Managing Hybrid Cloud: An Analysis of Cost of Ownership

Integrated Cloud-Based Management Solutions Can Have 61% Lower Total Cost of Ownership than Siloed Solutions

PIQUE SOLUTIONS

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Contents

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Pique Solutions is a competitive research and market analysis firm supporting Fortune-500 companies in the information technology sector. Pique is based in San Francisco, California.

Executive Summary

Business success is increasingly measured by how quickly organizations can respond to market changes and customer demand. Cloud computing has been a major enabler of business transformation, but it has also introduced challenges. Customers we talked to described lack of visibility, insight, and control over rapidly growing IT estates. Most organizations are not only growing their cloud footprint but also growing on-premises and edge deployments. These conditions are forcing organizations to rethink their systems management strategies.

The traditional approach to IT management involved numerous management and monitoring systems implemented on-premises with siloed teams of IT specialists who spent a significant amount of time and effort configuring, customizing, integrating, and managing point solutions.

A new generation of monitoring, management, and analytics solutions are tapping into the scalability and flexibility of the cloud, using unified data and machine learning to automate, secure, and more intelligently plan IT environments.

Pique Solutions set out to quantify the differences between the two approaches using real-life scenarios. Using an in-depth data collection and interview process, we researched two popular management platforms: an integrated, cloud-based management solution from Oracle—namely, Oracle Management Cloud (OMC)—and a custom-built management platform composed of numerous specialized toolsets that are centered around Splunk Enterprise. The detailed customer and cost data gathered from a dozen study participants was aggregated and used to develop a composite three-year cost comparison of the two solution approaches, as illustrated in **Figure 1**.

Figure 1. Three-Year Cost Comparison of Management Solution
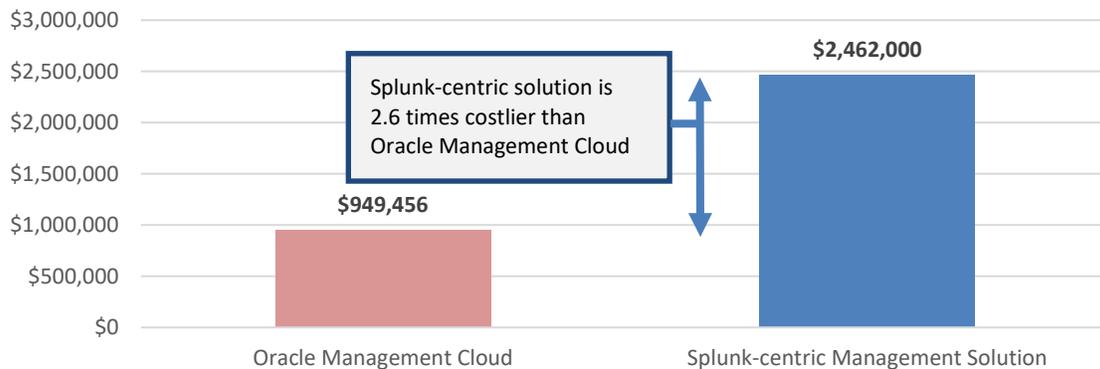
The key findings were as follows:

⊕ The study shows that the integrated, cloud-based OMC platform is less than a half to a third the cost (61% less) of a collection of multivendor point tools over three years.

⊕ Our model shows labor-intensive activities incurred by the composite organization amounting to nearly $800K in additional cost for a Splunk-centric custom-built management solution over three years as compared to OMC.

⊕ The custom-built solution requires augmentation, implementation, and integration of numerous third-party tools such as Splunk, AppDynamics, New Relic, and HPE, along with orchestration and management that add to solution costs, data integration, and ongoing operations.

⊕ Customers report that Splunk's repository can grow rapidly, adding significant compute and storage costs over time. Upkeep of an on-premises–based solution alone added $633K over three years according to our composite model.

⊕ Customers are spending months to configure the entire Splunk-based solution. In comparison, OMC is often reported to take less than one month.

⊕ Customers who are managing Oracle-stack targets (Oracle Database, Oracle Exadata, Oracle e-Business Suite, etc.) benefit from OMC's instant discovery and deep, out-of-box knowledge of those targets instead of the manual effort required to acquire and program that knowledge into the various components of the Splunk-based, custom-built management solution.

⊕ Splunk customers reported that training was an expensive and time-consuming aspect of the implementation, often leading to project rescoping in favor of a more basic usage of Splunk.

