The Cisco **Family Connection** - Cisco IOS® Multicast Connects Parents with Their Children

Cisco **Family Connection**

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> ~ Peggy Lynch, Manager,
>   Cisco Human Resources Group

Today's high-stress, fast-paced work environment presents a growing challenge to many parents who want to find high-quality day care for their children without sacrificing productivity at their jobs. In 1998, an Employee Needs Assessment survey concluded that finding local, quality childcare was a concern for Bay Area parents that greatly impacted their productivity and ability to concentrate at work. It was reported in this survey that fifty-eight percent of Cisco parents have missed work due to a breakdown in their childcare arrangements. As a leading high technology employer in the Bay Area, Cisco Systems was committed to providing a comprehensive, high-quality, advanced child care center that would meet its employees' needs.

In November 1999, ground was broken for the Cisco Family Connection building with a scheduled opening date of September 18, 2000. "Finding quality childcare with convenient hours and backup programs had been a challenge for Cisco employees in San Jose for several years," says Peggy Lynch, Manager, Human Resources Group. "Since employees are the key to our success, sponsoring a child care center meets this need, and also addresses a growing community problem."

A large cross-functional team worked together to bring the center to life including Phyllis Stewart Pires, Benefits Program Manager for Cisco's Family Services, and Pete Manibo, IT Manager for Cisco's Work Place Resources. Cisco recognized that IP Multicast could offer parents a unique way of connecting with their children at the center. Specifically, the IP/TV network could run multicast; a video broadcast technology, which offered parents a "window" into their childrens' world. This met an important need for employees—the ability to know that their children were well cared for during the day. As an additional benefit, children and faculty would be able to communicate with parents via email using the PCs that would be installed throughout the center.
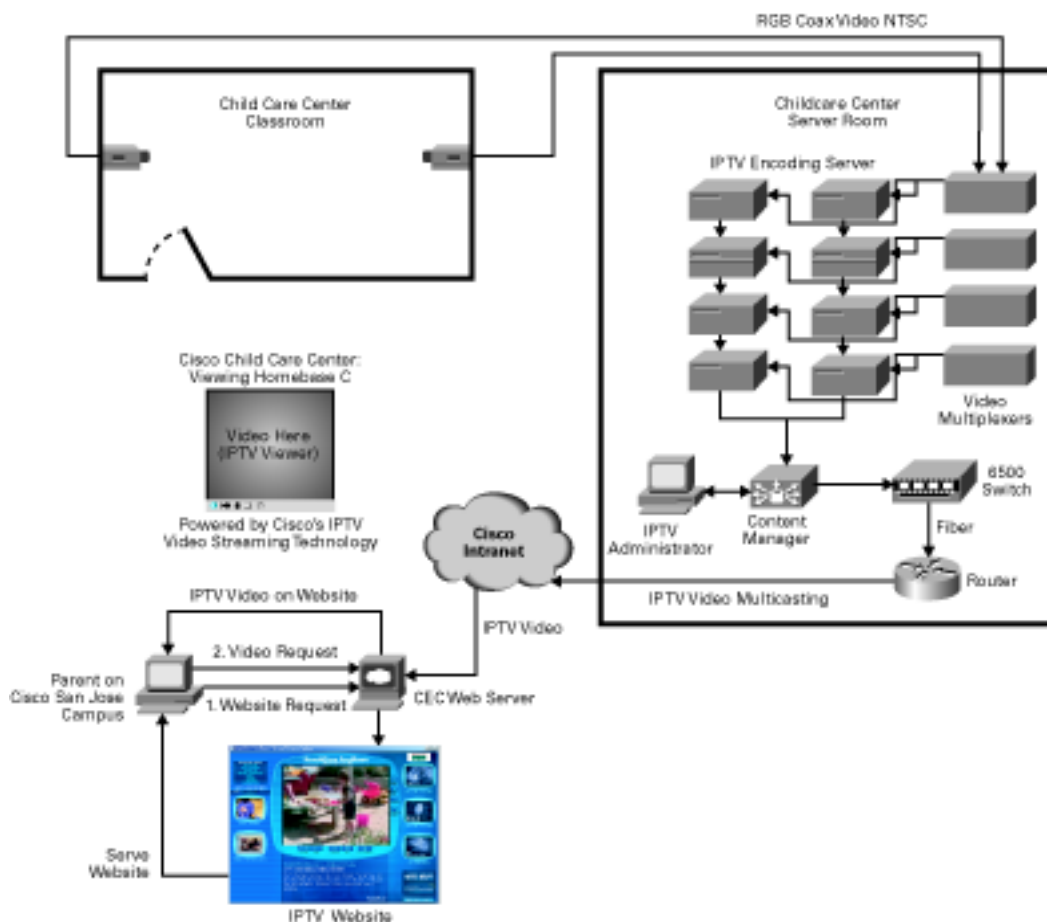
The end result was that parents could relax knowing their children were being taken care of, ultimately enabling them to be more productive and concentrate better while at their jobs.

