inclusive ◆ Engaging



Advanced production guidance

NOTE: This playbook is designed as further reading from our core [Virtual Event Playbook](#) for seasoned event producers to leverage a more advanced technical design to deliver events. If you have not read our [core playbook](#), please do so before proceeding to learn foundational knowledge for our services.

This playbook will assist you in delivering more highly produced events using additional tools. Example scenarios can include executive panels, internal or public conferences and events that include pre-recorded content or multiple remote presenters with a single host as you might see on the nightly news.

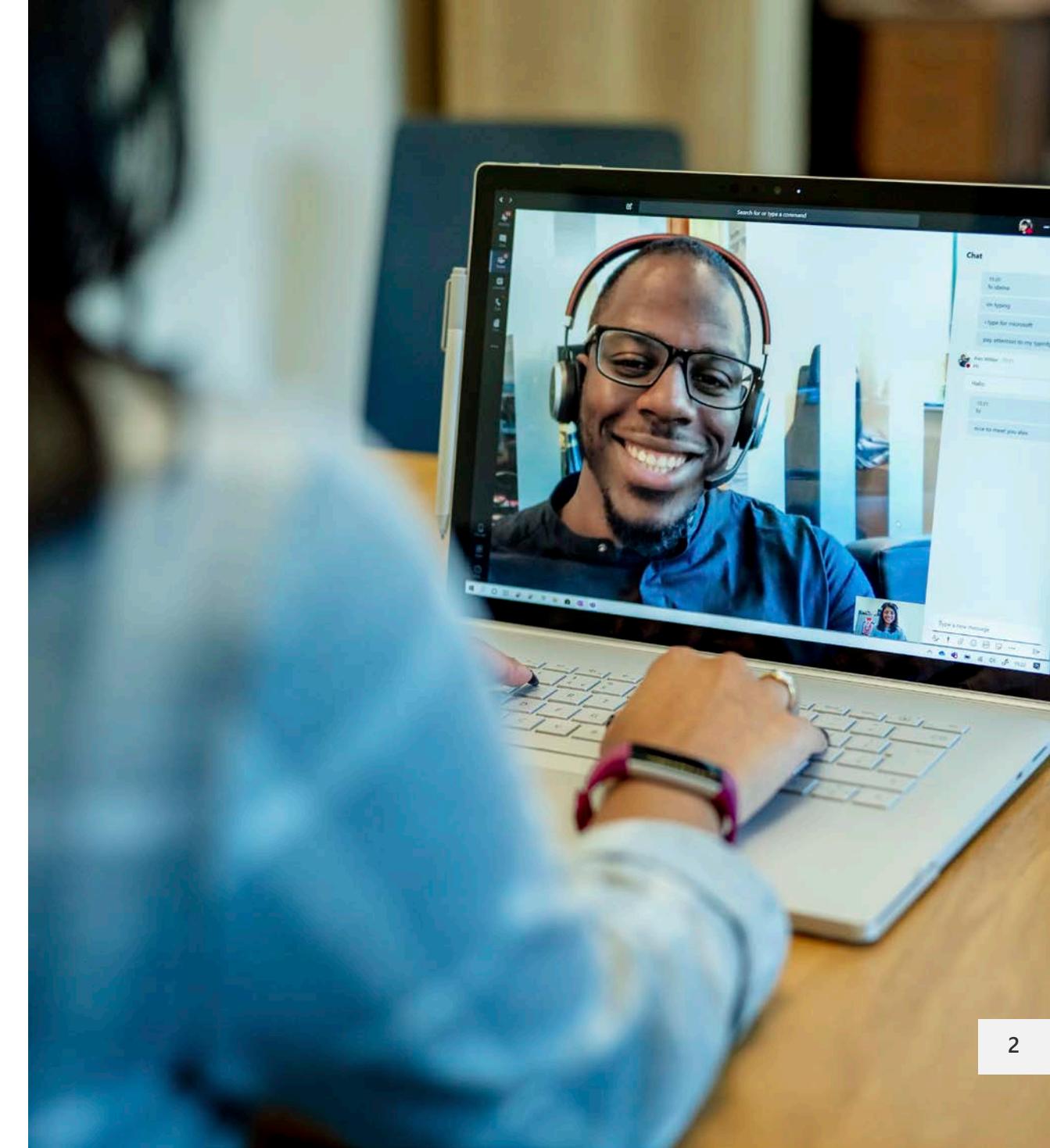
We have organized these resources by role and production phase with key sections for everyone. This real-world guidance is augmented by our technical product documentation which can be found at docs.microsoft.com.

As we release new features, we will continue to update this content. We want you to deliver on your event vision. Bring all your questions to our [Virtual Event forum](#). We are here to help!

Karuana Gatimu

Principal Manager & Technical Producer

Microsoft Teams Customer Advocacy Group



Virtual Event Forum

The Virtual Event forum is a community of people just like you who are navigating the new world of delivering virtual events. Join them and subject matter experts who can answer questions and share successful real-world experience.

<https://aka.ms/VirtualEventForum>



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NOTE: This playbook will focus on the most common methods for producing virtual events that do not require custom production including external encoders. Please bring your advanced production questions to our online community at <https://aka.ms/VirtualEventCommunity>.

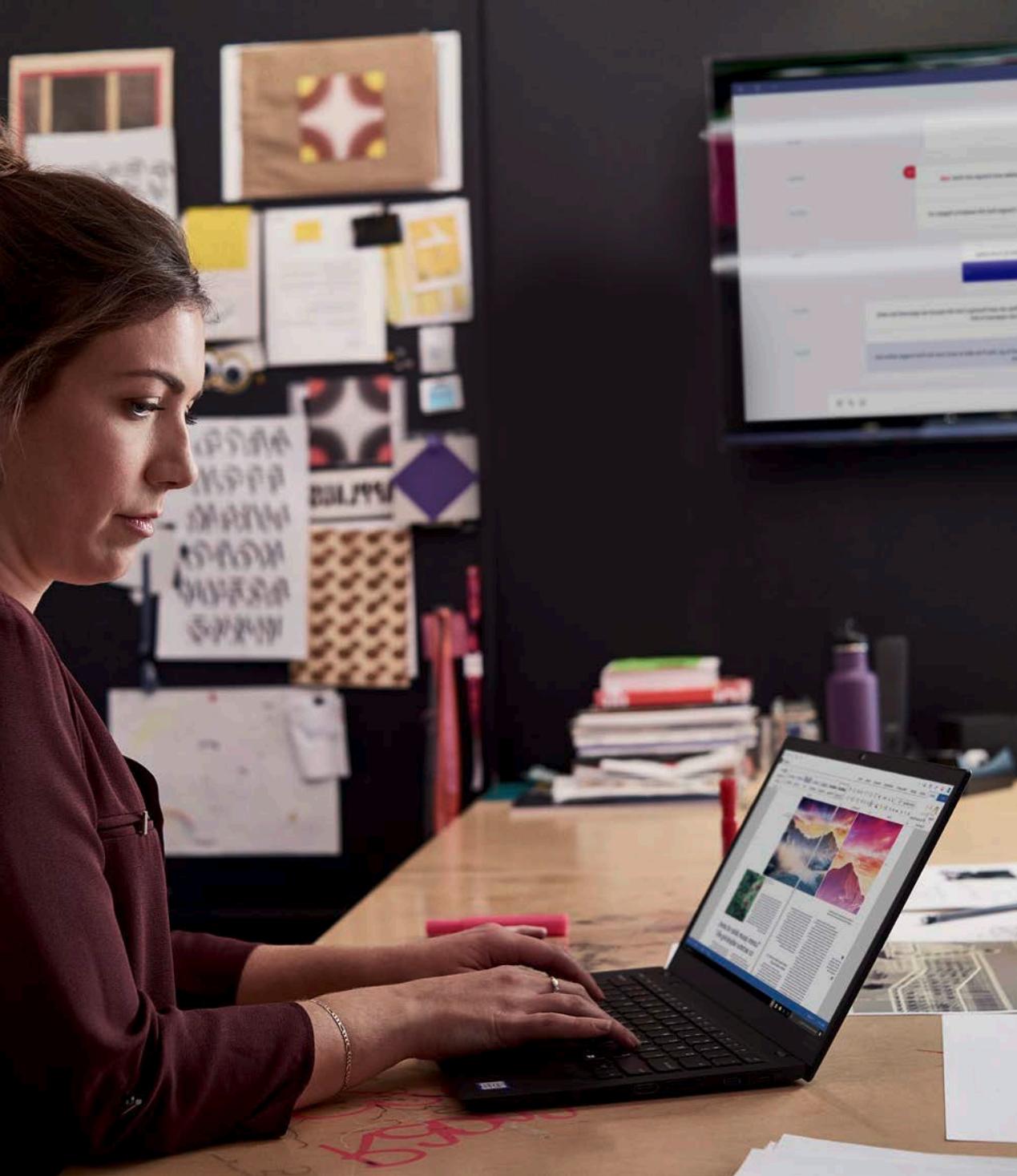


Everyone

Overview

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Compelling events are about people

Throughout your process of producing a virtual event it is critical to prioritize the following elements:

- The clarity of your message
- The attendee experience
- Your ongoing engagement strategy

All technology decisions should be made with these key elements in mind. Often the most important thing to invest in is the storytelling skills of your presenters who will land your core messages.

Ensure your content has a follow-up lifecycle for attendees who want to continue learning, review content or ask questions.

Events are no longer a destination – they fuel connection, ongoing learning and engagement.

Advanced event scenarios



Virtual conferences

- Single or multi-day experience.
- Multi-track and varying content types.
- Funnel to online communities for ongoing engagement
- Moderated Q&A

Leadership townhall

- 1 to Many with managed Q&A
- Often moderated destination events
- Sometimes crafted in a regular rhythm of business or on-demand

Public broadcasts

- 1 to Many destination broadcast
- Optional custom streaming configurations.
- May stream to additional platforms

Multi-guest panels

- Multiple guests and/or hosts
- Remote interviews
- Professional switching
- May stream to additional platforms

Your next idea

- Use powerful capabilities to reach customers, partners and your employees
- Create interactive content
- Reach influencers and create brand ambassadors
- Improve remote communications and citizen engagement

Tip: Scale and complexity matter

Production events can be self-produced. For advanced scenarios, a broader event team is recommended. Please review our production roles content from our [core event playbook](#).

Event Design Model

The one thing we can never get back is time.
This is the most valuable thing an event attendee shares with you.

The most successful virtual events are a part of a long-term audience acquisition & retention strategy. Below is an example framework of an acquisition strategy.

Ensure attendee satisfaction with valuable and engaging content & on-screen talent. Clear calls to action & post-event engagement will ensure the attendees you acquire would return for further events.

Awareness – Potential attendees know about you and your event.

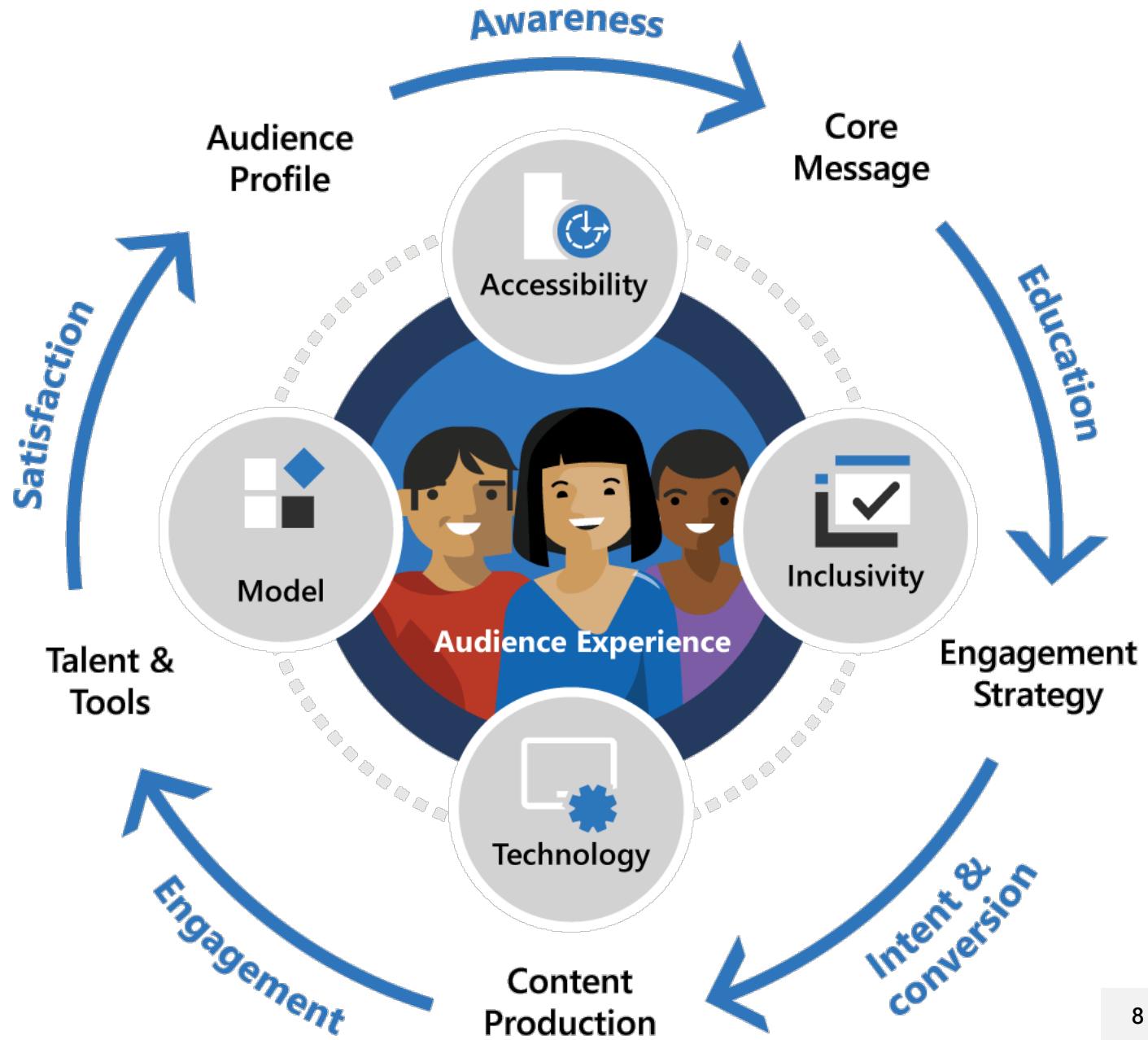
Education – Potential attendees gain knowledge about the purpose of your event.

Intent – Potential attendees form intent to participate in your event.

Conversion – Potential attendees convert via registration.

Engagement – Attendee participation.

Satisfaction – Attendees are satisfied with your event and would recommend it to others.



Engage from anywhere Produce with quality

Advanced production scenarios allow you to unleash your creativity

Confidently produce a secure experience

Choose your broadcast platform experience to reach your target audience

Engage beyond your standard communication methods





Organizer

Before your event

Selecting your event experience

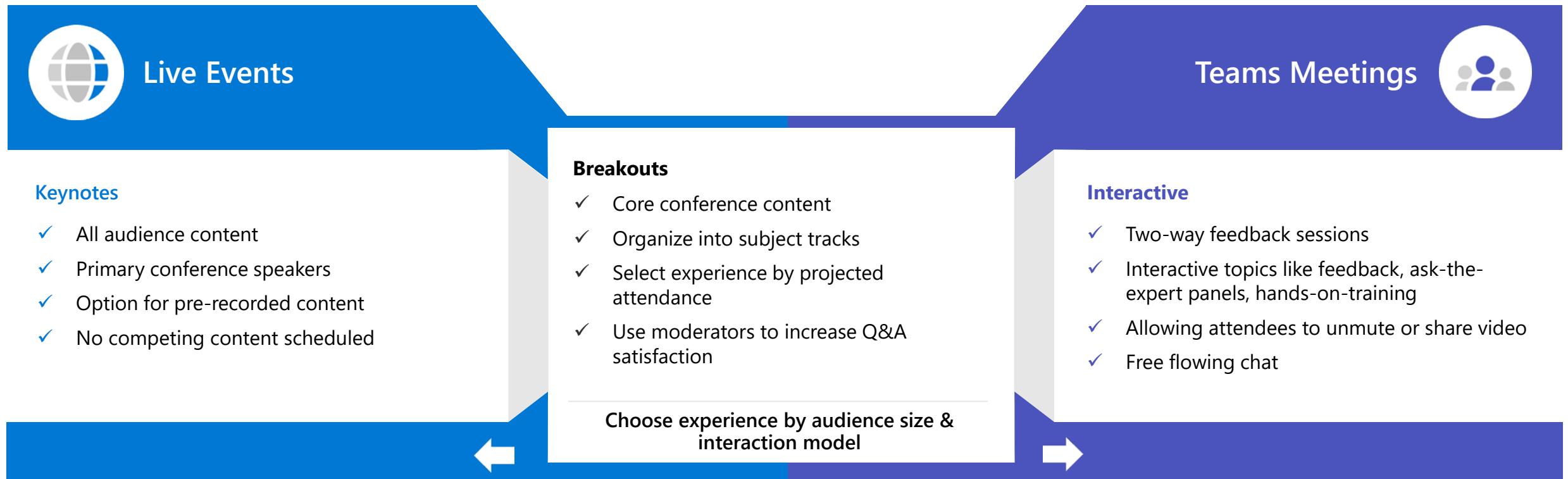


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Advanced events

Large scale, multi-day events may be a combination of Teams meetings and Live Event experiences. Match the interaction and broadcast method to the audience need.



