Comparing Veeam Availability Suite to Legacy Data Protection Solutions

An ESG Economic Value Analysis

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December 2015

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Executive Summary

Availability and data protection solutions must meet the requirements of the 24x7x365 world in which organizations operate and traditional solutions often fall short.[1] ESG was engaged to develop a detailed economic model to quantify the value of Veeam's virtually-optimized data management Availability solution compared to a present mode of operation (PMO) representative of traditional "physical-first" legacy backup solutions that have been adapted for virtual infrastructure.

Analysis Highlights, Typical Enterprise Use Case:

- Modeled 247% ROI and 15-month payback period compared to traditional storage.
- Nearly $700,000 in reduced costs over three-year time horizon; ~$2M in incremental business value.

The model and accompanying analysis presented in this report is intended to help organizations determine the relative costs and benefits of leveraging Veeam for virtual machine (VM) backup compared to legacy alternatives. The economic value model builds upon in-depth interviews with Veeam technical stakeholders, relevant product demos, a review of publicly referenceable customer case studies, quantitative ESG market research conducted among Veeam users, and ESG's general familiarity with the myriad of data protection solutions available in the market today.

As discussed in the following pages, based on ESG's analysis, Veeam's Availability solutions offer an extremely compelling and economically efficient method for protecting virtualized assets. For many use cases ESG examined, Veeam was modeled to both lower costs for the organization while also adding a massive amount of incremental business value compared to what was expected in the PMO scenario. This was achieved through the avoidance of, and faster recovery from, downtime. In fact, the replacement of an in-place legacy data protection solution with Veeam in a typical virtualized enterprise environment yields an estimated 247% ROI over a three-year time horizon—lowering total cost of ownership (TCO) by more than $650,000 while adding business value in the range of $2M, chiefly in the form of increased asset availability.

For organizations looking for an economically efficient way to deliver exceptional Availability, Veeam offers an extremely compelling value proposition. This report summarizes the rigorous research ESG conducted to quantify costs and benefits of the Veeam Availability Suite and communicates the results of this analysis.

Market Overview

Arguably, nothing in the last decade has been more transformative to how IT is delivered than server virtualization. The industry has evolved from simply installing hypervisors on traditional servers, through blades and then chassis, and most recently to what many consider to be the epitome of the IT infrastructure building block: the hyperconverged appliance and the converged-systems rack architecture. But the journey toward a progressively more agile, virtualized state isn't complete. For several years, increasing the use of server virtualization has been one of the most-cited IT spending priorities reported by ESG research respondents (see Figure 1).[2]

Another consistently top-cited priority, as Figure 1 shows, is improving backup and recovery. In fact, in ESG's 2012, 2013, and 2014 IT spending intentions research, increasing virtualization and improving backup were always adjacent to each other within the top-five lists. Even in 2015, the two are separated by one percentage point.

[1] Usage of the term "Availability" as a proper noun in this white paper is reflective of Veeam's vision for reliable protection and management of virtual environments.

[2] Source: ESG Research Report, *2015 IT Spending Intentions Survey*, February 2015.

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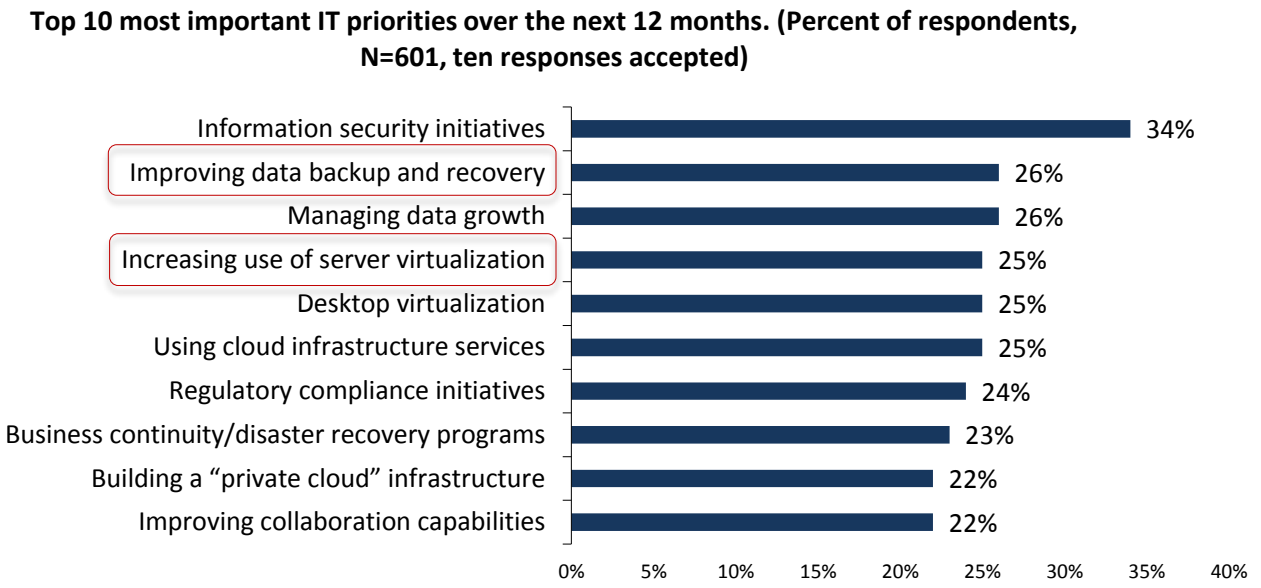
Figure 1. Top Ten IT Spending Priorities in 2015



Source: Enterprise Strategy Group, 2015.

