Technical White Paper

Veeam and Cisco UCS Are Better Together

Examining the Shared Traits of Veeam Availability Solutions and Cisco UCS Storage Servers: Intelligent Data Management for the Hyper-available Enterprise

By Vinny Choinski, Senior Validation Analyst
Christophe Bertrand, Senior Analyst
and Monya Keane, Senior Research Analyst
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Introduction

Server virtualization strengthens IT production environments … but only if the *data protection environment* is strengthened as well. Fortunately, organizations are prioritizing that effort. At 33% of the IT organizations surveyed by ESG, increasing their use of server virtualization has been earmarked for significant investment in data center modernization efforts for 2018 and beyond. And 31% of the surveyed IT managers told ESG that improving data backup and recovery is a significant investment area for them as well.[1]

But approaches vary. Some organizations modernize their protection environments reactively after discovering their legacy backup solutions have become inadequate. Others are proactive, creating agile new data centers with superior recoverability and availability capabilities.

Navigating the virtualization/protection relationship can be complicated. But still, 82% of IT managers surveyed by ESG said they do appreciate the fact that superior data protection can mean the difference between the success or failure of a server virtualization initiative. Some respondents conceded that inadequate protection solutions had hindered their virtualization progress. Others said having good protection solutions accelerated their virtualization efforts.[2]

Veeam Availability Solution with Cisco UCS

Protecting a virtual environment the right way just may center on using [Veeam Availability Suite](#) software with [Cisco UCS](#) storage servers for backup, high-speed recovery, data-loss avoidance, and verified protection for applications requiring high availability and scalability:

- Veeam Backup & Replication is a core component of this software suite. It provides fast, reliable backup, replication, and recovery of virtualized and physical workloads within a VMware vSphere or Microsoft Hyper-V environment.

- Cisco UCS is a modular, high-density storage server family offering scalable computing and high-capacity local storage suited to the demands of today's newer applications. It is simple to deploy and excellent as a repository to reduce backup-ingest bottlenecks and provide fast backups using parallel processing.

Qualitative Interviews and Quantitative Tests Reveal Cisco and Veeam's Shared Defining Traits

ESG conducted interviews with joint Veeam/Cisco customers to get a sense of people's actual satisfaction levels tied to using Cisco UCS servers with Veeam backup and recovery software. All the customers ESG spoke with ultimately selected the combined solution because it possessed three specific attributes—*reliability, performance, and manageability*.

In parallel, ESG conducted extensive independent validations of the architecture, which confirmed the user sentiments from the qualitative interviews. The validation testing was specific to Cisco UCS 3260; however, it is reasonable to believe similar results would apply to other UCS models.

The Reliability and Operational Efficiency of Veeam and Cisco UCS—Customer Impressions

The interviewees' most frequently praised characteristic was *reliability*. In the early days of virtualization, these companies leveraged their existing storage arrays and high-end server hardware from vendors other than Cisco. As they accelerated their virtualization programs, though, they began to find their legacy protection solutions were unreliable for protecting and recovering VMs. Their non-Cisco hosts were also challenging to maintain.

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[1] Source: ESG Master Survey Results, *2018 IT Spending Intentions Survey*, February 2018.
[2] Source: ESG Custom Research, *2017 Veeam Availability Report*, March 2017.

Interviewees told ESG they eventually determined it would be necessary to deploy Cisco UCS with Veeam to achieve reliable VM protection/recovery. Today, they describe Cisco UCS reliability in terms of longevity, and they contrast Veeam's reliability starkly with the antiquated products they previously used.

> "Using our earlier solution made me question my sanity on a regular basis. And calling that vendor's support was only slightly less painful than banging my head against a wall. Backing up VMs was difficult, unreliable, and poor from a performance perspective. Upgrading to the newer offering from that vendor was expensive, so instead, we evaluated Veeam and another virtualization backup solution. Veeam outperformed."

