

Cisco CSS 11000 Series Provides 100 Percent Availability for One of the World's Busiest E-Commerce Web Sites During Television Broadcast of Comic Relief UK



Challenge

On March 16, 2001, Comic Relief UK's Red Nose Day event aimed to raise an enormous amount of money for registered charities in the United Kingdom as part of the organization's mission to help end poverty and social injustice. Recognizing the value of online technology, Comic Relief UK leaders knew the Internet could help increase the amount of funds raised prior to, and during, this national fund raising event. They wanted to build a reliable e-commerce Web site that would enable them to effectively collect donations online during the TV broadcast.

The Web site had to provide 100 percent availability and the ability to handle extremely heavy traffic during the event. Requirements for the Web site included the ability to:

- Provide 100 percent availability with a response rate of less than seven seconds
- Process up to 200 credit card transactions per second
- Manage other online services such as event registration, streaming video services, personalized content, requests to download educational materials, and interaction with Comic Relief staff
- Handle forecasted peaks in traffic (440 hits per second, 75-KB average downloaded page size)
- Provide access to the related Celebrity Big Brother Web site

Solution

Cisco Systems answered Comic Relief UK's infrastructure needs and became the online sponsor for Red Nose Day. An ecosystem of partners built a Web site using Cisco CSS 11000 Series Content Services Switches that met the goal to process up to 200 credit card transactions per second. The Web site also allowed the public to register fund raising events online and communicate directly with Comic Relief staff on projects and issues that the donations would support—two activities that were not possible before.

About Comic Relief UK

Comic Relief UK is a fund raising charity organization committed to ending poverty and social injustice in the United Kingdom and around the world. The organization's goal is to raise money from the general public by actively involving them in events and projects that are innovative and fun. They do this by hosting what they call "Red Nose Day," an event designed to inform, educate, and raise awareness about poverty, and to promote social change.

Comic Relief, the parent organization, was launched in 1985 from a refugee camp in Safawa, Sudan. Over the years, more than £225 million (US\$320 million) has been raised primarily through Red Nose Days for some of the poorest and most vulnerable people across the United Kingdom and Africa.

Red Nose Day is organized every two years and is the largest TV fund raising event in the United Kingdom. For one day, everyone in England, Scotland, Wales, and Northern Ireland is encouraged to cast inhibitions aside, put on a red nose, and do something a little bit silly to raise money—celebrities included. The event unites the entire nation in trying to make a difference in the lives of thousands of individuals facing terrible injustice or living in abject poverty.

Deployment

Comic Relief UK partnered with BBC Internet Services to deliver its streaming services network. Energis Squared, a U.K.-based service provider, hosted www.comicrelief.com; Compaq and Sun provided the servers; Oracle provided the database solution; Zeus provided and managed the Web server software; and Retail Logic enabled the real-time authentication of e-commerce transactions. These partners' products and services, along with the Cisco CSS 11000 Series and Cisco Catalyst® switches, provided a complete Web site solution to Comic Relief UK (Figure 1).

The Cisco CSS 11000 Series Content Services Switch was used to load balance all online traffic for the Comic Relief UK Web site on March 16, 2001. Basic Layer 5 load balancing, sorry or backup servers and active/active failover redundancy ensured 100 percent availability of the Web site during the event.

A pair of Cisco CSS 11800 switches were used to front-end 19 Compaq Web servers. The Cisco CSS 11800 switches enabled Comic Relief UK to define different services for each Web server, providing the flexibility to disable partial services on the Web site if necessary, in favor of enabling more important services such as taking donations. Comic Relief UK wanted the potential flexibility of turning services on and off in real time so they could ensure online donation services would not be interrupted during peaks in online traffic.

Comic Relief UK also utilized the intelligent “keepalive” capabilities of the Cisco CSS 11000 Series switches to ensure 100 percent availability of the Web servers. Content and server availability can be guaranteed because Cisco content service switches examine content requests in detail and direct users to the best site and best server available *at that moment*.

Cisco CSS 11000 Series content service switches test server and application availability and response time by periodically sending various keepalive messages to the server. Application-level “HTTP GET” keepalives were used to test all Comic Relief UK applications and Web servers to make sure they were responding to requests. Layer 7 keepalives on Secure Socket Layer (SSL) were also configured.

In the event of a failed HTTP keepalive, the Cisco CSS 11800 was configured to direct requests for that particular content or application to another server, continuing to use the server for surviving content, application, or services. If another server was not available to fulfill the request, Comic Relief UK configured the Cisco switches to redirect users to an offsite sorry server instead of returning a “server not found” message, letting the user know that the disruption in service was only temporary. The keepalive transactions and sorry servers enhance end-user satisfaction because content requests are always fulfilled and users are never left “hanging,” waiting for content to download.

Advanced balance SSL was also configured on the Cisco CSS 11800 switches. Advanced balance SSL looks at the SSL session ID during a transaction and ensures sessions go back to the same server throughout the transaction process. This provided consistency and speed in accessing the site to users.



