5 pro tips for live video production

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1 SPEED TEST

Test network bandwidth to reduce buffering, especially for HD live streaming.

- Internet connection speeds vary greatly by location.

- Upload speed should be double the bitrate you plan to broadcast at.

- Aim for a minimum 8 Mbps upload speed when doing a 720p HD broadcast.

- Test several times to make sure you are getting an accurate reading.

- Use a hardline ethernet connection when available (avoid wireless connections if possible).
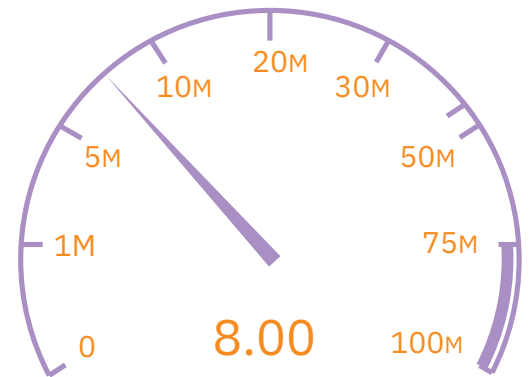
Did you know?

One of the easiest way to check this is to do a speed test three times and average them. Users in North America and South America can check here: http://cdn1.ustream.tv/networktest/ Outside of those areas, testmy.net gives a more conservative estimate. A speed test needs to be conducted at the location that will be used for broadcasting.

2 BITRATE

Offer a bitrate that supports optimum audience size and increases retention.

- A large portion of many viewing audiences cannot watch HD content live. The primary contributing factor is download speed and viewers need roughly a 4.5 Mbps connection to watch HD content. Look at SpeedTest's Results[1] for average download speeds.

- Use adaptive bitrate when using cloud encoding to create multi-bitrates, as with the packages at IBM Watson Media, it's recommended to stream at HD resolutions (up to 8,000kbps for 1080p[2]) as long as your connection speed can support it.
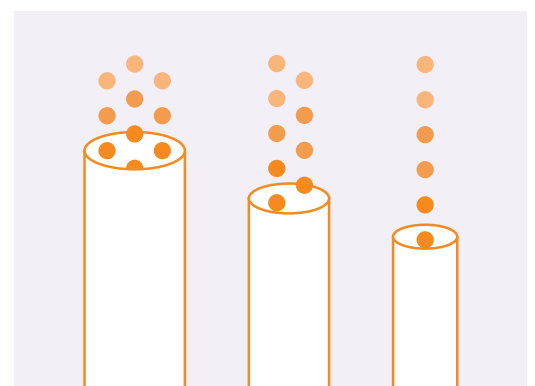
3 CABLES

Use the right cables to avoid connection issues between your cameras & encoders.

- Distance: Get an idea of the length required between your venue and camera before selecting a cable. HDMI cables are effective up to 33 feet (10 meters) before an amplifier or repeater is needed (HDMI extender). HD-SDI can go up to 328 feet (100 meters) before similar assistance is needed to increase the length.

- Fasten the cable in a manner to avoid direct contact and significantly reduce the chance of being disconnected by force.

- Protect cables with casing or gaffer tape, especially when they have to run across an area where people might be stepping.

Did you know?

Taping down your cables is especially important for HDMI setups, which generally do not have a way to fasten the connection in place unlike HD-SDI. If you are using an HDMI and the cable is dislodged, be prepared to possibly reboot the encoder. If this is a concern, test disconnecting the cable during a test broadcast to see what steps are required to get the signal back when reconnected.

4 ENCODERS

Find an encoder that is optimal for your streaming needs.

- Encoders vary drastically in terms of features.

- Free encoders exist, but chances are your production will need something extra. Be it camera switching, to overlays, to the ability to transition from pre-recorded content to live content during a broadcast.

- If mobility is important, consider a compact hardware encoder such as a Teradek VidiU or Teradek Cube.

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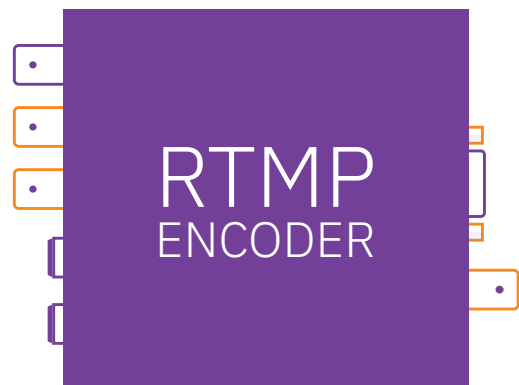
5 SETTINGS

Match your stream settings to those recommended by your live streaming provider.

- IBM Watson Media recommends H.264 as the video codec, AAC as the audio codec, and the keyframe interval should be 2 seconds.

- Check your encoding profile setting. For H.264, Main profile should be used with exceptions being streams with under 400kbps as the bitrate setting (Baseline) and HD or 4K streams that are over 4,000kbps (High).

- Check the default settings in a new encoder and see what adjustments need to be made. Many encoders may have sub-optimal settings as the default or ones that do not work for your particular application.

☑ H.264 Video Codec

☑ AAC Audio Codec

☑ 2 Second Keyframe Interval

CONCLUSION

Live streaming is an incredibly powerful method to engage audiences. These five insights can help broadcasters as they are preparing for a live stream. They can help greatly improve chances that the technical side goes smoothly, allowing broadcasters to focus on content.

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About IBM Watson Media

Created in January 2016, IBM Watson Media brings together innovations from IBM's R&D labs with the cloud video platform capabilities of Clearleap and Ustream. Through the unit, IBM delivers a powerful portfolio of video services that spans open API development, digital and visual analytics, simplified management and consistent delivery across global industries. IBM Watson Media supports top media and enterprise companies with reliable video on-demand and streaming services.

For more information on IBM Watson Media, please visit www.ibm.com/watson/media.

Footnotes

1. America's Fastest ISPs & Mobile Networks 2015; Ookla Speedtest; 2015; http://www.speedtest.net/awards/us

2. Source: https://support.ustream.tv/hc/en-us/articles/207852117-Internet connection-and-recommended-encoding-settings