

AnexTEK's Fast Recovery from Disaster

Business Challenge

FalconStor's IPStor software provides businesses with the ability to effectively manage their storage and to protect against loss of data. Data is an organization's most prized possession. If a company experiences computer equipment failure, fire, or a natural disaster such as a hurricane or earthquake, data can be lost in addition to property. Computer equipment such as CPUs, monitors, and storage devices are relatively easy to replace; data is irreplaceable.

Most companies utilize backup programs to help safeguard their data should unexpected events occur. Data is copied to portable media such as tape, and then the media is taken off-site so that the primary data and backup data are housed in two separate locations.

The problem is that restoring data from portable media takes time. After new computer equipment has been replaced and installed, the data itself must be restored to the storage devices before a business can begin its work again. The longer a business experiences downtime, the more money and opportunities are lost.

To protect against data loss while minimizing downtime, data replication can be used as a complement to tape backup. Data replication is a method that involves periodically copying a volume's data onto another (secondary) storage device located at a remote location. The secondary storage device can immediately be brought online, in effect becoming the primary storage device if the main storage device fails and enabling data to be accessed rapidly.

The following documents AnexTEK Global's experience in using FalconStor's IPStor software to protect and recover from a real-life disaster situation.

Disaster Strikes!

On May 12, 2001, AnexTEK Global Inc. experienced a major fire at its corporate headquarters that destroyed their office and much of their computer equipment. The fire was reported to be one of the longest burning fires in the history of Taiwan, destroying major portions of the 26-story building in which AnexTEK was headquartered.

A month prior to the fire, AnexTEK had signed an agreement with FalconStor to integrate FalconStor's IPStor software into AnexTEK's storage solutions product line and offer it as a new product called IPSNS: IP-based Storage Networking Solutions. After receiving a beta version of IPStor, AnexTEK's engineers began installing and



Disaster strikes AnexTEK offices

Customer Profile

AnexTEK Global Inc., a subsidiary of the Acer Group based in Taiwan, is a provider of IP-based storage networking solutions, as well as DAS, NAS and FC-SAN RAID storage products.

Business Challenge

AnexTEK needed to bring their system back online after a major fire destroyed their offices and computer equipment.

FalconStor Solution

AnexTEK, a FalconStor partner, gained first-hand experience in disaster recovery using FalconStor's IPStor software and its Remote Replication feature to recover from a fire that totally destroyed their headquarters, including their production servers.

testing the software. One of IPStor's major features, Remote Replication, was implemented to replicate AnexTEK's data from their local site to a remote site, which proved to be a blessing. AnexTEK engineers replicated about 1 TB of data over a standard ADSL line with a transfer rate of 512 K/sec. The replicated data included email, accounting, and logistics information, and as well as data from their web, FTP, and file servers.

Then the fire struck.

The day after the fire, AnexTEK held an emergency disaster recovery meeting to discuss how to recover from the fire. "At that time," said Alex Kuo, AnexTEK President, "we feared the worst. We felt we were protected, but we didn't know for sure." AnexTEK's engineers began checking the data that they had replicated to the remote site and found the data to be intact. "Replacing office equipment and finding a new office wasn't that difficult. Had we lost all of our data, it would have been a nightmare," said Kuo. Temporary offices were found, new computer equipment –which included new servers, storage devices and switches – arrived and was quickly installed and connected. AnexTEK engineers reconfigured their email server's IP address to the remote site's IP address in order to allow AnexTEK's users access to their email data once again.

The storage devices that contained other replicated data were hand-carried from their remote site to their new office so that the data could be accessed over a LAN rather than over a slow link. This whole procedure of installing the new equipment and storage devices that contained the IPStor-replicated data took only half a day. According to Alex Liu, Technical Team Director, "We were really surprised how easy it was to implement our old data using IPStor."

The beta test environment using IPStor's software saved AnexTEK a great deal of money and time.

IPStor Solution

AnexTEK's IPStor environment, which became their disaster recovery solution, consisted of two Gigabit Ethernet switches connected to six AnexTEK servers which were serviced by two IPStor appliances, one located at their local site and another IPStor appliance located at their remote site. Each IPStor appliance was connected to a storage subsystem and a tape library for backup purposes.

