



Achieving Presence in Cyberspace

H. Dominic Covvey, with Peter Wolf, CEO, Captual Technologies, Inc.

H. Dominic Covvey, Associate Editor, is a professor in the Faculty of Science at the University of Waterloo, the President and Director of The National Institutes of Health Informatics (NIHI), and a Fellow of the American College of Medical Informatics and the Healthcare Information and Management Systems Society, in Waterloo, Ontario.

Over the last 7 years, we have been using webcasting (via Captual's ePresence) and web/video conferencing (via Cisco's WebEx) to enable interested individuals to attend our seminars and conferences remotely and to be able to access recordings of them on the Web when contemporaneous participation isn't possible. Early in this period, I was privileged to serve as an external advisor to the project at the University of Toronto that developed a system called 'ePresence'. This project was led by Professor Ronald Baecker whom I had known for many years back to the time when I had an appointment in Computer Science at U of T.

One of the many smart things Ron has done in his life was hiring Peter Wolf as his chief developer. When I first met Peter in about 2002, I was impressed with him and I still am today. A little while ago I asked Peter a number of questions and I found his answers so informative that I asked him to collaborate with me in this article. I have written this in the form of an interview so you might have the same experience I had with him on the phone. ***I should note that I have not had nor do I have now any commercial interest in what he and Ron have created*** – I just thought that our conversation was very educational. I hope you do as well.

Welcome Peter! Could you tell us a little about yourself and what your interests (related to distance communication) are?

Thanks for giving me a chance to communicate with the Health Informatics Research community. I started my career in IT after graduating in 1995 as a software developer. During the first five years I programmed for various organizations, none of them having to do with digital media. Then, in late 2000 Professor Ronald Baecker invited me to help UofT's Knowledge Media Design Institute (KMDI) implement an interactive webcasting system, which would let remote participants (primarily students and faculty) attend various events via the Web and feel "present". Although some web communication systems existed at the time, we could not find anything that would work well in an academic environment like ours. At the time, webcasting systems were not interactive and conferencing systems were not

scalable enough to handle larger audiences. And all of them supported only a single Operating System or a Web browser. That made most of them pretty much useless for the diverse university crowd. So, we decided to build our own.

We hear a lot about webcasting and webconferencing. Could you define each of these for us and distinguish between them?

A classic definition of webcasting is "one-to-many" audio or audio/video broadcasting via the Web that assumes no interactivity, sort of like today's radio or TV. A classic conferencing solution allows full interactivity among limited numbers of participants. These two worlds have merged over the last 15 years and now we can choose from dozens of hybrid systems that have elements of both.

For what type of communication should one use a webconferencing or webcasting system?

The most common use-case for Webcasting would be a webinar or corporate presentation, where the audience can be quite large. Scalability and reliability makes webcasting the number one choice for high profile events. For example, President Obama's inauguration speech was watched by 7 million online viewers according to CNN. Another major strength of webcasting is on-demand availability of the recording of a session, often with the ability to perform some post-production work to make a presentation "glossy". The most typical use case for conferencing is a corporate or research meeting, or round table talk. The number of conferencing participants is typically in the range of 5-7 people, where all of them are expected to contribute to the event. The interactivity is the most important requirement here, while the need for scalability or on-demand availability is typically limited or absent.

Could you identify the major vendors of webcasting and webconferencing systems?

The spectrum is quite broad as there are tools vendors, solution providers, content delivery networks and local production shops that play various roles in the area of digital media

and communications. I'll group major tool vendors into a few categories (see Table 1 on page 74).

Do any of the systems well-address or come close to well-addressing both webcasting and webconferencing?

As I mentioned earlier, the two worlds come closer and sometimes merge, but there are still major differences in requirements, social protocols and underlining technologies – so my answer would be: no, there is still no ultimate universal solution despite multiple various players' attempts to build one. One may emerge in the future and whoever delivers first will win big time.

What are the special/particular challenges a webconferencing system must address?

Video or Web conferencing solutions are ideal for small meetings. Participants can see each other, hear each other and share their documents without travelling. Scaling up is a major challenge. Full duplex (2-way) voice conferencing can quickly get out of control with 5+ people because there are no limitations in the implemented social protocol, similar to a classic phone-based teleconferencing. Moderated webinar-style events scale better, but there is a learning curve involved for event facilitators. Also, the event can be easily disrupted by technical difficulties at one of the remote parties' ends, and as a facilitator you have no way to control the situation (for example, if someone goes on hold, everyone may be serenaded by elevator music). Allowing multiple parties to contribute their audio, video, document and screen sharing feeds makes it extremely difficult (or virtually impossible) to produce a usable recording of the meeting. Therefore distributed meetings are mostly live-only.

As a server-side solution, the recording quality and reliability depends on your VoIP (Voice over Internet Protocol)/video connectivity to the server. If you lose your connection for a second then you damage or lose your archive. If you plan to deliver a presentation to, say, 15-plus people, then record and publish a decent quality on-demand archive, your web conferencing tool may not be ideal for that.

What are the special/particular challenges a webcasting system must address?

Classic webcasting technology would work great for delivering a live concert, or a pre-recorded promotional video or movie trailer to a larger audience. If you need to deliver a presentation, however, then it's also important to capture the presenter's PowerPoint along with the video, allowing remote viewers to read even the smallest fonts at the busiest parts of your slide. Regular video encoding software isn't good for that. The presenter's screen will be blurry and unreadable, or a resulting bandwidth requirement will be too high for today's Internet.

