Streaming & Lecture Capture for Education and Training Market Overview - 2016

Market Overview for Corporate Training, Higher Education, & Primary / Secondary Education

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Overview

This report supplements WR's Streaming & Lecture Capture for Education and Training Worldwide Supplier Market Sizing & Five-Year Forecast 2015-2020. In this document, we explore market dynamics and trends among the suppliers that are advancing the adoption of lecture capture and streaming / on demand video for training. As a market overview, it performs the following:

- Describes product, channel, and partner trends that reflect current and future industry directions.
- Describes the market benefits that are helping to drive adoption.
- Describes growth factors – reasons that are positively driving growth.
- Discusses vendor dynamics – who's hot, and who’s not – in terms of depth of offerings and ability to execute.

The report covers the worldwide market for on-premises products and hosted services / software-as-a-service (SaaS) lecture capture and streaming offerings as applied for education and training. A subset of the streaming and webcasting technology markets, lecture capture and streaming for education and training often include a specific set of features designed to enhance learning, be it to support distance education programs or – more frequently – brick-and-mortar or blended programs. This report includes some platforms and solutions not strictly designed for education and training but utilized in those capacities.

Lecture Capture, Streaming Video & Webcasting

Lecture capture systems are a subset of streaming products, with the exception that many are designed specifically for capture and management of classroom content. They rose from the ashes of what had begun as a need for educational institutions to record and archive content. Traditionally, classes were videotaped or audio taped and then archived in school or departmental libraries and/or shipped to remote learners/campuses. Often these methods were homegrown and included varying degrees and mixes of automated and manual activities.

Early on, some of the streaming companies (which initially focused on audio / video over enterprise networks) and the lecture capture vendors focused on educational buyers realized that a market would exist for blending not just audio and video, but also PowerPoint presentations, other productivity application documents, PDF files, Flash animations, and rich media (e.g., video clips, web content, and polls and surveys). Thus the next generation was born – streaming solutions that enable organizations to record meetings and events and capture the associated rich media, automating the steps described above. Many streaming vendors offer some type of lecture capture capabilities, such as enhanced search or baseline integration with Learning Management Systems (LMS); some companies exist primarily as lecture capture vendors and are focused primarily on educational markets (or expanding into the enterprise); some companies are focused on user-facing tools to enable video training and content management. All of them promote the ability to store and manage content for later learner access.

Streaming (audio and video) is the equivalent of broadcasting to large audiences – and of making content accessible to learners in either synchronous or asynchronous fashion. A streaming broadcast may be live or recorded, but the core content typically flows one-way. In some instances, streaming solutions allow users to conduct live chat or post messages for later viewing. Some new providers are focusing on mobile content delivery – utilizing compression algorithms for delivery of content to mobile devices. And
the enterprise webcasting market includes service providers with hosted application platforms that support live events using streaming technologies. These providers are found more frequently supporting corporate training organizations than in education markets.

Increasingly streaming and lecture capture vendors are introducing new features that further promote the ability to enhance or provide access to content or to provide new methods of interactivity. Streaming and lecture capture are no longer about simply recording classroom or training content. New or relatively recent capabilities include:

- New approaches to tagging data, such as voice search in addition to text / OCR approaches.
- The ability to edit or otherwise modify recorded content to make it easier to repurpose or reuse. Editing utilities or stand-alone editors have been available for years, but the degree to which they are integrated within solutions has increased over time. Only recently Panopto announced a cloud-based video editing tool developed using the HTML5 markup language that makes it possible to edit videos via most HTML browsers. Other vendors have had basic editing of clips (trimming from front and back) for years – even in hosted versions.
- The ability to live stream a class as it takes place and to enable learners to review the class content even while the class is taking place.
- The offering of hosted or hybrid services in the case of premises-centered vendors such as Sonic Foundry and Echo360, and conversely, the offering of premises-based appliances in the case of vendors that traditionally focused on the cloud (such as Panopto).
- The ability to collect data concerning viewing activity, monitoring areas of recorded material that learners may struggle with / revisit for frequent viewing to support better group and individual learning. This includes the ability to enable social interactions between learners, whether real-time or via asynchronous threads, and it includes the ability to capture steps a learner takes in-class, contextualizing learner behaviors. Echo360 has most deeply made this a focus of its offering, calling it Active Learning. But most lecture capture and streaming vendors provide support for tagging of metadata to enable educators and learners to share specific content with others (via email or Web 2.0 tools); such content could be a recorded lecture, a class discussion, or the supplementary materials (documents, files, video clips) used in the class. Many products synchronize audio / video with supplementary materials, and allow learners to bookmark and revisit relevant portions of materials.
- Branding and watermarking of content to improve an organization’s brand and support content copyright protection.
- Multi-camera video recording to enable greater flexibility in classroom recording and in many cases delivery of multiple video streams, configurable by learners or administrators. This includes the ability to create learner-generated video (LGV) used as part of the classroom workflow.
- Integration and interoperability of lecture capture and video conferencing endpoints such that lecture capture platforms function as endpoints within multipoint classes and meetings – providing new reach for lecture capture providers within enterprise video conferencing networks (and greater functionality than has been provided to date by the video conferencing industry in terms of recording, archiving, content indexing, and search).
- Android and iOS apps that support mobile device recording and content replay, and infrastructure to support new methods of delivering content to mobile devices – and interacting around that content.
• Improved abilities to ingest external media recorded in proprietary or standard formats.

• Improved automated scheduling capabilities – many of which can be managed at the administrator level as well as at the individual instructor level.

• An open source lecture capture community that, after some initial speed bumps over the past few years, appears to have found renewed vigor on some campuses that prefer to build out their own solutions.

• Opportunities for integration with Learning Management Systems for single sign-on and comprehensive access to the LMS’s features and capabilities.

Streaming provides a good way to reuse content and/or create materials to be accessed in a self-paced fashion; lecture capture provides an even deeper way to create learning communities and a context-sensitive environment for learners to access and review course materials and live instruction. Lecture capture, in fact, in recent years has become more tightly woven into the classroom teaching habits of those institutions that have determined its value and leveraged its availability.

In the meantime, corporate learning departments are no less interested in creating learning communities – hence an increasing emphasis on social learning and the sharing of intellectual assets (read subject matter expertise). Learning organizations woke up over the past few years and began to recognize that video can be an effective training tool. And sales and marketing disciplines also have come to realize that live or on demand video can be an effective way not just to market to customers, but to transmit information (product capabilities, user instruction) that facilitates on-going sales team training.

**Methodology**

This report is based on primary research conducted by Wainhouse Research analysts and researchers. WR has been covering the enterprise streaming and distance education markets since 2002 and the lecture capture market since 2008, and collects detailed statistics from leading vendors, channel partners and end users around the world.

**Market and Customer Benefits**

A short list of benefits, as gathered (more quantitatively) in past Wainhouse Research Distance Education and e-Learning surveys and WR interview projects includes the following abilities or benefits, grouped by major segments:

**Enterprises**

• Enterprises can extend their reach to geographies and learners not previously reachable in a cost-effective, highly scalable fashion – an especially compelling value proposition.

• Training represents one of the most robust applications for justifying an enterprise’s return on investment in the deployment of streaming platforms. By leveraging streaming alternatives, some large organizations can mitigate the travel costs that would otherwise be incurred in bringing far-flung employees together for an in-person training session.

• Companies and governmental entities can leverage content to become more agile, mapping certifications, compliance issues, and career planning via their human capital management (HCM) platforms to content assets and in-house subject matter expertise.
• Learners can record and replay content for later access, often with simple vendor-provided archival systems or automated publishing to existing content management technologies already deployed within the enterprise. Enterprises can capture and share best practices, an especially valuable capability in high-turnover industries such as retail and hospitality or in industries with critical information and training needs, such as healthcare, engineering, energy services, manufacturing, and transportation.

• Employees can advance their careers and themselves become more valuable to the enterprise via video-based training modules.

Educational Institutions

• Learners can review missed classes or avoid commutes or travel -- especially appealing in higher education circles.

• Faculty can flip the classroom and use online content for direct instruction -- and in-class sessions for deeper instruction, discussions, and collaborative work.

