

Memorandum

To : Honorable Betty T. Yee, Chairwoman
Honorable Jerome E. Horton, Vice Chair
Honorable Bill Leonard
Honorable Michelle Steel
Honorable John Chiang

Date : March 5, 2010

From : Anita Grandrath Gore
Deputy Director



Subject **Video Streaming Equipment Update**

Video Streaming of Board Meetings began in both Culver City and Sacramento in *October of 2008*. Hundreds of viewers access these meetings live through the Internet as they occur. Many more viewers access the recorded video that is archived and can be accessed from the BOE website following the meetings.

Currently, the meetings are streamed through the use of a contracted vendor. Under the current audio-video web streaming contract with Onstream Media Corporation, BOE pays \$2900 per day for these streams from Sacramento HQs, and \$6420 per day from Culver City. The difference is because BOE purchased and permanently installed dedicated A/V hardware in the Sacramento HQs Board Room during 2008 prior to beginning video streaming of board meetings. In Culver City, however, BOE rents the A/V hardware from Onstream Media, which must be shipped to/from the vendor (Onstream's sub-contractor Metromedia) before and after each meeting.

If BOE were to purchase and install dedicated A/V hardware/equipment in Culver City rather than rent it for each meeting, the cost to video stream Culver City meetings would be reduced to the same \$2900 per day rate as in Sacramento HQs.

The estimated cost to purchase the A/V hardware/equipment, and locking cabinets to secure the equipment for Culver City is approximately \$40,000. This purchase, paid for with contract savings, will pay for itself in approximately one year, based on the ensuing reduced cost of producing Culver City video streams.

In the name of efficiency and reduction of expenditures, we are redirecting money that would otherwise be spent on the contract to the purchase of the required equipment and storage cabinets.

While video streaming is a one-way form of communication and the related equipment cannot be used for interactive communication, the investment is still a prudent one to ensure access to our proceedings and transparency in our process in the most cost beneficial way.

BOE's purchase of audio visual equipment for Culver City will significantly reduce the costs of streaming the Board meetings, but will not meet other conferencing needs. Therefore, we will continue to concurrently pursue other conferencing technologies that serve taxpayers in other ways including: video conferencing, web cam interactive conferencing, and the possibility of BOE sponsored webinars.

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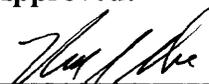
Honorable Board Members

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March 5, 2010

cc: Mr. Alan LoFaso
Ms. Regina Evans
Ms. Barbara Alby
Mr. Louis Barnett
Ms. Marcy Jo Mandel

Approved:



Ramon J. Hirsig
Executive Director

**Conferencing Technologies
Defined and Explored**



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Background:

The Board of Equalization (BOE) like many organizations in this fiscally challenged environment is very concerned with being more productive while at the same time striving to reduce costs. One of our challenges during these times is to further our communication with the public, our staff, and between our different units.

We want to:

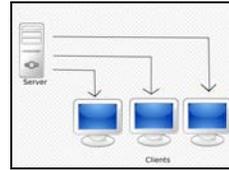
- Build collaboration among BOE staff.
- Train and educate staff more efficiently.
- Reduce travel costs.
- Communicate more effectively with staff in district offices.
- Manage scarce technology resources efficiently.
- Use existing investments in our applications and network infrastructure, wherever possible.

To date, we have made a good start in expanding our communication capabilities. For example, we offer a number of online seminars in the areas of information for business owners, nonprofit, exempt, and faith-based organizations, cigarette and tobacco retail sales, and completing a sales and use tax return. In addition, we provide on-demand video instruction on how to e-file and prepare tax appeals.

To further these goals, we must use technology to expand services to our taxpayers and staff. The demand for a high quality audio, video, and web conferencing agency-wide solution is needed to meet these goals.

With the rise of new emerging technologies, many terms are used interchangeably to describe communication between two or more persons. Some of these terms are very familiar to us such as video conferencing, web cam interactive conferencing, webinar, and audio/video streaming. The intent of this paper to clearly describe:

- What these technologies are and how they are generally used.
- How BOE uses the technologies and what is needed to use them.
- The advantages, disadvantages, and limitations of the technologies.



Audio/Video Streaming (AVS)

What is AVS?

AVS is the process of distributing multimedia over the network/Internet to someone who has chosen to receive it. Typically, this happens by clicking a link on a web page which opens a media player software program.

How is AVS used?