When asked to explain exactly why they call Veeam software "reliable," interviewees cited:

- Recoveries with consistently positive outcomes in test and production environments.
- Veeam's ability to automate risk-free "sandboxing" of test backups to ensure recoverability.
- Automated reporting that informs IT and business unit leaders of the successful status of nightly backups and recoveries.

However, their biggest reliability-related proof point centered on Veeam's ability to *recover data when it's needed most*. Interviewees made statements such as:

> - "I can't tell you how many times Veeam has saved my bacon."
>
> - "I probably have 1/100th the problems I had with my last solution. And most of those I can solve myself. Generally speaking, Veeam just works. We've never had a situation where it stopped."

One-third of Interviewees Recovered from Ransomware Incidents with the Help of the Veeam/Cisco Solution

A full one-third of the interviewees actually recovered from ransomware events by leveraging the combined solution. In these cases, data was not only recoverable, but also, thanks to frequent protection, up to date enough to avoid costly productivity impacts and extortion fees.

Several interviewees mentioned buying more Cisco UCS servers to expand their virtualization initiatives, saying that even the first hosts purchased when they were just getting started still work as advertised.

> "The UCS platforms are rock solid. In three and a half years, we haven't had a single service call. Not one blade has failed or needed replacement. Reliability has been so great that we are expanding our end-of-life plan to five years and easing up on capital budgeting. The Cisco hardware is so reliable, we feel comfortable stretching out this timeframe."

Technically Validating the Operational Efficiency of the Veeam/Cisco UCS Solution

True reliability only becomes obvious after months and years of use, making it a quality unsuited to short-term validation testing. So ESG focused on testing the combined solution's operational efficiency—evaluating how seamlessly Veeam Backup & Replication software integrates with and enhances the native data management features of a virtual environment.

ESG started by examining the Instant VM Recovery process, a feature added to Veeam Backup & Restore in 2010. To initiate this process, ESG used the Veeam Restore Wizard (see Figure 1), which walks a user through steps ranging from selecting the VM to be restored to specifying its recovery location. (Several interviewees called out the Instant Recovery capability specifically, praising it for its operational efficiency.)

Figure 1. Instant Recovery with the Veeam Restore Wizard
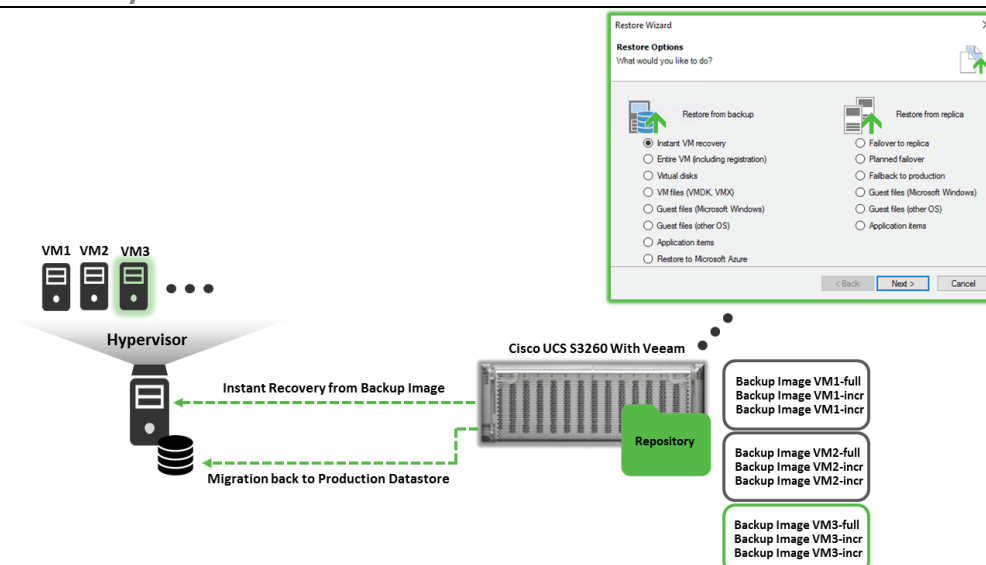
Source: Enterprise Strategy Group

ESG also explored Veeam Virtual Lab use cases, which allow users to power up VMs in a production environment, but on an isolated virtual network—thus enabling identical VMs or groups of VMs to run on the same host without interfering with one another.