⊕ Many customers also cited the need for Splunk-trained application owners to participate on an ongoing basis to consolidate, normalize, and correlate disparate application performance and log data to enable issue identification and resolution.

⊕ The vast majority of Splunk customers are using the on-premises Splunk Enterprise but some are dealing with the confusion over newer options such as Splunk Cloud and Splunk on Amazon Web Services. These options vary in architecture, which leads to experimentation. One customer in our study was spending $2M per year in just Splunk licensing and subscriptions across their three deployments.

Overall, study participants found OMC fundamentally different in approach as compared to the custom-built approach in terms of the ability to start from the context of application performance and quickly drill down to the actual source of the problem no matter what tier of the IT stack it is located in. Splunk-based management, in contrast, is very much a "bottoms-up" approach to IT systems management, analyzing vast volumes of log files to identify issues and then working up the IT stack to correlate to end-user or application-related problems.

> "With Oracle Management Cloud you now have a technology that lets you answer the question, 'Where is the user having the problem?' It is a lot faster to get to the bottom where the problem exists when you start from the top because you have fewer choices as you move down the stack."
>
> **VP, Enterprise Transformation**
> U.S. Managed Service Provider

Introduction

Managing IT operations is a daunting task when factoring in the various tiers of the IT stack from applications, to data, to the underlying virtual and physical infrastructure. Traditionally, organizations have relied on multiple tools specialized for each tier of the stack and operated in a siloed and labor-intensive manner to correlate, diagnose, and eventually resolve IT issues.

The adoption of cloud as yet another deployment option has further exacerbated the IT management challenge as many organizations now have to manage their on-premises and cloud deployments with often different toolsets.

Today, customers can choose to manage and secure their IT estates in the traditional manner using disparate tools, or they can opt for a cloud-based management platform that provides the ability to manage user experience and application performance, analyze logs in context, and use analytics for a variety of management needs in a unified manner.

This paper evaluates the above two options in detail. Based on customer experience and quantitative inputs, we will demonstrate the impact on cost and cost of ownership for these two different approaches based on a composite deployment scenario and inherent solution architecture and capabilities.

The most common use case or scenario when it comes to IT management is the performance of key business and operational systems used within a company and directly by customers through the web or via mobile applications. To do this effectively typically involves a combination of several functional components including infrastructure and application performance monitoring (APM), metrics and machine data analytics, and orchestration.

Study Approach

The primary research phase consisted of an in-depth data collection and interview process. Pique identified and qualified 12 end customers, system integrators and service providers involved in implementations inside medium and large organizations. These experts provided detailed primary research and data focused on the cloud management options and the impact of choice of vendor platform on the IT environment and the broader business requirements.

The research process and methods were as follows:

- ⊕ Reviewed publicly available information and secondary research on cloud application development trends, drivers of adoption, use cases, and key value drivers.
- ⊕ Identified and qualified 12 customer interviewees who participated in multiphase, in-depth interviews and data gathering for each of the cloud management platforms.
- ⊕ Synthesized data and research findings.
- ⊕ Developed a cost-of-ownership model and analysis summarizing study results.

Table 1 lists the companies analyzed and interviewed in the data-gathering phase of the research project.

Table 1. Companies and Participant Roles Included in Primary Research

Company	Region	Title
Financial Services Firm	North America	Director of IT
Investment Management Firm	North America	Splunk Application Owner
Risk, Retirement, and Health Services Firm	Global	Executive Director, Technology
Systems Integrator	North America	Practice Lead
Telecomm Provider	Asia Pacific	Deployment Architect
Systems Integrator	North America	Enterprise Architect
Insurance Company	North America	Technology Specialist
Managed Service Provider	North America	VP, Enterprise Transformation
IT Services Firm	Asia Pacific	Technology Lead
IT Consultancy	North America	Principal Consultant
Systems Integrator	EMEA	Practice Lead
Investment Management Firm	Asia Pacific	IT Operations Lead

Management Solution Cost Comparison

In this section we present a framework for evaluating the costs of management capabilities to include application, data, and infrastructure elements and compare the costs of Oracle Management Cloud to a similar management capability based on Splunk and other third-party tools. The primary cost elements include:

⊕ Solution costs.
⊕ Implementation costs.
⊕ Operational costs.

