

# University Prepares Next Generation of Global Leaders

Duke University implemented collaboration tools and telepresence to transform the learning experience.



Note: Adobe Acrobat Reader 9 is required to view the videos.

## Executive Summary

### DUKE UNIVERSITY

- Higher Education
- Durham, North Carolina
- 14,000 Students; 3,000 Faculty

### CHALLENGE

- Prepare students to contribute to a global society
- Engage students who grew up in a digital world
- Unify students and faculty in international locations

### SOLUTION

- Cisco TelePresence technology to bring remote experts and students into classroom
- Cisco Show and Share and Cisco Quad for video sharing and collaboration within communities
- Cisco Planning, Design, and Implementation Services

### RESULTS

- Enabled remote experts and students to participate in classes as if they were physically present
- Empowered students to collaborate with professors and peers anytime, anywhere
- Gave students experience with the advanced collaboration tools they will use in the workplace

## Challenge

A private research university in Durham, North Carolina, Duke University is globally recognized for excellence in undergraduate and graduate education. The university's core values are learning, research, healing, and service.

Duke has a longstanding commitment to applying information technology to enhance learning. For example, Duke students and faculty enjoy high-speed networking everywhere on campus, including classrooms, labs, offices, and outdoor areas.

More recently, university leaders and faculty decided to take advantage of the IP network to enable collaboration among students and faculty anywhere, anytime. Duke has an international presence, including a campus under construction in Kunshan, China; business school programs in Shanghai, China, and New Delhi, India; and a partnership with a medical school in Singapore. University leaders wanted to make sure that students throughout the world could fully participate in programs at any Duke campus, not as passive listeners, but as active participants in the learning experience.

"The old school classroom is likely to go the way of many other 19th-century inventions," says Duke University President Richard Brodhead. "It will become just one of the spaces we learn in. Our vision at Duke is for students to learn not only alongside other people in the room, but also with people across the world."

**"Language is the principal tool we have for bringing minds together. But technology can amplify the power of language and bring more minds together, in more ways."**

— Richard Brodhead, President, Duke University

## Solution

In early February 2009, Duke's provost, deans, and chief information officer met with Cisco to strategize about the role of technology in educating the next generation of leaders. In the aftermath of that session, Duke began collaborating with Cisco Services, business units, and Cisco partners on strategic planning to transform the learning experience. "Language is the principal tool we have for bringing minds together," says President Brodhead. "But technology can amplify the power of language and bring more minds together, in more ways."

“Part of our job as teachers in the digital age is to mine the incredible skills that students bring to the classroom and find ways that they can be creative, actually amplifying the ways we teach.”

— Cathy Davidson, Professor of English and Interdisciplinary Studies, Duke University

### Real-Time Interaction in Virtual Lecture Hall

As an example, the new 140-seat virtual lecture hall in the Duke University Fuqua School of Business provides the Cisco TelePresence™ classroom experience, extending the classroom to presenters and students in other global locations. Cisco Services and IVCi, a Cisco partner, collaborated to design and implement the custom system. Presenters appear larger than life on 103-inch plasma displays at the front of the room. Remote presenters and students initially see a panorama of the classroom, with the size and clarity to recognize individual people. When a student in the virtual lecture hall presses the microphone button on the desk to speak, a camera zooms in on that section of the classroom so that remote participants can see the speaker close up. Cameras also follow professors as they move, sensing their location on a touch-sensitive mat. “With Cisco® TelePresence, we’re not just teaching people who are far away, we’re actually allowing them to be present during the learning process,” says Tracy Futhey, chief information officer for Duke.



“It is very valuable to Duke to have a partner with expertise with global deployments of collaboration and business video technology. That saves us from having to hire or cultivate that expertise internally.”

—Tracy Futhey, Vice President and Chief Information Officer, Duke University



### Collaboration with Fellow Students and Faculty

Students in The Duke MBA - Cross Continent program can use Cisco Quad™ for team projects. A single interface gives them access to classroom video and documents, communications tools, social networking tools, and campus applications. Using Cisco Pulse®, part of Cisco Quad, students can find experts on a particular topic, see whether these experts and classmates are currently online, and just click to connect. Students can also create communities for sharing messages and documents.

Duke is currently adding Cisco Show and Share® webcasting and video-sharing application so Duke MBA - Cross Continent students will be able to easily search the lecture video and student-produced videos.

### Coordinated Services and Support Resources

Duke works with Cisco Services and various Cisco partners to implement learning technology. “Cisco was a clear choice as a partner because of its experience with international operations and providing technology that connects people across the globe,” says Futhey. “It is very valuable to Duke to have a partner with expertise with global deployments of collaboration and business video technology. That saves us from having to hire or cultivate that expertise internally.”

## Results

### Educating Leaders for the 21st Century

The ability to share course content in new ways, including video and online communities, is changing the classroom experience at Duke. "The transformation to a more active learning process is creating a generation of students that is more engaged in the process and taking ownership of their learning," Futhey says.