These tests confirmed that the Veeam/Cisco backup solution provides significant operational efficiency. It helps data protection administrators to support multiple protection workloads, with all the right resources in the right locations. Those workloads include true backup image validation, support for test and development, disaster recovery, business continuity, and sandboxing for security.

The Performance of Veeam and Cisco UCS—Customer Impressions

Veeam/Cisco customers cited good *performance* as another sought-after capability and told ESG they'd found Cisco UCS and Veeam both offer consistently excellent speed.

Too many people think that all Intel-based servers boast similar performance. Cisco UCS users know better. For their initial virtualization projects, they'd leveraged legacy, already-owned physical servers. As they started seeking out better performance, reliability, and manageability for their second-wave efforts, they determined that continuing to purchase (or upgrade) other vendors' servers would no longer suffice.

> "We had racks of old servers with rat's nests of cables behind them. We looked at three vendors: two of the top server lines, and Cisco. It became clear to us quickly that UCS was better. It was virtualized from the top down, faster, easier to manage, etc. This was a no-brainer."

Interviewees who had been engaged in especially large-scale virtualization efforts were particularly complimentary about the modularity and consistency of UCS, highlighting its ability to leverage Cisco Service Profiles (templates).

> "When I need capacity, I simply add more blades, copy a Service Profile, and run the associated deployment scripts. Then I'm up and running. When that chassis gets full, I just add another one, attach a few cables, and we keep on growing."

But what about the performance of the Veeam software? That quality also shone through, with interviewees mentioning its ability to help them achieve successful, agile recoveries.

> "Shortly after our virtualization initiative kicked in and we discovered our legacy backup solution was inadequate, we met some Veeam reps at a trade show. They assured us Veeam would work. Not long afterward, we deployed it in one part of our company. Then one of our key virtualized production platforms was accidently deleted. We were able to get it back online before customers noticed an outage. We wrote Veeam a check to protect the rest of our environment and have been with them ever since."

Technically Validating the Performance of the Veeam/Cisco UCS Solution

ESG tested the performance of this combined solution in protecting a VMware vSphere environment with 36 Windows Server 2016 VMs running on six Cisco UCS C220 rack servers. ESG ran multiple full and incremental backups to obtain a baseline measurement of backup performance throughput, using the results to model price/performance. Testers also conducted a series of experiments, increasing the number of jobs and the number of available drives. The final test used all 36 VMs and all 56 drives inside the Cisco UCS S3260.

As Figure 22 shows, throughput increased as the workload increased. The fully provisioned S3260 sustained a backup throughput of 10.44TB per hour for actual, real-world data transferring across the wire.

Figure 2. Veeam and Cisco UCS S3260 Performance Throughput
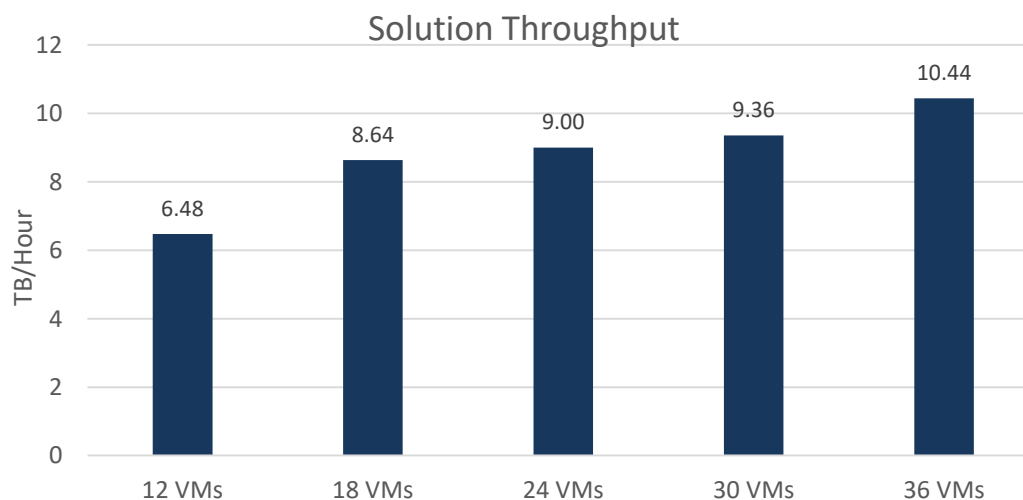
Source: Enterprise Strategy Group

