



**FOUNDRY**  
NETWORKS

## CASE STUDY: ACERNO

### aCerno Delivers Predictive, Targeted Ads to Online Buyers in Milliseconds



#### SUMMARY

aCerno melds advertising and technology by delivering the right online ads to qualified potential buyers quickly and efficiently. The company dynamically predicts purchase decisions and delivers targeted advertisements to online shoppers. aCerno's back-end applications collect and analyze anonymous shopping data from a group of 450 brands and online retailers. That data helps to predict which products an online consumer is likely to purchase. Based on that knowledge, aCerno delivers the appropriate ad to that end user within milliseconds.

The aCerno network reaches more than 140 million online customers—more than 90 percent of Web shoppers. The network processes tens of millions of online transactions per day, and all transactions are processed in 150 milliseconds or less. Nearly all network traffic stems from the aCerno applications, including reporting and business applications that help identify and predict consumer purchase preferences. The company's success hinges on the ability to gather and process analytical data within milliseconds.

aCerno's clients include a co-op of online e-commerce sites, as well as online advertisers and traditional brick-and-mortar ad agencies. aCerno works in conjunction with the National Advertising Initiative (NAI) and adheres to the established standards of privacy, ethics, and best practices for the online advertising marketplace. Founded in 2004 by a team of marketing, advertising, and e-commerce professionals, aCerno is a subsidiary of I-Behavior.

#### OBJECTIVE

Processing speed and reliability are critical to aCerno. "We tell advertisers which ads will be most beneficial to which users, and it's all done completely anonymously," says Wayne Earl, aCerno's director of network operations. "Our applications are extremely complex on the back end, and they execute in times measured in milliseconds. From the time of the query to the time the ad is served has to be 150 milliseconds or less."

In addition to creating a high-performance network with 99.999 percent reliability, aCerno needed network hardware that would scale for network and user growth. Responsive and immediate technical support was critical as well.

After due diligence, aCerno selected Foundry Networks® equipment for its two data centers. Foundry solutions' processing speed and product reliability drove that decision, and the price was excellent, says Earl.

#### SOLUTION

Foundry Networks has been part of the aCerno network since it launched in 2004. aCerno maintains two fully redundant data centers, one on each coast. The West Coast data center has dual responsibilities, supporting the Web infrastructure and handling the core analytic processing. The East Coast data center is dedicated to supporting the Web infrastructure. Each data center has two ServerIron® 450 Plus switches and one BigIron® RX-4 switch at the core. In addition, aCerno currently has six FastIron® Edge Switches (FESX) 448s—four out west and two in the east—plus a few other edge switches.

The BigIron RX-4 switch handles core switching and routing, and the ServerIron E450 Plus devices with Web switching modules (WSMs) support Web services and ensure load balancing and availability. The FastIron Edge Switches deliver traffic between the Web application clusters and the core network.

[WWW.ACERNO.COM](http://WWW.ACERNO.COM)

#### INDUSTRY

Online advertising

#### COMPANY DESCRIPTION

aCerno delivers predictive targeted advertisements to online consumers as they are shopping. The company collects and analyzes data from a consortium of 450 brands and online retailers and has reached 140 million online customers—more than 90 percent of all online shoppers. The aCerno network processes tens of millions of online transactions per day, and each transaction is processed in 150 milliseconds or less.

#### OBJECTIVE

- Deliver predictive targeted advertisements to millions of online shoppers on the fly
- Process tens of millions of transactions daily in 150 milliseconds or less
- Build a network with 99.999 percent reliability to ensure network performance, meet service level agreements, and generate revenue
- Deploy a robust, flexible solution that will scale vertically and horizontally as needed

#### SOLUTION

- Four ServerIron® 450 Plus Switches
- Two BigIron® RX-4 Switches
- Six FastIron® 448 Edge Switches

#### RESULTS

- Foundry's FastIron 448 switches perform 10 percent to 20 percent faster than competitors' edge switches
- Overall core switching and routing performance is about 30 percent faster than competitors' platforms
- Lower capital costs leave aCerno more budget monies for application development, product innovation, and development staff
- Foundry's superior performance and product stability translate to less time and fewer resources required for network maintenance
- 99.999 percent reliability ensures aCerno meets SLAs and generates revenue

The data centers are built for redundancy, performance, and high availability. "If we're not meeting our service level agreements, our customers are unhappy, and we can't generate revenue," Earl says. "Foundry makes that possible."

Foundry gear also supports aCerno's future network growth—both vertical and horizontal. "We can add Web switching modules in the ServerIrons for increased application capacity, or put additional Gigabit Ethernet and 10 Gigabit Ethernet switching modules in the BigIron to accommodate additional racks of servers. The Foundry equipment makes scaling very easy and affordable," Earl says.