One instructor uses Cisco Quad in an information science class on 3D virtual worlds. "Students IM [instant message] me to ask questions outside of class time," says Mark McCahill, who teaches the class and is also a systems architect in Duke's Office of Information Technology. "And Quad includes an activity feed that shows who added content and commented, creating accountability for team projects." Students and faculty are also interested in using Cisco Quad for peer review, a powerful motivator for students to make their best effort.

Cisco TelePresence technology also contributes to the learning transformation. "Where distance learning typically refers to one-way dissemination of content from an instructor to remote students, Cisco TelePresence lets us bring people in other locations into the classroom virtually so that they can fully participate in the session," says Futhey. "We call it presence learning."

### Innovation in Teaching

The Duke learning experience mirrors a trend in higher education to add more interactive dialogue. "Part of our job as teachers in the digital age is to mine the incredible skills that students bring to the classroom and find ways that they can be creative, actually amplifying the ways we teach," says Cathy Davidson, professor of English and interdisciplinary studies at Duke. "Instead of standing up in front of the class lecturing to the students, we can co-create class content by using technology."

To make more time for interactive dialogue, professors are experimenting with making lectures available before the class. "If we've already watched the lectures, the class can be more interactive," says Wesley Brown, a Duke student.

Learning through discussion rather than simply listening has shown to improve retention, according to Futhey, and students agree. "I have three ways of interacting with the material: my notes, the teacher's online notes, and video," says Audrey Adu-Appiah, a Duke student. "And that really helps me study and remember things better."

### Preparation to Contribute to a Global Society

The Fuqua School of Business is conducting pilots with Cisco Quad, Show and Share, Pulse, and the Cisco Media Experience Engine to link students in China, Dubai, Russia, and the United States. "Today's students will eventually collaborate with global colleagues both in real-time and asynchronously," says Bob Johnson, senior director of communications infrastructure for Duke. "Collaboration technologies enable Duke to operate as an international higher education institution rather than a group of isolated institutions."

Davidson sums it up, "Throwing a lot of tools into a classroom does nothing. We've succeeded by thinking about how these tools help us imagine the work world and the world of constant learning that our students enter when they leave Duke."

## Product List

### COLLABORATION

#### Enterprise Social Software

- Cisco Show and Share®
- Cisco Quad
- Cisco Pulse®
- Cisco Media Experience Engine 3500

#### Telepresence

- Custom Cisco TelePresence System in Virtual Lecture Hall
- Cisco TelePresence Systems 3200, 3000, 1300, 1000, 500

### VOICE AND UNIFIED COMMUNICATIONS

- Cisco Unified Communications Manager
- Cisco Unified IP Phones 7962, 7942, and 7911

### CISCO SERVICES

- Cisco TelePresence Planning, Design, and Implementation Services
- Cisco Custom TelePresence Integration Engineering Advisory Service
- Cisco Video Experience Service
- Cisco Unified Communications Essential Operate Service
- Cisco SMARTnet®

### PARTNER SERVICES

Design and implementation of custom Cisco TelePresence solution for Virtual Lecture Hall, by IVCi

## Technical Implementation

### Virtual Lecture Hall

The goal for the Cisco TelePresence classroom experience in the virtual lecture hall at the Fuqua School of Business was to retain the intimacy of a small group telepresence interaction while extending it to a lecture hall with up to 140 people. After conceiving the idea, the school wanted the system to be ready for the start of the term, just 30 days later. Duke, Cisco Services, and IVCi met the ambitious timeline by collaborating closely, including weekly meetings using Cisco TelePresence technology. The design includes:

- Push-to-talk microphones on student seats. When a student pushes the button on the microphone, a pan-tilt-zoom camera zooms in on the student, so that participants in remote locations can see the speaker.
- Three 42-inch displays built into the podium so that instructors can view and have eye contact with participants in other locations.
- Pan-tilt-zoom camera to capture instructors as they move naturally about the classroom as they would in an ordinary classroom. A touch-sensitive floor mat senses the instructor's position.

### Cisco Quad

Cisco integrated Cisco Quad with the popular Shibboleth identity management system, enabling faculty and students to sign into Quad at the same time they sign into other campus systems. Integration with Shibboleth gives Duke the option to collaborate in secure online communities with other higher education institutions that use the same authentication system, facilitating inter-institutional research activities.

### For More Information

To find out more about Cisco solutions for higher education, visit:

<http://www.cisco.com/go/highereducation>.

To find out more about Cisco collaboration solutions, visit:

<http://www.cisco.com/go/collaboration>.

To watch videos from and about Duke University, visit:

<http://www.ondemand.duke.edu>.

To learn more about Cisco Collaboration Services, visit:

<http://www.cisco.com/go/collaborationservices>.

To join conversations and share best practices about collaboration, visit:

<http://www.cisco.com/go/joinconversation>.