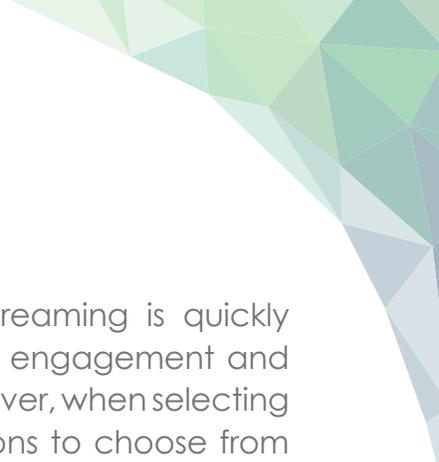




Key Considerations for Public Sector Webcasting

WHITE PAPER

Video streaming has become an indispensable tool for local governments and public sector organizations striving to improve the transparency of their meetings, but selecting which streaming service to use amongst a diverse range of providers and solutions can be extremely challenging. Users need to decipher which features are most relevant to their particular needs, and determine which service provider can best help them achieve their immediate and future goals without requiring too much technical knowledge and effort. This paper describes 13 key attributes you should consider when selecting a video streaming service for your transparency initiatives.



For local governments and public sector organizations, video streaming is quickly becoming an essential tool in achieving their mandates for citizen engagement and improving the transparency of their meetings and proceedings. However, when selecting which streaming service to use, the number of providers and options to choose from can seem overwhelming.

With literally dozens of vendors offer streaming services or related tools – some as their core business, others as a component of a broader solution – determining which to choose can be challenging. Some services may be fine for entertainment-oriented streaming, and others may offer many advanced features, but they often have significant limitations for integrating with government or education public meeting requirements. Other solutions may seem appropriate but require too much technical knowledge or IT support to implement and use them efficiently.

Furthermore, given that streaming solutions can also vary significantly in cost, it is important to understand which features you really need, and to make sure that you are choosing a platform that will meet both your immediate and long-term goals. To help you make the right decision for your requirements, consider the following 13 attributes when evaluating and selecting a video streaming service.

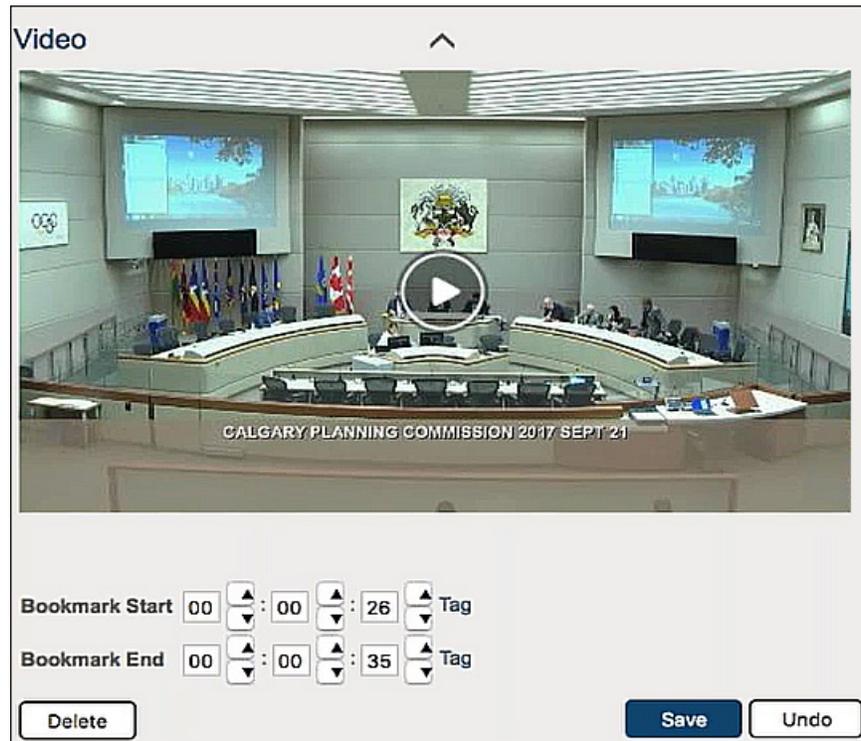
1. Automated operation with minimal manual effort

Tie webcasting control to meeting session management. You and your colleagues have enough to do during meetings without having to handhold your streaming system. Look for a solution that automates the streaming process as much as possible, minimizing effort and error-prone manual steps. Features like one-click streaming/recording free your staff to focus on the meeting itself, while the ability to monitor video and audio status from their seats gives them ongoing confidence that your streams are working as intended.

