Zetta Systems Directly Addresses the Pains of Exchange

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Management Summary

Microsoft *Exchange*, by its nature as a messaging environment, sits at a vulnerable point in the enterprise. Unlike production floor applications, Exchange and other messaging applications cannot be isolated – their broad connectivity is their strength. It is a communications application. The bursty nature of human communication makes the growth of its storage use hard to predict, and the nature of the problems that arise, hard to anticipate. Because of the dependency of human productivity on its messaging environment, availability must be restored quickly. Because of its place in the enterprise and its fan-out capabilities, Exchange and other messaging platforms have been and will remain the favorite targets of malicious attacks. And, because they are publicly traded, many enterprises are now required to archive the information generated by this troublesome application to document corporate behavior. **This triangle of impending distress will inevitably cause pains that must be treated.**

Traditional storage software management suites address the issues of data integrity, redundancy and access – but not the particular security, access, and rapid-restore needs that characterize messaging environments. Where problems are a sure bet, extra measures may be required. To meet such needs by ruggedizing the entire enterprise IT infrastructure is expensive overkill for most enterprise applications. To meet them with back-up strategies is usually insufficient. To address them with standard snapshots can use a lot of storage and still not be good enough. To do nothing just prolongs a vulnerability that is not going to solve itself, as the problem lies with the nature of the application and not just with a particular vendor.

As we have turned to pervasively networked assets and virtualized, repurposed assets, there has been a tendency to focus on pervasive management schemes. This is generally a good idea, but some particular situations, like Exchange and other messaging platforms, are shortchanged. Such situations may call for a specifically-targeted, topical solution – like smearing an antibiotic cream on a wound rather than taking a pill that will target (and affect) your whole system to address what is a locally-addressable problem.

Zetta Systems, Inc. has focused on the problems of Exchange, and has designed their solution with the snapshot frequency and storage security to make an Exchange environment less treacherous. It is a software-only solution, which you can use with existing hardware. **If your Exchange headaches are intense and unrelenting, the *Zetta Server* may be just what you need.** For more details, read on.

The Role of the Snapshot in Data Services

Data can be considered and managed at different levels. The block or physical level is important, for blocks are the containers in which data is moved, but blocks have no larger context other than their physical location. At the file or application level of management, data gains functional context. **If you want to restore functionality, you need to perceive and control that data at the application level. To restore from blocks without file or application context is like rebuilding from sand instead of cinder blocks.** Rebuilding the blocks to files and the files to applications and data sets takes too long for the hectic pace of business.

The tools are different if you are restoring data on a corrupted disk, if you are restoring an accidentally deleted file, or if you are restoring an entire application or environment.[1] Deleted and corrupted files, particularly in Windows environments, are the events that trigger restoration a vast majority of the time. **And so the file level, not the block level, is the most useful place to base the services that optimize the restore by means of a snapshot.**

Many block-oriented storage management vendors treat the snapshot, or point-in-time copy, like a side dish – an essential element on the plate at many restaurants, but not one of the featured value items. Yet snapshots are key to recoverability and can act as the framework for other data services such as data migration.

A snapshot is a copy of the metadata which tells where data is stored. It is not *per se* **a vehicle for data integrity. Like any index, it does nothing to insure that the data is uncorrupted.** Unlike the index of a book, periodic snapshots, combined with a file system that does not physically overwrite existing data, can give access points to data at multiple points in time. If

data or metadata is corrupted, the system can be "rolled back" to a state before the event occurred, and with log files, rebuilt to a present state in a short period of time. Depending on the application, some application activity may be able to continue, making the event at least somewhat transparent to the end user.

A snapshot can also be the basis for a full physical replication, often done as copy-on-write (when the data changes) or "in the background" when the system is idle. Because the replication is done in application-aware, file-based chunks, restoring from the redundant data copy, should that be necessary, is optimized.

If the snapshot is to be a cornerstone of data services, it should be high quality. Critical elements are these:

- **A snapshot, like the photographs from your childhood, is only as good as what it contains.** The snapshot of an application must contain both memory cache and disk storage data. It must integrate fully with applications through APIs in order to determine if the application flushes its caches co-operatively or if the snapshot has to do the additional work.

- **A snapshot should be able to handle both block and file data (SAN and NAS).**

- **A snapshot should be lightweight** – both in terms of the time it takes to implement and the space it takes up. More frequent snapshots are key to getting business information systems that have crashed up and functional sooner. But a snapshot-a-minute has been precluded by the performance hit of the not-so-momentary quiesce, and the storage costs of storing all those snapshots.

