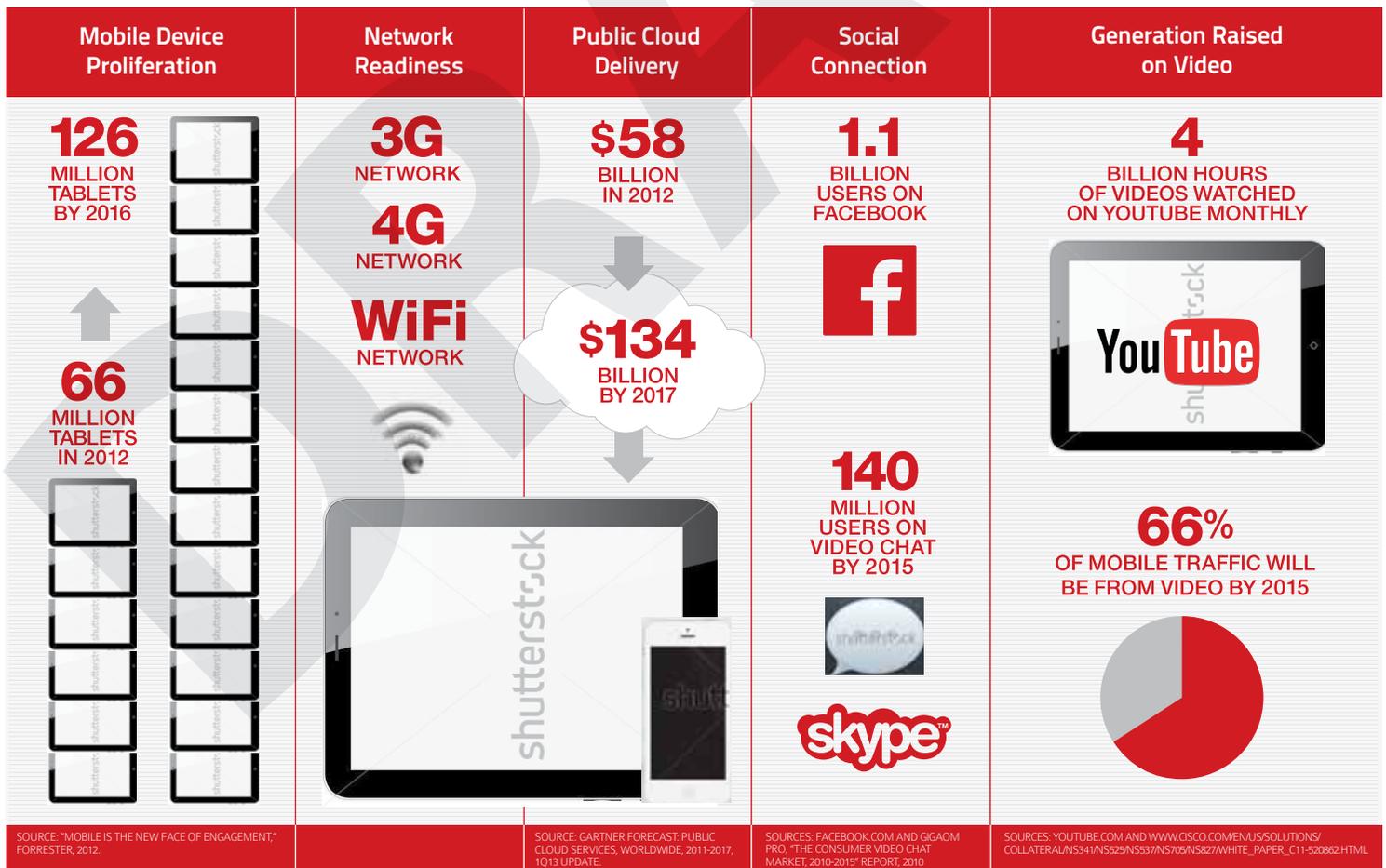## Issue Brief

The New Video Collaboration Culture in Education

Preparing students for the future with video-enhanced learning

One set of students is in Seattle. Another team of mid-career managers sits in a conference room in Bogota, Colombia. A third is in Kingston, Ontario. But all of these students are meeting, listening and viewing the same instructor at the same time; participating in discussions, asking questions and performing classroom exercises together in a team-based approach, based on city groupings. And because instructors' lessons are recorded, students who are unable join at scheduled times — due to busy schedules or time zone conflicts — can view the lecture whenever and wherever it is convenient for them.