When You Modernize Production, You Must Modernize Protection

If your environment is only 20% virtualized, you can likely protect it with any mediocre backup approach you might still have running. When you're 50% virtualized, you may start feeling encumbered by legacy backup approaches. By the time you're 70% or more virtualized, legacy approaches to backup will probably hinder your virtualization infrastructure. Said another way, as the density of virtual machines per host increases, legacy approaches to backup will negatively impact the VMs being protected *and* the underlying hosts and storage systems. This assertion is not conjecture; it reflects the difference in architectural approaches that can significantly affect IT systems.

Specifically, legacy-style, agent-based technologies running within each OS (physical or virtual) *that are responsible for gathering and transmitting the data to/from the backup server* create significant spikes in CPU and storage within the OS when backup operations are in progress. Physical servers are often underutilized and therefore tolerate the spikes without ramifications. OSs within virtual servers do not have spare capacity. In dense environments, CPU, storage, and memory can be oversubscribed because the underlying resources allocate and share them dynamically. Spikes that rapidly require resources within one VM can strain the remaining available resources for all other VMs in that host, as well as the host's own resources.

Unless you are using a currently shipping version of a unified data protection solution (e.g., with a shipping date of 2014 or later), you will almost undoubtedly be updating your data protection solution as part of your continued embrace of virtualized systems.

What to Look for in a Modern Availability Solution

According to recent ESG research, five of the top six reported challenges in protecting virtualized environments are related to "visibility" (see Figure 2).[3] The implication is that many data protection tools (mostly those using legacy approaches) are not virtualization savvy.

[3] Source: ESG Research Report, *Trends in Protecting Virtualized Environments*, August 2015.

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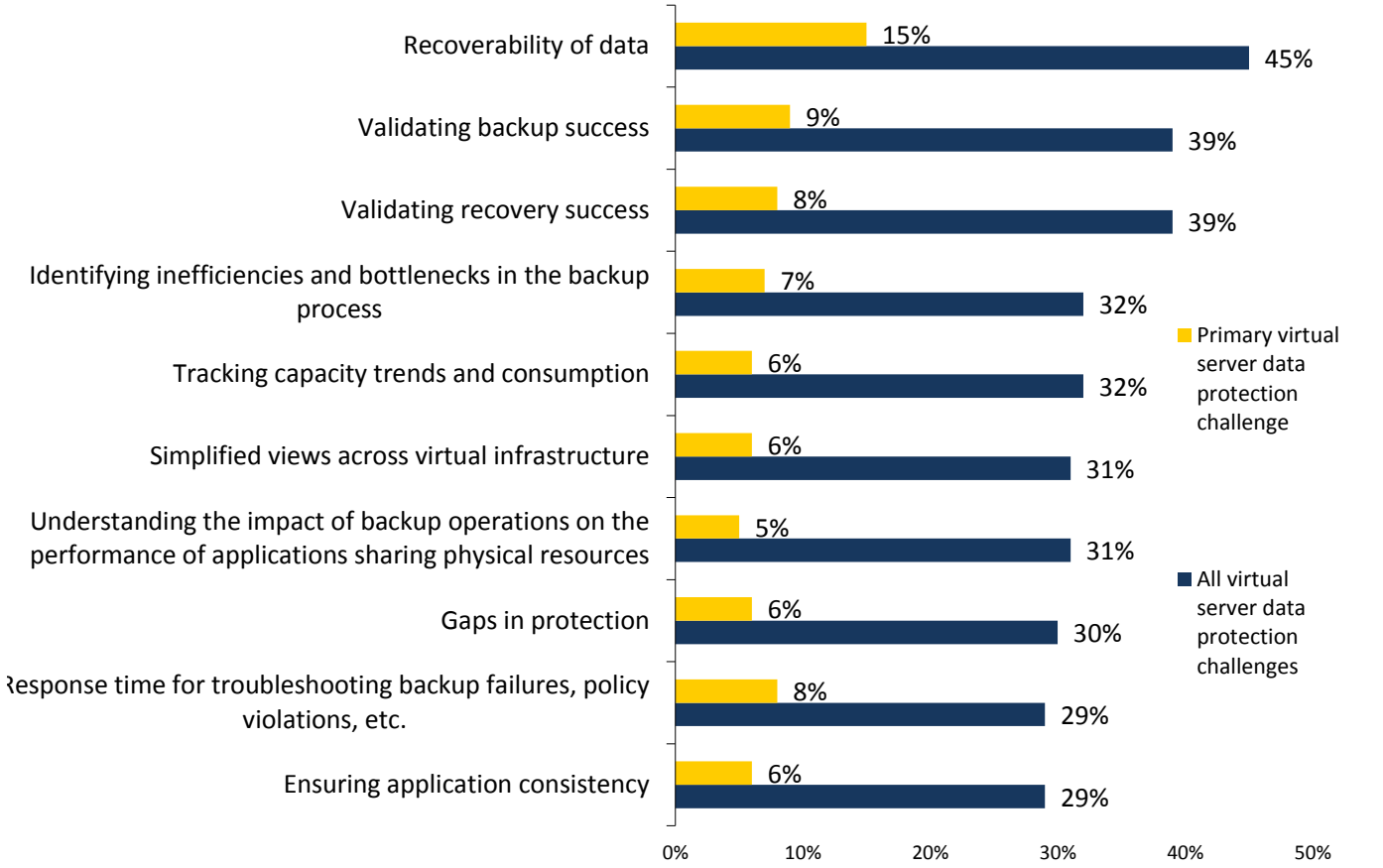
Figure 2. Top Ten Challenges in Protecting Virtual Environments

