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Web-Only Businesses Face Storage Challenges

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Updated: Tech Analysis: Online businesses like Plaxo must handle spikes in demand and the need to stay available 24 hours a day.

When Plaxo inked a deal with AOL to offer its address book service to AOL and AIM users in July of 2005, more changed than just the companys bottom line. As a result of that deal, Plaxos customer base increased threefold to more than 10 million users, putting a significant strain on its storage resources and causing company executives to rethink the way it managed its storage.

Prior to the AOL deal, Plaxo had relied on a DAS (direct-attached storage) model, with all equipment from Dell.

But due to the explosive increase in users and a commitment to 24/7 uptime, easier manageability and greater stability, the companys IT team chose to move to a SAN (storage area network) structure, installing four SANs from Pillar Data Systems.

Plaxo also put some thought into how to keep downtime to an absolute minimum so service wouldnt be disrupted.

The challenges Plaxo faced are familiar to [IT managers](#) in other Web-based businesses. In fact, the very nature of doing business solely on the Web creates a unique set of challenges, including maintaining 24/7 uptime, finding time for maintenance and backups without incurring significant downtime, and ensuring that capacity will always meet demand.

"If you are a cataloger selling through paper catalogs and you answer the [phone](#) between specific hours, clearly you have a window where you can do backups or where your system could be down for maintenance," said Michael Willoughby, CEO of PFSWeb, headquartered in Plano, Texas, and CIO of subsidiary eCost, an online computer retailer, as well as its 15 other e-tailing clients. "The level of [customer service](#) for an online audience is different. You have to be available whenever they want to go online."

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Web-only businesses must also handle spikes in the demands placed on its computing and storage infrastructures. To handle that challenge, Freeze.com, a Waite Park, Minn., company that serves more than 15 million unique visitors each day through more than 100 sites like ringtone.com, screensaver.com and wallpaper.com, moved from a rack-to-rack server environment to an NAS (network-attached storage) environment from BlueArc, combined with storage virtualization from FalconStor Software.

The goal, said Kyle Ohme, director of IT at Freeze.com, was to make sure that the companys server and storage capacity could scale quickly.

"It used to take a day or two to physically build a server and replicate content. By the time we needed that server online, it was too late to meet the demand," he said. "Moving to a more storage-centric model along with virtualization of our operating systems allowed us to bring up another server in five minutes."

[Plaxo tests a version of its contact manager for Mozilla Thunderbird. Click here to read more.](#)

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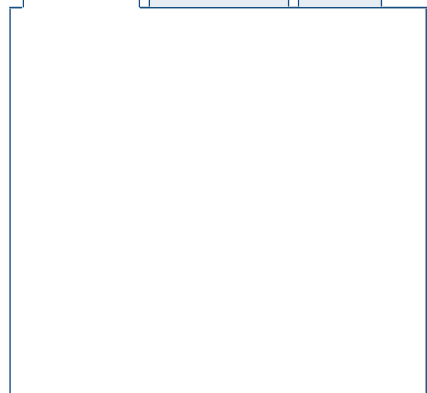
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Handling the challenges of staying operational 24 hours a day at Plaxo means making sure everything is redundant and spreading resources across a large number of servers. Plaxos system includes about 70 sets of horizontally scaling servers, each set with one primary and one secondary server, which is connected to a different SAN storage device than the primary server.

"We have more than 10 million users, but each of our [database servers](#) doesn't hold more than about 600,000, so if one goes offline, the number of users affected is relatively small," said Ethan Erchinger, Plaxos network manager.

The Mountain View, Calif., company also schedules outages to take no more than two minutes.

"If we were doing maintenance on servers or back-end storage, we were able to migrate users from the primary to secondary server very quickly," he said. "It's maybe a few minutes here or there."

eCost addressed the 24/7 challenge by building layers of redundancy into its storage infrastructure via server pairs that sit next to each other in the same facility. A third server resides in a different geographic location in case of disaster.

"If we were to lose both servers, the one in the other location is up to date almost in real time and we could easily switch to it," Willoughby said.

Scheduling and running backups is another challenge for Web-based companies. To decrease downtime, Plaxo executives analyze trends in how and when their customers access the system, planning backups for slow periods, relying on NetVault:Backup from BakBone Software.

"We also slow the backups down so there is a lot less impact on the actual resource, which minimizes bottlenecks," Erchinger said.

Other companies have different backup strategies. While eCost relies heavily on daily snapshots, Freeze.com has taken it a step further: The company is in the process of switching from a disk-to-disk-to-tape backup strategy to a full CDP (continuous data protection) process, which will allow real-time replication to other data locations, something Ohme said will improve both response time and responsiveness.

Keeping ahead of the game is the key when it comes to managing storage in a Web-only environment. In the end, it all comes down to the bottom line.

"We make all of money online, so we need to be up," Ohme said. "Any downtime for us is lost revenue for us and our partners. We do what it takes to make that happen."

Editors Note: This story was updated to include information about Plaxos use of software from BakBone.

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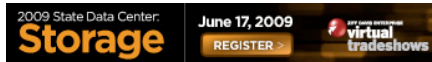
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