The students are part of Cornell-Queen's University Executive MBA Program, attending Saturday sessions via video conference from "boardrooms" located across North America. Although they are separated by thousands of miles, the students are connected in a virtual classroom and joined even further by the collaborative, teamwork-based learning environment established by Cornell University and Queen's University.

Drivers of Video Collaboration in Education

Mobile Device Proliferation	Network Readiness	Public Cloud Delivery	Social Connection	Generation Raised on Video
126 MILLION TABLETS BY 2016 **66** MILLION TABLETS IN 2012	**3G** NETWORK **4G** NETWORK **WiFi** NETWORK	**$58** BILLION IN 2012 **$134** BILLION BY 2017	**1.1** BILLION USERS ON FACEBOOK **140** MILLION USERS ON VIDEO CHAT BY 2015	**4** BILLION HOURS OF VIDEOS WATCHED ON YOUTUBE MONTHLY **66%** OF MOBILE TRAFFIC WILL BE FROM VIDEO BY 2015

SOURCE: "MOBILE IS THE NEW FACE OF ENGAGEMENT," FORRESTER, 2012.

SOURCE: GARTNER FORECAST: PUBLIC CLOUD SERVICES, WORLDWIDE, 2011-2017, 1Q13 UPDATE.

SOURCES: FACEBOOK.COM AND GIGAOM PRO, "THE CONSUMER VIDEO CHAT MARKET, 2010-2015" REPORT, 2010

SOURCES: YOUTUBE.COM AND WWW.CISCO.COM/EN/US/SOLUTIONS/ COLLATERAL/NS341/NS525/NS537/NS705/NS827/WHITE_PAPER_C11-520862.HTML

Collaboration is essential in the business world — to overcome personal and cultural differences in order to work together in a global economy and solve challenges. Both K-12 and higher education institutions are increasingly emphasizing the importance of teaching collaboration skills. New advances in video conferencing, lecture capture and other services have made it easier and more affordable than ever for education institutions to use these technologies and expand their global campuses. Institutions are realizing that these technologies are no longer nice to have, but critical to preparing students for their roles in the future workforce. As a result, a new video collaboration culture in education is rising, and along with it the potential for widespread transformation in student learning.

Creating and Managing Video in Education

Education institutions today increasingly face challenges of distance and time. There is a growing reliance on online and blended or hybrid learning (about 5 percent of K-12 students took an online class in 2011-12[1]; 32 percent of college students did so[2]), and the increased use of mobile devices such as smartphones, tablets and laptops has led students to expect anywhere, anytime learning.

Video services can help meet these challenges by connecting students, teachers, subject-matter experts and others across time zones and distance — enabling an easy, affordable and reliable means of collaboration.

Collaborative video technologies used in education today include:
- live webcasts and teleconferences
- captured video (the recording of an instructor's lecture, for example, as well as all the slides and other material the instructor presented in class)
- video on demand (allowing students to go to a site to search and view archived material on a mobile or fixed device)
- media management software (which allows education institutions to collect, transcode, organize, protect and analyze their live and recorded video assets)

Video services connect students, teachers, subject-matter experts and others across time zones and distance — enabling an easy, affordable and reliable means of collaboration.

Video content management tools can also be used to better track and manage video. For example, schools and colleges can collect and manage access to digital libraries stocked with lectures, presentations and other captured content. Tracking and reporting features allow institutions to see how videos are used and viewed. Students, teachers, and other faculty and staff can participate in video-based training and video-triggered testing, with trackable training and compliance records.

