

The Rise of Cloud-Native

And its relationship to in-memory computing
in delivering digital transformation

Matt Aslett, Research VP
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Research®



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Cloud-native

Cloud-native and data/
analytics

HOAP update

Agenda

Cloud native



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Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.

These techniques enable loosely coupled systems that are resilient, manageable, and observable.

Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toil.”

Cloud Native Computing Foundation
<https://github.com/cncf/toc/blob/master/DEFINITION.md>

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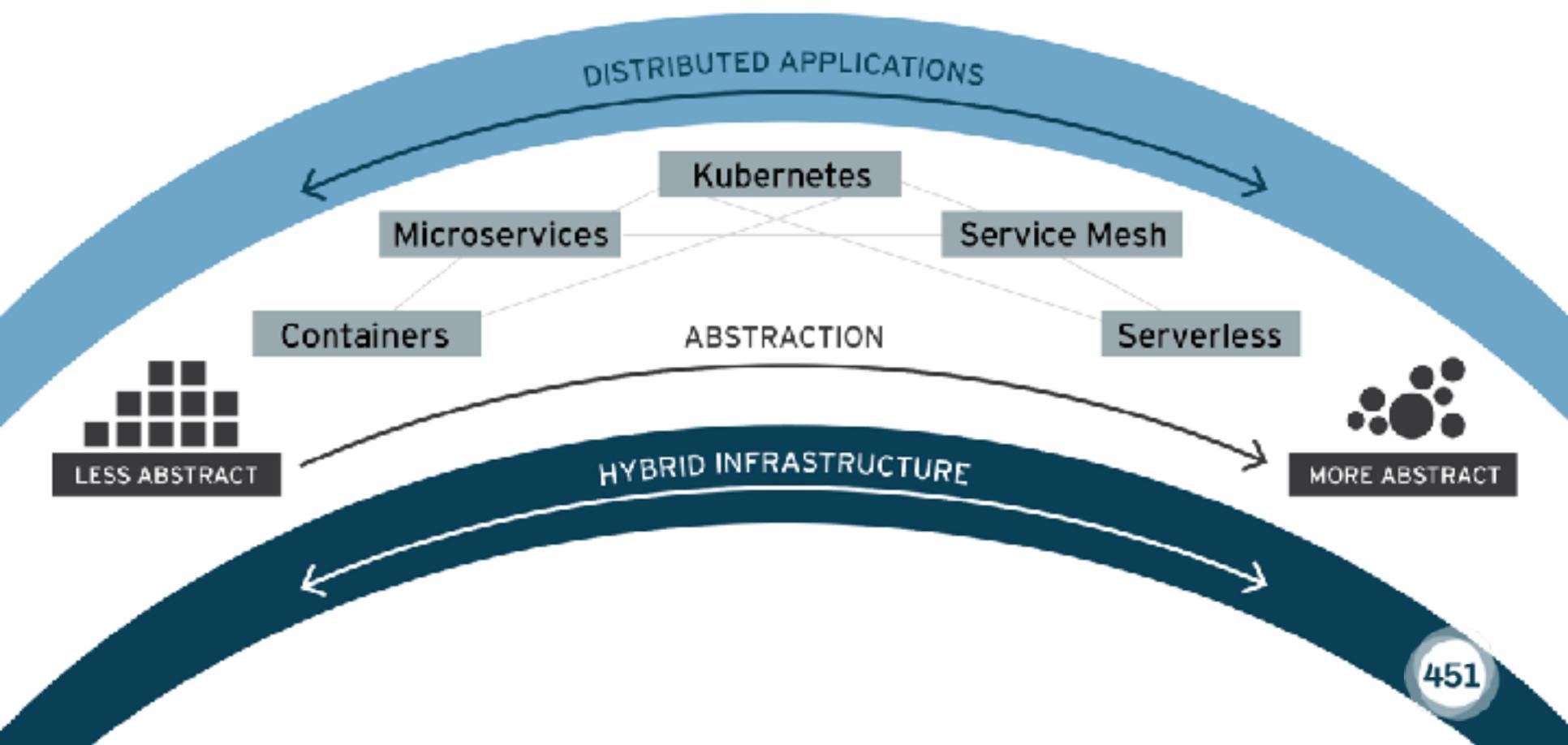
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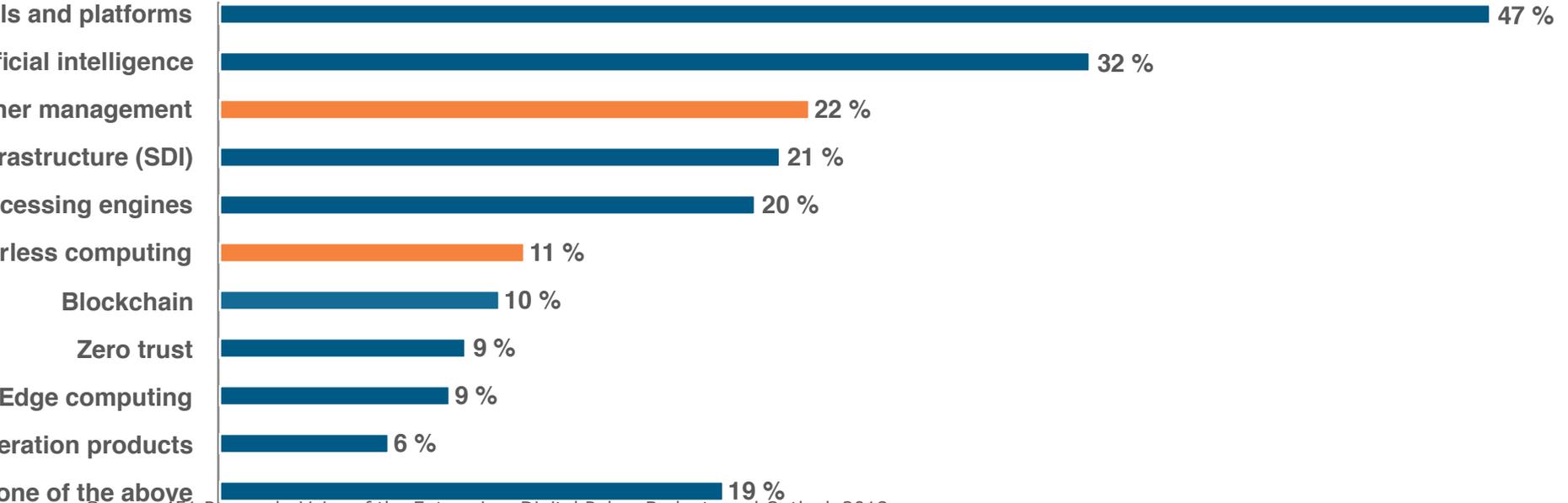
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The Spectrum of Abstraction