Tips for a successful event:

- Provide navigation and awareness sign-posts on your primary attendee website or digital brochure.
- Make content available for attendees as soon as possible after event. Use Stream for Microsoft 365, Microsoft Teams, or other popular online video portal technologies to ensure a content lifecycle.

Selecting your event experience



| I What type of event? | II What type of attendee experience? | III How many people will watch the event live?* | IV What level of video production? |
|---------------------------------|---|--|---------------------------------------|
| Single event | Open 2-way discussion | Up to 300 | Simple webcam and screen share |
| Event series | Managed Q&A | Up to 20,000 | Multiple presenters |
| Part of an engagement community | No attendee discussion or Q&A | Up to 100,000 | Custom production |

Event examples:

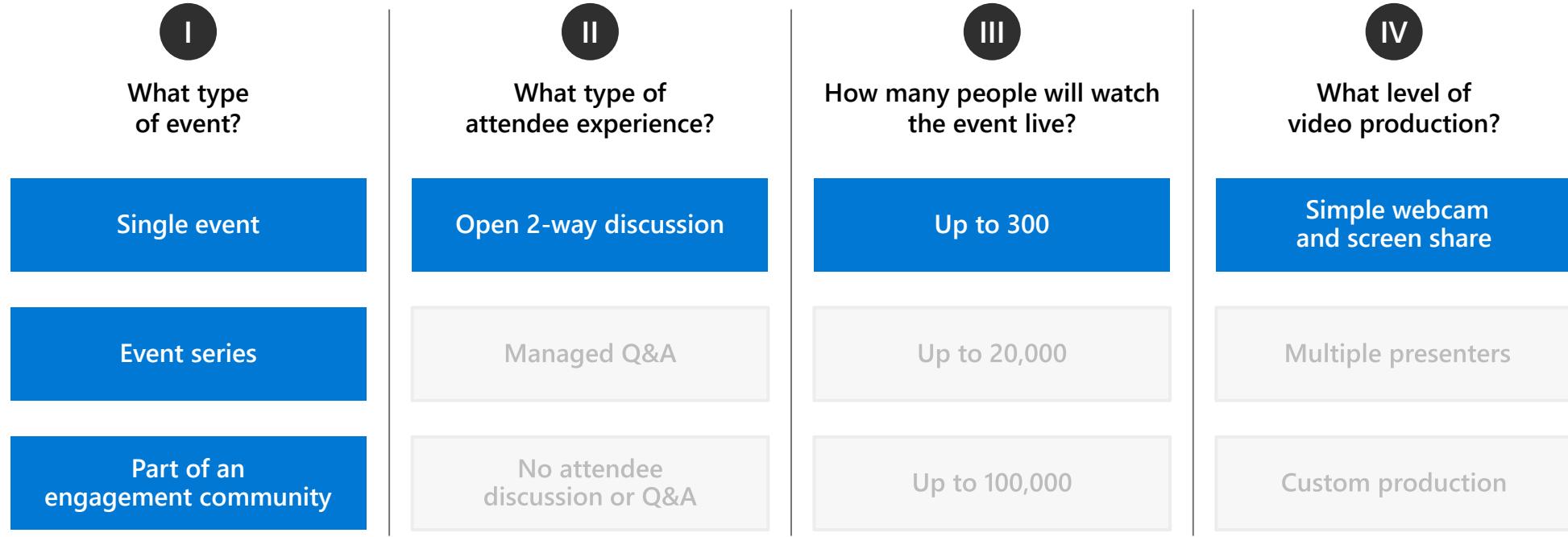
Single event: Product launch, organizational changes, town hall

Event series: Training, office hours, employee development

Engagement community: Customer community, company partners, product support

*Are your attendees' members or guests of your Microsoft 365 tenant? Microsoft Stream does not support guest access at this time.

Selecting your event experience: Teams meeting



Recommended:
Teams meeting

Build community and authentic connection

- Provides open discussion features via audio and video for attendees
- Provide meetings as a part of a team to provide continuing engagement
- Support interactive chat during & multiple presenters in the meeting
- Familiar content and video sharing controls
- Use Yammer for your Teams-produced meeting as a part of a community experience or series with continuing conversation

Selecting your event experience: Live Events



I

What type of event?

Single event

Event series

Part of an engagement community

II

What type of attendee experience?

Open 2-way discussion

Managed Q&A

No attendee discussion or Q&A

III

How many people will watch the event live?

Up to 300

Up to 20,000

Up to 100,000

IV

What level of video production?

Simple webcam and screen share

Multiple presenters

Custom production



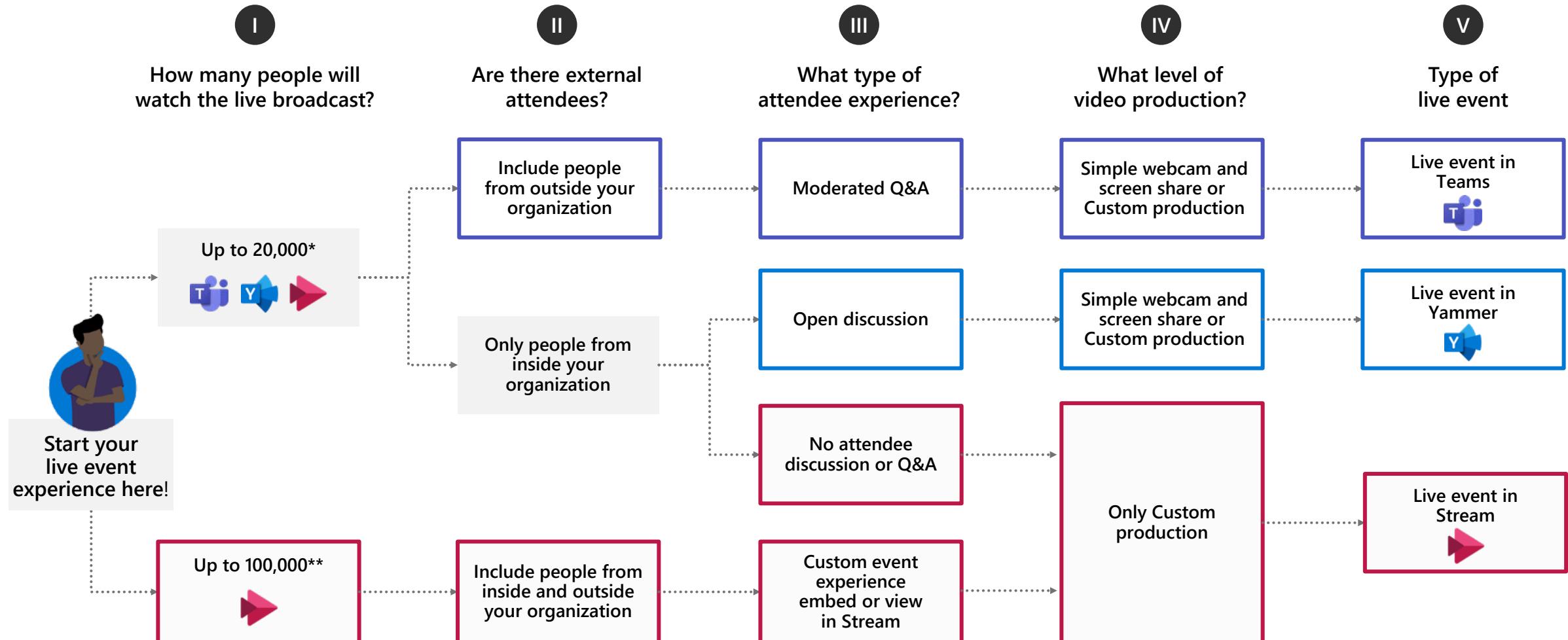
Recommended:
Live Events

Manage the attendee experience

- Multiple Live Event options for maximum flexibility
- Broad scale and highly managed content experience
- Supports self-produced to custom production scenarios
- Live Events can be publicized as a part of an engagement community

Next Step: Follow Live Event selection decision tree ➔

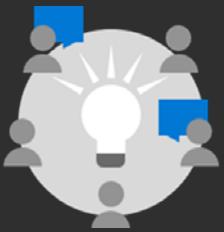
Which Live Event experience is right for me?



*Attendee limit increases over 10,000 are temporarily available until July 1, 2020. Events above 20,000 attendees require Live Events Assistance Program (LEAP) Engagement.

**Stream live events can be delivered outside an organization when planned through the LEAP team. It's a case-by-case, temporary service to help customers communicate at scale outside their organization.

Custom production scenarios, including external encoder and multi-camera configurations, will be covered in additional documentation



Producer
Custom production flowcharts

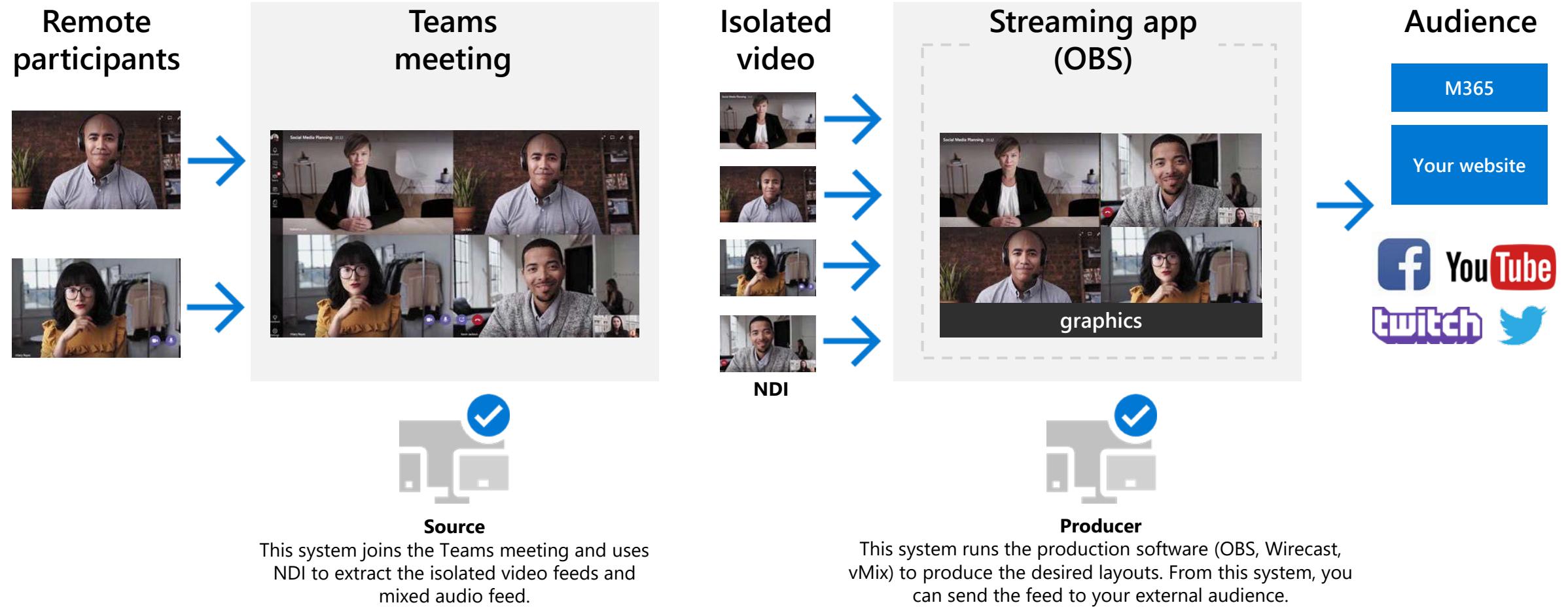
Production concepts

High level process flow

Producing with an external app or encoder requires multiple components:

- Skilled production staff. Advanced productions often require technical producers along side communications & on-air talent staff.
- The scheduled Live Event for production and attendee experiences.
- The external app/encoder (such as OBS Studio, Streamlabs OBS, Wirecast, vMix).
- An active source of content ingested into the external app/encoder.
- The content being presented can be sourced from a variety of locations; in this playbook, we will show how to use a Teams meeting as the source of content provided to the external app/encoder (OBS Studio).
- This configuration allows you to bring in guests from multiple locations into a single digital experience.

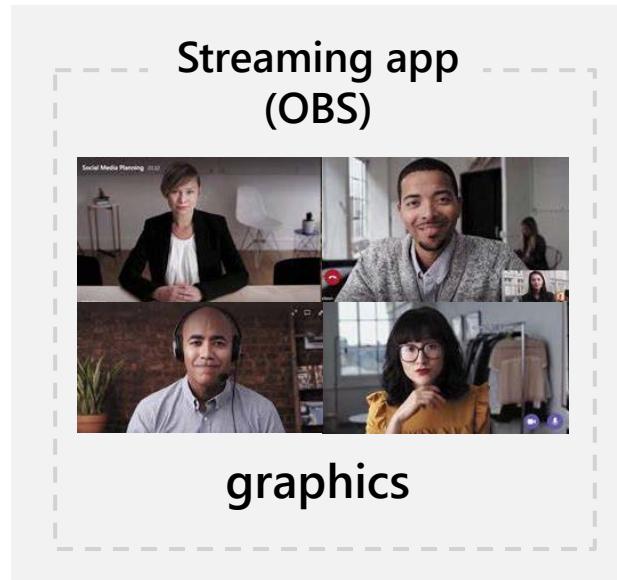
Produce your broadcast from a secure, virtual stage



Microsoft Teams – your secure, virtual stage

Customized broadcast

Production Machine – Streaming to the Audience



Production Machine

This machine runs the production software (OBS, Wirecast) to produce the desired layouts. From this machine, you can send the feed to your external audience.

Production software can output to various audience locations

Scheduling in Teams

Live Event scheduling -> select an external app or device

The screenshot shows the "New live event" configuration screen. It includes:

- A toggle switch for "Secure connection (SSL)" set to "Off".
- "Server ingest URL": rtmp://7hjbtcdaeibhyvzkrx2d6ks5eg... (with a copy icon)
- "Secondary server ingest URL": rtmp://7hjbtcdaeibhyvzkrx2d6ks5eg... (with a copy icon)
- A section for "How will you produce your live event?":
 - Teams: You plan to use Teams to share content from presenters' webcams and screens.
 - An external app or device:
 - You plan to use another tool to share content. Learn more
 - Recording available to attendees
 - Captions (available after the event)
Spoken language: English (United States)
 - Q&A

Producer obtains the ingest URLs when they join

Use [NewTek NDI Tools](#) (NDI Virtual Input -> NDI Virtual Camera/Virtual Audio) to bring the OBS feed (NDI Out) back into the Teams Live Event

Stream to third party platforms (Facebook, YouTube, etc.)

