theCUBE Research Value Assessment

Navigating the Build vs. Buy Dilemma in Hybrid Cloud Platforms Operations

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ABSTRACT: This theCUBE Research Value Assessment reflects analysis from interviews with enterprises who have gone through the process of evaluating solutions to enable developer self-service and platform operations across hybrid cloud infrastructure. The current macro trends and vendor consolidation have led to the rise of Platform engineering teams, bringing together ITOps, DevOps , and site-reliability engineering (SRE), with partners' Security and Finance, to better service internal customers' needs the need for agility without elongated, complex provisioning and automation pipelines that constantly reinvent the wheel or are locked into a single vendor stack. We will outline the technology challenges faced by organizations going through this transformation before adopting Morpheus, the factors for 'make vs. buy' criteria surrounding internal developer platforms, and the benefits realized post-implementation with Morpheus.

Introduction

Going to the cloud means a lot of different things to different organizations but at its core the shift to cloud computing has always been driven by a desire for agile and efficient access to infrastructure to build and run applications. Over the past ten years, the cloud has evolved from a place to an operating model as more and more enterprises recognize that these application workloads are going to span different environments, such as bare metal, virtualized, container, and serverless, and different locations, such as on premises, hyperscaler cloud, and collocation hosted.

Cloud today reflects applications living in a mix of hyperscaler cloud, such as Amazon Web Services, Google Cloud Platform, or Microsoft Azure, a colocation data center, such as Equinix or Digital Reality, and an on-premises data center running on operating environments from VMware, Nutanix, Red Hat, the hyperscalers, and others on top of hardware from providers such as HPE, Dell, Lenovo, and more. The intermixing of cloud-native applications with heritage applications is a constant battle for managing the old with the new.

Organizations today are faced with not only technology changes but are transforming their organizations and processes to support a broader mix of application formats and multi-vendor technology architectures. Acquisitions and consolidation in the multi-cloud management industry, such as Broadcom's acquisition of VMware, have also caused many enterprises to evaluate agnostic approaches to maintain control of their application workloads.

This complexity has led enterprises to recognize the need for a new centralized team, often referred to as platform engineering, which functions to provide consistent architecture, operations, and maintenance to application infrastructure so that developers can focus more on innovation and less on infrastructure, tooling, and orchestration. Whether you call it hybrid cloud management, platform engineering, or an internal developer platform, these organizations all face a similar dilemma: *do I build (and maintain) my own centralized platform from custom scripts and open-source components, or do I invest in an enterprise-class commercial offering that can do what I need and probably more?*

In discussions with the broader set of organizations interviewed for this study, they are challenged with doing public cloud-first or cloud-only by the inconsistent and sometimes surprising cloud cost as well as the need to maintain expertise in multiple on-prem and public cloud endpoints. Instead, organizations are focusing on a seamless cloud operating model no matter the location, and organizations are spending on cloud orchestration, represented by container orchestration below. Expanding our analysis to include data from our research partner ETR, we see that IT budgets and spending are flat to up 4 percent overall.

However, that flatness is not affecting the spending in optimizing and deploying a cloud operating model, as organizations look to reduce the amount of FTE time spent on training the platform engineering team on new platforms, testing new blueprint methodologies, adding new services to the portfolio, reconciling roadmaps of vendors and open source software, doing actual deployments, and supporting all the different technologies. In fact, the desire to improve IT efficiency in those areas is reflected in the data showing that cloud orchestration and operating models are all growing areas of the organization's spending, outpacing all investment growth with the exception of AI. This represents the ROI, as we have seen in Morpheus's customers, being realized by organizations moving to a cloud operating model, balancing on-premises and cloud deployments. We specifically investigated firms in the S&P 500, a large portion of the market, and a bellwether segment. The following findings were notable[1]:

- The percentage of public cloud usage is expected to grow from 43% today to 55% by January 2026.

- The 55% target is five percentage points lower than the prediction ten months ago.

