TOP PRIORITIES FOR CLOUD & CONTAINERS PROFESSIONALS IT OPERATIONS INDUSTRY SURVEY RESULTS



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Cloud & Container Management Priorities

Following are the findings from a global survey of enterprise IT professionals on the topics of cloud and containers. Over 400 pros spanning roles across IT executive, architect, DevOps, and Infrastructure and Operations (I&O) engineering and management the people responsible for cloud and container infrastructure and selecting the resources on which their applications run—responded, representing enterprises and businesses of various sizes and sophistication.

The survey found that when it comes to deploying workloads in the cloud, the top priorities for most organizations are all about their applications. IT Operations professionals are focused on how to ensure applications perform and function well, how to keep their environments secure, and how to make sure they accomplish these goals within budget.

The exploding complexity of cloud—with hundreds of services available from each cloud vendor, and millions of permutations available within each makes selecting the right services and managing app requirements over time incredibly difficult. The complexity is so great that it is humanly impossible to align workload and application demands to the right cloud resources at scale without analytics and automation.

While this survey finds that enterprises have fully embraced and adopted the cloud and containers, it also reveals issues that can introduce risk businesses. All the issues identified can be traced back to organizations operating cloud and containers at a level of sophistication that is not scalable in light of the complexity inherent to these new technologies. In some cases, we have compared these latest results with the findings of our previous survey, completed six months ago, in order to draw conclusions about the rate of evolution and progress in IT Operations as many organizations move to address these process and technological gaps.

AWS Continues to Dominate the Cloud Landscape

Compared to the results of our survey from earlier this year, AWS continued to be the leading public cloud provider of choice, leveraged by 70% of respondents. Azure market share was up 8%, and Google Cloud was up 6% from our earlier survey—showing public cloud as a whole is rapidly gaining traction.



Which cloud provider(s) does your organization use? (select all that apply)



Multicloud Infrastructure Strategies are Prevalent

66% of respondents indicated they are running multicloud environments. Only 34% are focused on a single cloud for their infrastructure.



Is your organization running a multicloud environment?

Cloud Management Priorities at a Glance: App Performance, Automation, & Financial Efficiency

Respondents ranked their cloud management priorities along three common groupings:

App performance and security – avoiding risk and maintaining security, compliance, and governance.

Automation and cost efficiency – reducing cloud cost and automating the alignment of apps and workloads to the right cloud and container resources

Bill analysis and reporting – although many solutions focus on out-of-control costs, they do not address the cause: misalignment between workloads and cloud or container service offerings

The data shows growth in sophistication around cloud resource management strategies as the industry attempts to attack the root cause of the performance, control, and financial concerns they are facing.



Rank your priorities across public cloud management practices.



Keeping up with Evolving Cloud Service Offerings Is A Challenge for Businesses

About 40% of respondents indicated that they are uncertain or not up to speed with the latest technology and service introductions offered by cloud providers.

Not taking advantage of the most recent and advanced offerings leads to stagnation of cloud infrastructure strategies and wasted potential around application performance and budget efficiency.



How well are you up to speed with the latest technology introductions by the cloud providers?

I&O Teams Face Risks from Manually Selecting Cloud & Container Resources

IMore than 55% of respondents are using tribal knowledge and their "best guess" to select the optimal cloud resources for each app workload. This particularly creates long-lasting issues for Infrastructure and Operations teams since each app has unique cloud resource requirements—the type and sizing necessary to meet their demands, enabling these apps to run and scale safely and efficiently in production.

"Best guess" and tribal knowledge are not scientifically-informed methods for identifying cloud resources that match application demands, almost always resulting in suboptimal resources being selected and applied. This creates operational risks and wastes resources unnecessarily.



How do you select the optimal cloud resources for your applications to run on? (select all that apply)



Cloud Spend Continues to Surpass Budgets

Only 20% of Infrastructure and Operations respondents met their cloud infrastructure spending budgets. 45% found that budgeted funds were not enough to cover actual cloud spend.

A further 35% did not even know how much they are spending relative to budget, echoing the placement of financial reporting and bill analysis as a distant concern for I&O teams.



In the last 12 months, how was your cloud infrastructure spending relative to your budget?

Cloud Spend Is Not Top of Mind for I&O Pros

A third of respondents could not recall roughly how much they are spending among cloud service providers per month.

This response is likely because Operations professionals are focused on maintaining app availability and scaling the cloud safely and efficiently and relatively unconcerned about cost visibility and control as long as these priorities are met.



Roughly how much are you spending monthly with your cloud providers?



55% of Enterprises are using Infrastructure as Code Processes to Manage Cloud & Containers

The majority of enterprise respondents are already leveraging infrastructure as code (IaC) technology to automate the process of managing and provisioning cloud resources. About 45% of the respondents are not yet using or do not know about infrastructure as code strategies and methods for cloud management.

As the cloud becomes more complex, and especially with containerized infrastructure, IaC is the most viable option for making the natively convoluted humanely manageable. Significant IaC solutions for managing cloud and container complexity include HashiCorp Terraform, Amazon CloudFormation, and Azure Resource Manager.



Please select any infrastructure as code tools your organization is using to manage cloud instances. (select all that apply)

In Most Cases, Cloud Optimization Recommendations are Implemented Manually, or Not at All

More than 55% of the respondents are using either cumbersome manual processes, or simply do not implement actions and changes to optimize their cloud resources to keep them finely-tuned to their applications' demands.