Comparing Costs of a Common Deployment Scenario

To compare costs, we analyzed a composite deployment scenario based on our research and calculated the costs associated with the solution, implementation, and operational cost areas.

The following is the composite deployment profile used for the cost analysis:

⊕ **Deployment Scope:** End-to-end monitoring of multitier applications using telemetry from end users, servers, and logs.
⊕ **Number of Nodes Managed:** 25 (mix of app servers, database, and infrastructure).
⊕ **Daily Log Volume Ingested:** 30 GB average, but frequently peaking to 60 GB.
⊕ **Number of Primary Applications Monitored:** 4.
⊕ **Number of Users:** 12 (primary users including a management service owner, admins, application owners, and operations).

In terms of a cost model, we considered a three-year time horizon for the comparison of costs and calculated cost line items for each solution based on a combination of public pricing information as well as specific data Oracle and Splunk customers shared with us.

Solution Costs

The solution costs are defined as the cost and investment that customers incur to acquire the management capability required to effectively monitor and manage their applications and infrastructure. This includes vendor licensing or subscription fees, related annual support fees, and any data center costs required over time. Staffing and salary-related costs are evaluated in the implementation and operational cost categories discussed later.

OMC is a suite of cloud-based services for management of on-premises and cloud deployments including coverage for both the Oracle stack and other non-Oracle systems. OMC consists of subscription offerings for application performance, log analytics, orchestration, IT analytics, security monitoring, configuration, and compliance monitoring and management with all data stored in a consolidated repository on Oracle Cloud. For the scope of this analysis, the services included in the cost are the subscription services for Oracle Management Cloud: Enterprise Edition and Oracle Management Cloud: Log Analytics Edition.

The Enterprise Edition provides application performance monitoring, infrastructure monitoring, orchestration, and IT analytics. It is purchased based on an hourly rate and the number of entities to be monitored in the customer environment. The number of entities is based on a published conversion table depending on the type of resource—for example, a JVM, a database CPU, a nonrelational database, or a network device. The Log Analytics Edition monitors, aggregates, indexes, and analyzes log data from customer applications and infrastructure for which they want to collect and store log file data. It is purchased based on the volume of total indexed size of stored log data.

OMC subscription pricing is available on the Oracle website.[1] Beyond the subscription fees paid to Oracle, there are no additional fees for customer support, servers, storage, or other infrastructure elements, and Oracle provides regular updates and enhancements to the management platform on behalf of its customers so there is no maintenance required for the management platform.

A Splunk-based management solution with commensurate capability requires a combination of Splunk and various third-party software and systems to provide APM, log analytics, orchestration, and IT analytics. Splunk offers on-premises Splunk Enterprise, which runs on customer datacenters and Splunk Cloud hosted on Amazon Web Services or Splunk's own datacenters, but we are using Splunk Enterprise for our analysis because the majority of Splunk customers use it.

Customers using Splunk Enterprise as the foundation for their management solution pay for Splunk log analytics licensing on either a perpetual or term basis and, in most cases, the servers and infrastructure to run Splunk and store log data. According to an Asia Pacific telecommunications company, the minimum configuration for Splunk is three index servers, two search head servers, and a controller server.

The pricing for Splunk Enterprise licensing is based on the peak daily volume of data ingested into Splunk, stored in either a database or flat file depending on the customer. There is no explicit charge for accumulated log data, but customers are responsible for, and they bear the cost of, the hardware for storing the log data as well as for any high-availability and backup solutions. Pricing information for Splunk services can be found on their website.[2]

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[1] https://cloud.oracle.com/management/pricing

[2] https://www.splunk.com/en_us/software/pricing/faqs.html#Splunk-Enterprise

Because Splunk does not offer an APM solution, Splunk customers need to acquire third-party tools for applications performance, traditionally AppDynamics, New Relic, Dynatrace, or HPE APM. They also typically need other third-party or custom-built software for job scheduling and orchestration, security and user behavior, configuration and compliance management, and IT analytics.

Another factor associated with Splunk deployments is the addition or refresh of hardware to improve performance over time as the cumulative volume grows, searches become more complex, and hardware becomes outdated. A Splunk application owner at a large investment management firm shared his experience with us relative to the hardware investment, saying, "Our on-premises installation was ~$90K in hardware (12 hosts) to deploy initially, and has grown and been re-platformed twice, so figure ~$250K over six years in hardware alone. We have grown the platform as user demand has increased, adding additional indexers, and implementing search head clustering. The common cause for expansion has been automated reports, which tend to clog the system."