We believe this trend indicates the market is becoming more stable as workloads are being distributed more evenly between public and private clouds. We see that spending is down significantly over the past two years, such as 17 net score basis points for cloud computing, as organizations focus on a cloud-operating model, operational efficiency, and business-driven use cases that are reaching equilibrium with on-premises deployments. This has led to increased spending and increased "net sentiment" for Cloud Management and Intelligent Automation, which are up along with Container Platforms and Virtualization in the past 6 months ending in February 2024[2], as seen in Figure 1 below. Net sentiment can be seen as a proxy for spending momentum. Pure Container Orchestration and Automation are down with only Intelligent Automation, which equals the February 2023 net sentiment, as organizations look for solutions rather than point products.

Subsector Trends
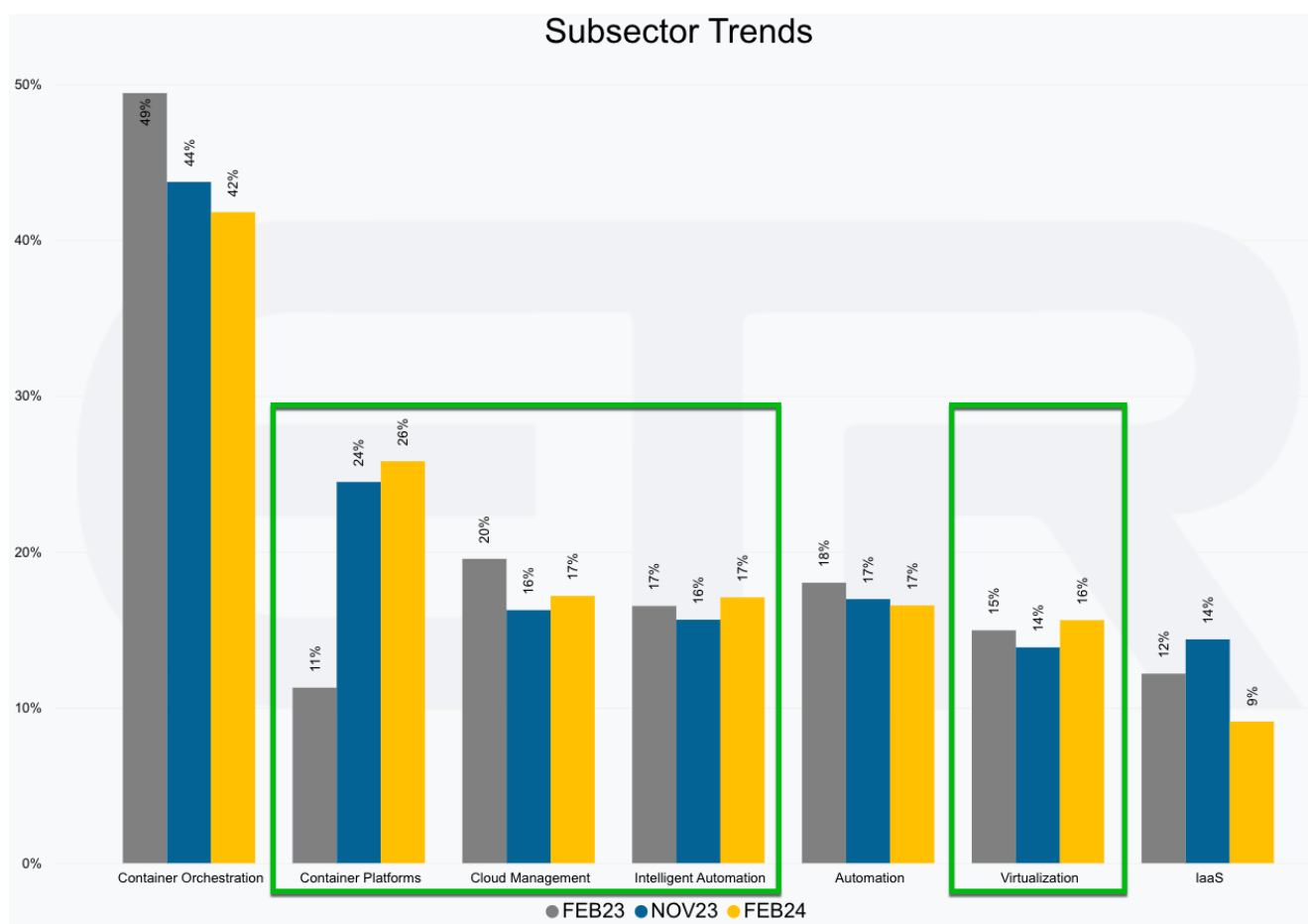
In the remainder of this theCUBE Research Value Assessment, we will unpack how organizations consider the 'build versus buy' dilemma for hybrid cloud management and platform operations tooling.