Platform will provide the Server/Stream Key information



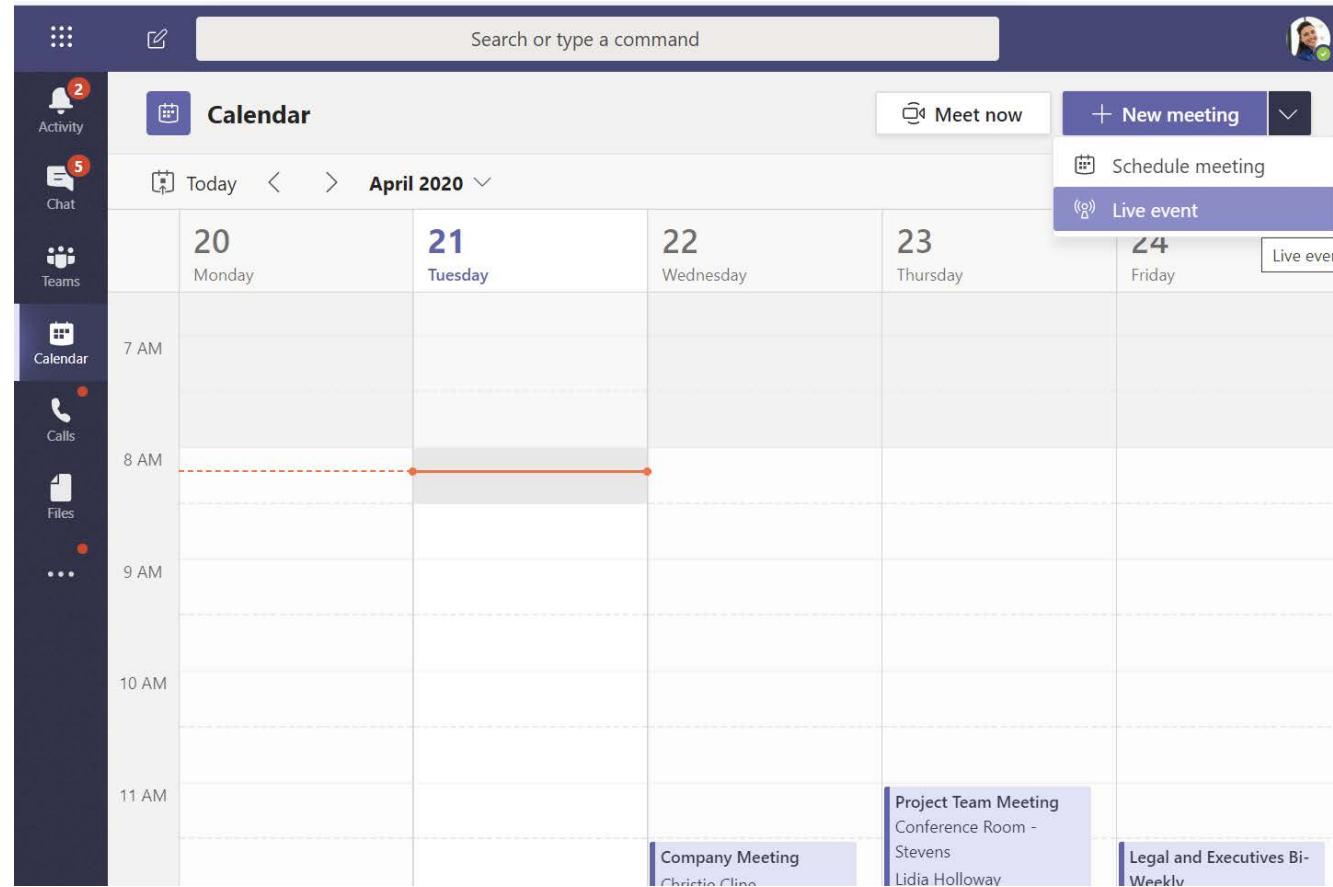
Organizer

Before your event

Scheduling a Live Event

Schedule a Live Event from Teams

First time scheduling Live Events from Microsoft Teams? With this guide you will learn how to organize a Live Event and determine which roles your team should play in the production and moderation of the event.



Schedule a Live Event
From your **Calendar** in Teams, click the drop down next to **New meeting** and select **Live event**

Setting up a Live Event

The **New live event** screen is where you define the following details about your event:

- **Title** of your Live Event
- **Date** and **Start** and **End** times of your event
- Who you will invite as **Producers** and **Presenters** for the event

In the **Invite people to your event group** area is where you define the roles for your event team members. The following roles are available:

- **Producer:** As a host, makes sure attendees have a great viewing experience by controlling the live event stream. There is usually one producer, but you can have multiple for backup of the primary.
 - Configures the encoder connection
 - Starts and stops the live event
 - Moderates Q&A panel
- **Presenter:** Presents audio, video, or a screen to the live event, or moderates Q&A. There are usually multiple presenters, and some may only have the role of moderating the Q&A as an example. **When using the external encoder option, presenters invited here are only used for moderating Q&A (if enabled).**

Once you have completed all the fields, click **Next** to continue.

Important note – We have not defined who will be viewing the Live Event as an attendee; we have simply defined who will be producing and presenting in your Live Event.

New live event

You are setting up a live event

To invite attendees, copy the link once you schedule the live event, and publish it or send it in a calendar invite. [Learn more](#)

Title *

Company Townhall

Location

Start

Apr 27, 2020

End

Apr 27, 2020

Details

Please join 15 minutes prior to the event for final preparation.

Invite people to your event group

Invite presenters

Organizer

Aaron Porzondek
Producer

Event group

Tim Hadley
Presenter

J.C. Layton III
Presenter

Greg Yavello
Presenter

Close

Next

Live Event permissions

Next you will choose who can attend your event based on the following permission types:

- **People and groups** – The event can only be watched by people, security groups or Microsoft 365 groups you name.
 - This permission type is ideal for confidential Live Events that should only be viewed by the specific people or groups defined here.
- **Org-wide** – Everyone in your org can watch the Live Event, including guests.
 - This permission type is best for all other Live Events where the content is not confidential.
- **Public** – Anyone can join – both people in your org and those outside of it.
 - This permission type would apply to a scenario where you intend for the general public to attend a Live Event, such as your customers or shareholders.
 - Note – this option is currently unavailable when producing the event using “An external app or device”.

Before clicking **Schedule**, scroll down to reveal options that pertain to **How will you produce your live event**. These will be covered on the next slide.

The screenshot shows the 'Live event permissions' section of the 'New live event' configuration. It lists three options: 'People and groups' (disabled), 'Org-wide' (selected and highlighted in blue), and 'Public' (disabled). Below the permissions section, there's a question 'How will you produce your live event?' with two options: 'Teams' (radio button) and 'An external app or device' (radio button, selected). At the bottom right are 'Close', 'Back', and 'Schedule' buttons.

TIP: If your public event is supporting anonymous Attendees, and you select “Recording available to attendees”, the attendees will be able to view (but not download) the recording on-demand using the original join link.

How will you produce your Live Event?

Finally, you will select several available options for how your Live Event will be produced.

- **Teams or An external app or device**
 - To produce the event in Teams, keep the default option of **Teams**. The other option **An external app or device** is only if you desire to have your event produced by a formal audio and visual department or outside AV company.
- **Recording available to attendees**
 - Attendees can watch the event on demand using DVR options for 180 days.
- **Captions (available after the event)**
 - Captions are available to event participants after the event concludes.
- **Q&A**
 - Attendees can interact with producers and presenters in a moderated Q&A.

Now that you have selected all of the options you desire, you can click **Schedule** to continue.

The screenshot shows the 'New live event' configuration page. At the top, it says 'are outside your org. (No sign-in required)'. Below that, the heading 'How will you produce your live event?' is followed by two options: 'Teams' (radio button) and 'An external app or device' (radio button, selected). Under 'Teams', it says 'You plan to use Teams to share content from presenters' webcams and screens.' Under 'An external app or device', it says 'You plan to use another tool to share content. [Learn more](#)'. There are three checked checkboxes: 'Recording available to attendees' (with a note 'Some of these options have not been enabled by your IT admin'), 'Captions (available after the event)', and 'Q&A'. At the bottom right are buttons for 'Close', 'Back', and a blue 'Schedule' button.

TIP: If using an external device your video stream cannot be viewed by guests of the tenant.

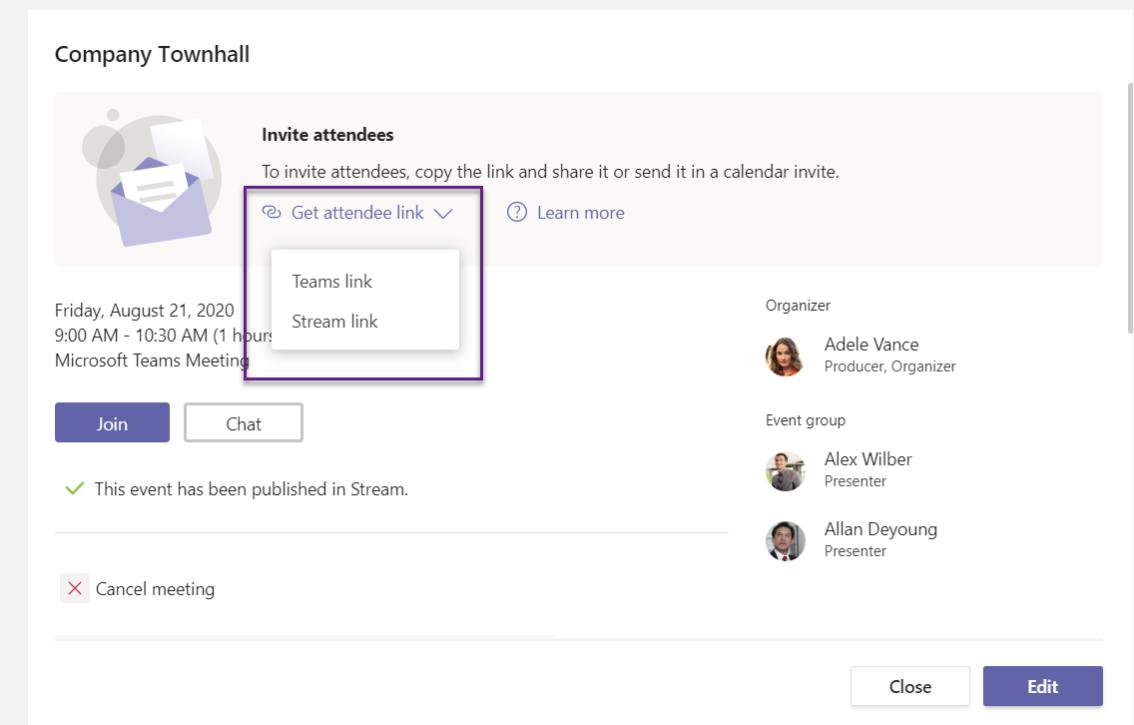
Get the link for Attendees

The next step in finalizing the setup of your Live Event is to copy the attendee link for your event. The attendee link is how your event attendees will attend the event.

Click the **Get attendee link** dropdown and select the desired viewing experience to copy the link to the clipboard. You can now publish that link however you desire. Common ways of publishing it include:

- Sending an Outlook invite to your intended attendees and pasting the attendee link into that Outlook appointment
- Publishing via a company newsletter
- Publishing to an internal Intranet site

Once you have copied the attendee link, you can now click Close to schedule the event. Producers and Presenters will receive an invitation in their emails with a link only valid for the Producers and Presenters of the event.



TIP: Forwarding invitations does not allow someone to become a producer or presenter. You must edit the event and add them through the Teams experience. Once an event has started you cannot add producers or presenters.



Organizer

Before your event

Scheduling your Teams meeting (content source)

Teams meeting

The following slides are to provide guidance on how to create a Teams meeting for the purpose of using an external application/encoder (OBS Studio).

Note that some of the features may not be exactly what an end user will experience due to:



Teams policies set at
the admin portal.



How the end user
accesses Teams (e.g.,
web client vs desktop).

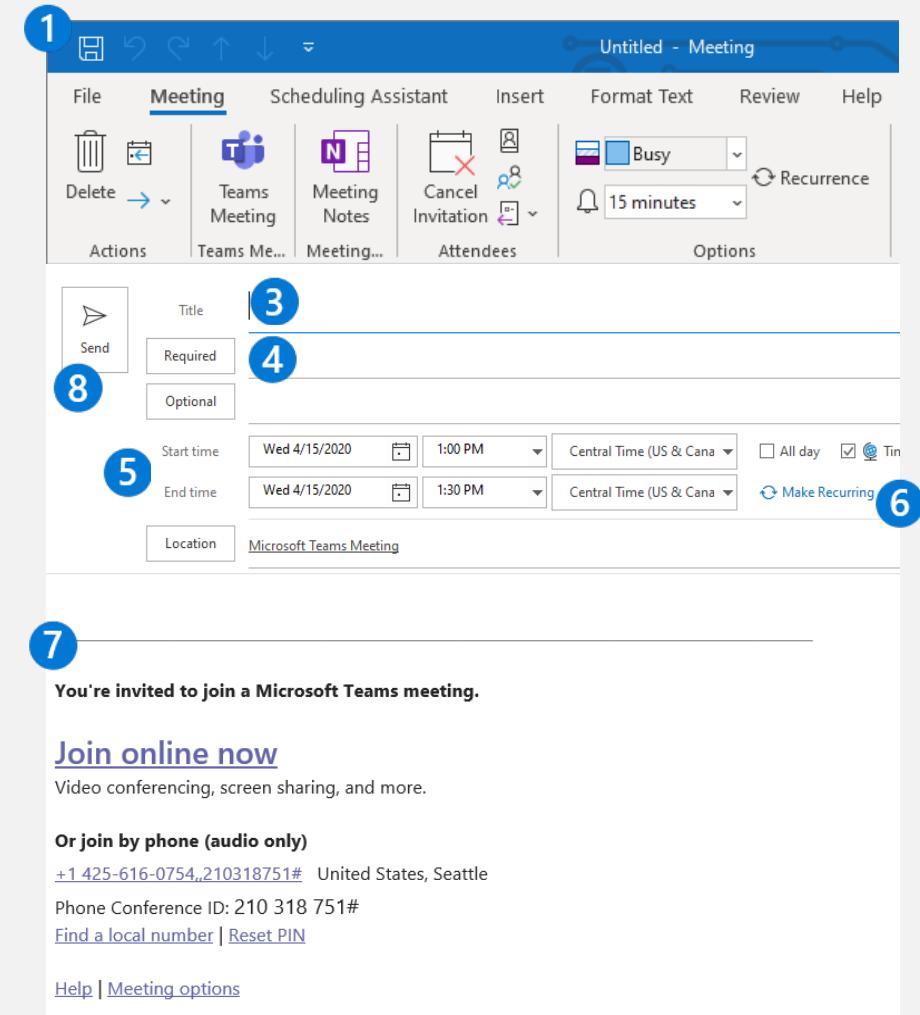


Where the company is at with
new features being rolled out
from the tenant level.

Ahead of scheduling your virtual event, ensure you are coordinating with your IT administrator to be aware of any limitations placed on your meeting by tenant policies.

Creating a meeting invite in Outlook

- 1 Open your **Outlook Calendar***, click the **Home** tab, and then click the **Teams Meeting** icon (screenshot on the right).
- 2 Select the **Teams** icon. When you do so, a **Join a Microsoft Teams Meeting** link is created in the body of the invite. If you have an auto conferencing license, a phone number and conference ID will be included.
- 3 Create a **Title** for your meeting invite.
- 4 In the **Required** box, enter the email addresses for the people you want to invite to the meeting.
- 5 Select a **start and end time** for the meeting.
- 6 If you need the meeting to be recurring, please select the **Make Recurring** icon.
- 7 Add content to the body of the invite to inform participants of the purpose of the meeting.
- 8 Double check your information and then click the **Send** button.