"Our on-premises installation was ~$90K in hardware (12 hosts) to deploy initially, and has grown and been re-platformed twice, so figure ~$250k over six years in hardware alone. We have grown the platform as user demand has increased, adding additional indexers, and implementing search head clustering."

Splunk Application Owner

U.S. Investment Management Firm

Based on the service pricing details and on the composite profile created from the detailed information shared by customers we interviewed, we calculated the cost of the solution for both scenarios over a three-year period as illustrated in **Figure 2**. **Table 2** provides the detailed cost line items and scaling factors that factored into each.

Figure 2. Three-Year Solution Cost Comparison (OMC vs. Splunk-centric Management Solution)
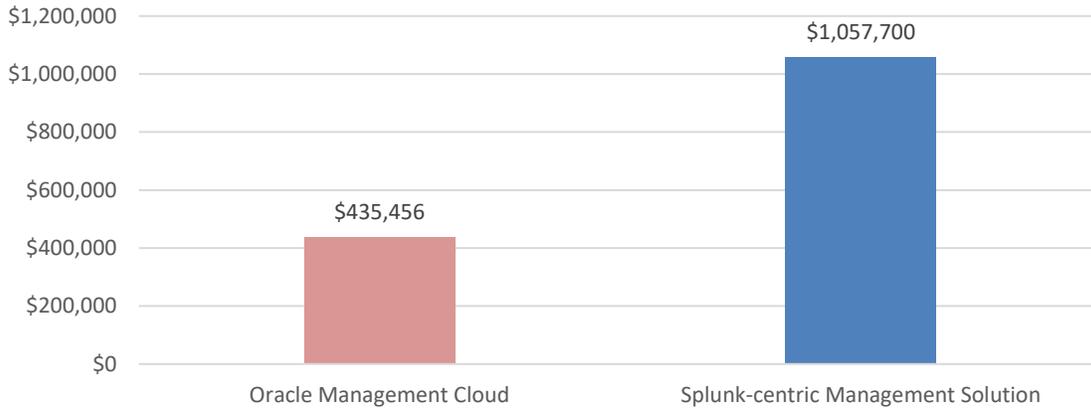
Table 2. Line Item Cost Comparison

Cost Element	Oracle Management Cloud	Splunk Enterprise–Based Management Solution
Software/Services	Enterprise Edition (600 entities/hour) Log Analytics Edition (1.2 TB)	Splunk Enterprise Log Analytics (60 GB/day perpetual license) APM Software: New Relic, AppDynamics, Dynatrace, or HP APM (based on customer data) Orchestration: customer-managed environment build system
Datacenter Costs	Not applicable due to cloud service	Servers for base management software, indexers, search head, Splunk-specific load balancers (9 servers + an F5 load balancer) Storage and backup cost of accumulated log data ($9/GB based on annual accumulated data of 22 TB)
Software/Services to Manage the Management System	Not applicable due to cloud service	Ansible, HP SiteScope, or similar capability to monitor and manage the on-premises Splunk Enterprise and APM software and systems (based on customer data)
Annual Support Fees	Not applicable due to cloud subscription service	Premium support fees for Splunk Enterprise to support 24/7 coverage Support for APM software Support for servers and infrastructure

Implementation Costs

Implementation costs involve the investment on the part of the customer to set up the management platform, establish the scope of monitoring and management, complete training (if required), provide any configuration or customization, and derive/determine key settings so that the solution can provide operational and business value. Our research found that there is a significant and fundamental difference in terms of implementing a cloud-based management platform as compared to an on-premises solution that involves many components.

Installation/Standing Up the Management Platform: Interviewees shared with us that OMC is fully in the cloud and requires no on-premises infrastructure, installation, or setup. Customers do need to determine which entities and components to include in the scope of the deployment and install agents to collect metrics and log files, but the overall implementation is very much focused on planning versus manual effort and customization. By contrast, Splunk customers shared that Splunk Enterprise requires numerous server installations and overall system configuration to deploy the master controller server, the index servers, the search head servers, and the backup servers for High Availability/Disaster Recovery. Further, to provide APM, companies will also need to install or subscribe to a third-party solution such as AppDynamics, New Relic, Dynatrace, or HP, which adds time, effort, and cost to the implementation.