- **A snapshot does not have to be expensive, or part of a suite, to be effective.** It just has to work well.

The Zetta Server Data Protection Solution

Zetta Systems seeks to solve the problem

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[1] Of course, restoring the entire environment will restore the deleted file, but it is time-consuming overkill to do it that way.

of minimizing the risk to, and optimizing the restorability of Exchange data. **Zetta Server protects the data by providing a snapshot that can be implemented once a minute without impacting performance or storage costs.** It reinforces this protection by initiating physical copying of the data (full or incremental, either locally or to a remote location. And it further stabilizes the Exchange environment by adding security features to its storage methodology.

The Snapshot

Zetta Server's snapshot takes less than 100 milliseconds[2]. The resulting metadata file is less than 1 KB regardless of the size of the dataset, due to the nature of the algorithms they use. **Zetta Server does not require pre-allocation of storage, but provisions file or block storage as needed.**

Because Zetta Systems copies the data after the first snapshot, and copies only the changes as they are made, the storage space required to protect data access is only the volume of the original copy and increments plus 1 KB (times the number of snapshots retained), far less that is required by other competitor's strategies. And if you snapshot every minute, there is little that must be rebuilt for recovery.

Security Features

With Zetta Server, an enterprise can put the data behind the Zetta Server and keep Exchange Server as a thin server containing only application data, making recovery simpler.

With this segregation of data files from the Exchange server, additional security initiatives can be implemented. Zetta Server automatically limits the ports for communication on the server it runs on. It also keeps the data files it controls free of any executable routines, preventing worms from executing[3]. Both these features curtail the

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[2] On Pentium IV and later processors. This snapshot includes both metadata and data at that point in time.

[3] Executable routines can be stored in the Zetta Server itself. There, since Zetta-Server runs on as BSD-like OS, they cannot propagate.

Zetta Server At A Glance

- OS-independent at the block level. Supports Windows, Unix and Apple OSX at the file level.

- Zetta Server is an NDMP client and server, and interfaces with enterprise utilities and management frameworks that support NDMP

- Supports ATA, SATA, SCSI and FC drives

- Appears as both a block device (SAN, SCSI, iSCSI) and a file device (CIFS, NFS)

- Maximums: Zetta Systems' file system is now 64-bit (versions 2 and 3) which eliminates the previous maximums of 4 TB per volume and 100 TB per file system.

Enterprise Version

- $10,000 per server
- Works for mixed Windows and UNIX environments
- Unlimited Snapshots

Mid-tier Version

- $5,000 per server.
- Works for mixed Windows and UNIX environments
- Limited to 512 snapshots

SMB Version, for whom this is basic first-line disaster recovery

- Limited to pure Windows Environments
- Priced by capacity – $750 or $1,500 depending on whether or not domain authentication is required.

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vulnerability of the Exchange environment.

The Zetta Server Product Details

The Zetta Server is software only. The enterprise can install it on an existing Intel

server. Data files are not stored internally on the server running Zetta Server, but on attached, existing devices (NAS, DAS or SAN).[4] From the front end, applications see the Zetta Server as a block or file device, depending on their preference. The storage devices see Zetta Server as an application.

Zetta Systems has worked to integrate the APIs of popular sources of problems like Microsoft Exchange to optimize restores in this environment. Version 2 was primarily file-oriented. According to Zetta, it has over 400 betas and several paying customers, including National Semiconductor, the University of Wisconsin, Advanced Bionics, Oakville Hydro, and Western Wats. Version 3, now in beta, will add transaction backup of Exchange Server.

Zetta Systems' patent-pending snapshot algorithms support a snapshot that is lightweight, affordable, scalable and application-aware. Its product is not an appliance but software only, and available for a free 30-day trial via download. Prospective buyers can download the application and configure it if they want, as

they want. Installation takes a few minutes, whereupon enterprises can test it and see how they like it. The risk is small, and the benefits can be large.

Conclusion

Unless you chop out basic functionalities like external connectivity and message richness and attachments, Exchange and other messaging environments are inherently risky. You need to anticipate that they will need to be recovered, and optimize your data services for that recoverability. **You need to treat these environments differently from your other more predictably-unpredictable environ-ments.** Many large data services suites do not have recoverability as their point of opti-mization. Zetta Systems does. If you need super-ior snapshot capabilities, the software-only Zetta Server might just be what you're looking for.

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[4] Although Exchange Server does not work with NAS, it can if the NAS is fronted with Zetta Server, which Exchange sees as a SAN target.

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