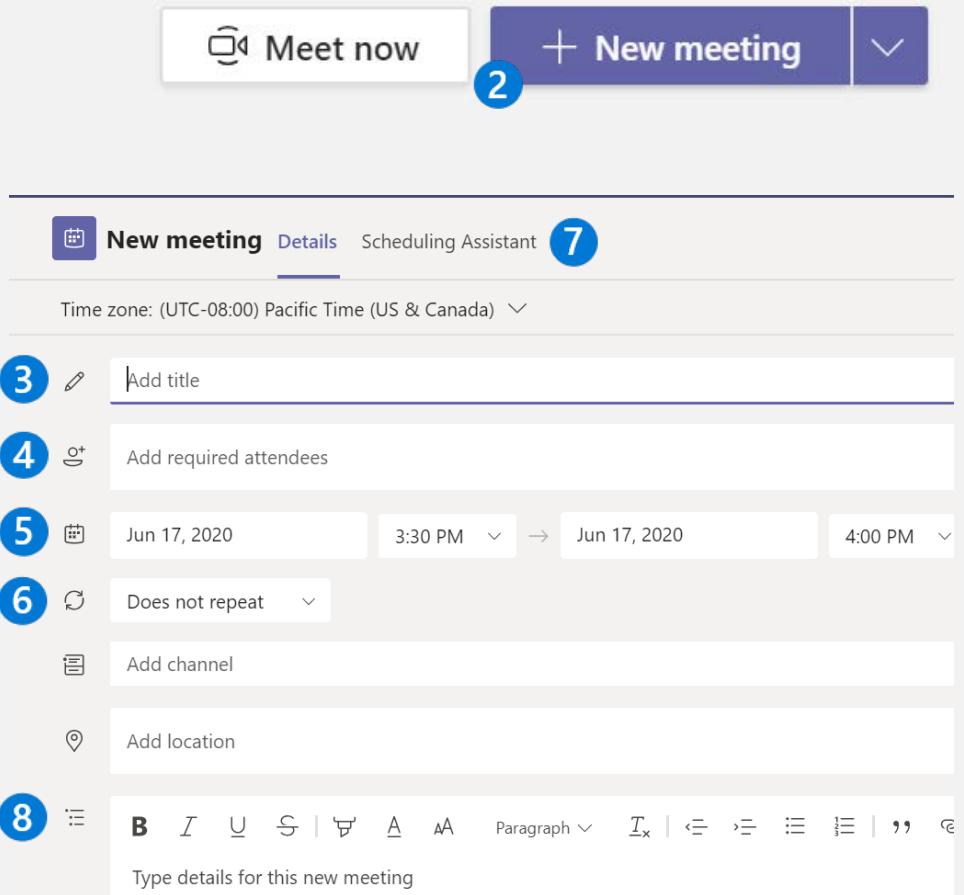


*Your calendar in Teams is connected to your Exchange calendar. In other words, when you schedule a meeting in Outlook, it will show up in your Teams calendar, and vice versa.

Creating a meeting invite in Teams

- 1 Open the Teams client, select the **Calendar**  icon located on the left side of the navigational side bar.
- 2 Select the **New Meeting** button located in the top right corner of the screen.
- 3 Create a **Title** for your meeting invite.
- 4 In the **Required Attendees** box, enter the email addresses for the people you want to invite to the meeting.
- 5 Select a **start and end time** for the meeting.
- 6 If you need the meeting to be recurring, select the **Does Not Repeat** drop down box and a recurring selection(s) drop down box will appear.
- 7 For internal attendee(s), select the **Scheduling Assistant** tab (top left) to see if the attendee(s) are available at the time you are proposing.
- 8 Add content to the body of the invite to inform participants on the purpose of the meeting.
- 9 Double check your information and then click the **Save*** button.

*When you select the **Save** icon, the Microsoft Teams meeting link info is automatically created and sent out in the invite. If you have an auto conferencing license, a phone number and conference ID will be included.



Edit meeting options

- 1 Once your meeting is scheduled you can edit the meeting options. Return to your Calendar and edit the meeting you just scheduled.
- 2 Your options will appear in a new browser window.
- 3 Select which meeting roles can bypass the lobby.
- 4 Toggle if audio caller can always bypass the lobby.
- 5 Toggle join/leave announcements.
- 6 Select which meeting roles can present in this meeting.
- 7 Select **Save** to save your options. Options can be changed until the meeting begins.

2 Meeting options

Who can bypass the lobby?

4 Always let callers bypass the lobby

5 Announce when callers join or leave

People in my organization

No

Yes

Who can present?

Everyone

7

3

People in my organization

Everyone

People in my organization and trusted organizations

People in my organization

Only me

6

Everyone

Everyone

People in my organization

Specific people

Only me



Producer

Custom production flowcharts

Producing with an external application

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External applications for production (encoders)

Definition

Compresses audio and video from various inputs and sends that output to a streaming service

Hardware, software, mobile apps

Settings

RTMP(s) – single bitrate

Video:

- Codec: H.264, High
- Fragment size: 2 sec
- Bitrate: up to 5 Mbps, CBR, 30 fps

Audio:

- Codec: AAC-LC
- Bitrate: 192 kbps
- Sample rate: 48Khz

Note: both audio and video must be present

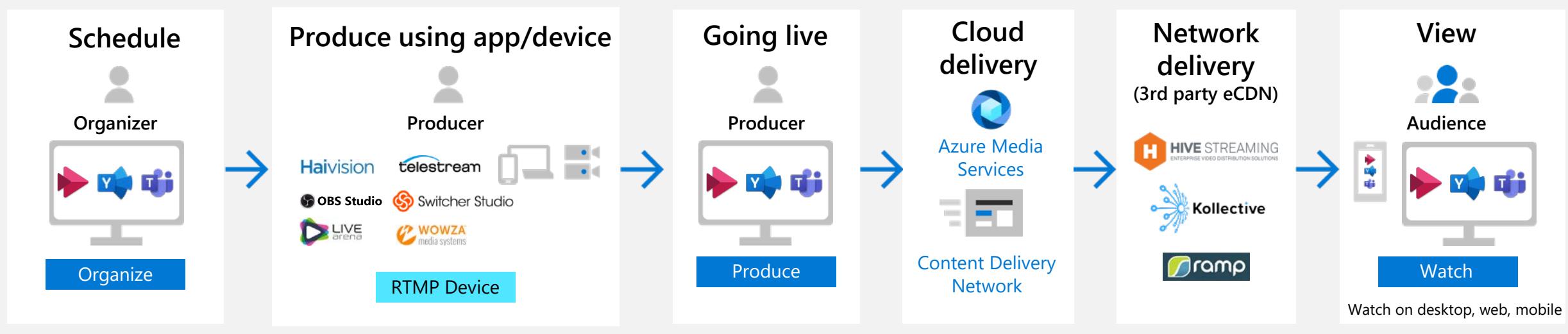
Compatible encoders

Haivision

telestream



Introduction to advanced production workflow with an external application



These steps represent the production workflow for broadcast streaming. At each step, you are deciding the specific technology to use.

Nothing can replace a dress rehearsal. This allows you to test all configurations and content switching to streamline the audience experience.

Joining as a Producer – from Teams or Outlook



The screenshot displays two calendar interfaces side-by-side. The top interface is the Microsoft Teams Calendar for April 2020, showing a list of meetings. A specific meeting titled "Test Teams Meeting with Files Added to" is highlighted with a blue box and a callout containing the text: "Join the Live Event as a **Producer** or **Presenter** from your Teams calendar or from your Outlook Calendar." A red arrow points from this text to the same meeting entry in the bottom interface. The bottom interface is the Microsoft Outlook Calendar for April 2020, also showing the same meeting invite. Both interfaces show other scheduled events like "Live Event Training Prep for PPD" and "IT Town Hall".

Join the Live Event as a **Producer** or **Presenter** from your Teams calendar or from your Outlook Calendar.

Reid Hinson
Test Teams Meeting with Files Added to
Aaron Porzondek
GlobalAES Touch Base (Teams Trainer)
Microsoft Teams Meeting
Tyler Walter

IT Town Hall
Microsoft Teams Meeting
Aaron Porzondek
Devices feedback session
Alexander Ivanov

ECIF MW Consumption program - Office Hours
Microsoft Teams Meeting
Tal Barash

[EXTERNAL] Teams Live training session

MSX Insights Manager/Seller 101 Training (Q4) - US BSO Readiness
- US BSO Readiness
Microsoft Teams Meeting
Eric Ligman

US HLS COVID-19 Updates || Provider Community Call
Microsoft Teams Meeting
National Healthcare

MSX Insights Manager/Seller 201 Training (Q4) - US BSO Readiness

Ernie Medders
Reid Hinson
Test Teams Meeting with Attachments; Micro Test Teams Meeting with Attachments; Micro

Live Event Training Prep for PPD
Test Teams Meeting with Files Added

IT Town Hall
Microsoft Teams Meeting
Aaron Porzondek

ECIF MW Consumption program - Off Microsoft Teams Meeting
Tal Barash

GlobalAES Touch Base (Teams Trainer)
Microsoft Teams Meeting
Tyler Walter

Devices feedback session
TAP100 Validations (under NDA)

MSX Insights Manager/Seller 101 Trai Microsoft Teams Meeting
Eric Ligman

US HLS COVID-19 Updates || Provider Microsoft Teams Meeting
National Healthcare



Producer

Joining as a Producer

The Producer will first need to click Start setup to provision the event.

Company Townhall

Encoder preview

Leave

Contoso

Activity

Chat

Teams

Calendar

Calls

Files

OFFLINE

Apps

Help

Company Townhall

Live event scheduled for today

9:00 AM PDT

Select "Start setup"

Once Stream is done setting up, you will be able to connect your encoder.

Start setup

Q&A is open

Source settings

Set up your encoder

To connect from outside encoding sources:

1. Click Start setup and wait for setup to finish.
2. Copy the server inject URL into your encoder and start the video stream.
3. Once you see a preview from the encoder, you can click Start event to go live.

Learn more

Secure connection (SSL)

Off

Server ingest URL

rtmp://kgoeuhfozow6e6gpnyljw2wt...

Secondary server ingest URL

rtmp://kgoeuhfozow6e6gpnyljw2wt...



Producer

Joining as a Producer

The screenshot shows the Microsoft Teams interface for a live event titled "Company Townhall". On the left, the navigation bar includes Activity, Chat (selected), Teams, Calendar, Calls, Files, and three dots. The main area displays the event details: "Live event scheduled for 9:00 AM PDT". A central window titled "Encoder preview" shows a dark screen with the text "Ready to connect" and "Connect your encoder now to start sending data". Below this is a yellow "PRE-LIVE" button. To the right, a "Source settings" pane is open, containing sections for "Set up your encoder" (instructions for connecting an encoder), "Secure connection (SSL)" (status off), and two "Server ingest URL" fields: "rtmp://kgoeuhfozow6e6gpnyljw2wt..." and "Secondary server ingest URL" with the same value.

Once setup is complete,
use the URLs listed to
connect the encoder.

Ready to connect
Connect your encoder now to start sending data

Leave

Source settings

Set up your encoder

To connect from outside encoding sources:

1. Click Start setup and wait for setup to finish.
2. Copy the server inject URL into your encoder and start the video stream.
3. Once you see a preview from the encoder, you can click Start event to go live.

Learn more

Secure connection (SSL)

Off

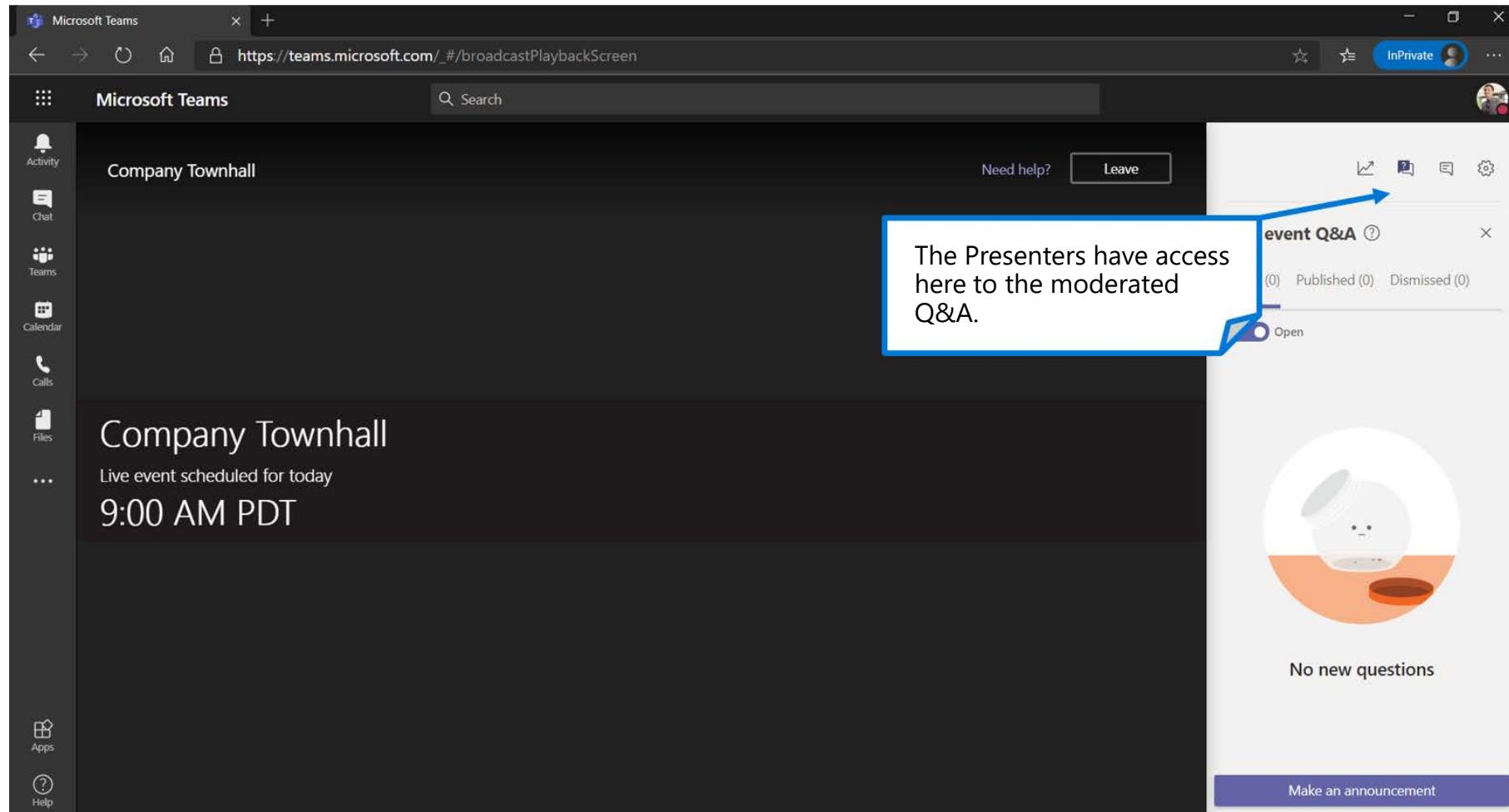
Server ingest URL

rtmp://kgoeuhfozow6e6gpnyljw2wt...

Secondary server ingest URL

rtmp://kgoeuhfozow6e6gpnyljw2wt...

Joining as a Presenter (Moderated Q&A)



When a Live Event scheduled in Teams is produced using an external app or encoder, Presenters for this event will not have any type of audio/video capabilities. They will be able to moderate the Q&A panel (if enabled), chat with the producer(s) and view the live stream within the client.

Connecting your encoder (OBS example)

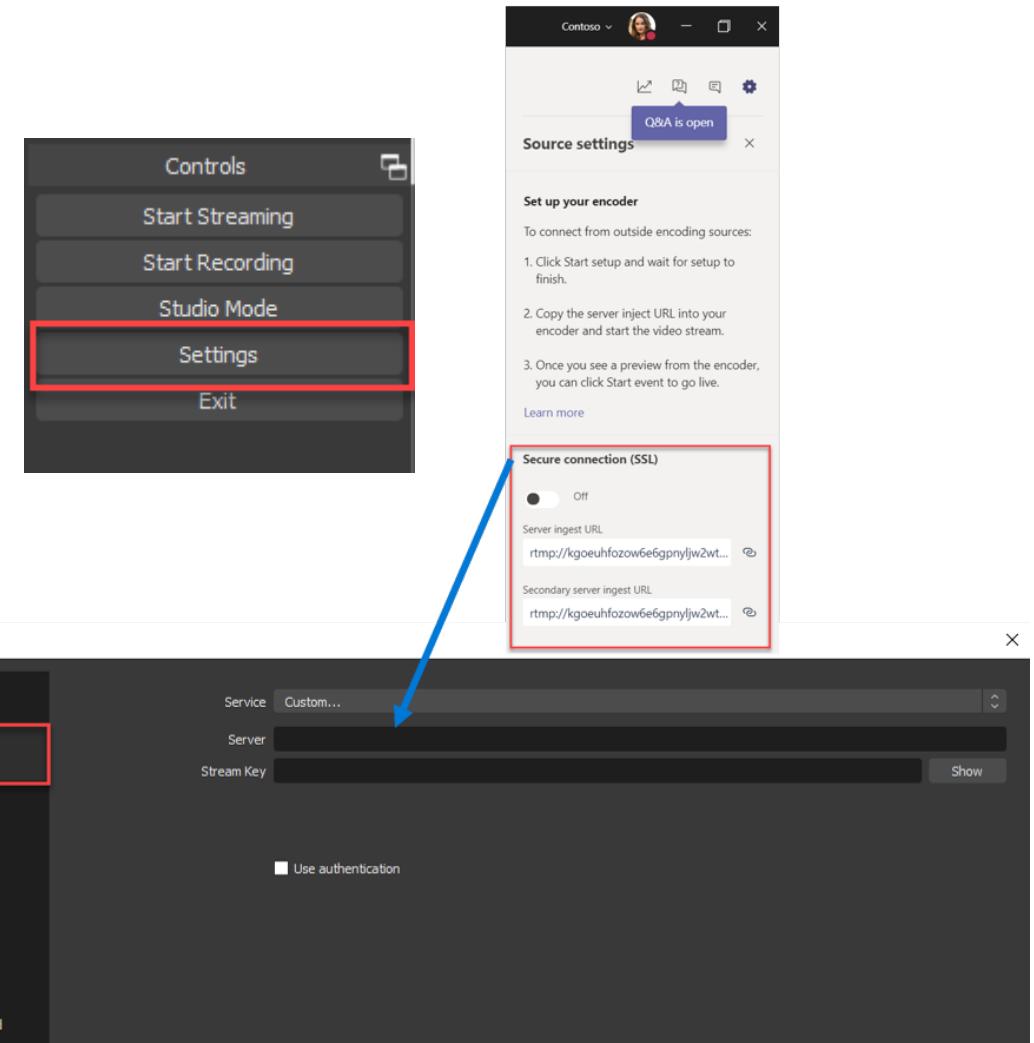
In your encoding software, provide the RTMP ingest URL(s) to connect the output of the encoder to the Live Event.