Topology and Relationship Intelligence: One of the key challenges of IT management is the awareness and understanding of the elements of the topology of the network and the relationships among the various application, data, virtualization and infrastructure components without the IT specialists having to "build" this mapping. The more complex the environment, the harder this is to build and maintain over time. Customers shared that this process was challenging in Splunk Enterprise deployments, which resulted in either maintaining the topology via a third-party tool or achieving via heavy customization of the Splunk attributes and .config files. In the latter case, customers shared that this came at the expense of implementation cost and time and required ongoing attention because it was easily compromised as the underlying deployment changes and evolves. OMC customers cited this as an important feature that made the implementation very easy because OMC automatically recognizes the relationships among system components without manual mapping efforts. Further, study participants told us that in managing Oracle-stack targets (Oracle Database, Oracle Exadata, Oracle e-Business Suite, etc.) they benefited from OMC's instant discovery and deep, out-of-box knowledge of those targets.

Configuration and Customization: Our study participants found that Splunk-based management solutions often involve a significant amount of customization of the out-of-the-box installation, which added cost, time, and ongoing complexity to the deployment. Specifically, this involves customizing .conf files and name-value pairing to enable the correlation of data. A financial services firm that deployed Splunk shared that it required two highly skilled engineers for three weeks to configure and tune the system and customize the Splunk.conf files. He stated, "Installation and sizing are within the wheelhouse of most strong IT engineers but do require either copious research or experience with the product to do correctly. Namespaces within Splunk.conf files and correlating name-value pairs are critical to give good output."

> "End-user training is required to put most business users in a more technical mindset before letting them use the product."
>
> **Splunk Application Owner**
> U.S. Investment Management Firm

Training: Given the technical nuance and underlying complexity of Splunk data and log files, study participants shared that administrator and end-user training was required to be able to effectively use Splunk in an operational context. A Splunk application owner at an investment management firm told us, "End-user training is required to put most business users in a more technical mindset before letting them use the product." Another retail banking customer shared that his Splunk users required three days of onsite training to get up to speed on using Splunk. Researching the Splunk education website, it becomes clear the level of knowledge required to operate and use Splunk. In fact, they offer more than 30 courses that range in cost from $1,000 to $3,000, which many customers cited as an impediment for adoption. A technology specialist at an insurance company shared, "Official training, even CBT, is expensive so not many people are able to get certified. This leads/causes the users to make use of the most basic functionality only."

Automated Baselining and Threshold Setting: Establishing appropriate baselines and thresholds for alerts and action has been a challenge for traditional IT management solutions, leading to a significant amount of effort in a trial-and-error–driven process. Perhaps the most critical difference between OMC and Splunk-based management is the level of automation and machine learning provided out of the box with OMC. Traditional management capabilities, such as those found in Splunk, require the customer or implementation partner to predetermine appropriate baselines and thresholds for performance and other system metrics. Suffice to say this requires a significant amount of manual effort and analysis up front with adjustments made based on human learning. With OMC, the machine learning actually uses the first cycle(s) of data to automatically learn what the appropriate thresholds are, eliminating the manual effort associated with this activity. OMC then adjusts these thresholds automatically over time due to the application of machine learning.

Deployment Modes: Due to the high cost of running Splunk on-premises, some customers we spoke with are looking to Splunk Cloud or running Splunk Enterprise on Amazon Web Services. One U.S. bank in particular shared the experience of starting out with Splunk Cloud to manage certain aspects of their IT estate and then progressing to Splunk Enterprise on-premises to address more of their needs. After realizing the cost associated with running Splunk on-premises, they are now in the process of migrating to Splunk Enterprise running on Amazon Web Services in an attempt to reduce their datacenter costs associated with managing Splunk servers, infrastructure, and maintenance. For now, anyway, they are finding themselves paying for three deployments of Splunk, spending roughly $2M across their organization. In retrospective assessment of their experience with the various flavors of Splunk, the director of IT summed up by saying, "In my opinion Splunk is a costly solution compared to what it provides."

> "After proper planning and scoping the deployment, we can implement OMC in just a few days. We are able to get the deployment costs to what the client sees as almost nothing."
>
> **Enterprise Architect**
>
> U.S. Systems Integrator

Based on this analysis and customer data provided for our study, we factored the cost of implementation for OMC compared to one based on Splunk Enterprise. The results are highlighted in **Figure 3** with detail on the calculations included in **Table 3**.

