

**Contact North | Contact Nord**

Ontario's Distance Education & Training Network  
Le réseau d'éducation et de formation à distance de l'Ontario

# **RESEARCH REPORT**

## **WEB CONFERENCING KEY MARKET TRENDS FOR HIGHER EDUCATION**

## WEB CONFERENCING OPPORTUNITIES

A number of colleges and universities in Ontario asked Contact North | Contact Nord to explore the nature of existing web conferencing systems and to report back on this distance delivery technology, including the current state of these services and opportunities to use the technology to meet student and faculty needs.

Contact North | Contact Nord provides a synchronous web conferencing platform, Saba Meeting, and related support to Ontario's 24 public colleges, 22 public universities and 250 literacy and basic skills and training providers at no cost. Through its [Learning Technologies Services](#) department, it trains faculty and instructors in the effective use of its system for teaching, learning and group work and provides technical support through its IT & Web Services department. Services from both departments are available in English and French.

Web conferencing is a growing part of organizational collaboration tool kits, providing a suite of collaborative and communication tools within a single integrated application. This ability to combine video, audio, and graphical communication channels is improving the productivity of colleges, universities and other training providers through real time sharing of information in a rich communication environment.

The overall growth in usage is also reflected in education, as faculty and instructors take advantage of the capabilities to augment course delivery and the improvement in communication with and between students. Web conferencing is proving particularly useful in distance learning, blended learning, and disciplines where interactive visual and oral communication provide an enhanced learning experience

Web conferencing grew out of room-based videoconferencing, a more restrictive channel that required designated facilities and support. The improvements in bandwidth, video compression algorithms, and hardware scale economies enabled access through an individual's computer using standard inexpensive microphone and webcam equipment. These infrastructural developments facilitated a convergence with Internet collaboration tools, to enable software innovators to create the web conferencing genre. One of the early products in the education sector was *Illuminate Live*, later acquired and merged into *Blackboard Collaborate*.

The market for web conferencing is now more than 16 years old, and offers a wide variety of mature, highly usable, and fault-tolerant solutions. The market is currently dominated by five major vendors: Adobe, Cisco, Citrix, IBM, and Microsoft. However, the growth in cloud functionality has led to the proliferation of start-ups and smaller companies entering the market.

Web conferencing continues to grow, with all application categories continuing to expand their user bases. Market trends indicate an increasing adoption of social and mobile functionality, in keeping with general educational technology trends. Vendors are also beginning to specialise their web conferencing products to appeal to different market segments, and there is a shift to cloud provision as they seek to simplify product offerings and hollow out their supply chain. The major vendors are likewise moving to cloud-only provision.

## Web Conferencing Today<sup>1</sup>

The expansion of online real-time communication reflects both the supply of improved capabilities and services, as well as the insatiable demands to share, collaborate, inform, instruct, engage, inquire, transact, play, socialise, and be entertained. Although web conferencing is used extensively in commercial business activities, it is also used throughout higher educational institutions, supporting a range of activities including instruction, research, human resources, student services, and institutional advancement. The market for web conferencing is not homogenous and is made up of many different sectors, all aimed at improving organizational performance.

## Web Conferencing Categories

Web conferencing products can be considered under four main categories:

### 1. Consumer Applications

These are applications used by consumers on a self-serve basis and usually for one-to-one communication such as Microsoft Skype and Apple's FaceTime. They generally run on a non-integrated and unmanaged basis. Skype, in particular, is used in academic institutions predominantly for interpersonal interaction between faculty members, faculty-to-student, and for small group meetings.

### 2. Unified Communications (UC)

These composite applications integrate collaboration and communication technologies with office productivity applications, such as IBM Sametime, Cisco Jabber, and Microsoft Lync. UC applications are often used for videoconferencing due to ease of use as organizations have them broadly deployed for instant messaging and presence; UCs also provide identity management through the central directory. There has not been broad adoption of UC into academia as of the time of writing. The lack of systems integration, in general, in academic institutions may be at the core of this delay.