AVS is used to distribute multimedia over the network/Internet to any number of recipients. The multimedia can be live or pre-recorded.

How does BOE use AVS?

On a regular basis, BOE “streams” its live Board/Committee Meetings which are then recorded for playback at a later date. The live streaming of Board Meetings is provided through a vendor contract. The Board Meeting live stream is available for viewing by any BOE staff or Internet user. The live feed is also archived and stored on our network for future viewing.

Occasionally, for specific events, internal BOE meetings are “streamed” or transmitted across our network. These occasional meetings are completely supported by BOE staff since it does not require live streaming across the Internet. These internal meetings may also be recorded for playback at a later date.

In addition, BOE has developed many training videos available from the BOE website that are pre-recorded for “on-demand” playback.

How could AVS be used?

BOE could expand its use of AVS to include more meetings, presentations, or briefings where no viewer interaction is necessary.

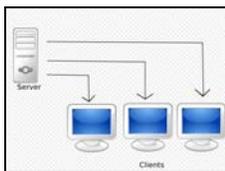
What are the limitations of AVS?

The quality of the viewing experience is dependent on available bandwidth used to deliver the audio/video content. The picture resolution will vary depending on the quality of the camera and equipment used to record the meeting. AVS is not used for interactive communications.

What are the requirements to receive AVS?

- Personal Computer (PC) (including display)
- Speakers/earphones
- High speed Internet connection
- Software (media player)

Audio/Video Streaming



Relationship	Advantages	Disadvantages	Comments
<p>One Location to Many Locations</p>	<ul style="list-style-type: none"> ➤ Able to deliver a variety of multimedia information to any location. ➤ Provides quick access – users can play the content almost immediately without waiting for content to be downloaded. 	<ul style="list-style-type: none"> ➤ Media storage required for pre-recorded meetings. ➤ Sound & video quality may be affected by slow or inconsistent network/Internet connections. ➤ The live stream cannot be saved to a viewer's computer. 	<ul style="list-style-type: none"> ➤ Content is sent from a fixed location to multiple users viewing on the network/Internet.



Video Conferencing (VC)

What is VC?

A VC is when two or more groups are able to see, hear, and speak to each other in real time from different fixed locations.

How is VC used?

Generally, this technology is used by businesses to allow one group to have meetings with another as if they were all in a single location. The information that is shared is usually verbal. In some cases, these meetings are transmitted and recorded for playback at a later time (similar to AVS).

How does BOE use VC?

BOE primarily uses VC to conduct meetings between headquarters and staff in district office locations. VC equipment is available for use in six locations- Headquarters, Oakland, Irvine, Van Nuys, Chicago, and New York.

VC is offered as one of three available options to conduct an audit appeal hearing. However, taxpayers near the above locations have typically opted for in-person or phone hearings. To date, very few appeal hearings have been held using this technology.

How could VC be used?

BOE could leverage this technology to improve communication with taxpayers, external agencies, and internally within the different units. BOE could use the technology to provide group to group conferences, conduct audit appeal hearings, and facilitate meetings between staff located in different locations.

What are VC limitations?

VC can only be used if the meeting rooms are equipped with the proper equipment. Some state agencies have portable VC equipment but this is not typical. VC is not generally used to present digital media such as Power Point presentations or other digital documents. While there is an option to view documents through a document camera, it is not the preferred method of displaying documents and requires compatible equipment to be on both ends of the connection.

What equipment is required by both parties for a VC?

(Integrated VC equipment)

- Camera
- Speakers
- Microphone
- Video screens
- Meeting Room
- Network (internal)
- Phone lines (external)

Video Conferencing



Relationship	Advantages	Disadvantages	Comments
Group to Group (generally)	<ul style="list-style-type: none"> ➤ Allows large groups to communicate without incurring travel expenses. ➤ Improves group communication. 	<ul style="list-style-type: none"> ➤ Does not lend itself easily to displaying Power Point presentations or other documents. ➤ May require a large hardware purchase. ➤ Has higher fixed costs. ➤ Loss of in-person interaction. 	<ul style="list-style-type: none"> ➤ Generally, equipment is preinstalled in the meeting room. It is not easily portable from location to location but could be moved from room to room depending on the configuration and type of system. ➤ Rooms must be wired for network and telephone connectivity.



Web Cam Interactive Conferencing (WCIC)

What is WCIC?