2. Automatic time-stamping of agenda and minute items

Help your citizens quickly find what they need. While some viewers may want to watch your meeting videos in their entirety, many of them will only be interested in a specific agenda or minute item. Bookmarking these points in the video lets viewers jump directly to what they want to see, without scrubbing through the entire video to find it. Choose a service

that can automatically time-stamp the video as it is captured and link the bookmarks to the minutes (or post-meeting agenda) on your website, letting you improve the viewer experience without time-consuming, after-meeting effort.



3. Automated, real-time closed captioning

It may sound like science fiction, but Artificial Intelligence with Deep Learning is becoming part of the engagement and accessibility story. Today, closed captioning of your videos is essential for providing transparency to the widest range of constituents, and a regulatory requirement for complying with expanding accessibility standards in many jurisdictions.

Tomorrow, real-time translation may be a requirement in certain environments. Many streaming services require closed captioning to be performed manually and/or added to your video as a separate step after recording. Instead, look for a provider that offers accurate, automatic closed captioning in real time, minimizing effort and turnaround time.

Ideally, the solution you select should take advantage of technology developments in Artificial Intelligence and Deep Learning Systems by incorporating a 'trainable' closed captioning engine that can master proper names and the particularities of pronunciation. That same technology could be harnessed in the future to provide real time translation, giving you a path to tomorrow.

4. *Splash screens for breaks or closed sessions*

Avoid blank screens and embarrassing silence on your webcasts. Many meetings incorporate planned breaks, while unexpected events may also interrupt proceedings. Meanwhile, entire meetings or portions thereof may be closed to the public for reasons ranging from legal restrictions to individual participants' privacy in sensitive matters. The feed from your live cameras should not be streamed during breaks or closed sessions, but empty black screens or "stream not available" error messages would frustrate viewers attempting to access your streams during these times. Providing your audience with friendly messaging about the nature of the break and the time the stream is expected to resume will help keep viewers satisfied and engaged. Choose a solution that lets you display informational splash screens during closed sessions and breaks, and lets you upload multiple splash screens in advance so you have something ready to display even for unexpected occurrences.

Video Sources			
Name	Audio Source	Image Source	
Video Encoder	Encoder	Encoder	
 Closed Session	Muted		
 Meeting will Begin Shortly	Muted		
 Resume in the Morning	Muted		
Add new video source			

5. Unlimited storage, data and viewers

As always, the first rule for storage is to plan for as large an amount as possible, as you will ultimately need it. High-quality video can consume massive amounts of storage capacity – many terabytes (TB), not just gigabytes (GB) – particularly when archiving multiple years’ worth of recordings. A single two-hour, high definition recording at typical Blu-ray quality and encoding bitrates can take roughly 1 GB of storage, and while your meetings don’t need to be streamed at Hollywood-like quality, today’s viewers are conditioned to expect a certain minimum visual standard. Many streaming services limit how much storage you can use, or charge fees based on storage consumption. Similarly, many providers limit or charge you based on the number of viewers who can watch streams simultaneously, or on the amount of streaming data you’ve delivered. Reaching these limits can impede your constituents’ ability to access your streams, while unrestricted but fee-based plans can cause your costs to spiral out of control quickly and unpredictably. Look for a service that offers unlimited storage, data transfer and viewer concurrency for a fixed cost, with no usage-based charges.