### 3. Videoconferencing (VC)

Dedicated VC products have less functionality than UC clients or web conferencing tools, but tend to have good inter-operability with room-based systems, including support for things other solutions typically do not have like far-end camera control. The products in this category, including Avaya, LifeSize, and Polycom's and CISCO's products, use ports in the bridging infrastructure that also power the vendors' room-based systems. IOCOM's Visimeet is a server-based product, while Vidyo's infrastructure routes video streams directly to the endpoints, while Blue Jeans Network is purely a cloud-based service.

### 4. Web Conferencing (WC)

The core reason for WC tools is to provide content and collaborative tools to users, with videoconferencing provided as a secondary feature. However, particular web conferencing

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<sup>1</sup> <http://finance.yahoo.com/news/analysis-global-conferencing-market-142000562.html>

products, such as Cisco WebEx, Citrix GoToMeeting, and FuzeMeeting, have improved their videoconferencing quality significantly in the past three years. Web conferencing products, such as Saba Learning and Adobe Connect, are well adopted into academic institutions both for administrative and academic purposes. The ability to provide course material from a distance in a lecture format, combined with rich collaborative tools and capture capability, has enhanced the value to learning and teaching organizations.

## Deploying Web Conferencing

The above product categories use three main deployment models:

### a. Hosted Web Conferencing

Based on the Software as a Service (SaaS) delivery model, web conferencing software is hosted by vendors in their own data centres and provided to customers on a multi-tenant cloud basis via the Internet. It is offered either as a subscription (flat fee per seat) or on a usage basis (cost per user per minute).

### b. On-Premises Web Conferencing

Available as licensed software for installation on servers, the web conferencing application is deployed behind the enterprise firewall and managed by the customer. It is normally offered as a converged conferencing or unified communications solution.

### c. Managed Web Conferencing

Fully managed on-site or remotely by a service provider, managed web conferencing services are dedicated to a single customer. They are aimed at users that want more control over meeting content and security. Managed web conferencing services are a nascent market today and are expected to grow significantly.

Most vendors are moving to a cloud-based model for their products. This simplifies the service model and lowers the cost of service, as it requires only a bilateral agreement with a cloud provider and a much reduced support capability. It further enables product development versioning as best practice can be undertaken within the closed environment, removing many of the pitfalls of local integration and identity management.

In addition, this software as service model offers an increase in the value-added service to clients as it reduces their lifecycle costs of provision, and allows a more rapid deployment of product upgrades and new services. Contact North | Contact Nord currently acts as a web conferencing service for Ontario's 24 public colleges, 22 public universities and 250 literacy and basic skills and training providers by offering a customized service to these organizations.

## Market Trends

Hosted or cloud provision is the predominant form of delivery, although on-premises solutions have been growing particularly with integrated Unified Communication systems, such as those offered by IBM and Microsoft, where the videoconferencing application is part of

a broader suite.

A Frost & Sullivan Analysis of the Global Web Conferencing Market finds this market had revenues of \$1.80 billion in 2012 and estimates this will reach \$3.9 billion in 2020, at a Compound Annual Growth Rate (CAGR) of 9.8%. One of the key factors contributing to this market growth is the increasing need for information sharing among organizations and the growing demand for collaboration within and between organizations.

## Growth Trends

Global web conferencing traffic is forecasted to account for around two-thirds of data centre traffic by 2016, growing from 39% to 64% within the years 2011 and 2016.<sup>2</sup>

- Among the key applications for web conferencing are sales, marketing, and training activities. The use of these systems for general-purpose meetings (strategy development, administration, project management) has also risen due to the spread of web conferencing among a larger user base within organizations and the growing use of home-based workers.
- Growth in the future will come from expansion into under-represented segments of the market, including health care, education, manufacturing, and retail.
- There has been a significant slowdown in the on-premises market. With the exception of Microsoft, most on-premises vendors have reported slow growth or a decline.
- Key trends gaining ground include convergence of synchronous and asynchronous communications due to greater user demand for better knowledge/content management (file sharing, capture, flexible storage, on-demand streaming) and a growth of team-based working across organizations.
- Voice over Internet Protocol (VoIP) telephone systems have become the *de facto* mode for a great many users and is growing very fast.

