

The Computerworld Honors Program

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LOCATION:
Cleveland, OH, United States

ORGANIZATION:
Cleveland Metroparks Zoo

YEAR:
2008

PROJECT NAME:
Interactive Distance Learning with Cleveland Metroparks Zoo

STATUS:
Laureate

CATEGORY:
Media, Arts and Entertainment

NOMINATING COMPANY:
Cisco

Introductory Overview

Cleveland Metroparks Zoo's Conservation Education division believes that people, as lifelong learners, can positively impact wildlife and wild places, through their caring, decision making, and actions. In order to achieve this, our Conservation Education program is designed to foster respect and appreciation of wildlife and coexisting human cultures.

From its inception in the Fall of 1998, the Distance Learning Program has brought the excitement of the animal world to students who may not be able to easily visit a major zoo. By enabling children to experience the richness of the natural world from their schoolroom, led by experienced zookeepers who can communicate their love and respect for animals, the Distance Learning Program enriches the lives of children and leads them to a greater appreciation of the role of animals in their lives and the importance of the environment. The project also enhances the reputation of Cleveland Metroparks Zoo, which aids in fund-raising, seeking grants and helps attract experienced personnel.

The new wireless component to the Interactive Distance

Learning Program is intended to expand the reach of Distance Learning to actual exhibits within the Zoo, rather than relying on a single studio or video recordings, as in the case of animals whose size or environmental requirements (e.g., elephants or sharks) prevent studio use. Now, with Cisco® wireless mesh technology supporting mobile video systems, keepers can present the animals directly from their exhibits in real time. This not only has greater impact on the students, but has greatly increased keeper interest and participation in the Distance Learning Program.

The Importance of Technology

How did the technology you used contribute to this project and why was it important?

The complex topography of the 168 acres of Cleveland Metroparks Zoo presents a serious challenge in designing a system to support mobile, real-time video access to animal exhibits. A traditional hub-and-spoke design would require expensive land lines from each wireless access point back to the switch, which was not economical given the hilly nature of the Zoo's acreage.

Instead, using Cisco Aironet 1510 Outdoor Mesh access points, Total Systems Integration, Inc. (TSI) was able to extend real-time video conferencing to the seven most popular exhibits in the zoo, including the primate, shark, and rain forest exhibits. This intelligent wireless mesh solution eliminates the need for additional cabling or line-of-sight access from a given exhibit, which made it easier and less expensive to deploy. This meant that the Zoo could offer real-time video distance learning from more exhibits. In addition, the more effective use of the federal grant money that made the project possible sets the Zoo up to compete more effectively for future grants, not only from the federal government, but from other public and private sources.

The seamless mobility offered by the self-configuring, self-healing mesh means that setting up a distance learning session is as simple as wheeling a mobile video cart to the exhibit and turning it on. This simplicity played a major role in building support for distance learning among keepers, as it permits them to share their excitement about their particular animals without requiring them to learn a complicated new

technology. It also adds to the excitement for the children watching by making the experience even more like a real field trip, as the keeper can easily give them a “tour” of multiple exhibits simply by wheeling the cart, while still connected and broadcasting, to a new location.

Benefits

Has your project helped those it was designed to help? Yes

Has your project fundamentally changed how tasks are performed? Yes

What new advantage or opportunity does your project provide to people?

Students are more excited than ever about the programs presented by the Distance Learning department. Seeing the animals live in their actual zoo habitat increases the impact and effectiveness of distance learning. The intimacy of this on-location capability also delivers an enhanced sense of connection to the zookeepers, which has always been an important part of student interest.

The experience is far more dynamic than traditional distance learning, as well. The mobility of the video carts, which can move from place to place while still broadcasting, enables presenters to give children a “virtual field trip” that is far more vivid and memorable. “The real return on investment for this program is the joy and excitement in the kids’ eyes,” says Cathy Ryan, Conservation Education Specialist and Distance Learning Coordinator for the Zoo. “To see them jump up and down in excitement and shout “Yes!” when the keeper asks them if they want to go to a new exhibit, to see their total fascination with the animals and complete involvement with the keeper—that’s priceless.”

For the Zoo, the new wireless system makes it much easier to set up and deliver a newly improved interactive Distance Learning course. This, plus the ability to harness the enthusiasm of keepers about their specific conservation causes or animals (e.g. snow leopard, cheetahs, gorillas), has resulted in an explosion of distance learning activity, with over 30 different grade appropriate program titles, resulting in over 147

classrooms currently scheduled through May of 2008..
A 25% increase over the same time period last year.

The keepers find it much easier to interact naturally with the children when teaching from their own exhibits, and the spontaneity of the animals in their usual setting generates many more “teachable moments” that the keepers can use to make the children’s experience even more memorable and valuable. “It would be hard to overestimate the impact this program has had on the keepers,” says Cathy. “They’re very proud of the work they do, and have a personal investment in the animals and exhibit they each curate. To be able to share their passion and excitement so easily with children, and to see, in real-time, just how much impact they’re having on those young lives, is a professional benefit that can’t be measured in terms of money.”