## RESULTS

aCerno is a three-year-old company. In the proof-of-concept stage, the company used competitors' products to build the beta network. When aCerno officially launched with Foundry equipment, the network performance, switching, and load balancing improved 300 to 400 percent, Earl says. "We're measuring in millisecond and submillisecond times, so performance is very important to us."

The Foundry equipment meets aCerno's high-performance needs. Because aCerno's Web services operate in sub-millisecond speeds, the company requires very high-speed, low-latency switching and routing capabilities throughout the network infrastructure. "We need very high performance and very high stability," Earl says.

Foundry Networks' FESX 448 switches perform 10 percent to 20 percent faster than the edge switches they replaced, and overall core switching and routing performance is about 30 percent faster than competitors' platforms, Earl says. With other network equipment, he adds, "we were seeing outages once or twice a year. We're not seeing that with Foundry."

To extract the collected data from the aCerno applications, the Web server is pulled out of production. The task is automated and occurs constantly. "It's been almost perfect in its implementation, and that speaks to the stability of the Foundry equipment," Earl says.

Service level agreements are based on transaction processing time, so a slower network negatively impacts bottom line revenues. "If we can't meet 99.999 percent reliability, it costs us money and clients. One hundred percent of our revenue and profit is generated via our applications, and we've had no trouble meeting that," Earl says.

In addition to high performance, the Foundry gear has been able to support network growth. "The Foundry equipment scales very well," Earl says. At peak traffic levels, CPU load is 3 percent to 5 percent of the ServerIron application load balancing capacity. During the busy holiday shopping season the peak load will triple, and Foundry easily supports the additional traffic.

Competitive pricing was a bonus, says Earl. Other products that met aCerno's technical requirements cost as much as 50 percent to 60 percent more than Foundry gear. With lower capital costs, Earl has more budget money to spend on staff and product research and development.

Foundry's high performance and product stability has lowered operational costs, too. "The platform is rock solid. I'm not dealing with a lot of support tickets," Earl says. Because the Foundry equipment is highly reliable, aCerno spends less time and money fixing network problems. Rather than focus on network maintenance issues, technical staff are free to concentrate on product innovation and application development.

Technical support and assistance is excellent, and Foundry engineers are responsive and available, Earl says. "Foundry is the first and only company where the product purchase includes a switching engineer onsite for installation," he says. "Senior Foundry engineers assist with the installation and configuration of new equipment, and partner with us in our network architecture and capacity growth brainstorming sessions."

The return on investment is not limited to capital expenditures, Earl notes. "It's dollars saved, time saved, and increased productivity. Foundry has a lot of reliability enhancements that are not quantifiable. The equipment pays for itself many times over."

**" WE CAN ADD WEB SWITCHING MODULES IN THE SERVERIRONS FOR INCREASED APPLICATION CAPACITY, OR PUT ADDITIONAL GIGABIT ETHERNET AND 10 GIGABIT ETHERNET SWITCHING MODULES IN THE BIGIRON TO ACCOMMODATE ADDITIONAL RACKS OF SERVERS. THE FOUNDRY EQUIPMENT MAKES SCALING VERY EASY AND AFFORDABLE. "**

— Wayne Earl  
Director of Network Operations  
aCerno

## FOUNDRY NETWORKS

Foundry Networks, Inc. (NASDAQ: FDRY) is a leading provider of high-performance enterprise and service provider switching, routing, security and Web traffic management solutions, including Layer 2/3 LAN switches, Layer 3 Backbone switches, Layer 4-7 application switches, wireless LAN and access points, metro and core routers. Foundry's customers include the world's premier ISPs, metro service providers, and enterprises, including e-commerce sites, universities, entertainment, health and wellness, government, financial and manufacturing companies. For more information about the company and its products, call 1.888.TURBOLAN or visit [www.foundrynet.com](http://www.foundrynet.com).

The foregoing may contain "forward-looking statements" which are based on management's current information and beliefs as well as on a number of assumptions concerning future events made by management. These forward-looking statements include, without limitation, statements by executives or spokespersons regarding Foundry's positioning and potential plans. The forward-looking statements are only predictions and are subject to a number of risks and uncertainties, which could cause actual results to differ materially. Foundry assumes no obligation to update the forward-looking statements contained in this document. Furthermore, no statements made by Foundry Networks, Inc. ("Foundry"), or information contained herein, may be deemed to constitute either an amendment of an existing agreement or an implied new commitment, promise or legal obligation by Foundry to develop or deliver any specific product, feature or functionality.

© 2008 Foundry Networks. All rights reserved. Foundry and Foundry Networks are registered trademarks. All other trademarks are the property of their respective owners.



**FOUNDRY**  
NETWORKS