• Faculty can reuse content -- especially appealing in primary / secondary education and somewhat appealing in higher education.

• Schools can create new courses and even programs of study, and support both local and remote learners.

• Institutions can extend their reach to geographies and learners not previously covered -- especially appealing in higher education where the concept of the Massive Open Online Course (MOOC) has gained traction in recent years.

• Learners can record and replay content for later access, often with simple vendor-provided archival systems or automated publishing to CMS/LMS/VLE’s.

• Schools can make themselves more competitive and attractive to technology-minded learners. Many institutions tell us that learner demand is driving their expansion of lecture capture.

• Schools report greater data analytics and improved outcomes in the areas of retention and grades. At least one third of those we survey in higher education believe that lecture capture improves student retention, and we have seen many studies that are beginning to show this is the case. The case for improved grades is hotly debated, and only one in ten of those we survey cite this benefit, but we hear much anecdotal evidence and have viewed some studies reporting that lecture capture can help improve grades.

Definitions

We group four major categories of lecture capture and streaming vendors focused on or selling into education and e-Learning, as defined in the 2 x 2 matrix below. Note that we place vendors in part based on where they themselves put the greatest emphasis. Thus Echo360, Sonic Foundry, and VBrick Systems may be positioned in Quadrant 1 because of their focus on premise-based solutions, but also offer cloud-based, hosted or event services. Similarly, Panopto and Tegrity are positioned as SaaS providers in Quadrant 2 but also may make available on-premise recorders or servers in certain situations.
### Lecture Capture / Streaming for Education Supplier Types

<table>
<thead>
<tr>
<th>Pure play lecture capture with primary focus on education customers</th>
<th>On-Premise Server and/or Software</th>
<th>Hosted Service (SaaS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Echo360, Safari Montage, Sonic Foundry, TechSmith, 323Link</td>
<td></td>
<td>(2) Panopto, Tegrity</td>
</tr>
<tr>
<td>Streaming / web casting vendor with ability to support education and corporate training applications</td>
<td>(3) Cisco Systems, Haivision, Kaltura, Qumu, VBrick Systems, Winnov</td>
<td>(4) Bloomfire, Brainshark, InterCall (West), ON24, Talkpoint, Workday</td>
</tr>
</tbody>
</table>

#### Figure 1 – Lecture Capture & Streaming for Education & e-Learning Supplier Categories

Though some overlap exists, Wainhouse Research identifies four different classes of suppliers:

1. **Lecture capture sold as on-premises server / appliances and / or software:** Server software sold to organizations in the form of seat licenses, hardware appliances, and/or the number of simultaneous encoded streams enabled. These products are sold for a (typically educational) enterprise to capture, ingest, encode / transcode, manage, and publish classroom content. We categorize this group as the vendor set most focused on higher education markets and the value add they can provide through enhanced search and integration capabilities.

2. **Lecture capture sold as part of a Hosted (SaaS) offering:** Service providers hosting captured content on their servers and typically accessed via the public Internet. The services are usually sold on a full time equivalency (FTE) learner headcount or numbers of learners / devices supported, with perhaps additional charges for storage space, though the hosted providers are willing to offer other pricing approaches. A very small number of pure-play SaaS vendors exist that focus primarily on education, but a few of those in Category 1 offer some hosting services as well. Category 2 providers offer many of the same capabilities as on-premises vendors.

3. **Streaming for education and corporate training markets:** Server software and / or seat licenses that are sold for an enterprise to run from its own computing hardware or deployed as part of hybrid solutions that combine on-premises and hosted capabilities. Many of these solutions may be part of overall internal / external communications or HR deployments, where training is simply one application among many. The bulk of these products are sold into Fortune 1000 and governmental markets, with some 10%-25% sold into higher education.

4. **Webcasting for education and training markets:** Service provider hosts a streaming service and archived content on their own servers, which users access via the Internet. The services are usually sold on a per-event, per-attendee, or monthly basis with additional consideration for file space. Some providers offer specific support for e-Learning practitioners. And the bulk of this provider group supports corporate e-Learning markets, not educational users.