**Figure 3. Implementation Cost Comparison
(OMC vs. Splunk-centric Management Solution)**
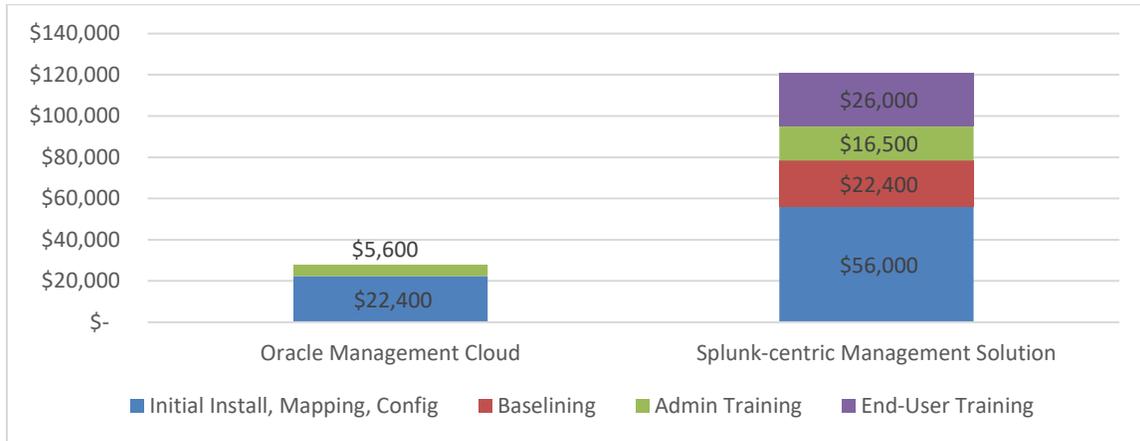
Table 3. Line Item Cost Comparison for Implementation

Cost Element	Oracle Management Cloud	Splunk Enterprise–Based Management Solution
Initial Install, Mapping, and Configuration	Costs are based on integrator/service provider implementation including planning, scoping, configuration, and agent deployment (2 weeks * 2 resources)	Initial implementation costs include planning, scoping, configuration, customization of name-value pairs, and integration of application performance data (1 month * 2.5 resources)
Admin Training	Part of initial implementation and executed in a week-long knowledge transfer session	Paid training for Splunk including (for each of three admins): Splunk Fundamentals–Part 1 ($1,000) Splunk Fundamentals–Part 2 ($2,000) Splunk System Administration ($1,000) Splunk Data Administration ($1,500)
User Training	Not applicable	Paid training for Splunk including: Splunk Fundamentals–Part 1 ($1,000/user) Splunk for Analytics and Data Science ($1,500/application owner)
Baselining and Threshold Setting	Not applicable	Splunk customers shared that it required a month of effort to establish baselines and set thresholds

Operational Costs

On top of the implementation cost are the operational costs associated with the "care and feeding" of a management platform over the course of time and particular cost elements associated with using the management platform.

Service Owner: Irrespective of the management platform, our research found that for IT management capabilities there was a dedicated resource associated with the deployment to act as the lead in terms of the ongoing operation of the service, coordinating with stakeholders, onboarding new users and application owners, defining requirements for dashboards and reports, and generally working toward further adoption of the management service.

Platform Administration: As a cloud-based solution that runs on Oracle public cloud infrastructure, there is no administration activity required for OMC. Oracle provides updates to the service and manages all of the infrastructure and underlying data. Customers shared that it runs on the Oracle Exadata platform and scales automatically so there is no need to monitor the performance of the management solution, so no tuning or optimization activity is required. An EMEA-based technology solution provider shared, "As an OMC subscriber, you get better and better service over time, without effort from your side. You are getting more and more clever, just because you are connected to the cloud. And things which were impossible yesterday, become possible today, just because Oracle is improving the OMC service intelligence."

Splunk Enterprise customers, however, required dedicated onsite resources to "manage the management platform," including deployment management activities such as upgrades, patches, sizing, tuning, and optimization activities.

In addition, given the level of manual configuration and customization required for Splunk, there is a significant effort associated with maintaining the customization as the IT environment grows and changes. Maintaining the topology and what level of relationship and correlation that is manually created in the Splunk environment is a considerable challenge.