We talked to three Morpheus customers who have gone on this journey, asking questions about their internal stakeholders, experiences with previous cloud management platforms (CMP), and their businesses to truly understand the benefits, risks, and economic impact of this choice point.

Core Challenges

Some organizations may consider creating their own hybrid cloud platform operations solution by combining home-grown automation scripts and internal software development on top of open-source software, as it might seem cheaper initially. However, the reality is that this approach can result in higher long-term costs and limitations in flexibility that may not be apparent upon initial inspection. Open-source software has a lot of advantages, but when it is a key component of a self-built orchestration platform, there can be a lot of matrixed issues that can be hard and costly to address. A few, in particular, challenges of building your own hybrid cloud management platform include maintenance, version control, security and patch management, data management, and access control. While DIY could be good for one specific use case or for one particular workflow, complex workflows that stretch across open-source projects and multiple cloud endpoints that were not built as integrated modules of each other can lead to complicated API and data schema

integration that must be maintained. After conducting interviews with several organizations, we found that the challenges of this DIY approach can be summarized as follows:

First, their application infrastructure's complex and time-consuming provisioning process. This complexity leads to the limited number of applications that can be provisioned into production per day/week/month/quarter. Prior to Morpheus, one organization interviewed was only able to provision 60 to 70 workloads per quarter. The key to a cloud operating model is speed and ease of deployment in a way that is standardized, tested, and comprised of all networks, cloud services, virtual machines, and containers. The organization found that existing DIY solutions were cumbersome and slow in provisioning virtual machines (VMs), containers, and cloud services. The organization's overall operational process was inefficient due to so many different skills, manual handoffs, hands-on keyboards required for steps in the process, and tools required to service the internal customer. These inefficiencies were leading to higher costs, reduced productivity, and strain on resources. Stakeholders complained that they spent little time on new innovation and instead were required to perform infrastructure tasks and/or wait days for service requests to traverse the organization.   A key limitation in DIY provisioning solutions was the organization's inability to update and maintain homegrown portals and align roadmaps for various open-source packages to keep pace with cloud and hypervisor API changes.

The second challenge was the lack of visibility into cost management and cost transparency of the hybrid cloud estate. The organizations were challenged in effectively managing and understanding the costs associated with on-premises and cloud resource utilization. The existing systems lacked the tools for clear cost tracking and optimization based on the organizational structure and how both traditional and cloud-native applications were built out. There was less transparency in cost management, making it difficult to optimize spending. While DIY provisioning portals and open-source internal developer platforms may streamline CI/CD code pipelines, many organizations still struggle to embed FinOps practices and accountability into application development and deployment.

The third challenge is the resource-intensive nature of doing security and compliance management for traditional and cloud-native application infrastructure. The organizations found that ensuring robust security and maintaining compliance with the regulatory standards they are held to was resource-intensive and complex, requiring considerable effort and expertise. This included internal project management to ensure coordination between teams on development and testing cycles, tracking of release compatibility, tracking software bill of materials, and ensuring that open source project roadmaps and critical security gaps were aligned on releases or having to coordinate when critical patches were released. The organizations said that this easily should have been a full FTE on its own, but they did not have the budget for that and relied on "shift left" to the developers, leading to lower employee morale and even less time spent by developers on innovation.

The last but certainly not least challenge is the organization's high dependency on specialized technical skills that are expensive, scarce, and in high demand. Managing the existing cloud infrastructure required a high degree of specialized technical knowledge, which posed challenges in resource allocation and scalability. This has forced many organizations to either build multiple "cloud" teams with domain-specific skills for each specific cloud provider or to lose the ability to achieve an efficient and agile multi-cloud approach. This led to challenges in resource allocation, increased training costs, and difficulties in scaling operations efficiently. The limited scalability and flexibility of the tools that the platform engineering team utilized to build the DIY platform in the first place caused more resources to be deployed and added substantially to maintenance challenges. The open-source and DIY 'build' solutions were not sufficiently scalable or flexible to adapt to the evolving needs of the business efficiently, particularly in building workflows for self-service that could address a dynamic cloud environment that incorporated cloud PaaS, IaaS, containers, and virtual machine technologies.