Which of the following would you characterize as challenges for protecting your organization's virtual server environment? Which would you consider to be your organization's primary virtual server data protection challenge? (Percent of respondents, N=375)



Source: Enterprise Strategy Group, 2015.

Aside from the most-mentioned challenge (recoverability of data), the next five challenges appear to indicate that many backup tools can't discern whether backup/recovery operations are successful or not. They can't see where problems are occurring or they can't indicate how the backups are affecting the virtual infrastructure (and vice versa).

Veeam's Approach to Solving Virtualization Protection Problems

As the data suggests, protecting virtual assets is fraught with challenges introduced by non-optimized tooling, which cannot recover data quickly and completely and which does not provide the desired visibility into the environment. Veeam purports to offer a superior method for protecting virtual assets and with over 168,000 companies—50,000 added in the last 12 months—relying on their Availability solutions, further investigation is warranted.

The five key features Veeam touts as game changers for customers include:

1. **High speed recovery:** Rapid recovery of all virtualized assets whether they are VMs, files, or even application items from Microsoft Exchange, Microsoft SQL Server, Microsoft SharePoint, Microsoft Active Directory, and Oracle in less than 15 minutes.
2. **Data loss avoidance:** Powered by near-continuous data protection (near CDP) and streamlined disaster recovery, which enable organizations to reach recovery point objectives (RPOs) of <15 minutes.

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3. **Verified recoverability:** Automatically verify the recoverability of every file, application, or virtual server backup as well as every replica.
4. **Leveraged data:** Allows customers to put backups and replicas to work by deploying a sandbox environment which utilizes existing backup storage capacity to test application updates and patches without affecting the production environment.
5. **Complete visibility:** A robust toolset to help monitor, troubleshoot, and plan changes to backup and production virtual environments before there is an operational impact.

Clearly these proficiencies are aligned with the challenges presented in Figure 2 with discrete functionality dedicated to recovering data completely and quickly, helping administrators verify backup and recovery success, and providing additional deep monitoring and reporting capabilities.

Moreover, based on ESG's research among the Veeam user base, these are not merely well-positioned marketing claims:

- 96% of Veeam recoveries meet recovery time objective (RTO) service level agreements (SLAs) compared to just 76% when utilizing legacy backup.
- 83% of customers reported they are more confident with Veeam than they were prior to the deployment.
- 71% of customers report an increase in reliability with Veeam in place.
- 84% of Veeam Virtual Lab users report time savings during application updates, patching, and deployment.

The remainder of this report reviews ESG's methodology for quantifying the value of these features in a detailed economic value model and discusses the financial outcomes estimated by that model for a common enterprise use case.

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Veeam Availability Suite: Economic Value Analysis Overview

Methodology

For this project, ESG adhered to the following research and modeling methodology:

- ESG conducted initial market research across Veeam and other relevant IT vendors to assess current market trends, vendor value claims, and the purchase considerations that are most important and relevant to customers evaluating data protection solutions—specifically for virtual environments.
- Based on the results of this initial research, ESG subsequently identified a "present mode of operation" (PMO)—effectively, a traditional approach that customers may take to meet their data protection requirements—against which the costs and benefits of utilizing Veeam was to be compared. For this analysis, the PMO is a blended average of traditional inner-VM, agent-based data protection solutions typical of legacy products developed for physical infrastructure but adapted for virtual infrastructure.
- ESG then conducted a series of in-depth interviews with systems engineering, service and support, and technical marketing representatives from Veeam. The data collected in these interviews was used to refine assumptions built into the model related to current customer environments and the direct and indirect costs and benefits attributable to Veeam Availability Suite. Product marketing collateral, configuration guides, and case studies of customers were also used to identify specific IT and user workflows and the labor burden (in both time and cost) associated with those workflows. These findings were then compared against the results of ESG's quantitative market research among Veeam customers, which centered on the "current state" of utilizing Veeam to the time before Veeam's deployment. This research helped to inform ESG's understanding and analysis of Veeam adoption drivers, usage trends, and the operational and financial benefits that customers can realize.
- Once the economic model was finalized and all research complete, ESG modeled a default scenario that is designed to demonstrate the relative costs and benefits of Veeam in a hypothetical enterprise environment. Those results were then compared with model outcomes for a similar-scale traditional data protection solution. The results for this default scenario are described in the remainder of this paper.

Please note that the data and conclusions presented in this report regarding the costs and benefits associated with implementing and utilizing Veeam reflect the output of ESG's economic value analysis based on the specific use case and default scenario assumptions modeled for this report. ESG acknowledges that changes to these assumptions will lead to a different set of results and, as such, advises IT professionals to use this report as one validation point in a comprehensive financial analysis process prior to making a purchase decision.