Specialized multi-channel presentation webcasting solutions address this issue. Another issue is interactivity. Classic webcasting is not interactive. Modern Rich Media Presentation webcasting solutions are more interactive – providing some chat, polling, and Q/A features in the form of text – but definitely not as interactive as Web conferencing. If you need to quickly set up a meeting with your remote colleagues to talk over some documents, then webcasting (classic or even the rich media type) would be the wrong tool to use.

While we are talking about systems, what are the typical pricing strategies used by vendors.

I would define two major categories here: 'classic' and 'application as a service' models. Some vendors combine them so you'll find a whole variety of different flavors here.

The classic approach would be to sell you a tool in the form of a software license and/or a hardware unit. Typically there are no hidden costs there. Once you get the technology installed, the usage is typically unlimited within its capacity. Some vendors will offer some extra packages for tech support, upgrades, etc., but those are likely optional. The benefit of this approach is that there is no lock-in. You can continue using the solution after you stopped paying the vendor. You maintain the control over the content you produce. You can add some deep modifications to the system to better serve your organization's needs. The only issue here is that you must pay upfront.

In the case of the 'application as a service' approach, web conferencing vendors will charge you on per use basis, similar to phone providers. They often limit the number of "seats" for your audience and the number of events you can run within a service package. The service will stop after you stop paying and you will lose access to your recordings as well. The price may go up (sometimes exponentially) as more people start joining your web meetings. The problem is it's often too late to switch once you get to a point when the price becomes prohibitive. My advice would be that you do your research and plan your usage ahead of time. Easy entry could be nothing but a marketing trick.

What do you see as the new and exciting things coming down the

Table 1		
Classic Plain Audio/Video Webcasting Tools Vendors		
Microsoft	Windows Media Services, Windows Media Encoder, Windows Media Player	http://microsoft.com/windowsmedia/
Real Networks	Helix Server, Helix Producer, Real Player	http://www.real.com/
Apple	Darwin Streaming Server, Apple Broadcaster, QuickTime Player	http://apple.com/quicktime/
Adobe	Adobe Flash Media Encoder, Flash Media Server, Flash Player	http://adobe.com/
Presentation Capture/Webcasting/Publishing Solutions Vendors - Synchronized Rich (e.g., with video, slides) Media		
ePresence	ePresence Server, ePresence Capture	http://epresence.tv/
Sonic Foundry	Mediasite platform	http://www.sonicfoundry.com/
Accordent	Accordent Capture Station, Accordent Presenter PRO, Accordent Media Management System	http://www.accordent.com/
Web Conferencing/Webinar services vendors		
WebEx	WebEx Web Conferencing	http://www.webex.com/
Citrix	GoToMeeting, GoToTraining, GoToWebinar	https://www.gotomeeting.com/
Adobe	Adobe Connect	http://www.adobe.com/
Microsoft	Microsoft Office Live Meeting	http://microsoft.com/
Illuminate	Illuminate Learning Suite, Illuminate vSpaces	http://www.illuminate.com/

pipe from this industry in the near future?

Cloud computing is one innovation. It is changing the landscape once again. Large webcasts become affordable for smaller organizations. A new generation of video compression technologies brings the high-definition viewing experience to virtually every computer screen. Bandwidth is getting cheaper as fiber optic channels become wide spread. Rich media is going mainstream in both academic and corporate worlds. All these developments are making us very excited.

What advice would you give anyone who is in the process of considering webcasting or webconferencing?

Do not think you will be able to effectively substitute one for the other. Try to consider the Total Cost of Ownership starting now and for the next 2 years. Pay attention to details. In this area, if you miss one little technical detail it can ruin the entire show. Do not hesitate to ask questions before you invest into a solution: Will it do what I want it to do? Does it scale (i.e., can I grow the number of participants and what are the limits)? Can I record material offline? Does the system create an archive to which I can provide later access? Is the quality good? What are the bandwidth requirements? Can I edit recorded material later? What interactive features are available? Is it reliable? Is it easy to use? Can Apple and Linux users participate at sessions? Can I try it out before I buy? Is there support coverage and what does it cost? Can I see examples on the Web of how others

are using the system? Are there hidden costs? Can I afford to do this?

If you had to do it all again, what would you have done differently?

On the technical side, there is a long list of mistakes we have made along the way. The major one probably was engaging in the development of a conferencing suite along with webcasting. We learned the hard way that Flash is not the best tool for that.

On the other hand, we were fortunate to learn about the platform limitations before integrating conferencing into the very core of our business.

On the business side, well, now it's clear that we should have exited the university earlier. We literally invented interactive webcasting ten-plus years ago, but now we definitely are not alone and the competition is tough in every niche of this market. We are doing very well though.

Thank you, Peter! I think we have all learned a great deal.

Captual Technologies Inc. is a Toronto-based webcasting solutions company, and provider of the ePresence webcasting platform. ePresence is a complete solution for streaming, capturing, and publishing rich media presentations. Used globally by leading universities, hospitals, and businesses, it is designed to fit a variety of production scenarios — from personal webcasting to fully-automated room deployment.