Benefits of Moving to Morpheus

Once the conversation with Morpheus's customers was completed, we built a composite Customer Value Assessment and ROI model based on their experiences to explore the considerations and costs associated with a do-it-yourself (DIY) 'build' solution versus what they achieved with the Morpheus platform. The composite organization had done a major proof-of-concept with DIY based on open-source projects and packages prior to engaging in the purchase of off-the-shelf technology from Morpheus. After transitioning to Morpheus, the organization witnessed significant improvements in addressing the core challenges that they were facing.

The most significant improvement was the streamlining of their operations, leading to substantial soft cost savings and enhanced internal customer satisfaction for developers, platform engineers, security, and site reliability engineers. The provisioning process became significantly more efficient. What had taken an entire year to deploy applications could now be deployed in less than a week. This resulted in considerable time savings for users who utilized the self-service portal to provision their cloud instances, equating to several FTEs worth of savings per year. These savings were a 62 percent reduction in FTEs required to build blueprints, work on actual deployments, security reviews of the open source, open source roadmap reconciliation, project management, and ongoing support of the provisioning process.

The second most significant factor was the reduction in infrastructure and maintenance costs. This reduction was achieved by decreasing the number of servers required to support the provisioning system, resulting in savings on hardware, maintenance, and energy costs. This greatly increased the maintainability of the hybrid cloud operations platform.

Return-on-Investment Example

All the organizations interviewed saw significant ROI and believed they made the right decision to move away from or avoid entirely a DIY 'build' approach to hybrid cloud platform operations.

This representative organization was able to see a significant return on investment of $3,110,000 over three years by moving to Morpheus and away from DIY hybrid cloud management based on open source. The core savings were seen in provisioning times for new applications, infrastructure efficiency, and full-time equivalents (FTE) for care and feeding.

Provisioning time for new or upgraded applications was reduced by 60 times, from 65 deployments quarterly to 65 or more deployments daily, resulting in much greater customer satisfaction at edge locations, security, and speed of innovation, saving approximately two FTEs, or $450,000.

Infrastructure efficiency was directly correlated to a reduced number of servers/instances required for the production deployment. Morpheus includes infrastructure resource visibility and optimization. With an over 66% reduction in servers needed, the organization saved approximately $1.95 million.

The most significant savings of $7.265 million were on FTEs dedicated across training, design, testing, deployment, and support of the DIY solution.

The investment in Morpheus was $6.336 million across the three-year model period, meaning this organization's ROI would be 66%.

Next was enhanced cost management; with Morpheus, the organization was able to gain a consolidated view of costs, leading to improved budgeting and expense optimization. The organization mentioned that they were accelerating in the FinOps space and working towards reaching parity in cost management. They also indicated a future exploration of integrating Morpheus for ongoing lifecycle cost management, underscoring the significance of FinOps in their operational strategy. FinOps, or Financial Operations, is a crucial aspect of cloud financial management, focusing on balancing speed, cost, and quality to ensure efficient cloud spending.

The organizations reported an increase in efficiency for security and compliance, although it's tough to measure. Integrated security features and simplified compliance management reduced the associated efforts and costs. The emphasis was more on the qualitative aspects of security and compliance, including the need for robust security measures and the importance of maintaining compliance with industry standards and regulations. This was especially true given the limited nature of security resources, which, in the case of this organization, worked cross-functionally with corporate security teams.

The organization was able to achieve increased scalability and flexibility through the use of Morpheus. The platform offered the ability to scale and adapt operations to meet evolving business demands easily. This included several benefits such as an expanded and flexible catalog offering that could be tailored to the needs of application owners and their teams, the ability to provision a broader range of infrastructure components (including various flavors of Windows, RHEL, and AL2, as well as basic AWS services like S3 and RDS), reminders to owners about resource utilization, and a flexible policy for provisioning to AWS, and on-prem data centers. Additionally, the platform demonstrated its flexibility by easily integrating with existing systems and workflows without requiring an overhaul of infrastructure. Morpheus also provided the capability to delegate tasks to extended teams securely, offering a scalable way to distribute workload and speed up operations across the organization. Finally, support for a highly available configuration across various levels (web, database, queuing, messaging) signifies enhanced scalability and resilience of the infrastructure.