Not included in this market overview are four categories of vendors whose products may be used to accomplish some of what is delivered by the categories described above. These four categories are:

1) Web conferencing / virtual classroom technologies that may be used in the classroom or by educators for personal capture purposes, e.g., WebEx, Adobe Connect, or Blackboard Collaborate;
2) Simulation software or screen capture technologies like Adobe Captivate / eLearning Suite or TechSmith’s Camtasia Studio.

3) Content delivery networks and caching servers (Akamai, Level3, etc.)

4) Personal and group video conferencing that may have some recording capabilities (Zoom, Fuze, Blue Jeans Network, Polycom) but that essentially are focused on live, multiway instruction.

**Vendor Discussion**

In alphabetical order, top lecture capture players we cover include:

- Cattura
- Echo360
- Kaltura
- Panopto
- Safari Montage (primary / secondary education only)
- Sonic Foundry
- Winnov
- VBrick Systems

We consider these the top pure play lecture capture providers. All have robust capabilities specifically designed for lecture capture.

In alphabetical order, the list of top streaming and webcasting players we cover includes:

- Cisco Systems
- Google
- Haivision
- IBM (uStream)
- InterCall (West)
- Microsoft
- ON24
- Talkpoint

These vendors typically do not focus on lecture capture but their products are deployed by many organizations for training and education. We include Google, Cisco, and Microsoft in this list for these reasons: 1) they are technology giants who have “mixed” stories in terms of streaming but whose products are in use daily to support on demand (YouTube) and broadcast live video (Hangouts, Skype Meeting Broadcast); and 2) they could pivot easily to become dominant players (more on this below).²

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² We do not include B2C and C2C oriented streaming platforms such as Facebook Live, Periscope, or YouNow because thus far the user community has shown little interest in using these platforms for training. They are more event-oriented platforms with some reach into major brands.
Other companies are coming on strong with new niche applications or very targeted use cases:

- Mobile delivery of content – with associated collaborative capabilities – such as PlayerLync and bigtincan.
- Content capture for workforce training and subject matter expertise, such as Bloomfire, Workday, and Brainshark.
- Light-weight appliances, sometimes used with their own capture and delivery / management software (such as Winnov and Crestron) or drawing on open source software from the Opencast community (such as Epiphan and Extron, which purchased open source developer Entwine in 2015). Some of these vendors approach the market with solutions that are part of much broader audio / visual product lines, such as Crestron and Extron. Others are more focused strictly on streaming.

Vendors have demonstrated a variety of strengths and weaknesses. WR evaluates the vendor community based on a variety of both objective and subjective factors, examining the respective completeness of offerings, depth of vision, (where applicable) programs designed to support teaching and training processes, and ability to partner with other vendors or service providers. This snapshot analysis takes into consideration each vendor’s:

- Capacity for - or history of - technical innovation.
- Agility in developing new products or responding to evolving market conditions.
- Involvement in standards development or distance learning and e-Learning standards, committees, and initiatives.
- Support for learners, teachers, and trainers.
- Record in sales and deployment successes.
- Size and global footprint.
- Approach to partnerships and distribution relationships.

The vendor positioning chart contained in Figure 2 is divided into four quadrants:

1. Upper left-hand quadrant: broad platform but perhaps less able to execute than larger or more active competitors, or slowing down in some way (transitioning, less spend on marketing and / or experiencing a weaker market position). These vendors nonetheless are highly competitive.

2. Lower left-hand quadrant: less complete solution, perhaps a point solution, or declining in momentum. These may be fading brands, like Tegrity, or simply vendors with fewer resources and less aggressive from a market positioning perspective.

3. Lower right-hand quadrant: highly energetic, highly able to execute, functioning as a “contender” that has strong opportunities but not yet well fleshed out.

4. Upper right-hand quadrant: highly energetic and with a broad set of capabilities.
Figure 2 can best be viewed as a broad assessment of who’s hot, who has the resources to get hot, who has a broad portfolio of products that might support end-to-end solutions, and who is fading or just “holding steady.” We describe below some of the more significant players WR readers might encounter, and our reasoning behind their placement in Figure 2.