## Desktop and Mobile Conferencing Growth

As desktop conferencing grows, both non-video communication and room-based conferencing are either in decline or growing at significantly lower rates when compared to previous years.<sup>3</sup> Cisco's estimates forecast desktop videoconferencing to continue to grow dramatically, fuelled by the growth of hand-held tablets and smartphones. There is one major difference, however, in that Cisco expects a rebound of room-based systems after 2016.<sup>4</sup>

## It is All About Price

Although global demand is on the rise, competition within the market is intensifying as the market matures. Price pressure is indicated by

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2 <http://webconferencing11.blogspot.ca/2012/12/web-conferencing-market-forecast.html>

3 <http://www.radsys.com/blogs/new-white-paper-describes-benefits-ims-architecture-cloud-hosted-video-conferencing-services>

4 [http://www.cisco.com/c/en/us/solutions/collateral/service-provider/vni-service-adoption-forecast/Cisco\\_VNI\\_SA\\_Forecast\\_WP.html](http://www.cisco.com/c/en/us/solutions/collateral/service-provider/vni-service-adoption-forecast/Cisco_VNI_SA_Forecast_WP.html)

bookings growing significantly faster than revenue. This is seen as due to greater market maturity and the impact of declining revenues per licence. Other price and market pressures are evidenced by competition coming from smaller and lower-cost vendors who disrupt the pricing dynamics, forcing prices down and changes in licensing models that justify charging a premium for certain web conferencing services. This can be seen in the proliferation of “freemium” services (such as AnyMeeting, join.me, Zoom) and low-priced, basic screen-sharing tools, as well as intense competition from cloud videoconferencing services. In response, major vendors are also starting to offer “freemium” models.

## **Mobility and Social**

As with most Internet-connected applications, the move to mobile and hand-held devices is continuously growing. This is leading to vendors shifting their strategies to include or concentrate on enhancing the mobile and social functionality of their offerings. It also includes improving the mobile user’s experience, as well as providing hosting control to mobile interfaces. These trends require the development of mobile and social Apps to provide the richness required to deliver a fully functional interface. Given this, the development of web conferencing applications will become costlier and require a more expansive set of development and maintenance skillsets.

This is similar to the Learning Management System (LMS) space where commercial vendors add new capabilities around the core functionality to attract a broader customer base as it moves to become an Academic Enterprise Resource Planning System (ERP). While many of the additions could be considered as bloat, there are important enhancements that provide significant value to users.

## **Unified Communications (UC)**

The expansion or merging of web conferencing capabilities is leading to it becoming part of a broader unified communications suite. Microsoft<sup>5</sup> and IBM<sup>6</sup> already offer a unified communications (UC) platform, while Jive Software acquired Meetings.io and Citrix has integrated Podio to expand the office productivity functionality within its GoTo suite.

The drive to achieve this is coming from the desire to enrich collaboration tools and to provide “ubiquitous” access to all assets at all times. In the learning space, this is of significant benefit to course designers, content developers, instructors, and students as the ability to merge content, collaboration, instruction, and assessment into a single integrated system generates significant potential for enhanced learning design and creative delivery of courses. In short, it can be considered a Constructivist’s dream scenario where students can develop knowledge in a fully interconnected and supportive environment.

It is not difficult to foresee the end of web conferencing applications as standalone tools over the coming five-year period, and see many office productivity components such as word processors and spreadsheets become part of a more integrated and combined offering.

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5 <http://www.microsoft.com/education/en-ca/solutions/Pages/unified-communications.aspx>

6 [http://www.ibm.com/midmarket/ca/en/article\\_Social\\_Business4\\_1209.html](http://www.ibm.com/midmarket/ca/en/article_Social_Business4_1209.html)

## Product Specialization

While there is a growing move to integration, a separate thread to diversify products into specialist functional concentrations can also be identified, as vendors look to differentiate by moving from a “one size fits all” approach to solutions that drive specific use cases and business processes.