Storage per Recording		
	"Quality" and Bitrate	
Meeting Length	640x480 SD, 30Fps 500Kbps video, 128Kbps audio	1280x720 HD, 30Fps 1Mbps video, 128Kbps audio
30 minutes	141 MB	254 MB
1 hour	283 MB	508 MB
2 hours	565 MB	1015 MB
4 hours	1130 MB	2030 MB
8 hours	2261 MB	4061 MB
14 hours	3956 MB	7106 MB

For consistency with storage vendors' literature and simplicity, K=1000 and M=1,000,000 in this table (not the binary-based K=1024, M=1024x1024).
Kbps = kilobits per second, Mbps = megabits per second, MB = megabytes.

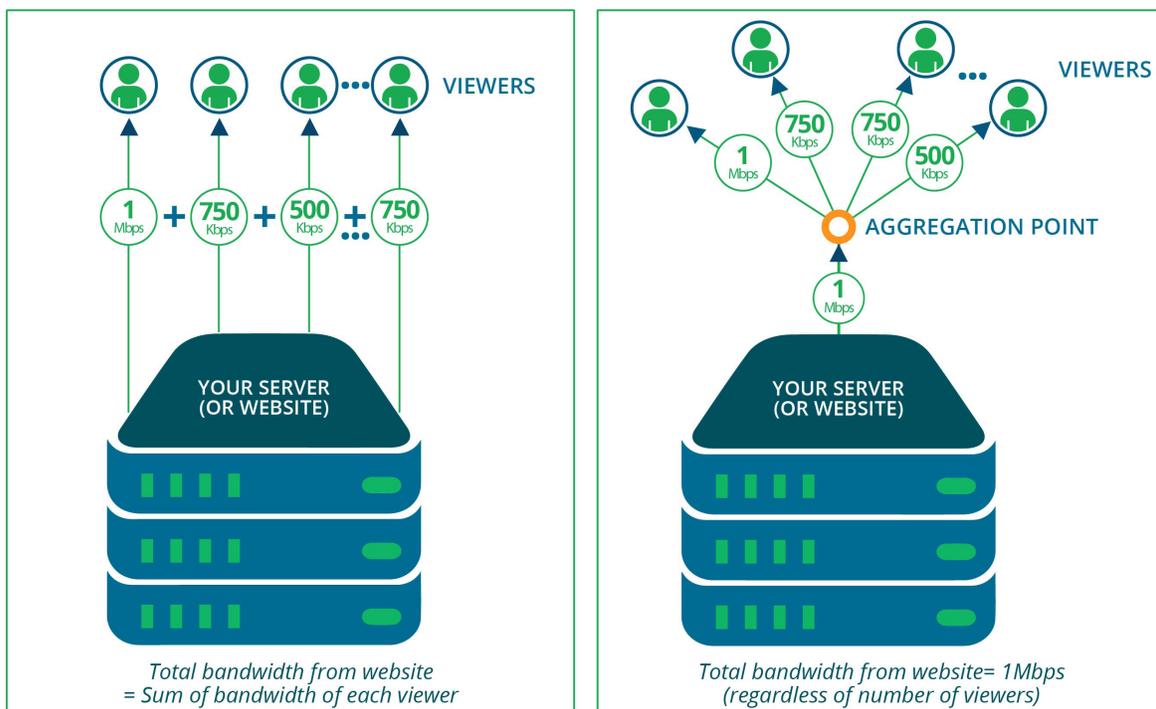
6. Domestic storage repository

Keep control of where, and how, your information is stored. While storing and serving your video through a third-party service offers many advantages over doing so on your own infrastructure (one such benefit is described in the next point), the location where data is stored by the service provider is of increasing concern to many organizations and their constituents.

Privacy legislation, data security regulations and legal obligations for providers to share data with authorities outside of the country of origin all vary significantly between jurisdictions. Be sure to choose a service provider who stores your data in your own country.