Veeam provided current standard pricing and product information for Veeam Availability Suite to ESG. Other IT equipment and labor cost assumptions were obtained from publicly available sources such as IT vendor and channel partner websites and published price lists.

Economic Value Model Overview

As previously noted, ESG's EVV methodology compares two scenarios: The first is an organization that elects to support its virtual environment with Veeam, the second is the PMO. The basic profiles for each scenario are:

- **Veeam scenario:** In this scenario, the customer is leveraging Veeam Availability Suite to protect an assortment of VMs running in the environment. The software is licensed based on the number of sockets in the hosts dedicated to running the VMs. The model takes into account all environment costs including secondary storage hardware housing backups in a modern "incremental forever" architecture, Veeam software, maintenance and support costs over time, and any professional services costs incurred upon deployment. IT efficiencies for solution administration, user productivity improvements through the reduction of downtime, and reduction in lost revenue from increased Availability are also within the scope of the model.

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- **Present mode of operation scenario:** In this scenario, the customer is using a legacy data protection solution which protects VMs with agents running in the VMs. As a class of solution, the PMO is meant to be representative of solutions developed for physical assets first and adapted for virtual assets. The model takes into account all environment costs including secondary storage hardware housing backups in a grandfather-father-son (GFS) architecture, data protection software (licensed based on capacity rather than sockets), and maintenance and support costs over time.

The tasks and processes used as the basis of comparison between both scenarios include:

- Restoration processes in both environments for app-level items, files, and full VMs, which need to be recovered periodically over time.
- Agent installation and configuration tasks over time, or the absence of such tasks in the Veeam scenario.
- Manual backup testing and verification tasks over time, or the absence of such tasks in the Veeam scenario.
- Actions taken in response to failed restorations occurring in the environment over time in each scenario.
- The costs and effort associated with the creation of a virtual or physical lab for application and backup testing in each scenario.
- The impact of the preceding IT considerations and relative frequencies on end-users and revenue-generating virtual resources.

Simply put, ESG's model estimates the likely cost and potential benefits—according to the tasks outlined—of supplying Availability and VM data protection with either Veeam or the PMO.

Default Scenario

To illustrate the relative costs and benefits of leveraging Veeam against the legacy PMO, ESG developed a set of model inputs representative of a multibillion dollar, highly virtualized, enterprise use case.

The virtual footprint of the organization at the beginning of the time horizon consists of a total of 650 VMs that, on average, require 113 GB of storage. These VMs are running on a total of 100 host CPU sockets. Over the three-year time horizon this VM footprint is not assumed to be static. The total number of VMs deployed is assumed to grow at 15% year-over-year and VMs are assumed to be growing at 30% annually in terms of the amount of dedicated storage required per VM.

From the perspective of cost of downtime, ESG's default scenario assumes 80% of revenue is tied to VM uptime. Additionally, the model assumes that 5,000 employees, earning an average unburdened salary of $65,000, are reliant on virtualized resources to fulfill their responsibilities. These and other key assumptions can be reviewed in tabular format in Table 1.

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Table 1. Key Default Enterprise Use Case and Assumptions

Parameter	Default Use Case
Starting number and annual growth in VMs	650 / 15%
Number of CPU sockets in hosts required to run starting number of VMs	100
Average size of storage associated with VMs and annual growth expected in new VMs	113 GB / 30%
Percent of VM for which backups regularly exceed maintenance windows with PMO	50%
Average number of production hours per month VM backups bleed over among VMs that regularly exceed maintenance windows	1.5
Number of file recoveries per year required in the starting environment	2,500
Number of application item recoveries per year required in the starting environment	1,250
Number of full VM recoveries per year required in the starting environment	15
Percent of requests to recover virtualized resources which fail today with the PMO	20%
Type of secondary storage utilized in the environment	Veeam-optimized dedupe storage
Percent of revenue reliant on virtualized resources	80%
Number of employees reliant on virtualized resources	5,000
What is the time horizon of the analysis?	3 years
What is the average annual salary for an IT administrator?	$80,000
What is the average annual salary for a typical non-IT employee?	$65,000

Source: Enterprise Strategy Group, 2015.

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Economic Value Validation Results

Summary of Results

With the model parameters tuned to the default assumptions in Table 1, ESG's economic value analysis concludes that the net benefits of implementing Veeam greatly outweigh the associated costs. Table 2 shows the return on investment (ROI), payback period, total cost of ownership (TCO) of Veeam, PMO TCO avoided, and incremental benefit modeled for Veeam compared against the PMO. The following sections detail the most compelling findings from this analysis as they relate to both the costs and benefits associated with these solutions.

Table 2. Economic Value Summary, Veeam

Solution	ROI	Payback Period (months)	TCO	PMO TCO Avoided	Incremental Benefit Enabled
Veeam	247%	15	$1,055,086	$1,716,204	$1,945,571

Source: Enterprise Strategy Group, 2015.

Incremental Benefit Enabled

This ESG analysis considers three primary benefit categories for Veeam: IT efficiency, user productivity improvements, and revenue improvements tied to decreases in VM downtime over and above what is expected with the PMO.