A Child Care Program Designed with High Quality in Mind

The Cisco Family Connection was designed to meet or exceed all requirements in terms of quality, with a physical structure that would be aesthetically pleasing while at the same time capable of supporting very sophisticated technology. Phyllis Stewart Pires coordinated overall project management while Pete Manibo managed the technical teams including the IP/TV product team, and the IT and networking groups. For the management of the center, Cisco selected Bright Horizons Family Solutions, an organization that met Cisco's stringent qualifications for child care providers.

Layout of the center is simple but effective. The facility includes 36 classrooms, each equipped with two video cameras. Classrooms are separated by age; for children three and up, each room includes a printer and two PCs running educational software designed specifically for their age group. Teachers utilize a separate PC similar to a Cisco workstation that has the capability to connect into a LAN set up for local intranet as well as the Cisco network.

Figure 1. Cisco IP/TV Multicast Diagram for the Cisco Family Connection Center.

To enable the use of Multicast and IP/TV, the data center at the facility is equipped with multiplexers that transmit video feeds to the web sequentially. Nineteen IP/TV 3422 video servers and two Catalyst 6500 switches manage and direct video traffic on the network. Additionally, the data center supports the Teacher Resource Center, a room equipped with several Internet-enabled PCs that can be utilized for training and local classes for teachers. All video streams are password-protected, so parents viewing the IP/TV images will have access only to the room where their child resides.

IP Multicast Connects Parents with Their Children

By harnessing Cisco's IP Multicast technologies, the center provides parents with the opportunity to drop in on their children at any point during the day via a real time video streaming from their on-campus workstation. Cameras sequence every two to four minutes for each classroom to give parents the maximum amount of time possible to view their children, and the resulting video feeds are transmitted into the multiplexers. This stream travels to the IP/TV server and subsequently to the Cisco switch that connects back to the network. IP Multicast features within Cisco IOS® Software, which flows through the switches and hardware, conserve valuable bandwidth and ensure the efficient movement of traffic across the network.

Multicast allows parents to "drop in" on their children at any time they wish—and it's as simple as clicking a few buttons on their PC back in the office. Kim Gibbons, senior manager, Media and Analyst Relations for Cisco in San Jose, regularly uses IP/TV to view her four-year old son, Christopher, during the day, and enjoys the peace of mind the technology offers her. "It's great knowing I can check in on Christopher any time and see how he's doing," says Kim. "It reinforces the bond between us and also helps me keep up to date on his daily activities even when I can't physically be there. With IP/TV and multicast you are viewing a live video, rather than downloading a still picture."

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Children at the center have an easy way to communicate back to their parents as well. PCs installed in most of the classrooms, and with their teachers help they can contact their parents using email that connects into the Cisco network.

"The IP/TV camera gives parents the ability to see their children playing, laughing, and interacting with the teachers, continuing a closeness with their children during the times when they can't be together," says Amy Neibel, Infant/Toddler Program Coordinating at the Cisco Family Connection. "A lot of parents feel guilty about putting their children in child care, but the camera offers reassurance that their child is safe and doing just fine."

Building on Success

Today, the Cisco Family Connection is the largest and most comprehensive of comparable high-tech childcare facilities in Northern California. It represents a unique example of how high technology enhances quality of life for the children in the early stages of their development and learning experiences, and for their parents who want to stay in touch. The children have the opportunity to learn about technology through their childcare experience, and through their classroom activities using computers and sending emails.

"We see that the childcare center not only meets acute need of our employees, but also gives their children a unique learning experience and exposure to high technology," says Phyllis Stewart Pires.

The center benefits not only families who are able to stay connected while engaged in their daily activities, but also teachers who have new opportunities to grow professionally through on site training and online classes.

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