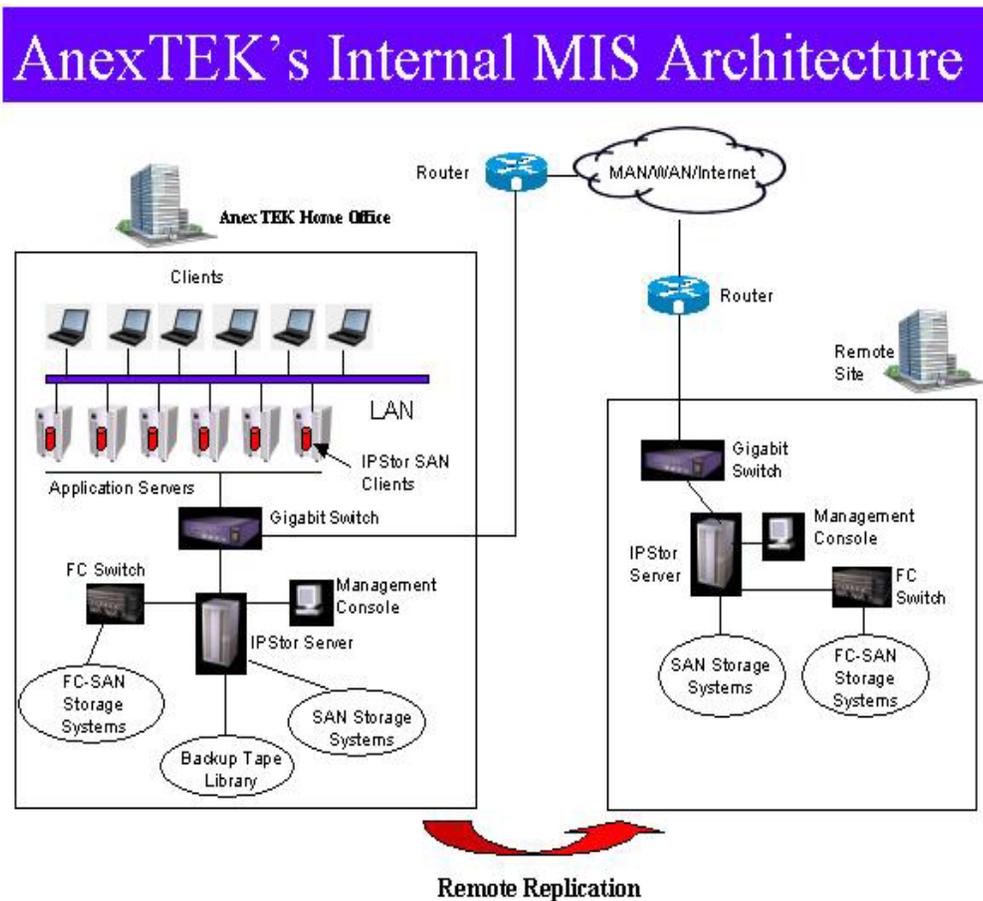
Using a pre-defined policy-based schedule, the primary (on-site) IPStor appliance automatically replicated its data to the secondary IPStor appliance located at the remote site. An ADSL Internet connection was used to connect the two sites together. The configuration fulfilled the purpose of replication: to create an identical data copy onto a secondary storage device such that if the primary storage device fails, the secondary storage device can be brought on-line very quickly to take the primary's place. (This is replication's greatest advantage over tape backup. It takes only seconds or minutes to regain access to replicated data while it may take hours to restore data from backup tapes.)

The fire destroyed all of AnexTEK's computer systems, *including the storage systems and backups that were in their headquarters*. Since IPStor was used to protect their data, AnexTEK simply replaced their workstations, servers, and switches in order to rebuild their computer system. IPStor's client software was installed onto their application servers and the new servers were configured to the IP address of their remote site. AnexTEK's email

data was quickly back on-line and employees were soon able to begin communicating with their clients once again.

The storage devices containing their replicated data were brought from their remote site to their new site, where they were simply plugged into their new servers. AnexTEK was back in business. Restoring data from backup tapes would have taken hours; instead it took only minutes after the new servers, switches, and all other necessary hardware was powered up and configured.

The diagram below illustrates the IPStor configuration AnexTEK had luckily implemented before the fire struck.



Business Benefits

Although AnexTEK's original intention was to run IPStor for testing purposes, IPStor became their primary disaster recovery solution. IPStor was able to help AnexTEK's recover so quickly because:

- 1. IPStor replicated AnexTEK's data to a remote site.** AnexTEK was able to bring almost all of its data on-line immediately after installing and connecting their new file/application servers to their storage devices. Connecting their new servers to the replicated data took only minutes whereas restoring data backed up to tape would have taken hours. Since most of the data did not require restoration from backup tapes, much time was saved— and less downtime translates into less money and opportunities being lost.
- 2. IPStor uses industry standard hardware.** AnexTEK did not have to order and wait for any specialized hardware to be delivered in order to rebuild their computers and SAN. This also meant that engineers did not need to spend any time learning how to set up specialized hardware.
- 3. IPStor is a software product.** IPStor client software takes only minutes to install and configure. AnexTEK's engineers simply needed to install the IPStor client software onto their servers and configure the software to use the proper IP addresses. Once installed to their application servers, the client software was configured to access the IPStor appliance at the remote site. IPStor appliance software required no new installation since the IPStor appliance at the remote site was not damaged.
- 4. IPStor uses IP as one of its communication protocols.** AnexTek did not need any proprietary wiring or additional communication medium. Today, all major office buildings are wired for Internet access. AnexTEK did not need to install any special cables in order to gain connection to their remote site and access their information.



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Highlights of IPStor's Remote Replication

- Business continuity in the event of site failure (any distance – even across the country or globe)
- In the event of a site failure, administrators can quickly promote the remote site data to primary data set status, thereby giving the application server(s) – local or remote – continued access via IP
- Built-in Snapshot engine ensures that replication is performed virtually as of a single instance in time
- Fast, accurate recovery of databases, message stores
- Achieves the highest possible level of data integrity
- Full automation of replication process ensures reliable protection through flexible, policy-based scheduling based on watermarks
- No application server overhead during replication since it is SAN-based
- Industry's first and only DR solution that is corruption-proof using the TimeMark technology, allowing up to 256 point-in-time rollback points to back out of undetected data corruption
- High bandwidth efficiency
- Useful for disaster recovery, site migration, electronic vaulting
- The end-user can minimize communications costs by scheduling replication to take place when the telecom rates are lower (e.g. 10:00 PM) or activating IPStor's "compression" capability