- Increases in IT efficiency include savings in areas like reduced time and effort to restore VMs, files, and application items, less time troubleshooting backups, agent installation and configuration avoidance, costs avoided by utilizing existing storage for a virtual lab environment, and a reduction in help desk tickets requiring a response.
- User improvements include value delivered to the user community in terms of increased uptime through the faster restoration of virtual resources, a reduction in the amount of work that needs to be recreated due to failed restores, and a reduction in the number of tickets submitted to IT.
- Revenue improvements are driven by increased Availability, as well as the proportion of annual revenue of the organization reliant on virtual assets in the default scenario.

The sum of these three macro-categories modeled over the three-year time horizon equals the total benefit delivered by Veeam compared to the PMO.

TCO and Avoided PMO TCO

This ESG analysis considers four cost categories for both Veeam and the PMO: hardware, software, maintenance and support, and professional services:

- The only hardware costs within the scope of ESG's model are the costs associated with the secondary storage capacity to be utilized for backups. The model estimates the secondary storage capacity needed at the end of the time horizon in each scenario and applies an estimated cost per TB for that tier of storage.
- Software costs in the Veeam scenario are estimated based on the number and growth of CPU sockets of the virtualization hosts estimated in the environment over time. Each socket is assumed to carry with it a $2,400 software expense, the MSRP for Veeam Availability Suite Enterprise *Plus*. By contrast, in the PMO scenario, software costs are estimated as a function of primary storage requirements with a $5,000 software expense being allocated for every added TB of storage over the time horizon.
- For both solutions, Veeam and the PMO, maintenance and support costs are estimated. Hardware maintenance associated with each solution is formulaically estimated as an annual cost equal to 10% of

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cumulative hardware CapEx. Software maintenance is estimated for Veeam based on the number of licenses procured over time. Finally, software maintenance and support for the PMO is estimated as an annual cost equal to 23% of cumulative software CapEx.

- Professional services make up a marginal amount of solution costs in ESG's model. Since the PMO is considered to be an "already existing" solution, no professional services costs are assumed to be incurred. Meanwhile, Veeam is a newly-deployed solution, so professional services costs are considered. However, based on ESG's research, this cost is anticipated to be fairly immaterial in relation to other solution costs.

By aggregating all of the cost categories, the TCO of each solution is estimated. The TCO for Veeam is an expense that is incurred as a result of the investment in the technology. The PMO TCO is a cost-avoidance benefit resulting from the investment in Veeam.

ROI

ROI is a financial ratio that compares the net benefits of Veeam (the incremental benefit enabled, plus the PMO TCO avoided, less Veeam's TCO) against the TCO and helps makes sense of the cost and benefit numbers estimated by the model. As displayed in Table 2, the ROI for Veeam in ESG's default scenario is 247%.

Payback Period

ROI is not the "be-all and end-all" of financial metrics for determining the viability of a project or investment. Another important metric is the payback period, which is an estimate of *when* customers will start to see a positive return from their investment. As displayed in Table 2, the payback period for Veeam, as modeled in our default scenario, is 15 months—a compelling breakeven point less than halfway in to the three-year time horizon.

Quantifying Relevant Cost and Benefit Differences

Economic models are, by definition, abstractions from reality. In any model, numerous estimates and assumptions must be made. ESG's methodology leverages rigorous market research and in-depth interviews to estimate material differences between two fundamentally different approaches to data protection. This section discusses important estimates incorporated into ESG's economic value model to quantify the financial implications of each data protection approach.

Comparative Cost Analysis

For the default customer scenario described, the subcategorized TCO for Veeam and the PMO are displayed in Table 3.

Table 3. Itemized Three-year TCO, Veeam versus the PMO

Cost Category	Veeam	PMO
Hardware	$515,388	$343,946
Software	$316,800	$859,865
Maintenance and Support	$215,398	$512,393
Professional Services	$7,500	N/A
Total	**$1,055,086**	**$1,716,204**

Source: Enterprise Strategy Group, 2015.

Key TCO estimates and assumptions, which drive economic differences between Veeam and the PMO in ESG's model, follow:

- **Hardware:** In both the Veeam use case and the PMO, hardware costs considered by the model are estimated for the secondary storage capacity required to house backups. In both cases, backup capacity required by the end of the time horizon is driven by several factors: the growth in primary storage capacity,

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the anticipated data reduction to be achieved, the number of restore points retained, the change rate of the data, and the backup paradigm utilized (GFS versus incremental forever).

For Veeam, the model assumes that at the end of three years, accounting for the growth in the number and size of VMs, primary storage requirements have grown to ~245 TBs. Additionally, through the use of Veeam-optimized dedupe storage, a 75% data reduction rate is achievable for backups. Finally, the model assumes that a progressive, incremental-forever backup paradigm is utilized with 120 restore points retained, each with a 5% change rate. In total, the estimated secondary storage required is ~856 TBs at the end of the time horizon. The model assumes a per-TB cost of $600 for a total of $515,388 in hardware CapEx.

For the PMO, the model calculated the identical amount of primary storage capacity at the end of the time horizon, ~245 TBs. The model also assumes dedupe storage is utilized and the same 75% data reduction rate is achievable for backups. However, the model assumes a GFS backup paradigm, which requires 18 full backup restore points and six incremental restore points. In total, a greater amount of secondary storage capacity is estimated to be required compared to Veeam, ~981 TBs at the end of the time horizon. However, the model also assumes that since the PMO is an existing solution, the secondary capacity required at the start of the time horizon, ~294 TBs, has already been purchased and is thus a sunk cost not considered in the scope of the analysis. Thus, the model calculates the procurement of ~687 TBs of capacity at a slightly lower per-TB cost, $500, for a total of $343,946 in hardware CapEx.