Additionally, ESG compared price/performance against another vendor's solution that was configured as closely as possible to the Veeam/Cisco configuration. (ESG used vendor-published pricing and performance data for this comparison.) The Veeam/Cisco combination was 28.9% faster than the other solution—10.44TB/hour versus 8.1TB/hour. Even better, the Veeam/Cisco *price/performance* was 49% lower—$37.26 per gigabyte per hour ingested, versus $73.16 for the other solution (see Figure 3).

Figure 3. Cisco and Veeam Price/Performance Comparison

Price/Performance
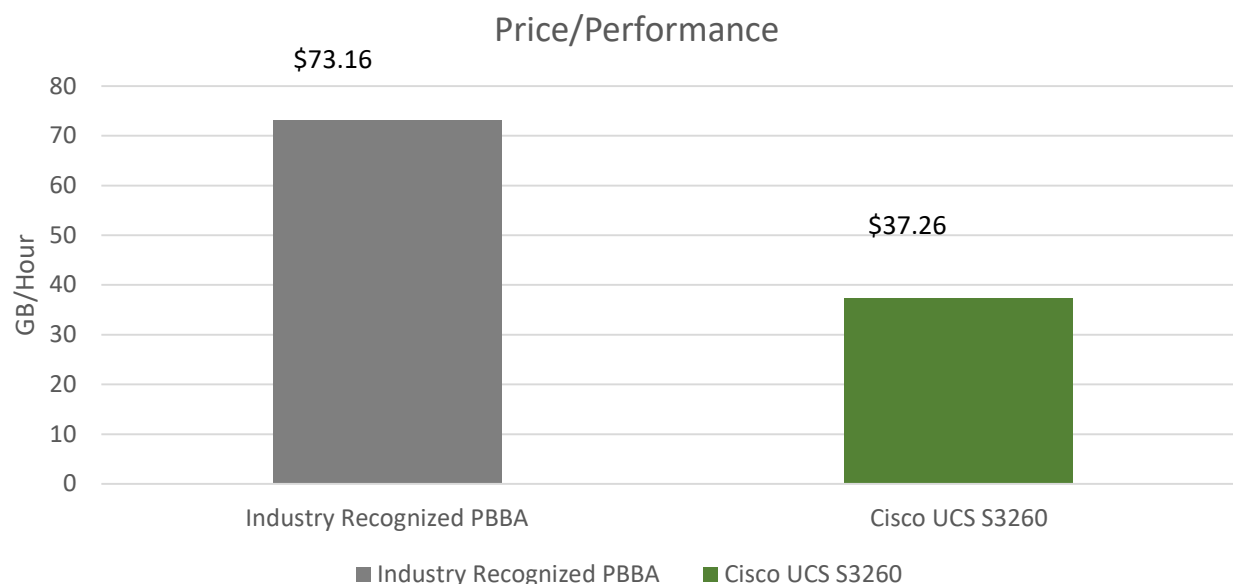
Source: Enterprise Strategy Group

The Manageability of Veeam and Cisco UCS—Customer Impressions

At many IT organizations, good *manageability* translates into how much time admins save thanks to simpler implementation and automation-rich functionality. The IT managers interviewed by ESG reported they interact with the Veeam management console just 20-30 minutes daily to "check on things" and invoke restores.

