



**CONNECTICUT PUBLIC
BROADCASTING NETWORK**
CPTV | WNPR | CPBN.ORG

Connecticut Public Broadcasting Delivers College Basketball with Ease on the Cloud

The network integrates Rackspace® Cloud, Scalr, and Grid Robotics for a winning solution.

One way to take advantage of the elastic capacity of the Rackspace Cloud is to use an auto-scaling platform like Scalr, along with a means to test and verify triggers, such as CapCal Web Performance Testing. Connecticut Public Broadcasting implemented solutions from Rackspace®, Scalr and Grid Robotics, and since the new capabilities were implemented, the broadcasting network says their online broadcast events have gone off without a hitch.

CPTV is a media service of the Connecticut Public Broadcasting Network. It is a locally and nationally recognized producer and presenter of quality public television programming, including sports, original documentaries and educational programming.

The Connecticut Public Broadcasting Network (CPBN) also includes the public radio station WNPR, which serves almost

240,000 listeners weekly in Connecticut, New York and Rhode Island with news and information. (For more information, visit cptv.org.)

INTENSE TRAFFIC AND NEED FOR FLEXIBILITY

For each of the last seven years, CPTV has streamed its television broadcast of the college basketball season over the internet so that alumni who are out of state or out of country can view the games live and on demand. In the team's final game last season, due to unexpected heavy volume, the internet broadcast experienced a denial of service interruption for the first hour and a half of the game. CPTV was determined not to let this happen again.

Normal traffic can be easily handled by their Rackspace dedicated server, but for peak loads CPBN chose Rackspace Cloud

AT-A-GLANCE

CUSTOMER'S BUSINESS:

A nationally recognized producer and presenter of quality public television programming, including sports, original documentaries, and educational programming

CHALLENGES:

Online broadcasting of basketball games was interrupted, due to unexpected heavy volume

RACKSPACE SOLUTION:

Cloud Servers, Cloud Load Balancers, Scalr's auto-scaling platform, CapCal Web Performance Testing from Grid Robotics

BUSINESS OUTCOME:

A website that handles peak loads easily and quickly, allowing for satisfied global viewers and peace of mind for CPBN

in combination with Scalr and Grid Robotics. Scalr provisions new servers on the fly while the Grid Robotics' CapCal Web Performance testing solution provides the empirical data that demonstrates the complete solution optimally handles the traffic—both expected and unexpected.

"With ten games under our belt so far this season, we are providing superior service to our viewers with sub-second response times."

Derrick Ellis,

Director of Online and New Media at
Connecticut Public Broadcasting

experience *fanatical support*®

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"We anticipate at most a one-second response time even during peak loads for most viewers."

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AUTO-SCALING FOR EXTRA CAPACITY ON DEMAND

One of the hallmarks of cloud computing is the ability to take advantage of extra capacity on demand. Rackspace makes it easy and affordable to add another server under a load balancer to handle increased load, and to remove it when it is no longer needed.

Also improving performance is a concept called auto-scaling, which works to efficiently balance workloads across a Rack-space Cloud Load Balancer. For their website, Connecticut Public Broadcasting Network chose Scalr as their auto-scaling solution.

Scalr works to identify parameters or triggers for when an additional server should be added. But the application must be customized for this purpose and then tested and verified to make sure auto-scaling works as intended.

SOLVING THE DREADED USER-GENERATED DDOS

One specific case that CPBN has seen in the past is in handling what Derrick Ellis, Director of Online and New Media at Connecticut Public Broadcasting, refers to as a "user-generated DDOS" (distributed denial of service), in which users will continually hit the browser Refresh button, not to actually create a denial of service attack, but under the mistaken impression that it will cause the video to load faster. If the site is slow already, this only exacerbates the problem and makes it slower.

In testing, the CPBN team worked to simulate having multiple users hit the same page over and over. This testing ensured that CPTV's site would be available and fast, and that Scalr would respond by adding new servers to the Cloud Load Balancer in order to keep up with growing web traffic.


Once the base web server was configured, it became evident that the server took a little over five minutes to boot up and be added to the load balancer. This meant that the autoscal-

ing triggers needed to take this time into account so that the starting process was more immediate. By analyzing the web logs from the previous event, CPBN determined that as many as 2,500 users might log on within a five to ten minute period and begin hitting refresh.

A GAME-WINNING SOLUTION

CPBN's basic auto-scaling test involved a rapid ramp-up from one to 3,500 users over a three-minute period, and holding that level for up to 15 minutes. Working with Scalr, Grid Robotics technicians set the auto-scaling triggers so that when the average CPU of the web servers exceeded 50 percent for two minutes, more servers were automatically added to the mix. After a number of iterations over a couple days, it was determined that the site could handle the kinds of load that were expected.

"With ten games under our belt so far this season, we are providing superior service to our viewers with sub-second response times," said CPBN's Ellis. "We anticipate at most a one-second response time even during peak loads for most viewers."

 **SCALR** Scalr is an open source Cloud Management tool that brings automation to web applications like none other. Auto-scaling, high availability, fault tolerance, backups, multi-cloud deployments, hybrid cloud bursting are all supported out-of-the-box. For more information about Scalr visit www.scalr.com

 **Grid Robotic**

Grid Robotics LLC is a leading provider of PaaS (Platform as a Service) solutions for development, testing, training and collaboration for all the major public and private clouds. Their innovative Windows® and Linux virtual appliances are optimized to run in today's cloud and virtual environments to provide virtualized solutions to real world problems. Contact Grid Robotics today for a free trial by visiting www.gridrobotics.com.

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