Network Configuration Design

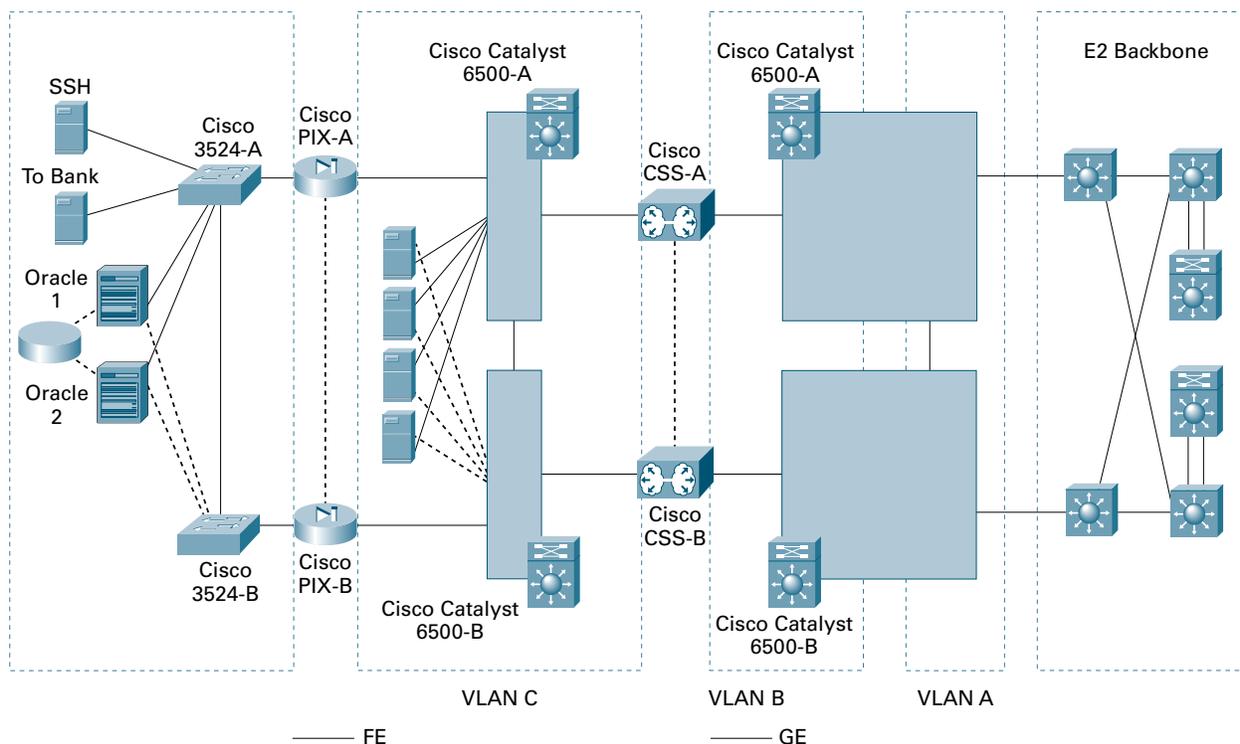


Figure 1 Comic Relief UK's Red Nose Day E-Commerce Web Site Design

Breaking Records as One of the World's Busiest E-Commerce Sites

With the help of Cisco and several ecosystem partners, the Red Nose Day online campaign broke all previous online fund raising records by receiving donations totaling more than £3.5 million (US\$5 million). The Web site, www.comicrelief.com, became one of the world's busiest e-commerce sites during the Red Nose Day television broadcast with more than 85,000 donations processed online and more than 20 million page requests on the night of the event.

The Comic Relief UK Web site processed approximately 200 donations per minute during the event. The Cisco CSS 11000 Series effectively handled a spike in traffic between 2130 and 2230 hours (9:30 to 10:30 p.m.), delivering more than 50-megabits-per-second (Mbps) performance during peak download time. The peak donation time period was between 2158 and 2201 hours (9:58 to 10:01 p.m.). During those four minutes,

approximately 14,253 donations were processed (about 60 per second), yielding more than half a million British pounds (US\$708,000).

According to Amanda Horton-Mastin, Marketing Director for Comic Relief, "With only one night to mobilize and enthruse the UK public every two years—and the expectation that comes with Red Nose Day—we had to have a robust and 100-percent-accessible system to help people donate effectively. Through Cisco's technology, commitment, and dedicated team of alliance partners, we were able to achieve a world record and exceed all expectations."

During the week preceding Red Nose Day (week of March 9, 2001), Comic Relief UK launched the new television series, *Celebrity Big Brother*, with an integrated online and offline voting campaign while heavily promoting all elements of the event via news, print media, and television. During that week, more than 95 million page requests were made to www.comicrelief.com, more than 10,000 votes were registered online for *Celebrity Big*

Brother, and more than 60,000 “Turn the Web Red” banners were downloaded as part of the online marketing campaign. The “Turn the Web Red” promotion is an initiative to raise the profile of Red Nose Day.

Conclusion

Comic Relief UK’s Red Nose Day 2001 was not only the most successful Red Nose Day to date, it also broke all previous online fund raising records in the United Kingdom. With the help of the Cisco CSS 11000 Series content service switches, Comic Relief UK not only raised awareness about poverty and social change, it also raised a lot of money to help individuals facing terrible injustice or living in abject poverty. For more information about Comic Relief, please visit the Web site at: www.comicrelief.com.

About Cisco

Cisco Systems is the worldwide leader in networking for the Internet, providing the broadest line of solutions for transporting data, voice, and video within buildings, across campuses, or around the world.



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