Desktop as a Service (DaaS) built on NetApp, supported by Azure

ALEF

Microsoft Solutions Partner

NetApp

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In a world of hybrid workplace, rapid changes, and more and more complex security challenges, customers are looking for a Desktop as a service (DaaS) solution which is easy to use, secure by default, and could be managed by themselves.

From that reason, AOSSIA decided to offer such a solution to customers in France. The main goal of a platform was to be **secure, reliable, fast, and self-managed by the user**. A platform that would empower an end user to work from anywhere, knowing that its data are always available, secure, highly protected, and swiftly recovered in case of data corruption caused by the user itself or external threats.

The additional request was related to **data sovereignty**, which meant that whatever environment or technology used, production, or backup data should not leave France at any moment.

As a long-time Partner of ALEF, AOSSIA approached us to join forces in building the best and most cost-effective solution, which will serve the customers from a secured and highly available on-prem Data Center in France and, at the same time, be supported by Microsoft Cloud technologies (Azure) to increase security and availability of data and lower the total cost of ownership.

Together, we built a service fulfilling all the criteria by employing NetApp ONTAP, CVO & Azure technologies. VMware was selected as a virtualization platform for hosting VMs intended to serve the VDI environment (DaaS).

Permanent savings achieved?

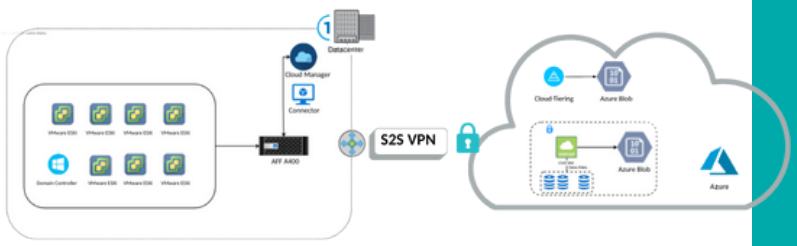
By implementing a solution using ONTAP & Azure technologies, AOSSIA achieved the following savings:

- **34:1** reduction of data physically stored on the primary A400 system using efficiency features and snapshots.
- **25-30% of primary storage data is being constantly moved to Azure Blob** (snapshots older than 30 days) while being always available.
- Tests showed that data could be restored with a 20Mbps retrieval rate in case of being permanently stored in Aure Blob.
- All data-protected volumes through CVO are tiered from Azure disks (CVO) to Azure Blob, making a backup the least expensive to keep (metadata is kept on azure disks)

Hybrid Cloud Architecture

The environment is comprised of two sites:

- on-prem Data Center with NetApp All Flash A400 2-node cluster for hosting the VDIs and production data
- Azure environment with BlueXP for tiering data from NetApp A400 systems and offsite backup hosting of the entire environment.



How are data secured?

Data is secured in many ways. First, the user can have full data backup daily using NetApp space-efficient Snapshots (they can see a catalog of their previous data state within a hidden personal folder in the Microsoft File Explorer environment). By later utilizing ONTAP's Historical versions of CIFS shares, the user, without any administrative intervention, can access all its backups of a file/s or folder/s level and restore any file from previously made backups. Further, backups are immutable, which means that even a Ransomware attack that might happen will not affect the data user created and stored.

On a system level, ONTAP constantly checks for unusual user or file behavior and immediately creates system-wide immutable Snapshots, protecting all users and their data in case of ransomware detection.

Going further, separate complete copies of data are hosted in Azure Blob.

In case of a complete primary on-prem Data Center failure, the entire environment can be quickly restored or served directly from Azure until the primary Data Center is recovered.

How does the system work?

Customers are approaching their virtual desktops hosted in an on-prem Data Center in France through a VPN connection. Data is served from NetApp AFF A400 systems. At the same time, all data is backed up through ONTAP's Snap Mirror replication software to Azure using CVO (Cloud Volumes ONTAP), NetApp's ONTAP OS (Operating System) ported for Azure.

That way, NetApp does the most efficient and cost-effective replication through its bulletproof Snap mirror® software. Snap Mirror is working on a 4KB block level, replicating data in a forever incremental fashion, and not transferring the previously deduplicated, compressed, and compacted data from A400 to other locations (Azure France Central, in this case).

To further save storage space on A400 enterprise-grade SSD drives, NetApp's Cloud Tiering technology ensures that cold blocks (4KB blocks not requested by user or system in the last X number of days) are constantly monitored and moved in real-time to Azure Blob.

The purpose of CVO (Cloud Volumes ONTAP) implemented in Azure is threefold. Conversely, CVO mimics a NetApp ONTAP system in Azure, enabling NetApp's data mirroring technologies from an on-prem system to a Public Cloud (Azure) to move data without being aware of complexity of the Cloud environment. The other function is to act as a temporary ONTAP platform in offloading the primary AFF (in case of disaster recovery). The third function is to employ Azure Blob as a cost-effective storage solution and avoid unnecessary costs incurred using more expensive Azure disks (utilize tier all volumes to Blob feature).