A “web conference” by general definition is when multiple computer users, all connected to the same network or the Internet, see the same screen at all times through their web browsers. Participants must sign up for the web conference to gain access to a WCIC “license”.

How is WCIC used?

WCIC allows users to:

- Hold business meetings and seminars.
- Make presentations.
- Conduct demonstrations.
- Provide online education.
- Offer direct customer support.

Control of the session can be passed among WCIC users so that any attendee can act as the main presenter.

How does BOE currently use WCIC?

BOE does not currently support a WCIC system.

How could BOE use WCIC?

BOE could use this technology to increase staff productivity by allowing staff to share ideas, display documents, and collaborate on a variety of topics and projects. See attachment for some examples of BOE functions that would benefit from the use of this technology.

What are the limitations of WCIC?

WCIC is not a technology that is typically used to conduct formal public meetings. Some of the widely known technology WCIC solutions such as Skype have limited functions and are best suited for personal one-on-one conversations rather than for large organizational discussions.

What equipment is required by both parties for a WCIC?

- PC
- Speakers
- Microphone
- High speed Internet connection
- Software (or 100 % web based solution)
- Webcam



Web Cam Interactive Conferencing

Relationship	Advantages	Disadvantages	Comments
<p>Many PCs to Many PCs (generally)</p> <p>Or</p> <p>One PC to One PC</p>	<ul style="list-style-type: none"> ➤ Allows multiple users to interact with each other without incurring travel expenses. ➤ Minimal hardware requirements. ➤ Normally web browser based. ➤ Easy to display files and media to all participants. ➤ Includes the ability to transfer the “presenter” responsibility to any meeting participant. 	<ul style="list-style-type: none"> ➤ Require high bandwidth for quality media delivery. ➤ Some participants may be unfamiliar or uncomfortable with the newer technology. ➤ Loss of in-person Interaction. 	<ul style="list-style-type: none"> ➤ Access can occur anywhere that has a PC/laptop, web camera, speakers, microphone, and Internet connection. ➤ May have some security issues. ➤ Policies and procedures would be needed regarding access, participation, and usage. ➤ Scheduling of licenses.



Webinar

What is a webinar?

A “webinar” is a term that describes a specific type of WCIC. A webinar is simply a web-based seminar. It is typically one-way from the speaker to the audience with limited audience interaction.

How is a webinar used?

A webinar is primarily used to conduct training or deliver information pertaining to a specific topic. A webinar can include polling and question and answer sessions in order to allow full participation between the audience and the presenter.

How does BOE use webinar technology?

BOE does not currently provide webinars.

How could BOE use a webinar?

BOE could use this technology as an alternative for presenting public seminars, providing speakers to specific events, or providing staff training.

What are the limitations of a webinar?

A webinar is not a technology that is typically used to conduct interactive meetings.

Equipment needed by the presenter and viewer of a webinar:

- PC (and display)
- Speakers
- High speed Internet connection
- Software (or 100 % web based solution)
- Camera (presenter)

Equipment needed to ask the presenter questions:

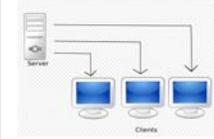
- Microphone
- Phone line (for speaking to presenter)
- Access to an email system

Webinar



Relationship	Advantages	Disadvantages	Comments
<p>One Location to Many Locations</p>	<ul style="list-style-type: none"> ➤ Allows many users access to information without incurring travel expenses. ➤ Ability to share information with a large audience. ➤ Minimal hardware requirements. ➤ Normally web browser based. ➤ Easy to display files and media to all parties. 	<ul style="list-style-type: none"> ➤ Limited audience interaction. ➤ Loss of in-person Interaction 	<ul style="list-style-type: none"> ➤ Question and answers usually available through telephone technologies.

Attachment
Possible Conferencing Technologies for BOE Functions

BOE Functions	Communication Type	Audio/video streaming	Video conference	Web cam interactive conference	Webinar
Audit Appeals	Internal To External				
Board meetings (streamed live and recorded)	Internal To Internal/External				
Community partnership meetings	Internal To External				
Inter-department communications	Internal To Internal/External				
Interested parties meetings	Internal To Internal/External				
Multi-agency conferences	Internal To External				
Pre-planning meetings for non-profit seminars and small business fairs	Internal To External				
Speakers bureau	Internal To External				
Tele-work staff	Internal To Internal/ External				
Training	Internal To Internal/External	