As a result, study participants shared that Splunk deployments tend to have generally more than one and up to a half dozen highly skilled IT resources dedicated to the Splunk deployment. One study participant shared, "As product owner, I was responsible for sizing, deploying, and maintaining the infrastructure for a Splunk installation for a large financial services firm. On my team I had one infrastructure engineer who was 50% dedicated to the Splunk platform's care and feeding and one engineer who was 100% dedicated to creating and maintaining searches, visualizations, and reports."

The Need for Application-Specific Expertise: Given the complexity of data sources and a lack of centralized data repository for log and performance data in Splunk, many study participants cited the need for additional skills and effort to be able to consolidate and correlate data and data sources to enable issue identification and any meaningful insights. An executive director for a global bank told us that specialized Splunk-trained resources were required for each of their applications to help configure and analyze the data using Splunk's machine-learning toolkit and correlate to log analytics. Specifically, he said, "Each of our 10 major applications has a dedicated Splunk expert helping configure and analyze the data." This relates back to the implementation cost and end-user training requirements

> "Each of our 10 major applications has a dedicated Splunk expert helping configure and analyze the data."
>
> **Executive Director, Technology**
>
> Global Risk, Retirement, and Health Services Firm

and investment, but from an operational standpoint this cost element is about the ongoing effort and cost of applying that training to execute data rationalization and manipulation prior to ingestion.

Those deploying and using OMC shared that they did not require specialized resources due to the nature of the solution architecture and Oracle technology doing the heavy lifting of correlating data, entity relationships, and automatically enabling the drill down from performance data to relevant log data to quickly pinpoint issues. In fact, there was no cost associated with this in the data provided as part of our survey.

Figure 4 and **Table 4** below demonstrate the operations costs over the three-year time horizon.

Figure 4. Three-Year Operations Cost Comparison
(OMC vs. Splunk-centric Management Solution)
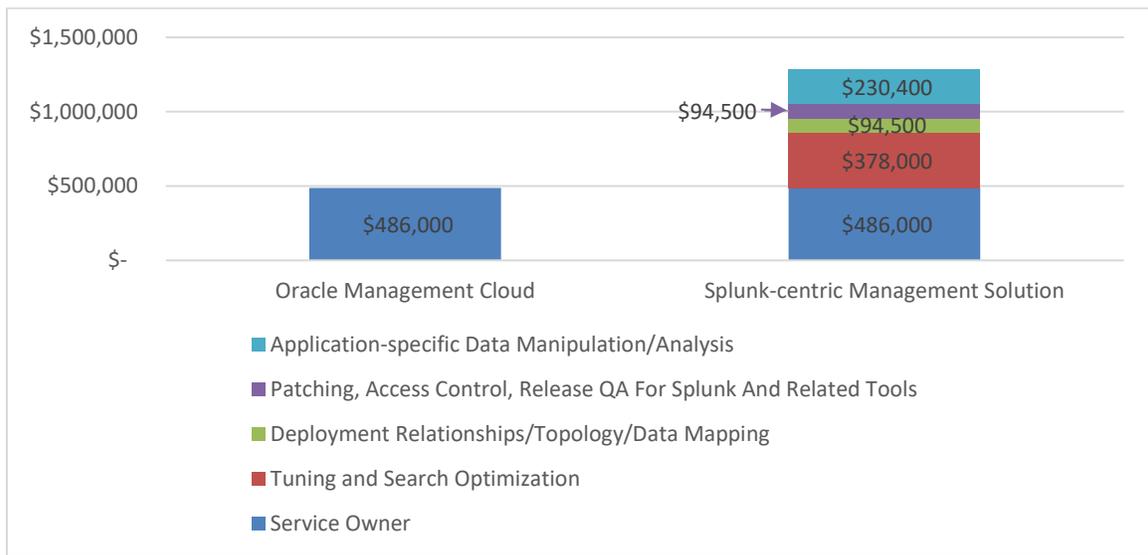
Table 4. Line Item Costs for Operations