> - "If it takes more than 20 minutes per day, you're doing something wrong."
>
> - "Choosing Veeam was a huge win for us. Backup used to consume up to 30% of an admin's job. Now it's two to three hours weekly."

One organization even saved time after a problem arose.

> "We'd messed up something—Veeam wasn't working with our SQL cluster. I opened a ticket using the Veeam portal and quickly received an email from a Veeam engineer with instructions. I didn't have to make one call. We followed those directions, and everything has been flawless since."

Technically Validating the Deployment Ease and Manageability of the Veeam/Cisco UCS Solution

The Veeam/Cisco UCS solution comes with Windows OS and the Veeam application installed, along with backup repository storage capacity defined. Those presets ensure easy deployment into an IT environment.

ESG began its ease of deployment/manageability testing by logging into the Cisco Integrated Management Controller (CIMC) and reviewing the storage configuration. As Figure 4 shows, ESG reviewed the configuration of the two virtual drives: The first as a RAID1 drive set with 460GB of space to host the Windows OS, and the second as a RAID60 drive set with 160TB of space allocated for the Veeam backup repository.

From the Windows OS running on the Cisco S3260, ESG formatted the RAID60 drive set with the Resilient File System (ReFS), assigned a drive letter, and created a directory. The resulting configuration (E:\Backup) became the Veeam backup repository. ESG then used the Veeam management interface to define and add the space to the Veeam backup configuration as a new Microsoft Windows server backup repository.

Figure 4. Backup Repository Configuration

Cisco Integrated Management Controller

Cisco UCS S3260 With Veeam

Veeam Backup and Recovery
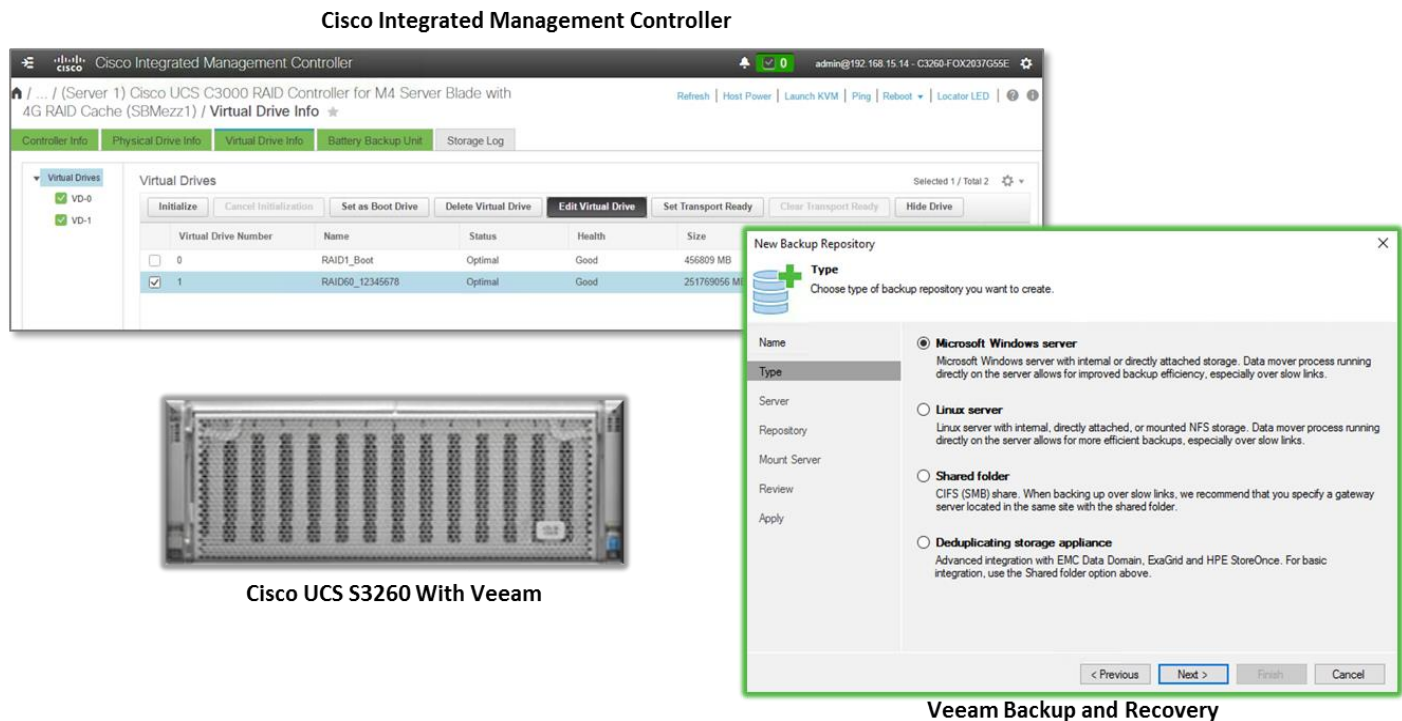
Still using the Veeam user interface, ESG configured an automated backup job by following five simple steps—(1) naming the job, (2) selecting the virtual machines to protect, (3) defining the location to store backup images, (4) setting guest processing attributes, and (5) scheduling the job.