Improving Collaboration, Enhancing Education

Student Education Made More Effective

Students at Kenai Central High School and Skyview High School in Alaska — which are about 15 miles part — attend the same world history class, co-taught by history teachers Greg Zorbas at Kenai and Rob Sparks at Skyview. The joint courses are called CWOW, or Classroom Without Walls. Students interact with each other and their instructors via classroom video conference, plus connect on a more personal, face-to-face level as classmates on team projects using mobile devices and other software. "Our whole goal is how we can get kids more engaged and collaborating in different ways," says Sparks.[3]

When a typical four-week history unit is initially introduced, the teachers spend the first week delivering content in interactive ways, frequently using video conferencing. The teachers take turns providing information while also encouraging simultaneous interactivity — students can use instant messaging to discuss questions with their counterparts in the partner school, and can connect with each other using smartphones, tablets and desktops.

In subsequent weeks, students work with their partners using video conferencing on school-provided laptops, and share work using Google Docs and other cloud solutions. The final unit presentations are made by students from both schools via virtually connected interactive whiteboards. Presentations can include student-made video, videos captured from YouTube or other video resources.

The incorporation of video technology and emphasis on collaboration in CWOW has resulted in students who are more engaged, more capable, and who use higher-order, critical-thinking skills.

Video conferencing that connects participants in real time is one video technology that helps foster education, particularly at a distance. Another key component of today's video services is the capturing of classroom sessions for easy review. This process is enhanced today by advances that make

the recording of classroom sessions a seamless, automated process, so that video is quickly available online for students to access from mobile or fixed devices.

At Gaston County Schools in North Carolina, students at eight high school distance learning labs use video conferencing to take Advanced Placement (AP) courses taught by specialized instructors located at other schools. This allows the district to extend AP classes to smaller, rural schools in the district. Students also use the system to take courses from nearby Gaston College.

Each distance learning lab has a capture station that captures video and audio from video conferenced classes. The capture units also record images such as screen captures from computers, whiteboards, document cameras and graphic calculators used by instructors during class. The system can be automated, with classes set to record every day at set times; the content is also automatically made available on Web servers and storage networks, with access controlled by administrators to only authenticated users.

By making captured content available, students who miss class can catch up; those who attended can use the recordings to review class material. Wayne State University College of Nursing in Michigan also uses video solutions in its distance learning classes. Nursing students interact with robotic patient simulators, which is captured and live-streamed to other nursing students in the class. Students can watch as it happens or later "on demand" when it fits their schedule. Capturing and observing such interactions helps instructors and other students critique and improve their skills.

Qatar University's College of Pharmacy incorporates video conferencing technology to expand its distance learning offerings. Lectures are recorded and posted to the learning management system for authorized students and faculty to review — a plus for many of the non-native English speaking students who can review the English terminology used in classes. Students can also access an archive of 60 previously delivered pharmacy undergraduate courses, helping them preview content to be covered in future classes. Faculty can see what colleagues are teaching so they don't duplicate efforts.

Other ways video content management tools foster education include:
- **Making asynchronous collaboration easier.** For example, students working on a team project can meet via video, record it and then share their session with team members who couldn't attend.
- **Organizing content to make it available to all.** Teachers can approve and review video content, keeping it organized and available in a content library.
- **Increasing student participation.** Students who are ill or have physical disabilities that limit their ability to attend school or college can use video conferencing and video content services to join a class or view courses that they missed. At Kenai, says Zorbas, students who have to miss class due to vacation or other reason used to come to him to ask what work they would need to make up. Now, he says, his students come to him and ask how they can connect with class while they are outside the area (often, this can be accomplished using mobile devices and a browser). At the higher education level, massive open online courses, or MOOCs, are offering recorded video to enhance the learning experience and better engage online students.

"Our whole goal [of using video] is how we can get kids more engaged and collaborating in different ways."