In OBS Studio, go to the Controls dock, and click **Settings**.

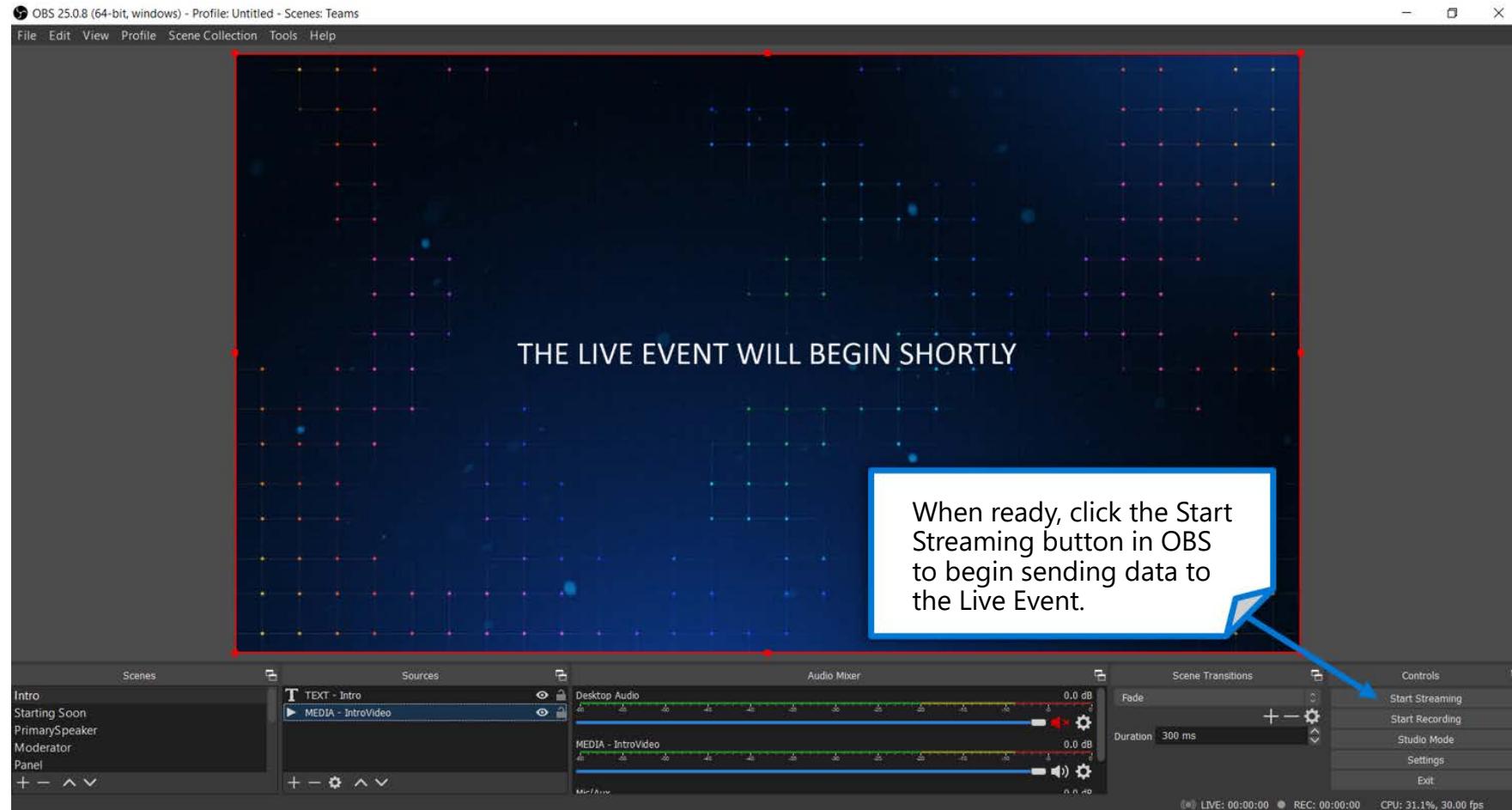
- In the **Service** dropdown, select **Custom...**
- In the **Server** textbox, paste in the value from the **Server Ingest URL**
- In the **Stream Key** box, enter any value (such as **12345**).

Note: Teams Live Events with Stream do not utilize a Stream Key; however, the OBS Studio software requires that a value be entered into this field.

The Secondary server ingest URL (also called the Redundant server ingest URL) is not intended as a backup. The encoder pushes content to both the primary and redundant ingest URLs with the same timestamp and data, which improves the content's durability and resiliency.



Connecting your encoder



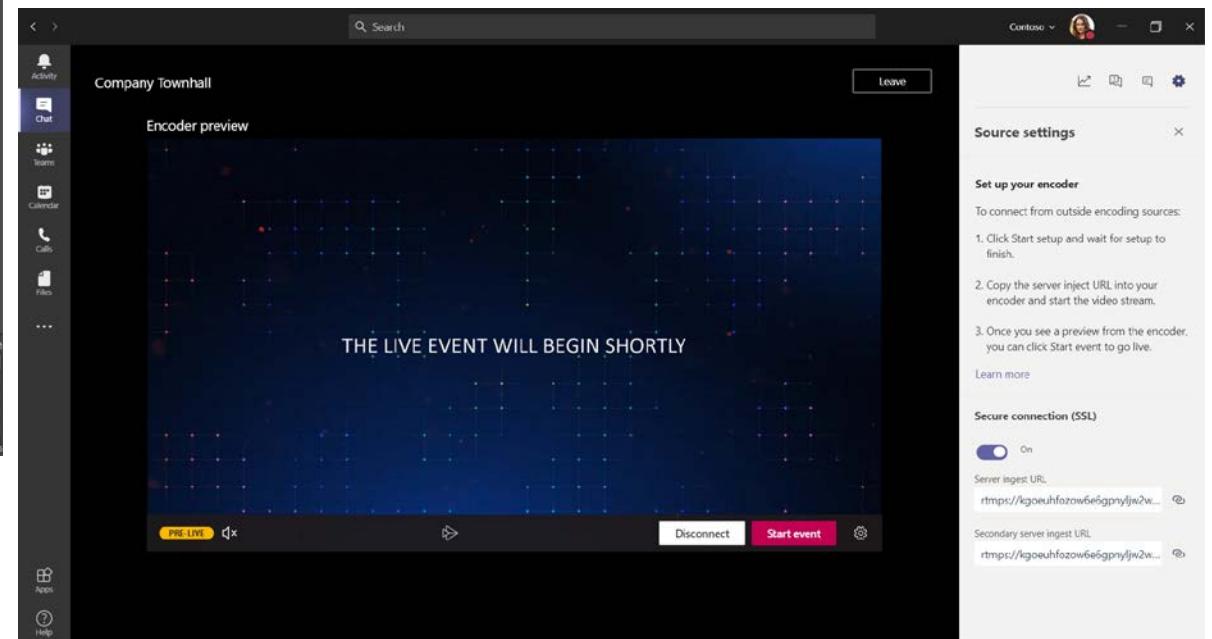
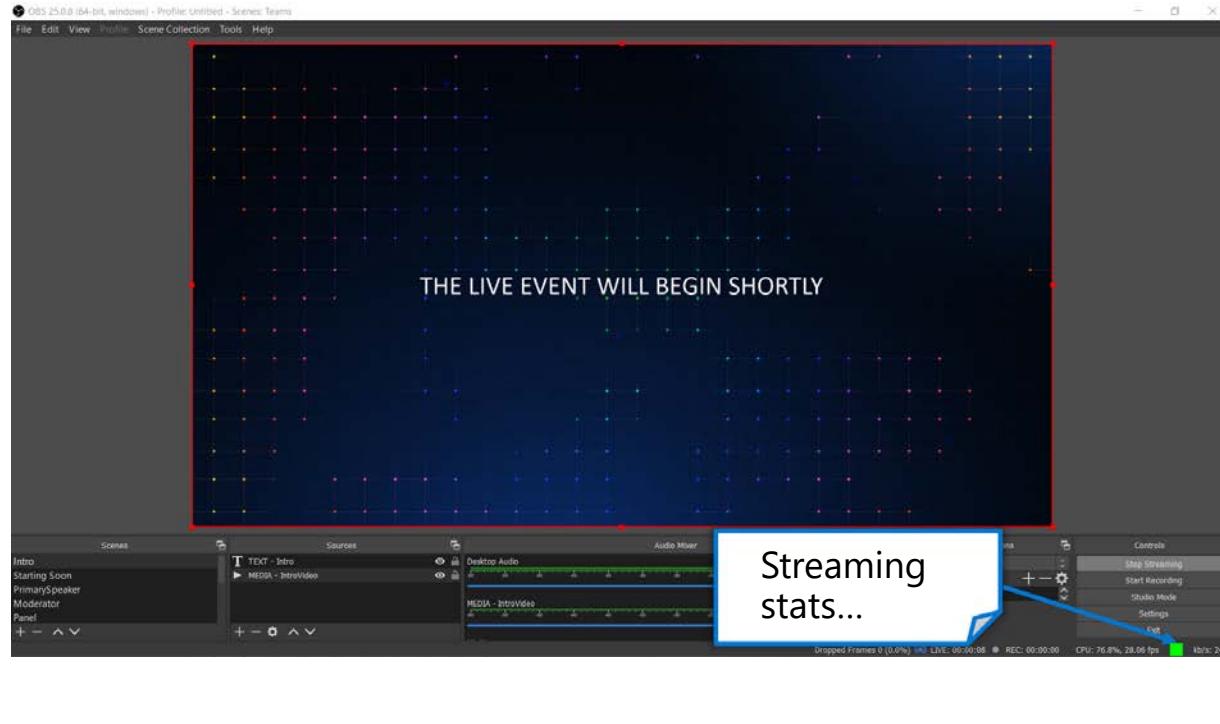
Note that when **Start Streaming** is clicked here, this will begin sending the output from the app/encoder to the Live Event.

This does NOT make the event live for the attendees to view.

That must be done within the Teams Producer experience.

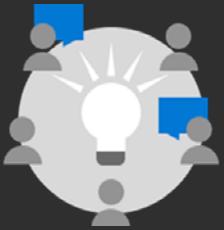


Producer



Verify that the streaming process is working.
The producer will see a preview in the Teams client (delayed by roughly 30 seconds).
When ready, click the **Start event** button to **GO LIVE!**

REMINDER: once the event is started, it can only be stopped (not paused or restarted).



Producer

Custom production flowcharts

Leveraging OBS Studio

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OBS settings for Live Events

Launch OBS, go to **File -> Settings**.

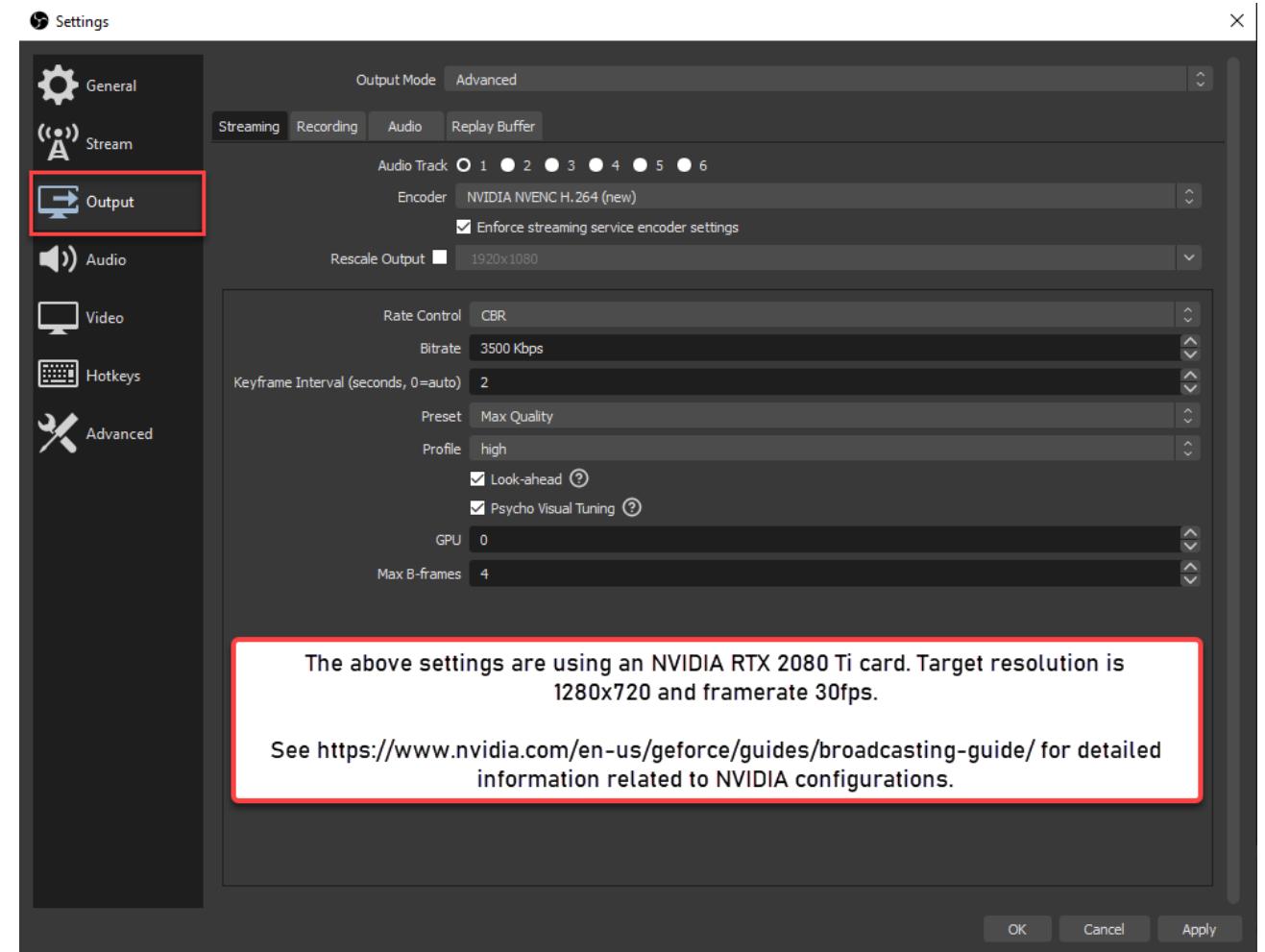
Click **Output**, then choose **Advanced** output mode and configure following settings:

- ✓ **Encoder:** If your PC supports hardware encoding pick the one that's not x264 (ex QuickSync H.264, NVENC, etc.). If hardware encoding isn't an option leave it as x264.
- ✓ **Rate Control:** Make sure CBR is selected.
- ✓ **Bitrate:** Enter a value in kbps, 2000 to 4000 is what is normally used.
- ✓ **Keyframe Interval:** 2.