One positive note from the response to this question is that a quarter of enterprises surveyed are using infrastructure as code technology to manage the implementation of optimizations for their cloud and container services.



How do you implement changes and/or optimization actions to your cloud resources to keep them finely-tuned to application demands?



Enterprises Want Solutions that Help Automate the Management of Cloud & Container Resources

When asked if they believed automating the process of identifying and implementing the right cloud and container resources for each application could help their organization, 80% of the respondents indicated it could help them well.

This suggests that Infrastructure and Operations professionals are truly in need of solutions that help them automatically find and implement the right cloud and container resources to match their apps' demands.



How well could proactively finding the right cloud and container resources to match your application demands and automating this process help your organization?

The Percentage of Enterprise Respondents with Production Container Infrastructure Deployments Has Doubled in the Last Six Months

Container technology is rapidly being adopted for running apps and microservices in production, and adoption has only accelerated over the last six months.

Compared data from our survey from the beginning of 2019, in the past six months, the percentage of respondents indicating they have production-level containerized environments has grown from 19% to 44%.

Another 24% of respondents already have action plans to have containerized infrastructure in production in the next 12 months.infrastructure as code technology to manage the implementation of optimizations for their cloud and container services.



Do you have a containerized environment to run your apps and services in production?

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Amazon ECS & Kubernetes-Based Services are Most Popular

For respondents who are currently using containers, managed Kubernetes services like Amazon EKS, Azure AKS, Google GKE are the most common platforms for management and orchestration.

Amazon Elastic Container Service also has a sizeable market base, with 32% of respondents using ECS to run containerized applications in production.



If you are using containers, which managed cloud container services are you using? (select all that apply)

Science-Based Container Resource Management Is Not yet Used by over Half of Respondents

More than 55% of respondents admitted to using "best guess" and "tribal knowledge" to specify the CPU and memory Request and Limit values for their containers.

Forgoing science-based methodologies for conjecture when specifying container sizes invites major issues. Under- and overprovisioning resources for apps & microservices results in either operational risks or wasted resources.

15% of respondents are not setting Request and Limit values at all—resulting in no guarantee of any quality of service.



How do you specify the optimal CPU and memory request and limit values for your containers? (select all that apply)



Summary & Key Findings

Respondents Identify Cloud Application Availability, Security, & Cost As Their Highest Priorities

IT Ops pros ranked their priorities in the following order:

- 1. Ensuring and maintaining application performance
- 2. Security, compliance, and governance
- 3.Efficiency in how they buy resources to control spend

Complex Multicloud Environments Are Here— Often Involving Containers in Production

Today, most organizations already running complex multicloud environments, and containerization approaches are currently being adopted, and in many cases, are already deployed and in production.

"It's a fast and fluid environment and strategy [is necessary] to keep up with the demands of our customers."

-survey respondent

The top clouds continue to be AWS and Azure, and the top container technologies are identified as Amazon ECS and Kubernetes-orchestrated vendormanaged services.

Significant Cloud & Containers Management Knowledge & Operational Sophistication Gaps Exist Today

A surprisingly large number of participants—40% shared that they are not aware of or know how to leverage the latest technologies from the cloud service providers. 55% admit to guessing or using tribal knowledge to select workloads for their applications.

Cloud Infrastructure Spend is a Concern—but is Not Top of Mind for IT Ops

One objective of enterprises is to control cloud spend, but this issue was prioritized third. 25% of respondents are spending over \$1.2 million per year in the cloud. And the data shows that 45% of the audience indicated that they are spending more than they have budgeted.

"[The cloud] is more costly than anticipated."

-survey respondent

Overwhelmingly, the survey responses showed that infrastructure managers are focused on performance ahead of cost.

It Infrastructure & Operations Teams Need Knowledge & Solutions to Help Them Manage Cloud Complexity

55% of the responding audience are currently using manual efforts to select their workload resources and guessing on their selections, directly driving up their cloud risk and spend.

Cloud and containers have evolved so quickly that there currently is a lack of best practices and guidance around practices and solutions that ensure infrastructure resources are selected and managed efficiently.

Encouragingly, 55% of respondents do have some infrastructure as code tooling in place, automating cloud management. And 80% admit to needing assistance with their cloud and container resource management—and that solutions like Densify could likely help them achieve their cloud elasticity objectives while reducing application risk and driving down their cloud spend.



Methodology

This annual survey was conducted by Densify in May 2019 and released in June 2019. The survey was distributed via email to IT technical professionals from across a range of organization types and sizes.

The 439 respondents represent roles across the spectrum of cloud management, including 20% IT management and executives, 21% cloud and/or infrastructure architects, 10% developers, and the remaining and the remaining 49% spanning a variety of IT operations and engineering roles.

The survey audience was comprised of 55% from enterprise organizations with over 1,000 employees. The other 45% represented smaller organizations, including digital service providers, midsize companies, and startups that were born in the cloud.

Their responses compose a diversified, holistic view of the top priorities for the field of cloud and containers resource management.

Ensure App Performance & Maximize Infrastructure Budget Efficiency

Densify perfectly matches your cloud and container apps to the resources they need for peak performance. Your end users experience maximum service availability and performance, and your cloud budget is leveraged with the highest efficiency.

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