Our Perspective

The organizations discussed various cost savings they were able to achieve. In an environment of flat budgets, organizations are required to find ways to reduce spending in one area in order to fund innovation, such as R&D around AI and LLMs. Our research shows that consolidating your infrastructure and providing a common layer for the self-service cloud is critical to a cloud operating model and enabling true platform engineering.

From hard cost savings, the most tangible savings were realized in terms of reduced infrastructure requirements, software licensing, and maintenance expenses. These savings could be even greater if the organizations moved away from or added hyperscale cloud providers or hypervisor vendors into the application infrastructure environment.

Building your own DIY hybrid cloud platform is extremely resource intensive. Significant reductions in time and labor were achieved with Morpheus, especially in provisioning processes and routine operations, resulting in indirect cost savings. The streamlined and automated provisioning substantially reduced the time to deployment from months to less than days, with a decrease in manual steps from over 50 to below 15, leading to a significant reduction in labor hours and increase in new feature velocity. This also has savings seen across other areas with reductions in time spent building pre-deployment blueprints, testing of the deployment methodologies, security reviews, roadmap reconciliation, and a marinade of platform support activities. The 62 percent reduction in FTE hours translated into a cost savings that equates to $7.265 million for one of the organizations based on a fully loaded FTE earning $120,000 a year.

During my interviews, it was evident that these organizations were all committed to implementing a cloud operating model and platform engineering methodology. It was clear they had to consider a few strategic items before deciding whether or not to embark on a DIY hybrid cloud management build. Things to consider before DIY include:

- Are you already fully staffed and have spare cycles to assign FTEs for blueprinting, deployment, and API development, support of the system, testing of new releases, and roadmap reconciliation?

- Is your technology stack static and aligned with a single hyperscale public cloud, virtualization technology, container technology, security vendor, and application components?

- Has your team been constituted to be able to cover security needs, such as encryption and key rotation?

- How will integration be integrated into FinOps processes for discovery, showback, and optimization?

- How much infrastructure are you willing to acquire, such as servers, networks, and support licenses, to cover the DIY solution?

The landscape is continuing to evolve with more cloud infrastructure, PaaS, and containers, with many organizations now utilizing a combination of containers with microservices in the cloud that are tied to virtual machines on-premises or in colocation. So even though the new technology is being embraced, the heritage environments that have been happily virtualized for over a decade are not going away. It is critical for organizations considering a hybrid cloud management and operations platform to consider the heritage and not just the new technology. A cloud operating model requires a common approach and hybrid cloud management platform to ensure the seamless development of cloud-native applications in a secure, simple, and cost-effective manner.

The Organizations

The Value Assessment Brief above has been written in a way to conceal the identity of the specific organizations that were interviewed. All of the companies interviewed had either previously attempted or proof-of-concepted building their own centralized platforms but due to the aforementioned challenges decided to leverage the off-the-shelf capabilities of Morpheus. These organizations varied in size, ranging from thousands to close to one hundred thousand employees. They operate in different verticals such as telecom, pharmaceutical, and healthcare. The extent to which they utilize hyperscale cloud, collocation, and on-premises data centers also differs. The location of their applications also varies across edge locations, cloud, and centralized data centers. All of the organizations had to address some form of regulatory impact based on their respective industry verticals. A sample of the questions that were asked during live interviews with Morpheus not present includes:

At a high level, what was the core problem you were trying to solve that led you to the realization that you needed a centralized orchestration and automation platform?

- What were the pieces/software you looked to use with your DIY solution?

- How much time did you spend implementing or evaluating the DIY solution?

- Did you have all the skills you needed for the open-source projects to build the DIY?

- How much IaaS or on-premises infrastructure did you require, and what was the cost to build your DIY Cloud Management system?

- What was the process before with your DIY solution and after Morpheus for Provisioning of VMs and containers, Policy building and enforcement, Cloud monitoring, and Cost management?

- How many manual steps?

- Number of support tickets?

- Number of minutes/hours/days for each use case to be completed?

- Number of FTEs