VMware and Storage Integration:
VAAI – vStorage APIs for Array Integration

A case study

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VITAL LABS

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Executive Summary

Only NetApp, EMC, Dell, HDS, IBM, HP, Nimble and may be few more Storage vendors have VMware and Storage integration plug-ins such as VAAI, VASA, VADP, SRM etc. There are 300+ other storage vendors who do not.

For enterprises / end users, resellers, partners and integrators, VMware integration with the Storage array is one of the important factors while making the storage buying decisions.

This case study discusses VAAI plug-in for NFS. The customer is a USA based mid size Storage ISVs.

VAAI APIs essentially take advantage of storage array features to offload, speed up or improve common vSphere operations. VAAI remove bottlenecks, and offload tasks that are "expensive" data operations to storage arrays thus improving performance, scale, and efficiency.

VAAI plug-in for NFS supports four main functions (full cloning, lazy cloning, extended statistics, and space reservation) and also include functionality covering concurrent cloning, cross volume cloning, and support for proper cloning timeouts etc.

Vital Labs team built NAS VAAI Plug-in and owned the responsibility to complete the VAAI NFS certification suite tests and pass the **VMware ESX 5.1 certification**. We also completed **VMware View 5.2 certification** suite tests with the VAAI NFS plug-in integration and passed the VMware certification.

Get your VAAI plug-in today. Talk to us: sales@vitallabs.in | +91 – 855 301 301 3.

Requirement

The high level business and technology requirements were the following:

- Develop VAAI plug-in for NFS, using REST API interface with Storage array.
- Complete VMware certifications.
- The VAAI plug-in installed on the ESX server must comply to the following entry points:
    - StartSession – Validate if the DataStore is from XXX (self) and other per-requisites are satisfied (Authentication). Create the RPC/SOAP client session to be used for further interaction. Returns a session ID for any further interaction.
    - SupportStatus – This is a query request to know which the NAS primitives that are supported.
    - ExecutePrimitive – Interface to invoke NAS primitives.
    - EndSession – End any on-going primitive Execution, Cleanup and free up all the resources created in the session.

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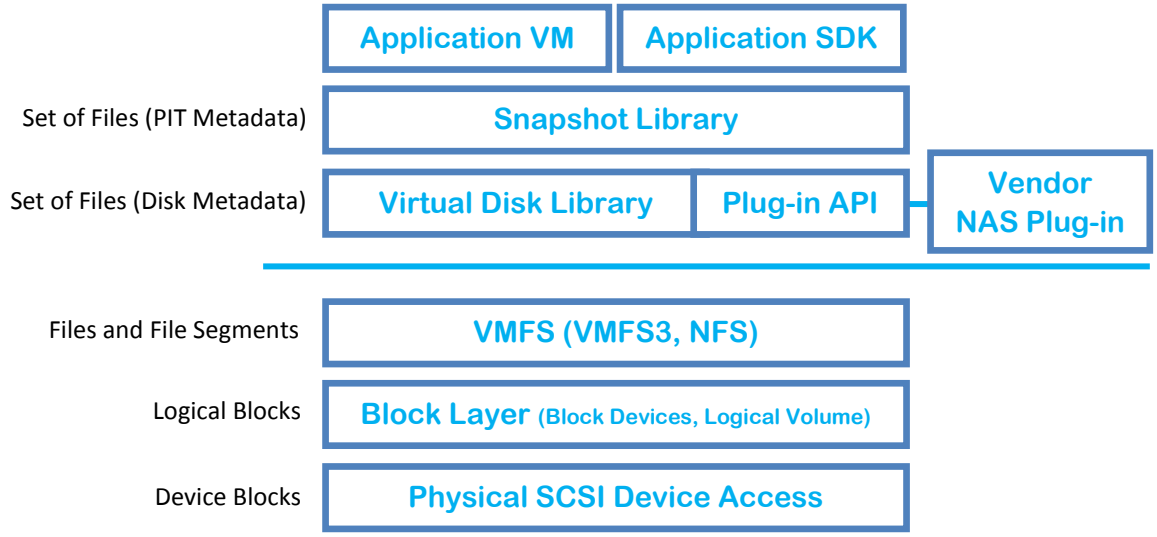
Implementation Approach

The plug-in development follows the high level architecture approach as in the diagram below.

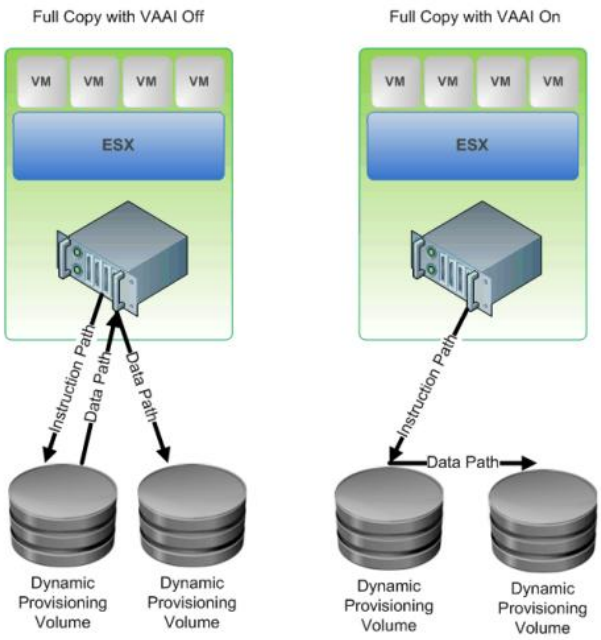


We would be happy to share more technical details and documentation with you. Please send an email to sales@vitallabs.in .

Benefits

Integration with the latest vSphere capabilities using the VMware vStorage APIs for Array Integration (VAAI) enables your Storage arrays and VMware vSphere to deliver greater levels of VM scalability, higher levels of performance, enhanced agility, and capacity efficiency to meet the stringent demands of large-scale enterprise and cloud computing data canters.

The benefits reported are reduction in IO for almost all VMware operations, Faster Storage – Storage vMotion and Clone/Template, Huge reduction in ESX, Array and Network load.



These are the results which were reported by a large vendor for their Storage. Results may vary depending upon the operating conditions and usage.

- Using VAAI, the IOPS are reduced greatly.
- With thin provisioned eagerzeroedthick VMDK, the warm-up time decreased by 76% for internal storage and 61% for external storage.
- Creation time of virtual machines was improved 96% for internal storage and 98 percent for external storage by using block zeroing on a fresh datastore.
- The zeroedthick virtual machine cloning time was decreased by 29% on the internal storage.

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About Vital Labs

Vital Labs builds ecosystem integration products & solutions for Storage & Virtualization start-ups & mid size ISVs.

Our capabilities are:

- Application Integration with Storage Systems
- Storage Management Tools
- VMware Plug-ins / Virtualization Integration
- Microsoft Hyper-V Integration

Write to us on sales@vitallabs.in or call us on +91 – 855 301 301 3.

Please visit our website http://www.vitallabs.in for more details.

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