**July 14, 2014**

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**Fortinet IPS Overview**

Nutanix ([www.nutanix.com](http://www.nutanix.com) is a private company and has been shipping its disruptive VDI technology since 2011 and gained 5,200 customers in 2014. The founder came from Google and developed a new OS from Google’s GFS (clustering file system) to the enterprise NDFS (Network Distributed File System) for general public use.

A few highlights are listed below:

* Nutaxnix Virtual Storage Controller (Controller VM in the video) is loaded on each node in the cluster
* No more needs for expensive centralized storages, meaning Nutaxnix eliminates the need for network-based storage architecture, such as a storage area network (SAN) or network-attached storage (NAS)

Below are from a Q & A session during the Nutanix Technology Overview via Web Conferencing:

**Q1:         Nutaxnix system design has a high storage overhead; meaning at least 2X disk storag**

g VM's.

**Challenges**

1. Leading incumbencies such as VCE (Cisco, EMC and Intel company), Cisco/NetApp are still the largest Enterprise Integrated Systems vendors and largest market share in the VDI market, although incumbencies are still relying on legacy storage technology (LUN, RAID and VOLUMN). However, many incumbencies made significant changes in the latest storage technology by using PCIe based Flash (SSD) first (e.g., EMC VNX 2) and [Dell Compellent Fluid Cache](http://www.dell.com/learn/us/en/555/shared-content~data-sheets~en/documents~dell-fluid-cache-for-san-faq.pdf), meaning all flash capacity installed in each node or host can be pooled together to form a big pool so that each node can borrow it for use at any time, instead of wasting high percentage flash resources in each node or host. That technique might be able to address a VMware boot storm or any burst mode issue in VDI environments.

**Conclusion**

In summary, Nutanix is a disruptive Integrated Systems company to challenge the incumbent with 5,200 customers in three years since 2011.

Gartner assessed Nutanix as a Visionary in Gartner’s First-Ever Magic Quadrant for Integrated Systems dated June 2014 (ID:G00252466) and named Nutanix product as a highly innovative and scalable architecture that is generationally advanced compared with most rivals. Its solution has a potential unlimited scale out capability because its highly modular designs allow the easy addition of new server and storage resource. It can also address common denominator failure (e.g., a storage shelf is not available). Recently, it provides dedupe and compression capability.

As of today, Microsoft has zero VDI node deployed within its company worldwide, so as IBM as well as many other highly-security required companies, for example, defense companies who have not yet implemented a single VDI node within their companies (e.g., Northrup Grumman) because of the VDI extremely high cost reasons such as $3,000 per VDI node vs. a traditional desktop running at $650.00 per node, including Microsoft Windows 8.1 professional edition.

Whether your organization requires a VDI deployment, it all depends on an environment by considering total cost ownership (TCO) and return on investment (ROI) carefully!

Therefore, any organization can start to deploy VDI by starting small and growing bigger and bigger via module architecture. Nutanix solution will fit that scenario.

Generally speaking, Nutanix solution

Below is some useful information:



Often, today’s solutions will not address tomorrow’s problems. The added costs associated with labor always challenge any organizations.

**Recommendation**

**Implementation via “Agile” Approach to “Metrics”**

Due to a very complicated DVI ecosystem, it is highly recommended to follow the [SCRUM](https://www.scrum.org/Resources/What-is-Scrum) that is a framework for managing the development and deployment of complex products, in order to implement the entire ecosystem correctly. Agile that follows the principle of “Inspect and Adapt” and advocates team empowerment uses Scrum.