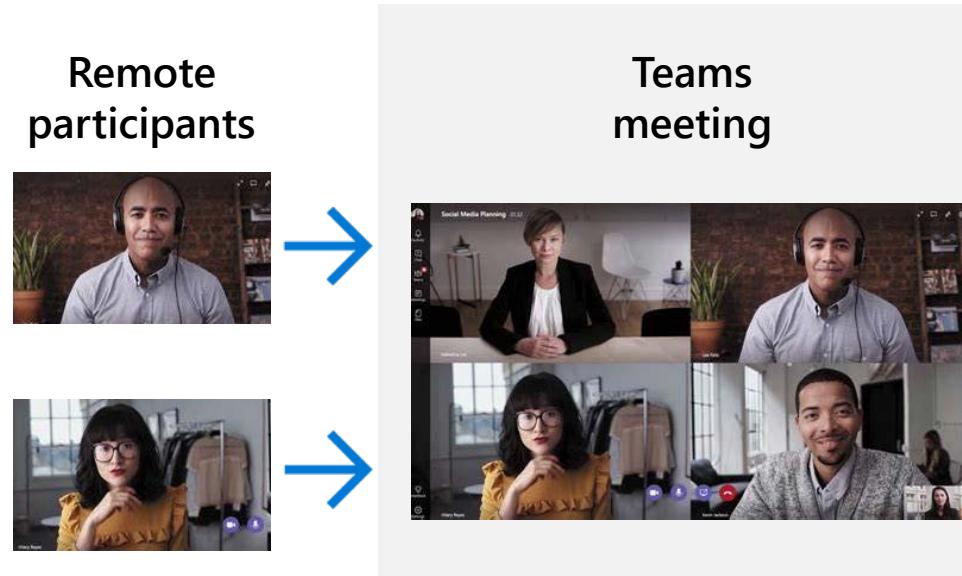
Click **Audio** -> Configure **Track 1 -> Audio Bitrate:** 128, 160, or 192 for audio encoding.

Click **Video** and Configure the following settings:

- ✓ **Base (Canvas) Resolution:** This is your normal desktop resolution (usually 1920 x 1080).
- ✓ **Output (Scaled) Resolution:** 1280 x 720 (Encoder Profiles are maxed at 720p in Stream for Live Events).
- ✓ **Common FPS Values:** 30 is normally used for frames per second.



Extracting content from a Teams meeting (source)



Source

This system joins the Teams meeting and uses NDI to extract the isolated video feeds and mixed audio feed.

Enable NDI in the Teams client

Settings

Permissions

General Accounts Privacy Notifications Devices Calls Recognition

Media (Camera, microphone, speakers) Location Notifications External links MIDI device

Network Device Interface (NDI)
Use NDI technology to capture and deliver broadcast-quality audio and video over your network. Learn more

NDI is a registered trademark of NewTek, Inc. in the United States and other countries.

Device settings

Meeting options Meeting notes Meeting details

Gallery Large gallery (Preview) Together mode (Preview)

Focus Full screen Call me Turn on live captions

Start recording Broadcast over NDI Dial pad Turn off incoming video

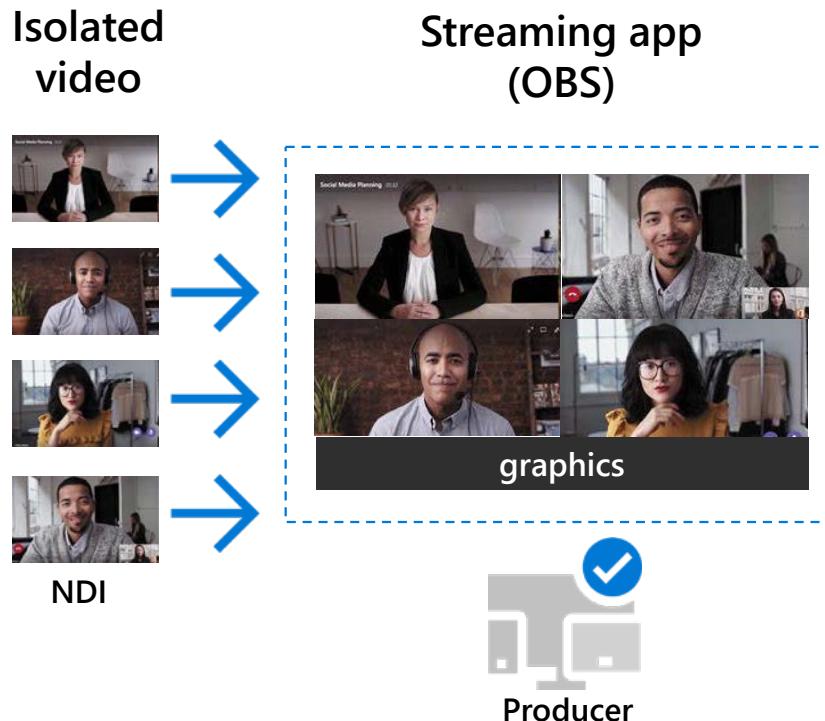
Ensure video feeds are active in the Teams client

- Pin select videos as desired (max of 9 video feeds)
- Invoke the Large Gallery (Preview)
- Invoke the Together Mode (Preview)

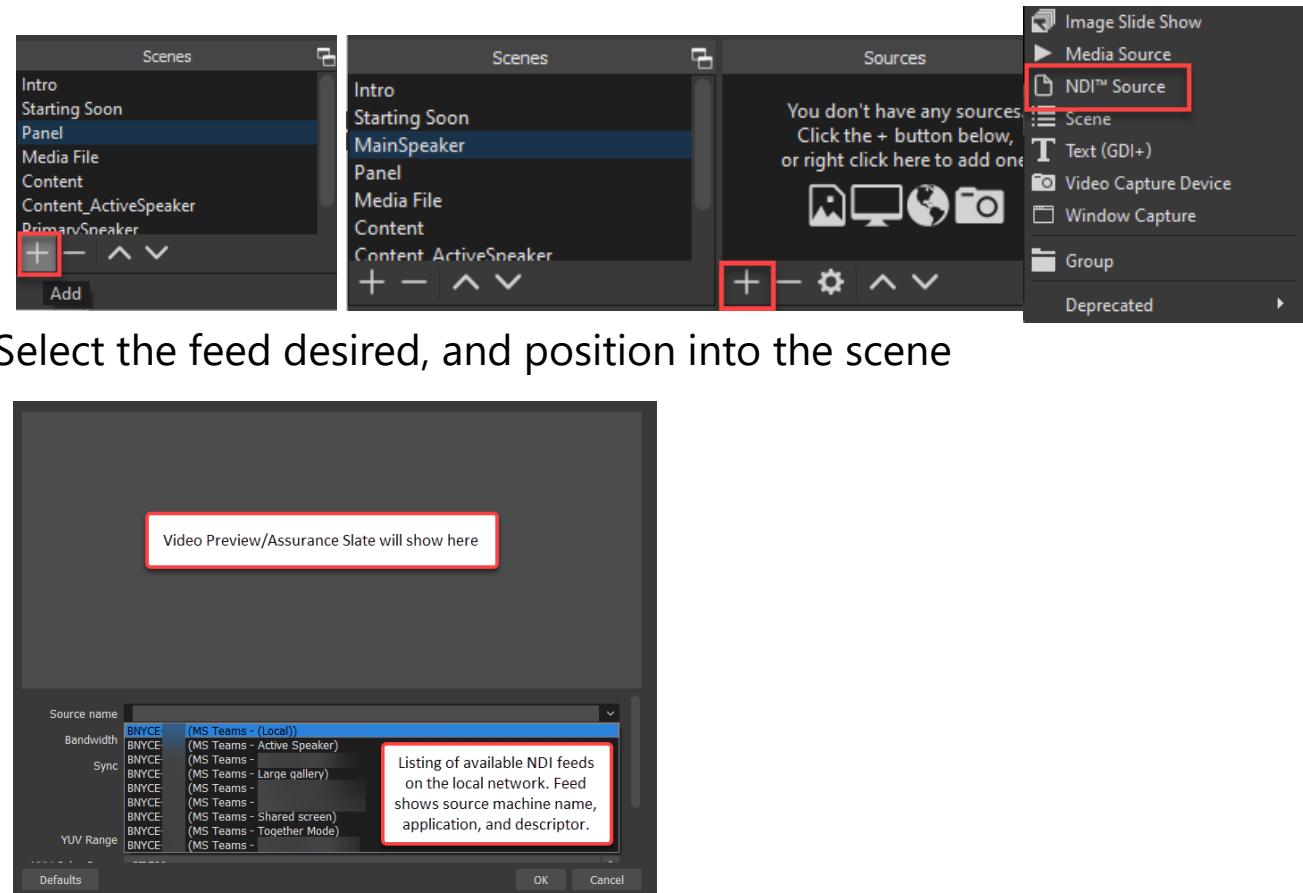
Enable Broadcast over NDI in the Teams meeting

NDI feeds contain mixed audio of all participants, **except** the user on the Source machine

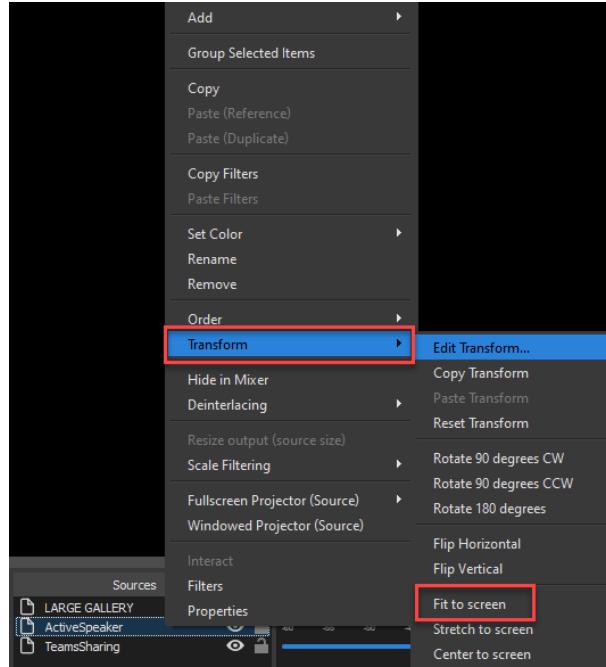
Production System – Bringing in sources (OBS example)



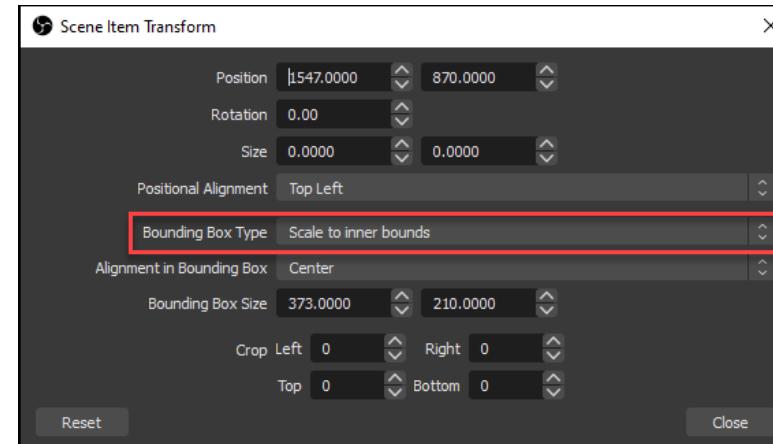
Install [OBS](#) and the [OBS NDI Plugin](#) (requires restart)
 In OBS, create a new Scene, and add a new NDI source



A few additional notes about OBS Production



Use the Transform action to make the feed full-screen.



To ensure your video doesn't automatically resize in your scene, change the Bounding Box Type to "Scale to inner bounds." (found through the Transform -> Edit Transform option).



Add additional items, such as Lower Thirds, to the video streams in your production.

Excellent video walkthrough: <https://www.youtube.com/watch?v=ngLfEVU46x0>

Audio considerations



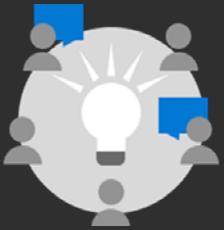
Ground Loop Isolators: used to eliminate the buzzing sound made by a ground loop, which occurs when multiple pieces of sound equipment are connected to each other.



Audio Mixers: used to bring together multiple audio sources, such as microphones, USB-connected devices, AUX connections, Bluetooth



Quality microphones and audio interfaces.



Producer

Custom production flowcharts

Using OBS in a Teams-produced Live Event

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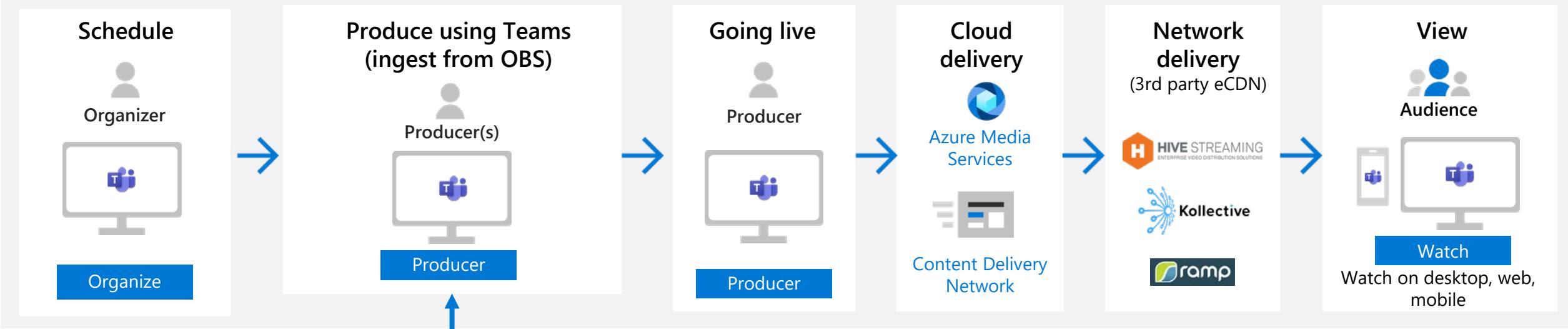
High level process flow

Using an external app/encoder to enhance the production of a Teams-produced Live Event utilizes multiple components.

- The scheduled Live Event for production and attendee experiences. This is a standard Teams-produced Live Event.
- The external app/encoder (such as OBS Studio, Streamlabs OBS, Wirecast).
- An active source of content ingested into the external app/encoder.
- The usage of NDI Tools from NewTek to bring the production stream from the external app/encoder back into the Teams-produced Live Event or capture card devices.
- The content being presented can be sourced from a variety of locations; in this playbook, we will show how to use a Teams meeting as the source of content provided to the external app/encoder (OBS Studio).
- Key advantages to this approach are to be able to leverage the advanced workflows/features found in production software (changing of scenes, adding Lower Thirds, etc.), while also taking advantage of Teams-produced Live Event features such as Public (anonymous) attendee access and translation.

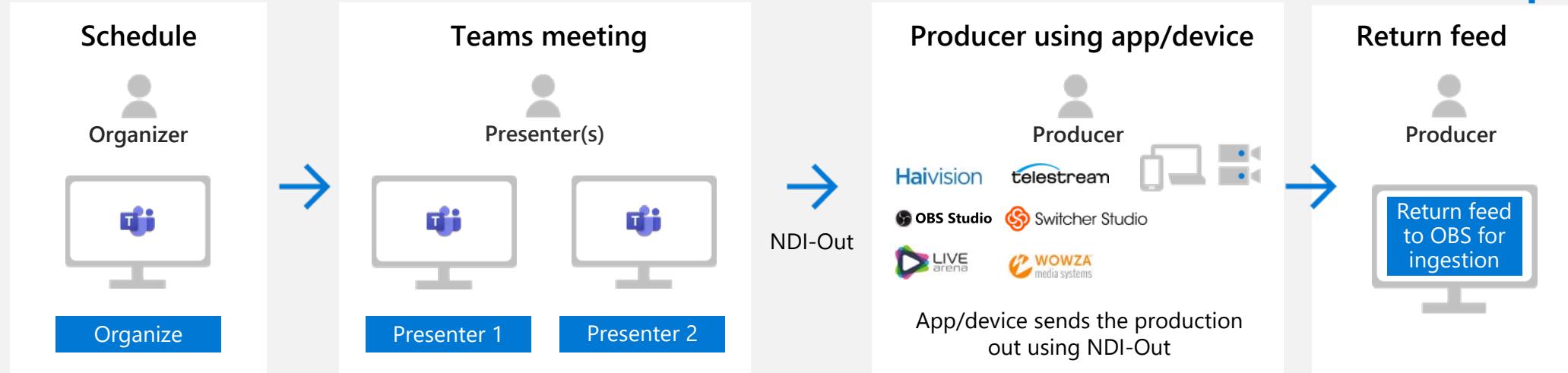
Live events produced using Teams and external app (OBS)

Producer Workflow



Presenters Workflow

This workflow uses a standard Teams meeting for all the presenters, including desktop sharing.