Cost Element	Oracle Management Cloud	Splunk Enterprise–Based Management Solution
Service Owner	1 FTE leading the operation of the service, coordinating with stakeholders, onboarding new users and application owners, defining requirements for dashboards and reports	1 FTE leading the operation of the service, coordinating with stakeholders, onboarding new users and application owners, defining requirements for dashboards and reports
Tuning and Search Optimization	Not applicable (customers shared this was not necessary for OMC deployment)	1 Senior-level FTE required on an ongoing basis for tuning and search optimization activities as well as data administration
Deployment Relationships/ Topology/ Data Mapping	Not applicable (customers shared this was not necessary for OMC deployment)	0.25 FTE required on an ongoing basis to maintain relationships among application, middle tier, and infrastructure elements
Patching, Access Control, Release QA for Splunk, and Related Tools	Not applicable (customers shared that Oracle provides this service on their behalf)	0.25 FTE required on ongoing basis to maintain the Splunk Enterprise on-premises deployment and the related third-party tools
Application-Specific Data Manipulation and Analysis	Not applicable (customers shared this was not necessary for OMC deployment)	20% of Application owner time required on advanced, Splunk-based analysis, data manipulation, and rationalization

Time Spent Troubleshooting: Though not factored into our cost comparison model, another area of importance is obviously the time and effort it takes to identify, determine root cause, and resolve issues in customer environments.

Anecdotally, as a result of the consolidation and integration of performance and log data and the dynamic topology management, OMC customers shared that they were able to identify and find the root cause of issues in less time than those using Splunk-based management capability. In addition, OMC was found effective in eliminating false positives and sending alerts when there were actual issues, which lowered the issues to be tracked, managed, and resolved. The quantitative data provided by customers did not provide a granular, apples-to-apples comparison of the same issues and resolution activities, which is why it was not factored in the calculations.

The other important point is how quickly businesses can gain insights using OMC as compared to the initial setup and ongoing configuration, relationship mapping, and customization of a Splunk-based deployment.

As an example, an enterprise architect for a U.S.-based systems integrator articulated the benefit of OMC in terms of the immediate impact it had for its customers' operations. He shared, "Within the first 15 minutes of hooking up to the database we found a problem they've been having for months and didn't know how to fix. Then [Oracle] Management Cloud immediately, basically, connected the dots to say go to A to B to C and immediately pointed to where the problem was."

OMC customers we talked to touted not just the benefit of rapid issue identification but the automated remediation using the integrated orchestration capability. This resulted in faster mean time to resolution and ultimately less downtime.

"Within the first 15 minutes of hooking up to the database we found a problem they've been having for months and didn't know how to fix. Then [Oracle] Management Cloud immediately, basically, connected the dots to say go to A to B to C and immediately pointed to where the problem was."

Enterprise Architect

U.S. Systems Integrator

Conclusion

Splunk is considered by companies we talked to as a strong tool for analyzing a large variety of log files and, in the hands of trained and skilled users, can be useful for drawing system performance insights and correlating with other IT data. However, when it comes to a more holistic monitoring and management of a complex IT stack including application data, middle tier, and infrastructure–including both on-premises and cloud deployments–customers we interviewed cited numerous challenges related to cost and solution effectiveness.

Our research found that a siloed custom-built management approach using Splunk, along with the other third-party tools required for monitoring other aspects of a typical deployment represent a legacy "bottoms-up" approach to managing IT involving a manually intensive customization and configuration to represent the relationships between and among different components of an IT estate. In contrast, Oracle Management Cloud represents a fundamentally different and integrated approach to IT management with an effective "top-down" method for quickly identifying the root cause of issues affecting the user experience by understanding and continually learning the complex and changing relationships among components from the top to the bottom of the IT stack.

As a result, OMC offers a significant cost-of-ownership advantage versus an equivalent Splunk-based solution on the order of half to a third of the cost over three years. This is in large part due to the traditional customer experience reality of Splunk Enterprise on-premises deployment combined with the cost of third-party tools for application performance, orchestration, and remediation. Further, the siloed approach of Splunk presents customers with a cost premium in terms of configuring the system, customizing the data, and operating the platform to enable troubleshooting and root cause analysis.

> "In my opinion, Splunk is a costly solution compared to what it provides."
>
> **IT Director**
>
> U.S. Financial Services Firm

Beyond simply a cost analysis, however, it is also important for companies to consider the impact of how their management service performs at "connecting the dots" for users to enable them to quickly identify and resolve application and IT issues. The business result of forecasting and preventing issues before they even happen is something that has tremendous value for customers in all industries improving mean time to resolution, uptime SLAs and limiting downtime.

As a result of this research, customers currently using or evaluating Splunk as the centerpiece of their IT management platform should carefully evaluate OMC as a more cost-effective and unified platform for monitoring and management of their complete IT stack.