**Upper-Right Hand Quadrant: High Ability to Execute, Energetic with End-to-End Solutions, and Able to be Champions**

- **IBM** – Wainhouse Research believes that IBM – with its acquisition of UStream in 2016 and ClearLeap in 2015, is making a substantial commitment to the enterprise streaming sector and has the resources – and the organizational will – to establish itself as a serious player in cloud-based delivery of business video services. This will position IBM to grab additional share of the training business.

- Other strong vendors with broad solution sets for education and training include **Sonic Foundry**, **VBrick**, **MediaPlatform**, **West (InterCall)**, **Kaltura**, and **Panopto**. Note that we do not distinguish between premises-based or cloud-based providers; several (but not all) vendors already offer options for both types of deployments. Sonic Foundry is well positioned for international market expansion through overseas acquisitions. VBrick, Kaltura, and Panopto are strong players in education and - in some instances - enterprise training. West (InterCall) has an aggressive sales organization and many high-profile e-Learning clients (while also boasting strengths in other areas of Unified Communications). MediaPlatform offers a comprehensive streaming platform that has made significant strides in the past two years in supporting a wide range of video and audio content.
array of networking options and enabling integration with a broader set of existing video conferencing, web collaboration and UC solutions. All of these players offer the table stakes and additional bells and whistles necessary for an enterprise or educational institution to deliver a video portal, with social elements, interactive features, advanced search, and some type of captioning / transcription capabilities (possibly via partners).

Lower-Right Hand Quadrant: High Ability to Execute, Energetic with Point or Less Complete Solutions, Contenders to become Champions

- **Microsoft and Google** – Though Microsoft and Google are well positioned to play significantly in video-based training, each has its own idiosyncrasies and work to do. For one thing, they are more focused on communications and collaboration than on teaching and training. For almost 18 months Microsoft has been working to integrate more streaming video features into its Azure hosted platform. WR expects it to make a bigger public splash in the enterprise streaming market at some point in 2016, and part of that splash already took place when it introduced Skype Meeting Broadcast in late 2015. Features like recording and on-the-fly translation will make this streaming service immediately attractive to some training organizations. Google has its own idiosyncrasies: while it is embedding Google Apps for Work and Google Hangouts into the workflow of many SMB’s and educational institutions, it still offers Hangouts On Air and YouTube as options for real-time and on demand video delivery. YouTube repeatedly is cited as one of the most popular streaming platforms for K-12 education and - in some situations - higher education. Google’s sweeping set of applications – ranging from search to high-volume video processing – do make it feasible for it to leverage current capabilities to deliver enhanced video training solutions. Perhaps only thing lacking is a coordinated strategy – or the corporate will – to do so.

- **Cisco** – Cisco has struggled with its streaming strategy and come to rely upon VBrick Systems as an essential partner in discussions with education and training enterprises. Thus, though we believe Cisco could become a dominant player in streaming video, it so far has remained more focused on its video conferencing, digital signage, and unified communications platforms than on addressing teaching and training needs. We do note that Cisco also is building strong search capabilities into its Spark persistent collaboration spaces platform which - in theory - could become useful in training and teaching applications.

- **TalkPoint, Zoom, and Crestron** – These three, highly dissimilar platforms share some things in common: strong brands and loyal followings. TalkPoint and Zoom “keep it simple” with effective, easy to use streaming services. (Zoom may be thought of as a webinar service but it supports up to 50 presenters and thousands of attendees in streaming mode.) Crestron is very well branded in room control and audio / visual circles and well positioned to sell lecture capture and streaming video; how much success it has may be based on its channels as much as on product.

- **ON24, PlayerLync, Bloomfire, bigtincan, and Shindig** – These five vendors are well positioned to play a spoiler role in the current market for video-enriched online training. ON24 lags in some of its video webcast features – its platform still is ill-suited for enabling self-service provisioning of video feeds from multiple locations, for instance. But extensive marketing and a recent funding round positions them as a player nonetheless. Bigtincan offers the bigtincan Hub, a mobile device content management platform that gets credit for very transparent pricing. The company also recently announced bigtincan Studio, a browser-based, interactive mobile sales presentation tool that offers promise. PlayerLync offers a point video training solution gaining traction particularly in retail and hospitality (restaurant) verticals, with many learner-generated video and
collaborative capabilities WR finds leading-edge. Bloomfire is another user-generated video
enabler, with an emphasis on leveraging social media within an enterprise for capture of
employee subject matter expertise. And Shindig is a hybrid video conferencing / webcasting
provider that may do breakout rooms better than any traditional webcasting or web conferencing
provider – at this point finding early traction in higher education circles.