Sending OBS productions to Teams (one machine)

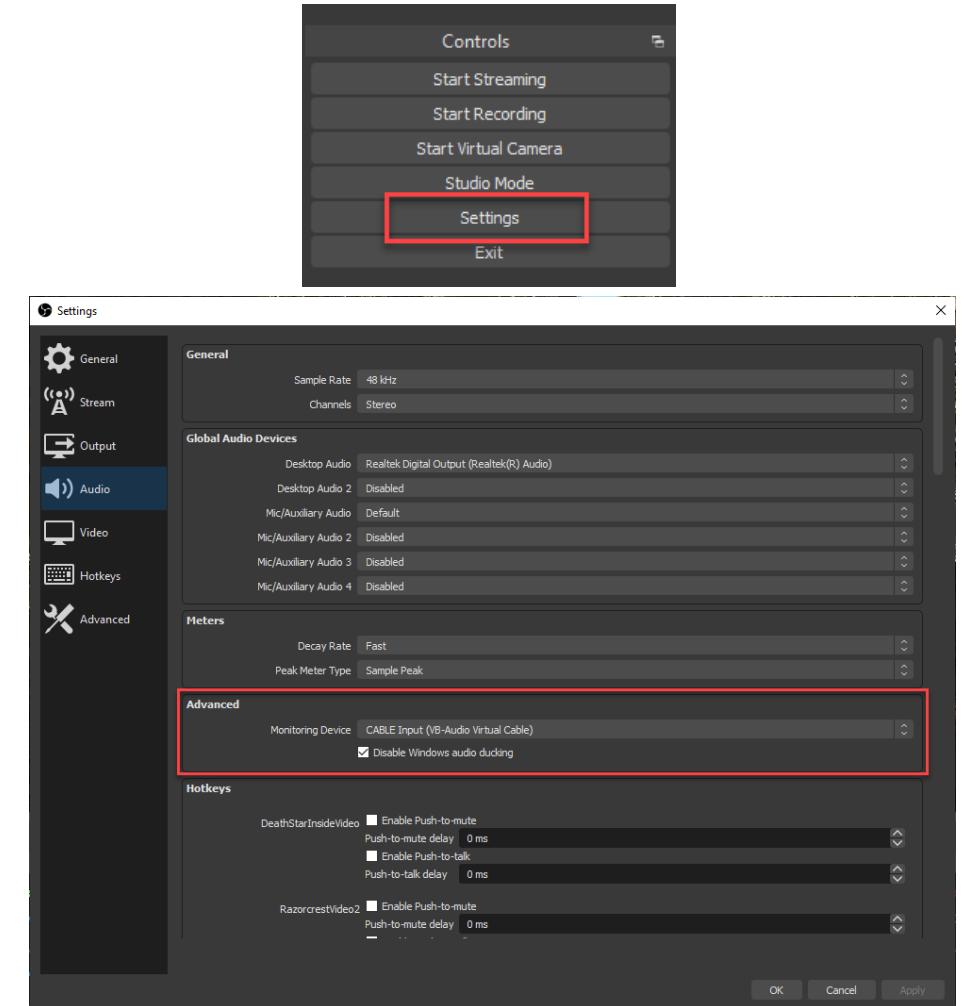
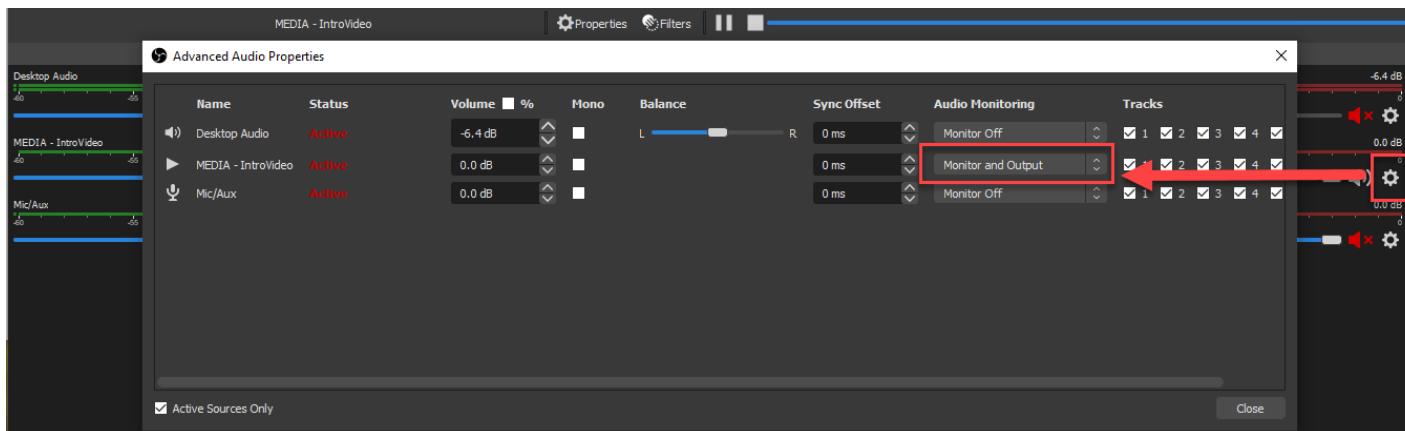
With a single machine, you will need to use the following:

- Audio: acquire a 3rd party Virtual Audio cable, such as VB-AUDIO from [VB-Audio Virtual Apps \(vb-audio.com\)](http://VB-Audio Virtual Apps (vb-audio.com))
- Video: use the built in Virtual Camera from OBS

On the **producer machine** (in the Producer Workflow) running OBS Studio:

Audio Configuration:

- In OBS, under **Controls**, click the **Settings** button.
- In the **Settings** window, click on the **Audio** icon on the left.
- Under **Advanced | Monitoring Device**, select the **Virtual Audio Cable (Input)** as shown.
- Next, navigate to a desired **Scene** in OBS.
- In the **Audio Mixer**, find the audio track(s) that need to be sent to Teams, and click the **Gear** icon and select **Advanced Audio Properties**.
- In the **Advanced Audio Properties** window, in the row that identifies the audio stream(s), change the **Audio Monitoring** dropdown box to **Monitor and Output**.
- Repeat the last three steps for each Scene that has audio and for every audio source on that Scene that you want broadcast



Sending OBS productions to Teams (one machine)

With a single machine, you will need to use the following:

- Audio: acquire a 3rd party Virtual Audio cable, such as VB-AUDIO from [VB-Audio Virtual Apps \(vb-audio.com\)](#)
- Video: use the built in Virtual Camera from OBS

On the **producer machine** (in the Producer Workflow) running OBS Studio:

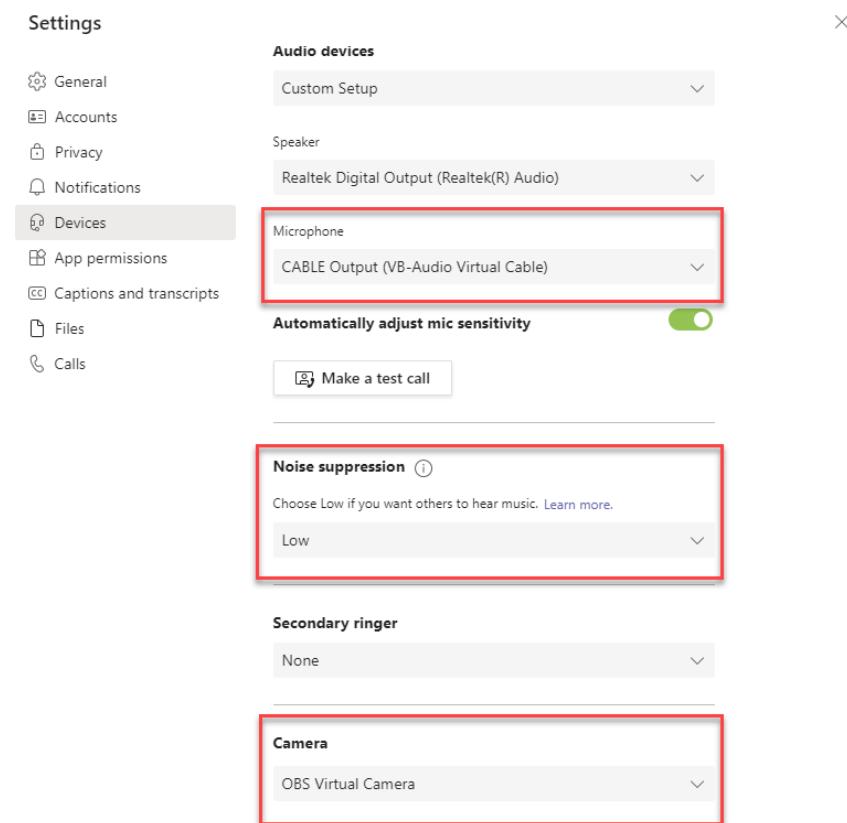
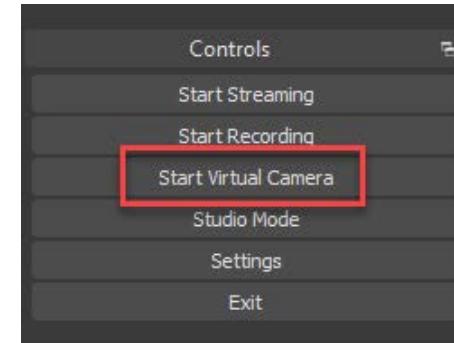
OBS Video configuration:

- In OBS, under **Controls**, click the **Start Virtual Camera** button.

Teams client configuration:

On the **producer machine** (in the Producer Workflow) running Teams:

- Navigate to **Settings** and select **Devices**
- Set the **Microphone** device to the **Virtual Audio Cable (Output)**
- Set the **Noise Suppression** to **Low or Off**.
- Set the **Camera** device to **OBS Virtual Camera**



Sending OBS productions to Teams (two machines)



Producer

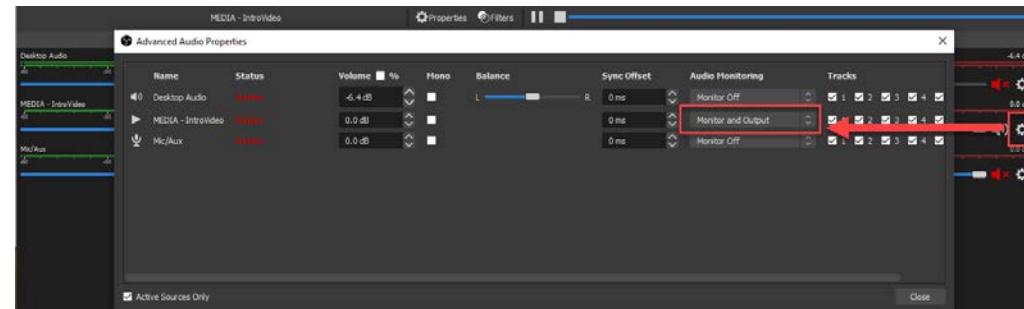
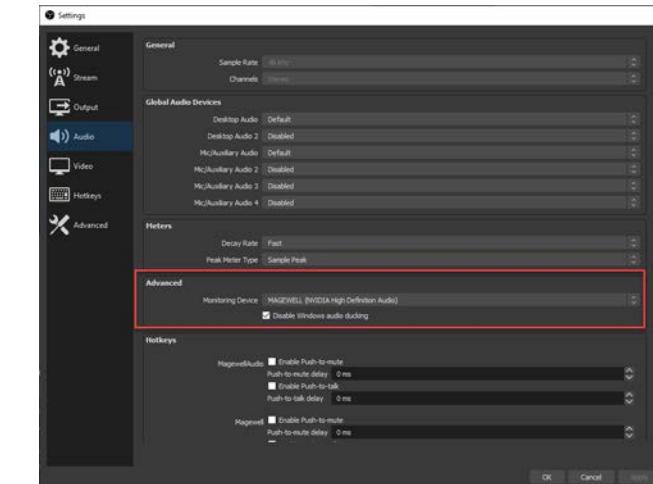
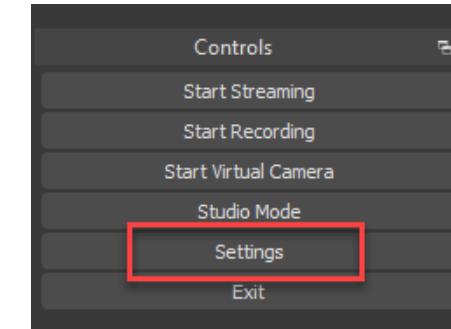
With two separate machines (one running OBS, and a second running Teams), you will need a capture card such as a Magewell. <https://www.magewell.com/products/usb-capture-hdmi-4k-plus>



On the **first machine** (in the Producer Workflow) running **OBS Studio**:

Audio Configuration:

- In OBS, under **Controls**, click the **Settings** button.
- In the **Settings** window, click on the **Audio** icon on the left.
- Under **Advanced | Monitoring Device**, select the **capture card (Magewell)** as shown.
- Next, navigate to a desired **Scene** in OBS.
- In the **Audio Mixer**, find the audio track(s) that need to be sent to Teams, and click the **Gear** icon and select **Advanced Audio Properties**.
- In the **Advanced Audio Properties** window, in the row that identifies the audio stream(s), change the **Audio Monitoring** dropdown box to **Monitor and Output**.
- Repeat the last three steps for each Scene that has audio and for every audio source on that Scene that you want broadcast



Sending OBS productions to Teams (two machines)

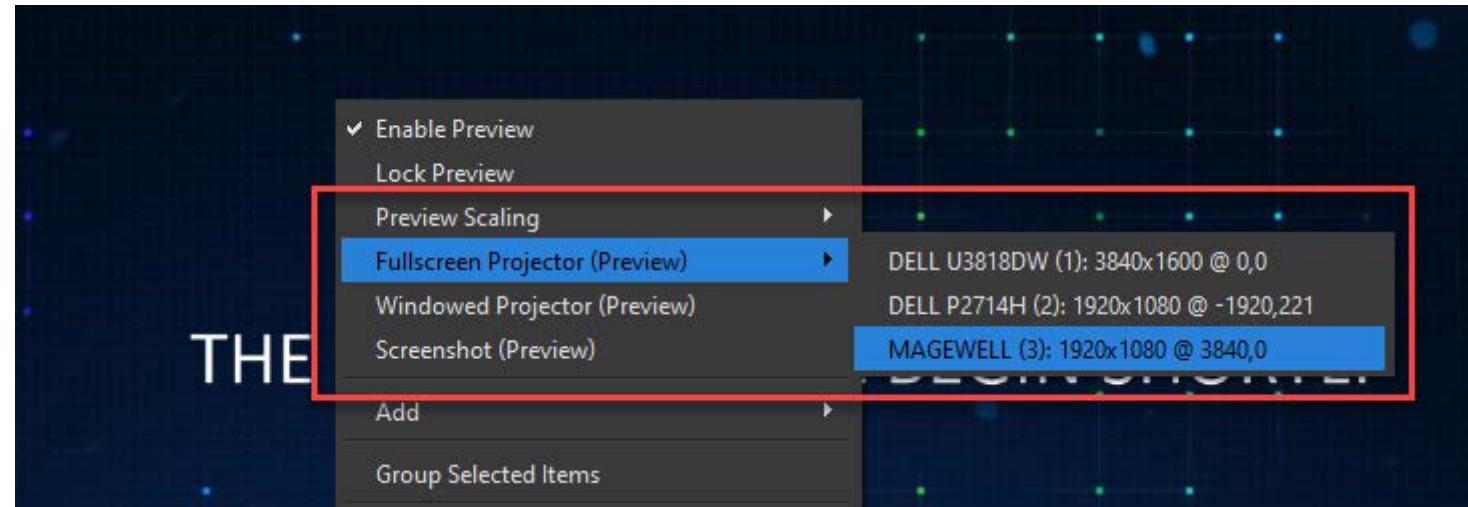
With two separate machines (one running OBS, and a second running Teams), you will need a capture card such as a Magewell.
<https://www.magewell.com/products/usb-capture-hdmi-4k-plus>



On the **first machine** (in the Producer Workflow) running **OBS Studio**:

Video Configuration:

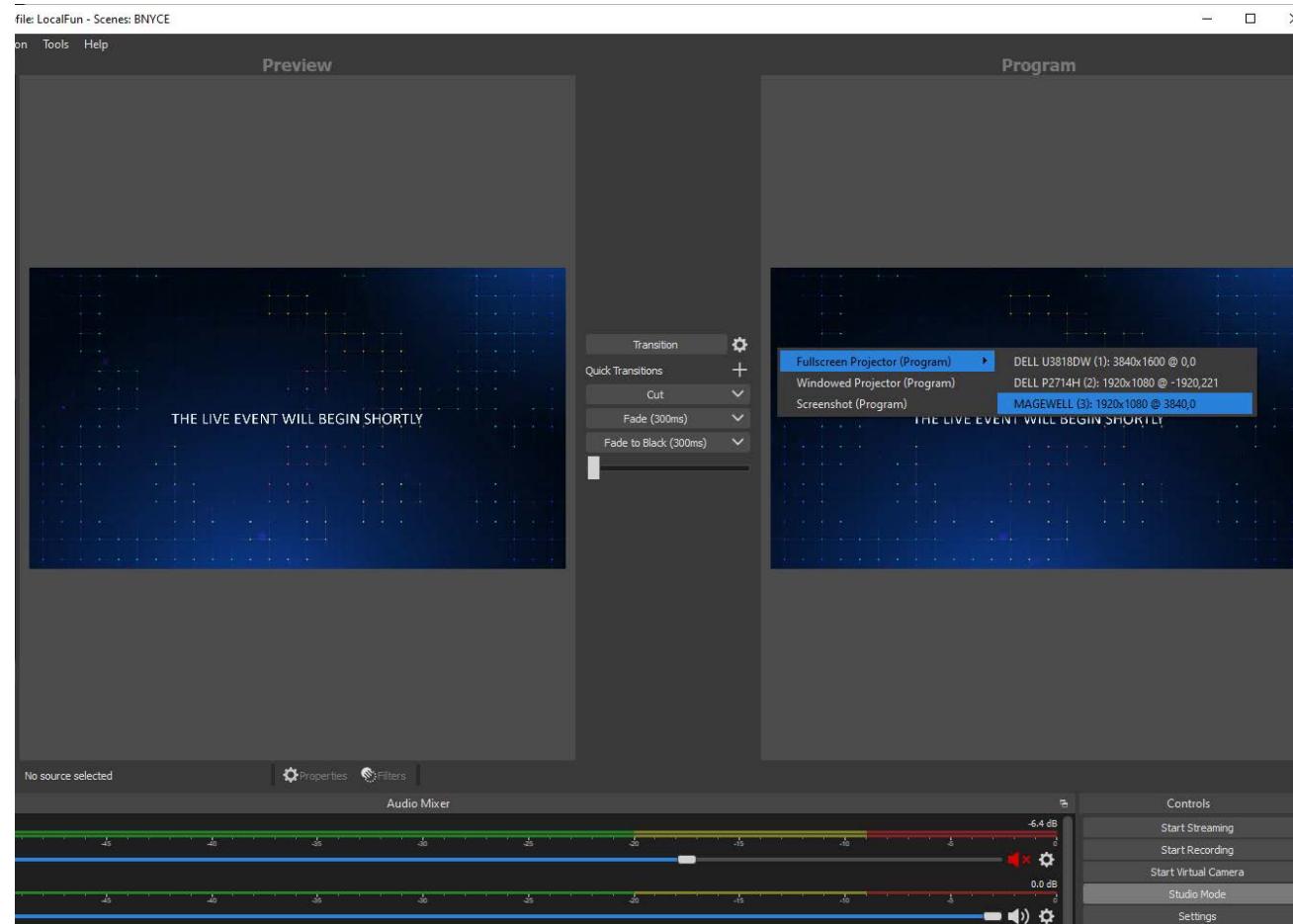
- In OBS, right click anywhere in the Preview window, and select **Fullscreen Projector (Preview) -> Capture Card (MAGEWELL in this example)**.
- This will send any content from this preview window to the capture card device.
- If you are using **Studio Mode**, see the next slide for details.



Sending OBS productions to Teams (two machines)

If you are using **Studio Mode** in OBS – you can also select the Capture Card (Magewell in this example) from the Program feed.

- Right click anywhere in the program feed area and select **Fullscreen Projector (Program) -> Capture Card (Magewell in this example)**.
- This will send any content from the program window to the capture card device.





Sending OBS productions to Teams (two machines)

With two separate machines (one running OBS, and a second running Teams), you will need a capture card such as a Magewell.

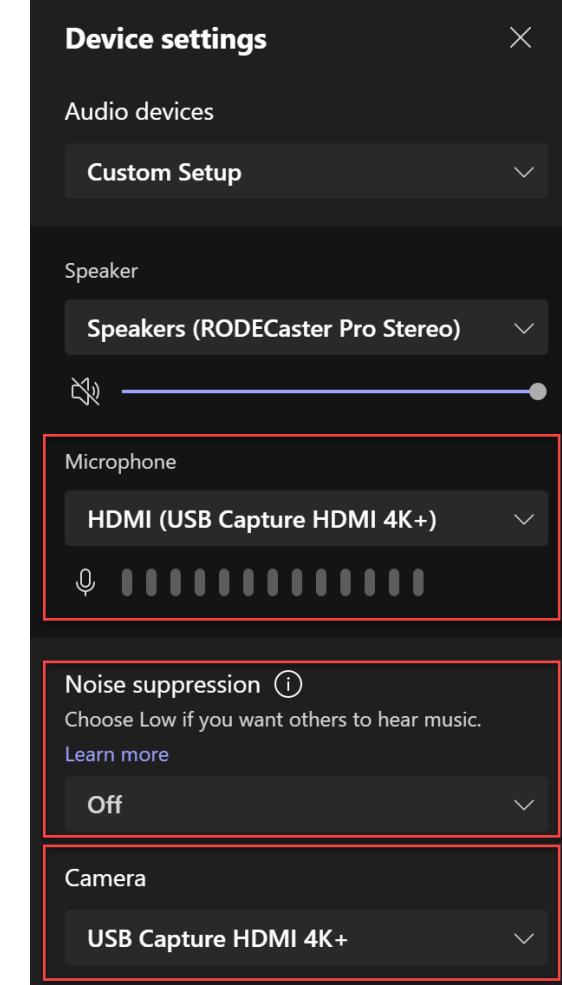
<https://www.magewell.com/products/usb-capture-hdmi-4k-plus>



On the **second machine** (in the Producer Workflow) running **Teams**:

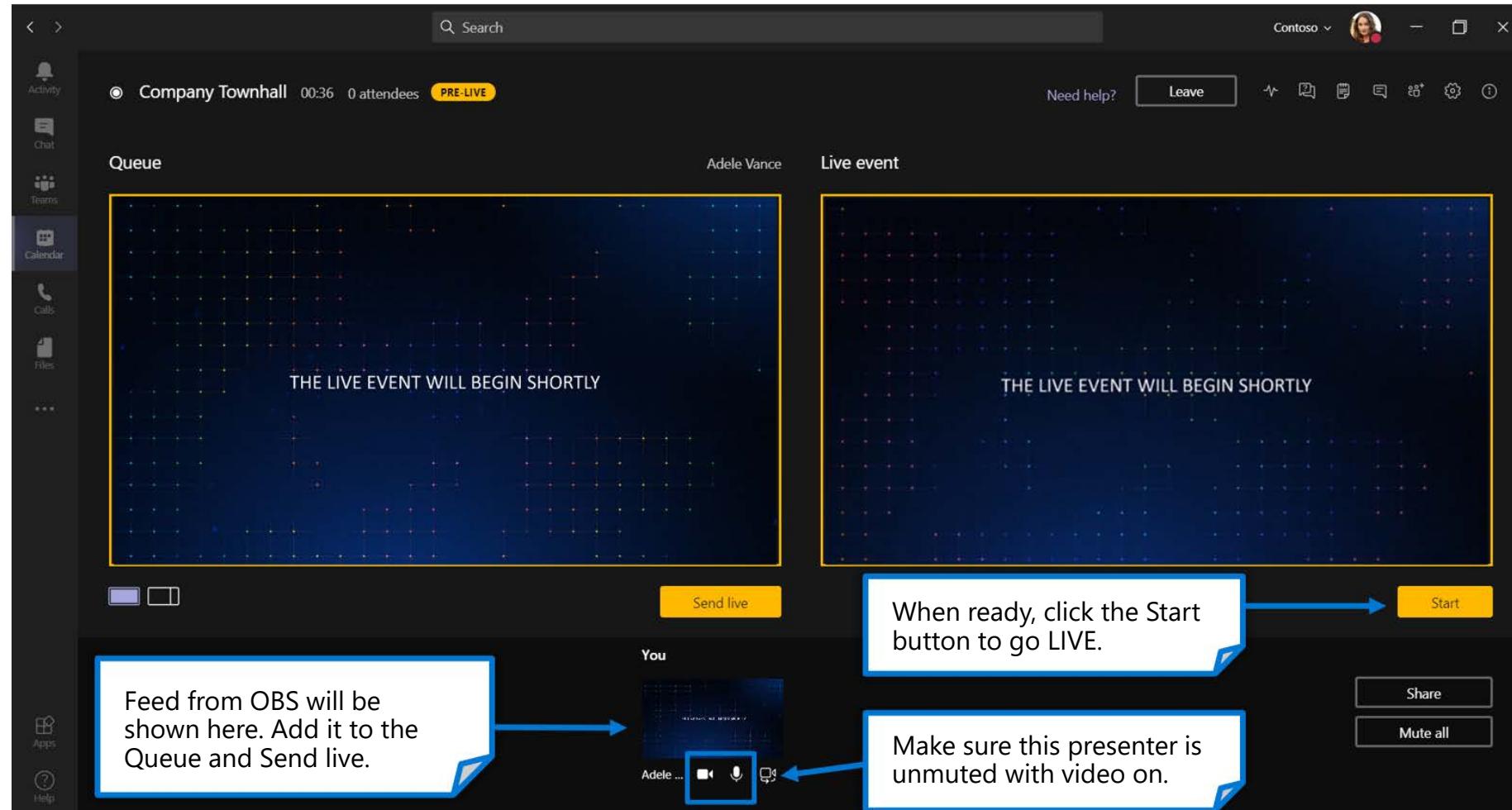
Teams client configuration::

- Navigate to **Settings** and select **Devices**
- Set the **Microphone** device to the **capture card (HDMI USB Capture 4K+)**
- Set the **Noise Suppression** to **Low or Off**.
- Set the **Camera** device to the **capture card (USB Capture HDMI 4K+)**





Starting your Teams-produced Live Event



REMINDER: once the event is started, it can only be stopped (not paused or restarted).



Organizer

Before your event

Post-event actions



Top

Post event actions



Capture event feedback from attendees, presenters and organizing team directly after your event. **Be open** to suggestions and insights for what can improve. Clarify immediate next steps for your team. **Rest!** Let the event experience settle in your mind before making follow up decisions.

Processing Feedback

- Provide reminders to complete follow up event surveys.
- Extend event surveys to presenters, organizers and core team.
- Gather data from survey tools.
- Pivot data by type of attendee and session.
- Provide attendee feedback to speakers as soon as possible. Within 72 hours after the close of the event is an industry norm.

Content publishing

- Prepare presentations and/or recordings for publication.
- Release "Thank you for attending" communications.
- Release "Thank you for participating" communication to presenters and core team.
- Publish recap blog post or other communication broadly.

Ongoing Strategy & Next Steps

- How will you continue to engage with your audience?
 - What follow up engagements will you conduct?
 - How will you improve your next event?
 - How will you continue to invest in presenter skills and recruiting new presenters?
- Schedule an event review to discuss operational improvements.**

Pro Tip: Thank your Team

Build morale within your production team. They are essential to your success. Host a "Wrap Party" to thank them for their hard work. Producing live events can be very taxing on the team involved. Make sure you thank them and invest in their health and well being by ensuring appropriate time off for recuperation, especially after producing a large scale or high-profile event. **Do this BEFORE you conduct an event review.**

Content lifecycle



Your attendees will want to review content after your scheduled live event. Plan for the lifecycle of your content by sharing recordings and presentations in a location you manage. Permissions, extended sharing and rebroadcast decisions should be handled during pre-production.

Content on-demand

Will you publish content internally (Microsoft 365 via Stream) or externally (YouTube or other platform)?

Will you publish video only or presentation assets as well?

Ongoing conversation

Do you have a community forum where your attendees can continue to ask questions and engage?

Consider providing access to ongoing resources and experts.

Accessibility

Strive to have an accessible event and content.

Utilize features like closed captions in broadcasts, alt-text for images and the Accessibility Checker for PowerPoint.

Consider releasing content in Sway or PDF format using the Export to PDF function within PowerPoint to ensure consistency and availability.

Learn more at <https://aka.ms/PowerPointAccessibility>.

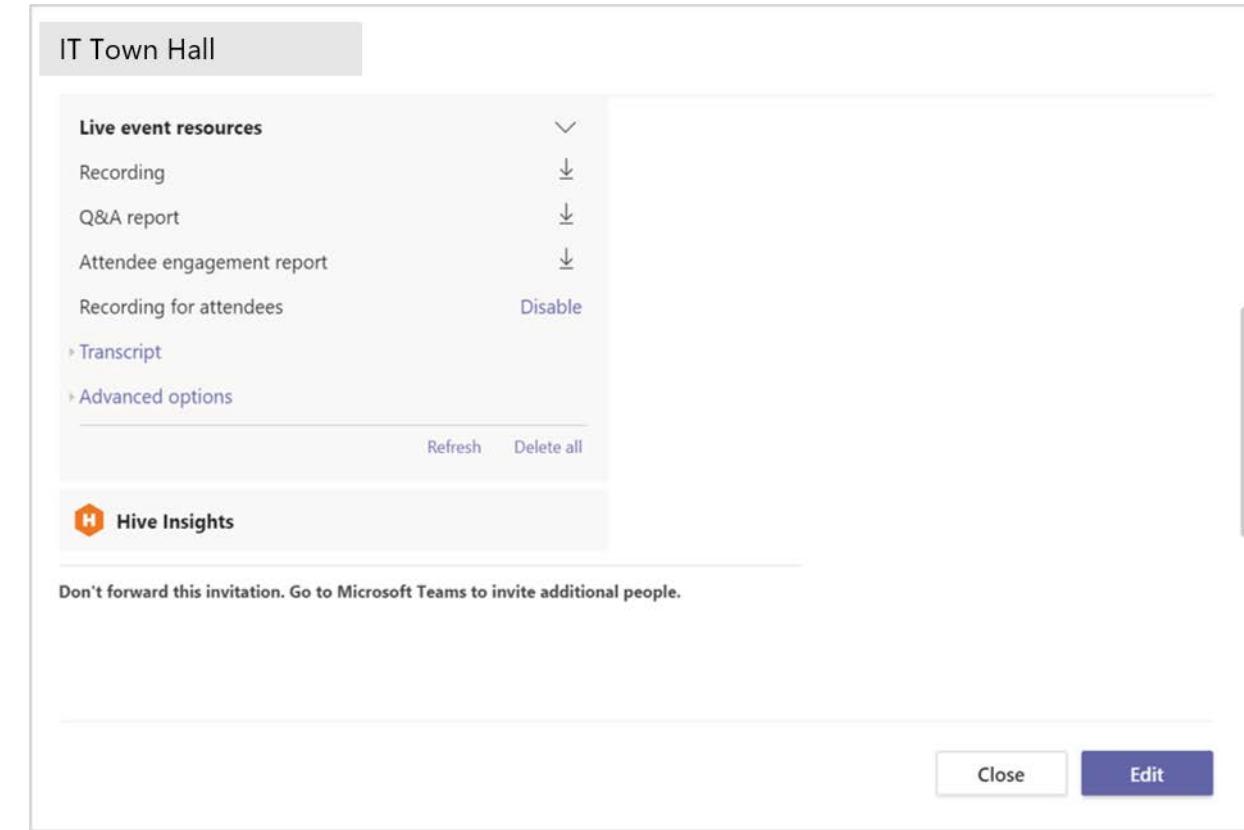
Manage Live Event resources after the event

At the end of the Live Event, a Producer or Presenter can access the following event resources by going back to the event invitation in your Teams Calendar:

- Event recording
- Q&A report
- Attendee engagement report
- Recording for the Attendees (ability to disable)
- Etc.

If you want to access this option later, open the event invitation from Teams and access this window.

This view is not available to guests.



Thank you