- **Software:** As noted, software costs are driven by different factors in the Veeam scenario compared to the PMO. Veeam costs are correlated to CPU sockets in virtualization hosts, while PMO costs are correlated to the amount of primary storage TBs being backed up.

  For Veeam, the model calculates the number of VMs over time and estimates the number of hosts needed to run those VMs. It is important to note that the number of VMs a single host can house is not assumed to be consistent over time—rather it is assumed that new hosts deployed can support 25% more VMs as each year passes. Initially hosts are assumed to be able to house 15 VMs. By the end of the first year, new hosts added to the environment are assumed to be able to run ~19 VMs. By the end of the second year, new hosts added to the environment are assumed to be able to run ~24 VMs. This gradual improvement in VM density means that the effective cost of Veeam per-VM declines over time, contributing to a significant economic advantage for Veeam in this analysis. In total, the model estimated that 132 sockets will be required in the environment by the end of the time horizon. The result is a total of $316,800 in software CapEx incurred over the course of the time horizon with purchases made annually.

  For the PMO, the calculated growth in primary storage drives backup software costs. At the start of the time horizon, ~73 TBs of primary storage are estimated to be required and this figure is estimated to grow to ~245 TBs based on the growth in VMs and the size of those VMs over time. Because the PMO is assumed to be a solution that is already in place, the software cost associated with the initial 73 TBs is ignored. However, for each incremental TB added to the environment over time, a $5,000 software expense is modeled. The result is nearly $860,000 in software CapEx modeled in the PMO scenario over the full time horizon with purchases modeled to occur annually.

- **Maintenance and Support:** As noted previously, two cost components make up aggregate maintenance costs: hardware maintenance and software maintenance. In both investment scenarios, hardware maintenance is a function of the estimated secondary storage CapEx (an annual charge equal to 10% of CapEx). For this cost component, existing PMO storage capacity in place at the start of the analysis does trigger a maintenance charge. As such, PMO hardware maintenance slightly exceeds Veeam hardware maintenance anticipated: $112,859 versus $103,078.

  Costs begin to diverge more substantively when software maintenance is considered. Veeam software maintenance is driven by the number of sockets present in the environment over time, which correlates to the number of Veeam licenses. For each license procured, an annual $480 maintenance charge is

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configured by the model in each subsequent year in the time horizon. In total, $112,320 in software maintenance charges are estimated for the use case described in Table 1.

In the PMO scenario, a 23% annual maintenance charge assumption is leveraged. For every cumulative dollar modeled to be expended on backup software, a $.23 annual charge is modeled in subsequent years. Additionally, maintenance is estimated for the in-place backup software that is already assumed to be present at the start of the time horizon. In total, $399,533 in software maintenance charges are anticipated by the model in the PMO scenario.

- **Professional Services:** As noted, professional services make up a marginal portion of the TCO for this scenario. The model configures three days of professional services (at a daily rate of $2,500) in the Veeam scenario to account for assessment and deployment services. By contrast, no professional services are configured in the PMO scenario as the PMO solution is assumed to be representative of a currently deployed solution.

Comparative Benefit Analysis

For the default customer scenario described, the subcategorized incremental benefits estimated to be delivered by Veeam beyond what is expected in the PMO scenario are displayed in Table 4.

Table 4. Itemized Three-year Incremental Benefits Delivered by Veeam

Benefit Category	Veeam
IT Efficiency Savings	**$195,646**
VM, File, and App-level Restore Efficiencies	*$71,384*
Reduction in Backup Troubleshooting	*$82,801*
Reduction in Failed Backups	*$20,239*
Agent Installation Avoided	*$4,929*
Backup Lab Costs Avoided	*$8,469*
Manual Backup Testing Avoided	*$5,600*
Helpdesk Ticket Avoidance	*$2,224*
User Productivity Improvements, Reduced Downtime	**$1,267,838**
VM, File, and App-level Restore Improvements	*$73,287*
Elimination of Lost Work Tied to Failed Backups	*$168,079*
Elimination of Backups Exceeding Maintenance Windows	*$1,024,665*
Reduction in Helpdesk Ticket Submissions	*$1,807*
Reduction in Revenue Loss Tied to Downtime	**$482,086**
Total	**$1,945,570**

Source: Enterprise Strategy Group, 2015.

Many benefits included in ESG's model are characterized as time saved for either the IT administrators or end-user employees. However, it is critical to note that ESG does not assume every saved staff-hour is productive. Rather, ESG uses the assumption that only 50% of saved staff time to either constituency will be productive. A detailed breakdown of IT efficiency benefits follows:

- **IT Efficiency During Restore Operations:** As discussed, the extremely rapid recovery of all virtualized assets, whether they are VMs, files, or even application items in 15 minutes or less, is a key feature of Veeam. Numerous reference customers have attested to the value of this feature and ESG quantitative data validates that customers are significantly more likely to be able to meet RTO SLAs.