ESG was able to confirm that the Veeam/Cisco backup solution—with its easy-to-use management interface and preconfigured deployment setup—makes tasks such as this more comfortable for an administrator. The processes of configuring a backup job, backup copy job, replication job, or even an instant recovery look and feel similar. And scaling the solution is just as easy as following the initial deployment process.

When it comes to justifying an IT investment, reducing operational expenses is an important factor. Easy deployment and management play a major role in reducing operational expenses—especially in environments in which a large number of data protection operations must be performed. Because some of those operations do not always need to occur on a regular basis, it's easy to get rusty in their execution. In turn, that adds time and effort and, in the worst cases, leads to failure.

The Bigger Truth

A combined 68% of respondents surveyed by ESG believe their IT environments are either more complex (47%) or significantly more complex (21%) than they were just two years ago.[3] The complexity has made data center modernization an urgent priority. Server virtualization particularly enables IT pros to provide better agility and efficiency to other business units, but only if the underlying solution components that are used are reliable, fast, easily deployed, easily managed, and cost effective.

Consider how critical it is to be able to resume operations quickly after a data loss or corruption event. Downtime costs lots of money. Proactively addressing risks through better protection costs far less money. That's likely a big reason why the Veeam/Cisco UCS customers whom ESG interviewed so actively sought out reliability, performance, and manageability.

With greater reliability, those IT organizations spend less time troubleshooting production crises. With better performance, they bolster their virtualization infrastructure, accelerate their broader IT delivery capabilities, and perform recoveries faster. And with easier manageability, deployment becomes more consistent, and routine management tasks take much less time to complete.

IT organizations desiring to make such improvements to their own environments should know those advantages are the exact characteristics that are enjoyed and appreciated by organizations already operating Cisco UCS servers and Veeam software together.

Validation Testing Proved What IT Already Knows:

Veeam and Cisco UCS Are Better Together

- The performance of the Veeam/Cisco combination is 28.9% higher than the alternative assessed by ESG Lab: 10.44TB per hour versus 8.1TB/hour.

- Veeam/Cisco price/performance is 49% lower than the examined alternative—$37.26 per gigabyte per hour versus $73.16 for the other assessed solution.

- With Veeam/Cisco, configuring a backup job, copy job, replication job, or even an instant recovery looks and feels the same to the admin. And scaling the solution is just as easy as following the preconfigured initial deployment process.

Enterprise Strategy Group is an IT analyst, research, validation, and strategy firm that provides actionable insight and intelligence to the global IT community.

www.esg-global.com   contact@esg-global.com   P. 508.482.0188

[3] Source: ESG Master Survey Results, *2018 IT Spending Intentions Survey*, February 2018.