- **Winnov** and **Epiphan** are two aggressive hardware / software providers operating at the lower
end of the streaming and lecture capture market, each aggressively marketing its products to DIY
enterprises. Both are very strong in educational markets, and Epiphan is leveraging a relationship
with the open source lecture capture community to drive hardware sales.

**Upper-Left Hand Quadrant: Lower-End Ability to Execute, Less Energetic but Still Offering Broad
End-to-End Solutions**

- **Qumu** and **Haivision** are both longtime leaders in the streaming space, with established
technical prowess. We place them in this quadrant simply for reasons of transition. Qumu offers a
comprehensive end-to-end streaming platform but is challenged by staffing cutbacks as the
publicly traded company strives for the right financial balance that will push it into profitability.
Haivision has a robust set of stand-alone streaming products sold through an extensive reseller
channel, but only in the past year has engaged in efforts to sell an integrated streaming platform
specifically targeting the enterprise segment.

- **Echo360** is an early innovator in lecture capture, now transitioning to **Active Learning** as a means
of capturing in-class interactions and deepening the possibilities for analytics related to learning.
Echo360 is thus occupying a hybrid space within lecture capture and we believe it may be
challenged in identifying who among buyers exactly understands its value propositions sufficiently
to issue the purchase order.

- **Discover Video** has created a strong set of educational capture technologies, but remains
under-capitalized and under-marketed when compared to its core competitors in education.

**Lower-Left Hand Quadrant: Lower-End Ability to Execute, Less Energetic and with Point or Less
Complete Solutions**

- **TechSmith** has created some compelling products over time (Camtasia Relay, Camtasia Studio,
Snagit, Coach’s Eye, Screencast.com) but failed to create an over-arching platform story and
sometimes has struggled to stay ahead of PC OS capabilities created by the likes of Microsoft
and Google (such as Snipping tools). Its products are a loose set of utilities, sometimes related,
sometimes not. Nonetheless, it has many fans in educational circles, particularly for the $5
Coach’s Eye mobile app.

- **Cattura Video** and **Brainshark** are two dissimilar platforms, the former for lecture capture with a
bit of emphasis on K-12 markets, and the latter a pure play corporate training service provider.
Each has solid products; each is under-marketed.

- **Extron Electronics**, like Crestron, focuses on the audio / visual meeting room and brick-and-
mortar environments. Its lecture capture platform is under-marketed and under-developed thus
far.

- **Safari Montage** focuses on the K-12 markets and lecture capture as an afterthought. It does
allow for real-time video conferencing and capture of those classroom sessions via its VIEWPath
recording/storing/sharing of classroom lessons, as well as delivery of off-the-shelf video content. It has some strong adherents among large-city school districts and also can be commended for integrating safety / security features especially attractive to school security officers. Finally, it has innovated in the mobile device management area, leveraging BYOD to enable mobile content capture and even the ability to turn mobile devices into student response systems. Thus far, however, it shows no signs of going beyond its primary / secondary education market niche.

- **323Link** is a regional manufacturer of classroom recording software – including a cloud encoder designed for Opencast open source lecture capture. Its EDUCast product integrates with Opencast and Google Drive, as well as many LMS platforms. Its weakness is that though it has a small set of resellers, it is under-marketed and has failed to live up to some early potential we saw when we first got to know its product line.

- **Tegrity** and **new_row** are lecture capture / webcasting providers, respectively, that Wainhouse Research has profiled in the past for early product innovations. Tegrity was acquired by McGraw-Hill, which has failed to invest in what at one time was a highly innovative cloud-based platform, and it has suffered through many customer migrations to Kaltura, Panopto, Sonic Foundry, and VBrick. New_row, on the other hand, offered some early innovations in management consoles for classroom training, but has failed to focus on a particular market and appears to be losing momentum.

