

## REMOTE OFFICE BACKUP

Remote offices present IT managers with a number of technical challenges. Often businesses use remote offices to expand into either new markets, or into new geographical areas. Many of these remote offices have a relatively small staff, and often lack onsite technical expertise or corporate IT staff. Yet the data generated by the staff at remote offices is a corporate asset that should be backed up just like data at corporate headquarters.

Traditionally, companies have relied on tape backup solutions to backup data both at corporate headquarters as well as at remote offices. Often, the person responsible for tape backups in a remote office is the most technically savvy individual. But an effective tape backup system, with properly designed backups sets, schedules, tape rotation schemes, and offsite storage requirements could easily overwhelm an individual whose primary responsibilities are not IT related. Tapes could be lost, backups not checked regularly, or the individual could forget to insert a new tape. Worse yet, if the person responsible for tape backups has never tested the recovery process, recovery following a disaster could result in the entire remote office being down for an extended period of time. SearchSecurity.com offered supporting data in an article titled "Concerns raised on tape backup methods". In the article, it was reported that as many as 20% of routine, nightly backups fail to capture all data. Another survey in the article reported that of 362 IT managers surveyed, 40% had been unable to recover data from a tape when they needed it.

At one point in time, tape backup was the only viable option for backing up data. Expensive tape backup systems and storage media had to be installed in each remote office, and training provided to someone in each remote location. That's no longer the case. Improvements in hard disk technologies have dramatically increased storage capacities and improved reliability statistics while at the same time driven down the cost per Gigabyte. NAS (Network Attached Storage) appliances, specialized storage devices that are typically dedicated to serving files on a network, often have more than enough storage capacity to also be a backup device.

A NAS device is a completely self-contained appliance that has a built-in power supply, an operating system, an easy-to-use management console, and network accessible storage. Products such as the Buffalo TeraStation<sup>™</sup> line of products take advantage of high capacity inexpensive disk drives to provide high capacity storage that's easily deployed on a local network. TeraStation products are available in both desktop and rackmount configurations, and have storage capacities ranging from 2 to 96 TB. The lower capacities would probably be ideal for a small to medium sized office, while the higher capacity models might be more suitable for a regional office. With these high capacity devices, there's typically more than enough storage available for not only for user files, but for backups, as well.

The underlying operating system on most Buffalo NAS products is based on Linux, so there's no licensing fee for either the operating system or a per-seat license. The Linux kernel is highly stable, and rarely needs to be patched. All TeraStation models also support multiple levels of [RAID](#) (Redundant array of inexpensive drives). In a RAID configuration, part of the storage capacity is used to store parity information to provide fault tolerance. Should any single drive fail, the TeraStation will continue to operate. Depending on the configuration, the TeraStation will automatically begin to rebuild the array onto a "Hot Spare". In other configurations, the defective drive can be removed and replaced by a non-technical person without powering down the NAS. The "Hot swappable" drives ensure that users can continue to work while the defective drive is being replaced. Another feature common to all Buffalo NAS products is ease of deployment. Guided by installation wizards, a non-technical employee can easily add shared storage to a network in less than 15 minutes. The devices can be remotely managed by a centralized IT staff, thereby often eliminating the need for onsite IT staff or IT consultants in a remote office.

The client-based backup software included with the TeraStation can easily and automatically back user's data to the TeraStation, thereby eliminating part of the backup problem. But IT and disaster recovery experts agree that offsite storage is a critical component for any backup and disaster recovery plan. The backup features built into every TeraStation enables non-technical staff to easily create backup jobs that backup the contents of one TeraStation to another TeraStation. For offsite storage, all that's required is an internet connection and an accessible TeraStation in another location. The examples below illustrate a typical company with two remote offices.

## **REPLICATION**

Although multiple backup jobs can be scheduled to back up data more than once daily, some organizations may prefer real time backups. The Buffalo TeraStation supports real time backups through replication. Replication mirrors the data in a folder on the source TeraStation to a share on another TeraStation in near real time. After the initial mirroring of data, only changes at the byte level cross the network. Thus, if changes were made to a large file, only the changes would be sent, not the entire file. Replication works only in one direction: From the source to the destination. Changes or deletions on the destination are not reflected back to the source, but all changes, additions and deletions made on the source are reflected on the destination. Of course, cross replication could be configured between sources and targets, but cross replication could present some issues if the same file is being written to on both ends.

There are a number of ways that replication can be used between remote offices. The obvious first use of replication would be to backup all of the data stored on TeraStation units in multiple remote offices to a larger, centralized or regional TeraStation.

Backing up data at remote offices has always been a challenge for IT administrators. Remote office backup schemes that rely on tape backup are expensive, time consuming to maintain, and often require technical expertise in remote offices that may not have on-site IT staff. Network attached storage devices, like Buffalo's TeraStation line of products, are high capacity, disk-based storage appliances that can be easily deployed by employees with little technical expertise. The included client backup software, coupled with the built-in backup and replication features of the TeraStation, provides a backup framework that's cost-effective to deploy, easy to maintain and can be configured to automatically backup data to remote offsite locations.