These solutions provide an application focused on a particular business function such as a sales and marketing web conferencing (e.g. ON24 and TalkPoint), which provides a simplified application with a specific focus on the capabilities required by different functional departments. While this requires some integration with other tools, the product is a niche player to a more focussed and concentrated market. The same is also likely to happen with a product focused on learning – or, more likely, training – with either Application Protocol Interfaces (API) to existing learning management systems, or incorporation of some features. For example, one can consider the Massive Open Online Course (MOOC) platforms as initial pilots in this space.

## Videoconferencing<sup>7</sup>

The use of video continues to increase as improvements are made in both increased bandwidth and video compression algorithms. The introduction of features such as Apple’s FaceTime and Microsoft’s Skype indicate the desire for video communication on a face-to-face basis. This is no difference in business usage at the small or large group level. The ability to see your interlocutor(s) improves communication significantly, and is driving the increased use of videoconferencing.

The drive to interconnectivity is leading to the standardisation of videoconferencing and the ability to interface with other systems through standardised protocols (see the section on Wert). While, initially, a loss of functionality accompanies such interfaces, it is expected that over the longer term this disappears. The introduction of standards also allows a broader range of connectivity as videoconferencing systems are externally accessible by desktop and mobile users.

The specialized Video Conference Room remains as a very high-end capability allowing increasingly real virtual meetings. Cisco’s Real Presence is an exemplar of this technology. Improvements in screen and high definition video continue to enhance the user experience and may lead to continuous operation of virtually connected spaces.

The market dominance of Cisco and Polycom in the videoconferencing product space demonstrates this product market has reached maturity, as the consolidation of an industry is a normal pattern of industry life cycles. The web conferencing industry has not yet had its consolidation phase, although the top four companies held 79% of the global market for web conferencing in 2010 – Cisco 48%, Citrix 14%, Microsoft 12%, and Adobe 5%.<sup>8</sup>

Apple’s new version of Apple TV, built around Apps and voice recognition (Siri is a feature of this TV system) is likely to lead to apps that enable videoconferencing, when TVs become communication

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7 <http://www.frost.com/c/10361/blog/blog-display.do?id=2257660>

8 <http://senexrex.com/release-duration-and-enterprise-agility/>

and entertainment centres rather than just systems of display. Many Samsung TVs are videoconference enabled.

### **Real-Time Communication (WebRTC)<sup>9</sup>**

An emerging trend that is of interest to, and stimulating investment by vendors, is HTML5 and related protocols, such as WebRTC. API definitions are available and continue to be drafted by the World Wide Web Consortium (W3C) to enable browser-to-browser applications for voice calling, video chat, and point-to-point file sharing without plugins.<sup>10</sup>

The guiding principles of the WebRTC project are that its APIs should be open source, free, standardized, built into web browsers, and more efficient than existing technologies. The promise of WebRTC is real-time communications, such as video, can occur in the browser and between browsers. It is expected WebRTC first impacts customer service applications, where the lower barriers to adoption promote usage.

Adding to this, the current versions give limited browser and mobility support and little control or information for sophisticated multi-party sessions. This, combined with ongoing turf wars on standardization for WebRTC, ensures the sophisticated multi-party web and video clients currently in place are likely to remain in demand.

### **Primary Products Currently on the Market**

A web survey was conducted so as to provide a Vox poll of the ranking of available web conferencing systems and services as at December 2015. The purpose is to determine whether there was a consensus of opinion with regard to the best products on the market.

A total of 10 websites were reviewed in addition to two publications, Gartner and Forrester. The Educause publication database was also reviewed for guidance on web conferencing applications preferred in the academic space. Over 50 products were recommended by these sources, demonstrating the wide availability of web conferencing systems.