For this exercise we have combined our history of briefings with many of these vendors, along with conversations with the end user community and online research. One indicator that a company is either in decline or no longer innovating: when it fails to issue press releases or blog posts within the past 12 months.

**Technology and Market Trends**

The streaming and lecture capture industry – in terms of its focus on education and training – offers innovation that promises to enhance the quality of education and training. By integrating a series of moving parts – tools for interactivity, search and performance analytics combined with a range of content and network management capabilities - this vendor segment today stands in the midst of change that will impact the market’s development during the next several years. Key areas of transformation include:

- **Mobile device management** – delivery of content to mobile devices is not simple, and there are both end user concerns (easy to understand UX) and IT management concerns (bandwidth usage, device support, security). Perhaps because of this, vendors are attacking the challenges via innovations in compression technologies, management tools, and network tools. We expect this to become even more of an area of innovation in coming years.

- **Transparent automated media conversion** – delivery of content in a wide variety of file formats. Vendors already have done a solid job of incorporating responsive design into their apps and ensuring that the right content gets to the desired device. As vendors move away from Flash and towards HTML5 clients and editors, not only will the right content get to where it is desired; it will just plain work.

- **Vertical sales enablement tools with elements of training capabilities** are an increasingly common area of innovation. As an example, sales enablement that may include Salesforce.com integration or simply the tools to create sales presentations that incorporate training functionality.
are becoming available. Vendors are introducing tools specifically for financial services, pharmaceutical, and healthcare verticals, as an example.

- Streaming and broadcast video are coming to Unified Communications platforms – at least to platforms like Google Hangouts and Microsoft Skype Meeting Broadcast. The result could propel the market in a variety of directions. In the short term, it may result in wider exposure to the concept of equipping knowledge workers with streaming video tools. On the other hand, it often is the training or teaching professional or the marketing or HR organization that “snaps” to the idea of using video for training and education. Thus there likely will be some experimenting – and market confusion – as the big players continue to bring streaming video and search capabilities (that may make it look like they are delivering lecture capture) into the enterprise. WR believes that purpose-built platforms for education and training are those best-suited for the organization that plans deployments and manages users, security, and costs. But the developments by big players like Microsoft are very likely to offer opportunities and threats to some vendors long-term.

- In the same vein, the Microsoft Azure platform – running on a worldwide CDN of 22 data centers – rivals Amazon Web Services in terms of depth and reach. It also already supports live encoding in the cloud, features its own Azure Media Player, and supports the ability to deliver live and on-demand streaming. We have seen the impact Microsoft can have when it decides to focus on an area, and Wainhouse Research believes that as Microsoft adds additional capabilities to its Azure platform, it will create opportunities and competitive threats to some vendors we cover over the next several years.

Finally, Wainhouse Research believes that the user-generated content movement, which we also refer to as learner-generated video, will continue to rapidly increase adoption – and thus increase the need for agile, responsive platforms. Educational and e-Learning organizations may wish to leverage our Figure 2 relational chart in making short lists of potential providers, but we also encourage subscribers to review our company profiles and / or arrange for analyst time to discuss these vendors in greater detail.
About the Author

Alan D. Greenberg is Senior Analyst & Partner at Wainhouse Research. Alan is lead analyst for the Wainhouse Research Distance Education and e-Learning advisory service and covers lecture capture, video conferencing, interactive whiteboards, web and mobile conferencing, and the suite of unified communications technologies as they are applied for education and e-Learning. He has published dozens of reports on those technologies, spoken at many industry and educational technology events, is the editor of the Wainhouse Research Blog, consults to many end user and vendor organizations, and was awarded an Outstanding Leadership by an Individual award in 2010 by the United States Distance Learning Association. More about Alan.

About Wainhouse Research: WR provides strategic guidance and insight on products and services for collaboration and conferencing applications within Unified Communications. Our global client base includes established and new technology suppliers and service providers, as well as enterprise users of voice, video, streaming, and web collaboration solutions. The company provides market research and consulting, produces conferences on technology trends and customer experiences, publishes a free newsletter, and speaks at client and industry events. More about WR.

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