ROB SPARKS, HISTORY TEACHER, SKYVIEW HIGH SCHOOL, ALASKA

Teachers Given More Reach

The new video collaboration culture has benefits for teachers as well. For one, it can open their eyes to new ways of instruction. "The video conferencing and collaboration that has taken place has completely changed how we teach," says Zorbas. "The whole process of how we get and deliver the curriculum to the students has changed this year because of video conferencing and recording."

"We are not standing up there delivering content every day," says Sparks. Students are encouraged to do more work on their own — to think more independently about the material they've been given. At CWOW, students form teams on their own and work with video-connected partners to research projects.

Video technologies can assist teachers in fostering collaboration in a variety of other ways.
- **Flipped classrooms become easier to achieve.** With today's mobile video-enabled devices, teachers can easily record their lessons and lectures, uploading them to classroom video content libraries or learning management systems. Students can securely access these from home, watch them, then spend class time in discussion or on other interactive, personalized exercises.
- **Video usage can be tracked using video management software.** Educators can see how students engage with the content — which lessons students spend the most time reviewing, which lessons were skipped entirely and when students are accessing the lessons. This type of analytics can help in future lesson-planning and assessment structuring. Educators can also teach, track, test and poll students — all asynchronously — with a video content management solution.

- **Class content is searchable and reusable.** Teachers can tag videos with meta-data so students can find what they're looking for using key words. Video content management software lets students navigate to specific events inside of recorded videos using slide and video thumbnail images, chapters or closed captioning. Since individual viewership can be tracked, a student's specific spot in a recorded video can be bookmarked, and the student can pick up where he or she left off at a later time — on any supported device.
- **Professional development and support can take place using video**. Teachers can interact with remote support groups, as well as participate in remote, virtual professional development, tutoring and training sessions. Some certification courses are also offered in this manner.
- **Classrooms can be enriched with subject matter experts and virtual field trips.** In Cornell-Queen's Executive MBA Program, says Stephen Demmings, manager of technology for Executive Education at the Samuel Curtis Johnson Graduate School of Management at Cornell, the instructors have the ability to conference in guest speakers from remote locations (in addition to the slides, graphs, videos and other materials they can display and annotate on interactive whiteboards seen by the students).[4] The Alaskan students at Kenai and Skyview have used video conferencing to interview the son and grandson of a Soviet gulag survivor, a Holocaust survivor and a participant in the Mau Mau uprising in Kenya. Additionally, an after-school group meets with a sister school in Yemen, while students have also met with other students from Kabul, Afghanistan and Palestiniana students in Israel. Students also have attended virtual workshops taught by instructors from the Manhattan School of Music (a recent session focused on the role music plays in nationalism).

The Critical Role of Video Collaboration

Several years ago, says Sparks, business leaders in his Alaskan community met to discuss what they wanted high school students to be able to do. "They said, 'We don't care how much they know about math or science or whatever. We want them to be able to work together with people to solve problems, and to have a work ethic.'"

Recently, a parent who works for a local communications firm observed Sparks' class in action: the students communicating with each other via video conference, and the use of interactive whiteboards to share content between classrooms in different cities and video tools to create history presentations that combined current events with lessons from the past.

"The parent told the kids, 'You are actively creating new, dynamic projects using interactive whiteboards and the Internet. This is what we do in the business world today,'" says Sparks.

Collaboration using technology is a key skill used in the business world today, which must be taught in K-12 and higher education classrooms in order to prepare students for the working world they will enter. Collaboration also helps students develop higher-order thinking skills and the ability to work with others from different backgrounds. Video content management is a critical component that enhances and supports the development of this vital new collaborative culture in education — allowing the focus to be on education itself, not the location it takes place.

Endnotes

1. http://kpk12.com/cms/wp-content/uploads/KeepingPace2012.pdf
2. http://sloanconsortium.org/news_press/january2013_new-study-over-67-million-students-learning-online
3. All quotes from Rob Sparks and Greg Zorbas from CDE interview conducted on March 21, 2013
4. All quotes from Stephen Demmings from CDE interview conducted on March 28, 2013.