**A few tips to use SCRUM for achieving your goal by Michael Vincent:**

* Don’t be tempted to change Scrum
* Scrum exposes inefficiency
* Fix the problem
* Don’t shoot the messenger
* Don’t reward a wrong person

• Scrum exposes need for change

**Source:** 1) [Scrum Fundamentals Do It Right](http://www.mvasoftware.com/download/VAS01%20Scrum%20Fundamentals%20-%20Do%20It%20Right.pdf)by Michael Vincent

2) [Case Study of a Difficult Federal Government Scrum Project:](http://blogs.collab.net/agile/case-study-of-a-difficult-scrum-project-fbi-sentinel) FBI Sentinel

**Note:** The FBI abandoned the VCF project in 2005 after spending $170 million. The project went live on July 1, 2012 after spending 600 million in 12 years by switching to the Scrum.

3) <http://agile2013.agilealliance.org>

**Note:** The topic of SCRUM or Agile is beyond the scope of this writing.

**Appendix:**

**Note:** Currently, Nutanix only support SRM 5.0, not SRM 5.5. Therefore, any VMware customers will not be able to take many advantages from VMware SRM 5.5 listed below:

* The vSphere Replication provides asynchronous replication with flexible Recovery Point Objectives (RPO) that range from 15min to 24 hours
* The vSphere Replication enables simpler replication that is managed directly from vCenter Server with virtual machine granularity.  Users can now replicate individual virtual machines (VM-to-VM) that essentially has eliminated a third party VM-to-VM replication technology advantage overnight
* Because it operates at the individual virtual machine disk (VMDK) level, it enables replication that is storage agnostic. Customers can save not only on replication software, but also on storage infrastructure by using lower end, heterogeneous arrays across sites, including Direct Attached Storage

**What the new three features from SRM 5.5 do?**

* SRM simplifies the setup and on-going management of recovery and migration plans.  Customers can replace traditional, manual runbooks with centralized recovery plans, which reduces the time required for set up from weeks to minutes
* SRM automates the orchestration of the failover process to the secondary site, as well as the failback to the production environment. Failover and failback automation eliminates errors inherent with manual processes and eliminates complexity. This level of automation also enables users to test their recovery plans non-disruptively as frequently as required, increasing the predictability of Recovery Time Objectives (RTOs) and ultimately the level of confidence in the recovery plan
* SRM provides support flexibility to choose from different replication solutions. SRM can leverage vSphere Replication, the industry’s first hypervisor-based replication, which is included with the vSphere platform as well as supports a very broad range of array-based replication products from major storage and replication vendors

In addition, SRM 5.5 can now:

* Recover from multiple point-in-time snapshots using vSphere Replication. This features enables customers to recover from a previous known “good state” if the last restore point is corrupted
* Supports storage vMotion and storage DRS for workloads moving within a consistency group at the primary site
* Adds interoperability with Virtual SAN for workloads replicated with vSphere Replication

See [VMware vCenter Site Recovery Manager 5.5 Release Notes](https://www.vmware.com/support/srm/srm-releasenotes-5-5-0.html) dated March, 2014 for details.

**Recommended Reading**

1. [Magic Quadrant for Integrated Systems](http://go.nutanix.com/GartnerMQ2014.html?utm_source=homepage&utm_campaign=gartner%20mq&utm_medium=banner) 16 June 2014 ID:G00252466
2. **Critical Capabilities for General-Purpose, High-End Storage Arrays –** 7 March 2014 ID:G00248908
3. **Critical Capabilities for General-Purpose, Midrange Storage Arrays -** 7 March 2014 ID:G00248904
4. [Dell Fluid Cache for SAN Frequently Asked Questions](http://www.dell.com/learn/us/en/555/shared-content~data-sheets~en/documents~dell-fluid-cache-for-san-faq.pdf) – 4/1/2014

**Acknowledgement**

Thanks Andrew B. Mills, Territory Manager; Shaun Nelson, Account Manager for Los Angeles; Laura Jordana, System Engineer and Thomas A. Gustaveson, Sales Development Representative at Nutanix for providing me a webcast and a follow-up Q&A session via email and web conferencing.

Thanks Andrew B. Mills for allowing meto use a few graphics in my notes for clarification purpose.