7. Unlimited viewers from a single outgoing feed

Manage your bandwidth and save it for critical business functions. Look for a streaming service that lets you deliver streams to your audience using the provider's bandwidth and infrastructure instead of your own. If you serve the streams yourself, 100 people viewing the same stream takes 100 times the bandwidth compared to a single viewer. This not only impacts your network performance, but also limits the number of people who can reliably view your stream. Once you reach the maximum capacity of your Internet connectivity, additional viewers may be unable to access your stream – thus undermining your transparency initiatives – while those already viewing your meeting may have their streams interrupted. Even a high-performance, fibre-based 1 Gbps (gigabit per second) Internet connection can serve fewer than 1000 concurrent viewers at a 1 Mbps data rate for streaming 720p HD video, and most organizations have far less outgoing bandwidth than that. The ideal system lets you deliver a single stream to an aggregation point, from which any number of viewers can be reliably served.



8. Simultaneous streaming of unlimited meetings from multiple locations

Be able to use the streaming service as much as required, and from as many locations as necessary. For many organizations, streaming the video from a just single camera is not enough to create full transparency of all of their meetings; multiple cameras may be needed for complete coverage. Within a single location such as a large council chamber or trustee meeting room, a video switcher can integrate multiple cameras to capture all meeting participants, but some organizations may have multiple meetings taking place at the same time in different rooms (for example, a council meeting in one room, and a committee meeting in another). Each location requires its own encoding channel, so look for a service that can stream concurrent meetings from multiple encoders simultaneously, and lets you stream an unlimited number of meetings and events from each encoder-equipped location.

9. Simple publishing and integration with your website

Make publishing simple. Publishing your live streams and recordings on your public-facing website shouldn't require a lot of time-consuming manual steps or technical knowledge. Meanwhile, for the optimal presentation experience, online visitors should not have to leave the standard layout and navigation of your website to view videos on a separate, inconsistent page. The ideal solution will allow you to effortlessly publish your streams to your website, and will integrate them seamlessly into your standard webpage design.

10. Resilience to lost connectivity

Keep your video going, even with an outage. While network connectivity is generally quite reliable, service interruptions do still happen. With many streaming solutions, even a brief connectivity disruption during a live event requires streaming to be manually restarted when the connection comes back up, and any video encoded during the outage may be lost. The ideal solution can continue recording to local storage within the encoders and will automatically resume streaming when the Internet connection is re-established.

11. Letting you keep control over your intellectual property

You own your content, so you should decide how it is used. While popular, consumer-oriented social media services essentially provide no-cost distribution of your content, you sacrifice control of your intellectual property when you use them.

While you retain the ownership rights to your content, by submitting it to these services you grant them a license to use your video and audio in almost any way they want to – from inserting advertisements to creating derivative works – with no control or recourse over how they use it. Look for a service that lets you retain control of your content.

12. Support for multiple video formats

Your citizens expect access on any device, in any format. While video streaming has become simpler for both consumers and content producers, to reach the widest possible audience your chosen solution must support multiple streaming technologies and protocols. These include standards for video compression (such as H.264 and HEVC, which significantly reduce the network bandwidth required for delivering high-quality video) and wrappers (for example, MP4 and MOV). Varying viewing devices including PCs, tablets and smartphones each may have a different set of formats they can handle, so select a streaming service that supports all of the formats required by the devices your audience may use.

13. Reasonable cost

When evaluating costs, think “turnkey.” While expensive streaming services supporting millions of simultaneous viewers may be necessary for commercial media enterprises, any publicly-funded organization needs to be more prudent with its budget. Conversely, while “nearly free” services may seem tempting, the adage that “you get what you pay for” certainly applies to streaming, and your transparency mandates are too important to take chances. Be sure the pricing of the service you choose is well-aligned with your needs while also making sure that the costs are predictable, free of any usage-based charges that could quickly add up for live streams and recorded videos that attract high numbers of viewers.

The Webcasting Plus module for eSCRIBE meeting management software is designed and optimized specifically for the streaming needs of local governments and public sector organizations, letting you easily stream without limits while meeting the requirements and expectations of your constituents and stakeholders. To learn more about how eSCRIBE can help you start or improve streaming of your meetings, contact us today.