In addition to the expansion of wireless distance learning, the expanded reach of videoconferencing is making it easier for the Zoo to reach out to and cooperate with other conservation and educational organizations. “For instance,” says Cathy, “the Zoo Director recently hosted a “brown bag” lunch talking about his recent trip to Madagascar. In the future, we hope to share such opportunities with other organizations like the Natural History Museum or the Botanical Gardens, and not have to worry about distance or weather—that day, for instance, was pretty snowy.” Zoo veterinarians are interested in using the system for future consulting with distant peers and experts. Colleges are showing interest in lectures from zoo experts. The wireless Distance Learning Program has also enhanced the reputation of Cleveland Metroparks Zoo, which aids grant and fund-raising abilities and helps attract experienced personnel.

Other possibilities are opening up such as offering wireless Internet access to Zoo visitors, and even “at exhibit” programming that gives visitors the ability to access interactive modules via iPod, cell phones, or other mobile digital devices. Eventually, visitors may actually be able to “take the animals home” with them and keep track of animals they are interested in by signing up for virtual tours or access to “behind-the

scenes” classes offered by keepers.

If possible, include an example of how the project has benefited a specific individual, enterprise or organization. Please include personal quotes from individuals who have directly benefited from your work.

See above section.

Originality

Is it the first, the only, the best or the most effective application of its kind? All of the above

What are the exceptional aspects of your project?

Mobile wireless videoconferencing is finding a foothold in healthcare, but to the best of our knowledge, this is the first application of Cisco wireless mesh technology for zoo distance learning.

The exceptional aspects of the project include:

- The ease of implementation and training for keepers and other users.
- The speed of furnishing video access to the seven most popular exhibits
- The rapidity of adoption by keepers.
- The potential for creating new educational programs that takes advantage of the simplicity and mobility of the solution.
- The potential for expansion into new uses of the technology beyond the original intent, e.g., inter-organizational cooperation, fund-raising, veterinary collaboration, and interactive visitor engagement.

Difficulty

What were the most important obstacles that had to be overcome in order for your work to be successful? Technical problems? Resources? Expertise? Organizational problems?

There were very few technical obstacles other than the usual ones of setting and tuning involved in any wireless project.

Often the most innovative projects encounter the greatest resistance when they are originally

proposed. If you had to fight for approval or funding, please provide a summary of the objections you faced and how you overcame them.

The main obstacle was the entirely appropriate reluctance of the Zoo's IT Department to expose the Zoo's network to the security hazards involved in distance learning over the Internet. This was solved by using a separate network to access the Internet, furnished by One Community, a nonprofit provider of community-based ultra broadband connectivity.

Success

Has your project achieved or exceeded its goals?

Achieved

Is it fully operational? Yes

How do you see your project's innovation benefiting other applications, organizations, or global communities?

Given the enthusiastic response of keepers to the new capabilities, and the increased excitement and involvement of students, we expect that this project will set off a wave of adoption in zoos throughout the world, and among other curation organizations, such as museums, botanical gardens, and the like.

Internally, planning for new exhibits, such as the innovative elephant habitat now under construction, routinely includes wireless video access, as its benefits are apparent to everyone involved. Many people beyond the Distance Learning Program are now thinking about how the interactivity and mobility of this technology might benefit their parts of Zoo operation and outreach. Veterinarians for example, may use this technology to communicate with other Zoo's veterinary hospitals.

How quickly has your targeted audience of users embraced your innovation? Or, how rapidly do you predict they will?

The response from participating schools has been very positive. "This program allows the students to learn not just by hearing, but by seeing, doing, and being a part of the activity," said Dianne Keller, librarian and high

school technology coordinator for the Gladewater Independent School District in Texas. "This has been a very effective way for our students to learn about animals." The number of requests for distance learning programs from school systems throughout the United States is increasing as news about the superior quality of the Zoo's programs spreads among educators.

The adoption of the new wireless mobile distance learning system by internal users has also been extremely rapid, with the number of programs proposed by keepers increasing by 25% over the next 2 years. Enthusiasm about the new capabilities pervades the Zoo at all levels. "I am very excited about the recent addition of a wireless videoconferencing network at Cleveland Metroparks Zoo," says Zoo Director Steve Taylor. "It is a tool that we can utilize to assist us in our mission to improve the future for wildlife. This new system will not only increase the distance learning opportunities for our Conservation Education programs for elementary, secondary and college level classes, but also videoconferencing opportunities for our veterinarians, researchers and administrative staff with their counterparts or other organizations."

Digital/Visual Materials

The Program welcomes nominees to submit digital and visual images with their Case Study. We are currently only accepting .gif, .jpg and .xls files that are 1MB or smaller. The submission of these materials is not required; however, please note that a maximum of three files will be accepted per nominee. These files will be added to the end of your Case Study and will be labeled as "Appendix 1", "Appendix 2" or "Appendix 3." Finally, feel free to reference these images in the text of your Case Study by specifically referring to them as "Appendix 1", "Appendix 2" or "Appendix 3."

Currently Uploaded Appendices:

[Appendix 1.jpg](#)

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