  To estimate these benefits, ESG's model considers the number of VM, file, and application-item restores expected in the environment over time and allocates 15, 5, and 5 minutes of IT labor to each type of event respectively in the Veeam scenario. In the PMO scenario, those IT workflows are estimated as occupying 60, 15, and 15 minutes of IT labor per-event respectively for VM, file, and app-item recoveries. The result is that over the full time horizon, and accounting for ESG's productivity correction factor, over $70K in

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productive IT time is estimated to be saved in the Veeam use case, freeing up IT resources to focus on more strategic tasks.

- **Reduction in Backup Troubleshooting:** A key difference between Veeam and legacy backup solutions is the level of automated verification and visibility provided into the success of backups and the fact that problem backups by and large are eliminated with Veeam. By contrast, legacy solutions require manual troubleshooting when a problem arises, and those problems tend to arise much more frequently. To model this difference, ESG's model assumes that for every 40 VMs present in the environment in the PMO scenario, one hour of weekly troubleshooting must be allocated to the backup environment. However, in the Veeam scenario, it is assumed that 90% of this troubleshooting time and effort is eliminated. The result is a net savings in the Veeam scenario of over $80K in IT efficiency over the time horizon.
- **Reduction in Failed Backups:** Not only is Veeam modeled to increase efficiency in terms of reducing time spent troubleshooting backups, but it is also modeled to reduce workflows associated with attempting to actually restore virtual resources from bad backups, which is modeled to happen much more frequently in the PMO scenario.

  Similar to the reduction in time spent troubleshooting backups, this benefit is driven by SureBackup—Veeam's automated backup verification feature—and Veeam's ability to back up virtually any VM successfully. To estimate the scale of this benefit, the model looks at the total IT time expected to be dedicated to restoring VMs, files, and application items and assumes that 20% of those restores will fail with a legacy solution. In those cases where the restore fails, the administrator is assumed to restore a previous backup, effectively doubling the administrator's time needed in those instances. By default, ESG's model assumes Veeam may avoid 95% of these events, thereby increasing IT efficiency for the organization over the time horizon by more than $20K.
- **Avoided Agent Installations:** Veeam is effectively an "agentless" solution, which means that, for an environment of 650 VMs and growing, no manual agent installation is required. By contrast, in the PMO examined in this report, ESG's model assumes that a manual agent installation process is required, which requires 30 minutes of IT effort. While the model assumes the PMO is an already in-place solution that has already been deployed on the initial 650 VMs, it is a cost that is incurred for each of the additional ~340 VMs added to the environment over the three-year time horizon. The total incremental IT efficiency enabled by Veeam is estimated at nearly $5,000.
- **Test Lab Costs Avoided:** Veeam allows customers to leverage their data by using backups and replicas to test environment changes in a production-like environment without any risk to the actual production copies. There are many soft benefits to this capability including the ability to allow IT to test, troubleshoot, and conduct training in the virtual lab. However, the key hard benefit compared to the PMO is that to set up a similar lab would require additional physical storage resources. ESG estimates this avoided cost by assuming that the organization would elect to house 5% of VMs in the new physical lab, which, at the end of the time horizon, would require slightly more than 12 TBs of storage capacity. Additionally, ESG's model assumes five IT man-days of labor would go into setting up the physical lab. In total for the scenario examined in this report, ESG's model expects that Veeam's virtual lab allows the organization to avoid nearly $8,500 in cost.
- **Manual Backup Testing Avoidance:** Veeam, through its SureBackup and SureReplica features, automatically ensures the recoverability of every backup in any customer's environment. By contrast, with legacy alternatives, backup testing is a much less complete and more manual process. In ESG's model, it is assumed that, in the PMO scenario, the organization's IT department tests a representative sample of VMs four times per year and that each of these tests occupies two man-days of IT labor. After adjusting for the burdened rate of labor and ESG's 50% productivity correction factor, it is estimated that Veeam creates $5,600 in IT efficiency over the time horizon via backup testing automation.
- **Helpdesk Ticket Avoidance:** As discussed, Veeam is modeled to allow for faster restore times for virtual resources. One ramification is that outages for users are briefer and thus fewer tickets will be submitted to

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IT complaining about service outages. To estimate the benefit for IT of having fewer tickets to log and respond to, ESG's model estimates the average number of users per VM—eight in the default scenario examined in this report—and assumes that, in the event of an outage, 50% of those users will submit a ticket in the PMO scenario. Each ticket submitted is assumed to occupy 15 minutes of IT time and, due to the fact that outages are briefer with Veeam, ESG assumes that the frequency of ticket submission will be reduced to 25% in the Veeam use case. The result is slightly more than $2,000 in IT efficiency being created in the Veeam scenario due to avoided helpdesk tickets and complaints.

As discussed, many IT and backup operations are estimated to be improved by Veeam. However, that is not the end of the story. ESG's model also attempts to quantify the improvement Veeam may make on the end-user experience and increased end-user productivity for the customer described in the default scenario. A detailed breakdown of user improvement benefits follows:

- **End-user Impact of Restore Improvements:** As discussed, the extremely rapid recovery of all virtualized assets, whether they are VMs, files, or even application items, has efficiency implications for IT. However, it is just as, if not more, important to quantify this impact on end-users.

  To estimate these benefits, ESG's model considers the number of VM, file, and application-item restores expected in the environment over time and allocates 30, 10, and 10 minutes of outage time (effectively double the IT labor required) for each type of event respectively in the Veeam scenario. In the PMO scenario, virtual resources are estimated to be unavailable for 120, 30, and 30 minutes per-event respectively for VM, file, and app-item recoveries.