The findings reveal a disparity of opinion with a long tail evident in the distribution of recommended products. There were, nonetheless, three main products that registered over two standard deviations above the average:

- Citrix GoToMeeting
- Adobe Connect Pro
- Cisco WebEx Meeting

These products consistently ranked as the leaders in the web conferencing product space. Saba Meeting (currently used by Contact North | Contact Nord) gained five recommendations and shared fifth position in the industry with a number of other options.<sup>11</sup> The findings of this web survey are in keeping with the opinions of authoritative sources such as

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9 <http://www.webrtc.org/>

10 <http://en.wikipedia.org/wiki/WebRTC>

11 Saba Meeting was placed fourth in the Educause review of web-conferencing applications for learning. See McDaniel, J., Metcalf, S., Sours, J., Janke, T., Newbrough, J.R., Shuck, L., & Varma-Nelson, P., "Supporting Student Collaboration in Cyberspace: A cPLTL Study of Web Conferencing Platforms." Educause Review Online, November 4, 2013. <http://er.educause.edu/articles/2013/11/supporting-student-collaboration-in-cyberspace-a-cpltl-study-of-web-conferencing-platforms>

Gartner and Forrester. Using their rankings in evaluating the best web conferencing solutions allows a focused selection of comparators for institutional consideration.

The selected products are provided in Table 1 below according to the survey referenced above, and are listed alphabetically within ranking bands. Of the top twenty-one systems, those most widely used in the academic and learning communities are Adobe Connect, Blackboard Collaborate, and Saba Meeting. Big Blue Button has gained a number of users, as it is an open source product and can be used without licensing costs.

**Table 1: The Top Twenty-One Web Conferencing Products**

Ranking	Mentions	Product
1 <sup>st</sup>	12	Citrix GoToMeeting
Joint 2 <sup>nd</sup>	11	Adobe Connect Pro
	11	Cisco WebEX Meeting
4 <sup>th</sup>	7	Microsoft Lync
Joint 5 <sup>th</sup>	4	Click Meeting
	4	AT&T Connect
	4	InterCall
	4	ReadyTalk
	4	Saba Meeting 8
Joint 10 <sup>th</sup>	3	IBM Sametime
	3	Infinite Conferencing
	3	BigBlueButton
	2	Global Meet
	2	Join.me pro
	2	Mega Meeting
Joint 13 <sup>th</sup>	2	Mikogo 4.7 (Beam your Screen)
	2	Skype 5.3 for Windows
	2	TeamViewer 8
	2	FUZE Meeting
	2	iMeet

### Major Trends

Colleges and universities, and supporting networks, such as Contact North | Contact Nord, are expanding the uses of web conferencing applications as the technology evolves and the organizational benefits are demonstrated in other sectors.

The need for rich interactive and visual communication is fuelling this growth as students, faculty and instructors, researchers, and

administrators seek to improve engagement and understanding. The market is expanding and maturing with vendors moving to more targeted segmentation in the use of web conferencing toolsets.

Of the major trends, the following considerations are most relevant for immediate consideration by colleges and universities:

- While shifting to a commercial cloud provision offers many advantages and is price competitive, it is not without significant challenges for publicly-funded and mandated organizations in light of privacy regulations, the desire for academic freedom, and the goal of providing a seamless student-learning environment. Recent agreements between the Canadian and US governments about data sharing and access to intelligence may, however, change this privacy landscape.
- The adoption of social and mobile technologies to enable a high-quality and fully functional user experience may clash with existing campus-based-provided capabilities and functionalities. Unless these technologies are part of an overall social/mobile strategy, they are either redundant or disruptive to existing IT architectures and identity and access models.
- The trend towards product segment specialisation may deal with the above concerns, as providers seek to address the constraints facing public organizations, as well as to create solutions that provide integration with learning technologies, student information systems, and offer cloud hosting either on an institutional private cloud basis or through a consortium or jurisdictional level provision.

### **Web Conferencing an Integral Part of Higher Education**

There can be little doubt web conferencing continues to be a part of higher education for the foreseeable future and continues to offer an enhanced experience to all stakeholders. Therefore, the questions facing institutions are *what*, *how*, and *when* they should adopt, adapt, implement, and upgrade what is becoming a ubiquitous 21<sup>st</sup>-century communication channel.