  However, it is important to note the ESG's model does not assume productivity grinds to a halt in the event of VM downtime or file or app-item unavailability. In the event that a user is waiting for either a file or application item to be restored, ESG's model assumes by default the user will experience a 20% hit to their productivity. By contrast, for the time a user is anticipated waiting for a VM to be restored, ESG's model assumes a 50% hit to productivity.

  It is also important to note that ESG's model does not assume only one user is impacted per event. While application-item restores are anticipated to impact just one user on average, file restores are anticipated to impact an average of three users, and VM restores are anticipated to impact an average of eight users.

  In total, considering all restore activities expected in the environment over three years, ESG's model estimates that Veeam is going to save the organization described by the inputs in Table 1 in excess of $73,000 in user productivity.

- **Elimination of Lost Work Tied to Failed Backups:** As discussed, when restoring a file from a backup fails, IT must go to a previous good backup to restore the file in question. In these cases, additional effort is required from IT, but that's not the end of the story. The user or users reliant on that file may lose work which needs to be recreated. To account for this fact, along with the fact that Veeam can help significantly reduce—or even eliminate—the occurrence of bad backups, ESG's model considers the total number of file restores happening in the environment, in conjunction with a PMO failure rate of 20%, and assumes that for each failure four hours of work is lost on average. The introduction of Veeam to the organization is assumed by default to allow the organization to claw back 95% of that lost productivity. The result over the three-year time horizon for the scenario in question in this report is an increase in productivity of over $168,000.

- **Elimination of Backups Exceeding Maintenance Windows:** Winning the race to sunrise is a top of mind concern for many backup admins reliant on legacy backup tools. To represent that fact, ESG's model assumes that half of the VMs in the environment regularly exceed their backup window and, for those VMs, backup jobs are expected to be running for an average of 1.5 hours of production time per-month. The impact this can have on users is significant: backup jobs consume system resources which would otherwise be available for users, hurting user experience and application performance.

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To estimate the financial impact of this incursion of backups into production time, ESG's model first assumes that the deployment of Veeam will help eliminate 75% of exceeded backup windows for VM backups. Additionally, the model assumes that when backup windows are exceeded, user productivity is reduced by 50%. Finally, ESG's model scales this productivity hindrance by the average number of users per-VM—eight in the scenario examined in this report—and the number of VMs regularly exceeding backup windows—50% of as many as 988 VMs by the end of the time horizon. The result over the three-year time horizon is that Veeam may empower as much as $1M in productivity benefits through the elimination of VM backups that exceed maintenance windows.

- **Reduction in Helpdesk Ticket Submissions:** The final user productivity benefit discussed in this report is, once again, related to Veeam's ability to enable faster restore times for virtual resources. By ensuring that users are waiting less time for virtual resources to become available and that outages are less painful, ESG's model assumes that fewer users will take time out of their day to complain to IT. The result is that users are more focused on productive tasks rather than submitting tickets to IT. To estimate this benefit, ESG's model estimates the average number of users per VM—eight in the default scenario examined in this report—and assumes that, in the event of an outage, 50% of those users will submit a ticket in the PMO scenario. Each ticket submitted is assumed to occupy 15 minutes of user time to write and, due to the fact that outages are briefer with Veeam, ESG assumes that the frequency of ticket submission will be reduced to 25% in the Veeam use case. The result is slightly less than $2, 000 in IT efficiency being created in the Veeam scenario due to avoided helpdesk tickets and complaints.

Finally, ESG's model estimates relative revenue at risk in the PMO and Veeam use cases and counts the improvement as a benefit of investing in Veeam. To start, ESG's model assumes this large enterprise has an annual revenue of $15B. Next, ESG's model assumes that the lion's share of the organization's revenue—80%—is in some way reliant on virtual resources. ESG uses these measures to estimate the per-VM, per-minute revenue at risk for the organization during an outage. In this use case, that figure works out to be ~$35. ESG's model then estimates the total incremental minutes of downtime, and thus revenue lost, in the PMO scenario compared to the Veeam scenario. In total for the use case described in Table 1, ESG's model estimates nearly $500,000 in revenue improvements resulting from an investment in Veeam.

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The Bigger Truth

Improving Availability continues to be one of the most commonly cited IT spending priorities among IT decision makers, year after year. It is a priority often spurred by the deployment of new IT workloads that demand modern protection and recovery approaches.

One of the key drivers for a "new" level of Availability is server virtualization. Virtualization's transformative impact on IT cannot be overstated. However, the same virtualization mechanisms that boost the agility of production IT environments can render data protection processes unreliable or hinder backup and recovery endeavors.

One potential answer for IT organizations struggling with virtualization's impact on Availability is to pivot away from traditional backup solutions and toward a best-of-breed backup solution optimized for virtual environments, like Veeam. In fact, ESG's analysis of a hypothetical enterprise investment in Veeam, compared to an in-place legacy backup solution, results in an impressive 247% return on investment over three years with a 15-month payback period. For IT decision makers looking to drive a compelling mix of efficient TCO and material value added through an improvement in Availability for their virtual environments, an investment in Veeam is worthy of careful consideration.

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