Emerging technologies: Top IT priorities in 2019

Respondents using or planning to implement emerging technologies in next 12 months



Source: 451 Research, Voice of the Enterprise: Digital Pulse, Budgets and Outlook 2018

% of Respondents (n=654)

Q27. Are any of the following items top IT priorities for your organization in 2019?



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Cloud native technology usage/adoption

All respondents

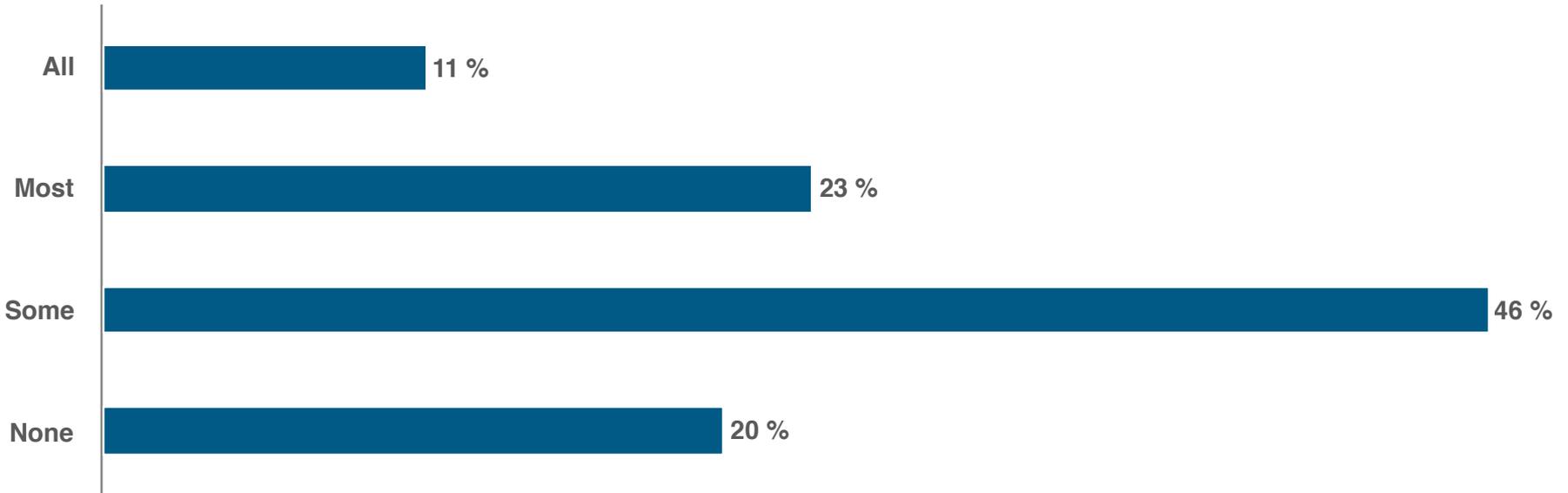


Q26. Please describe the level of usage within your organization for each of the following technologies.



Level of cloud-native or cloud-enabled software developed internally

Respondents who develop their own software



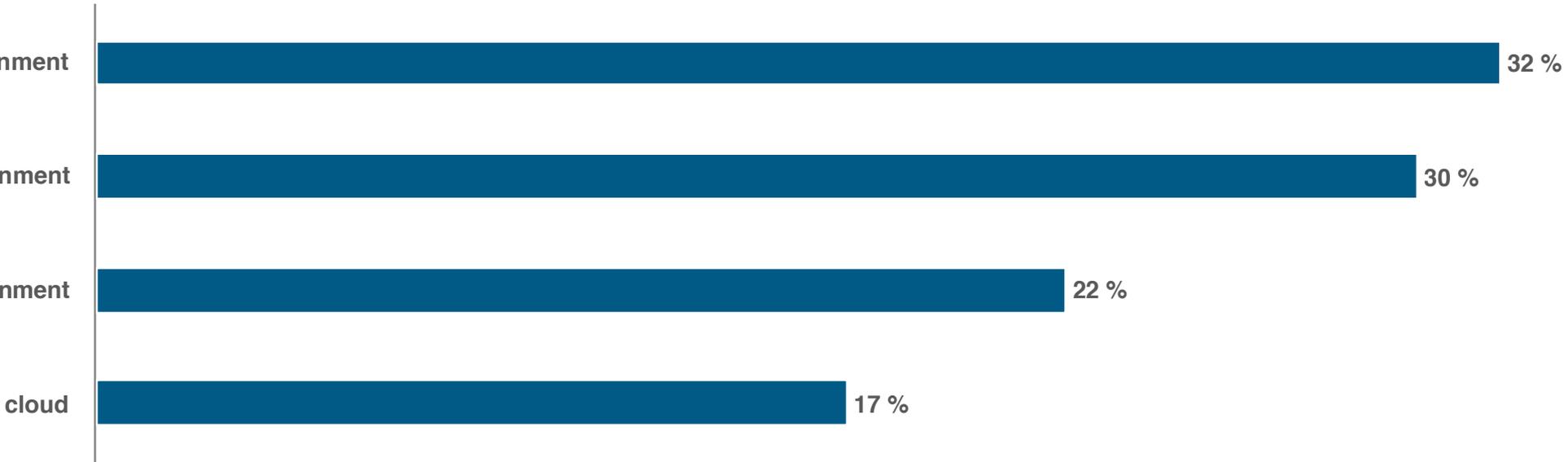
% of respondents (n = 347)

Q14. How much of the software developed internally at your organization is cloud-native or cloud-enabled?



Approaches to cloud-native software development

Respondents developing cloud-native or cloud-enabled software



% of respondents (n = 266)

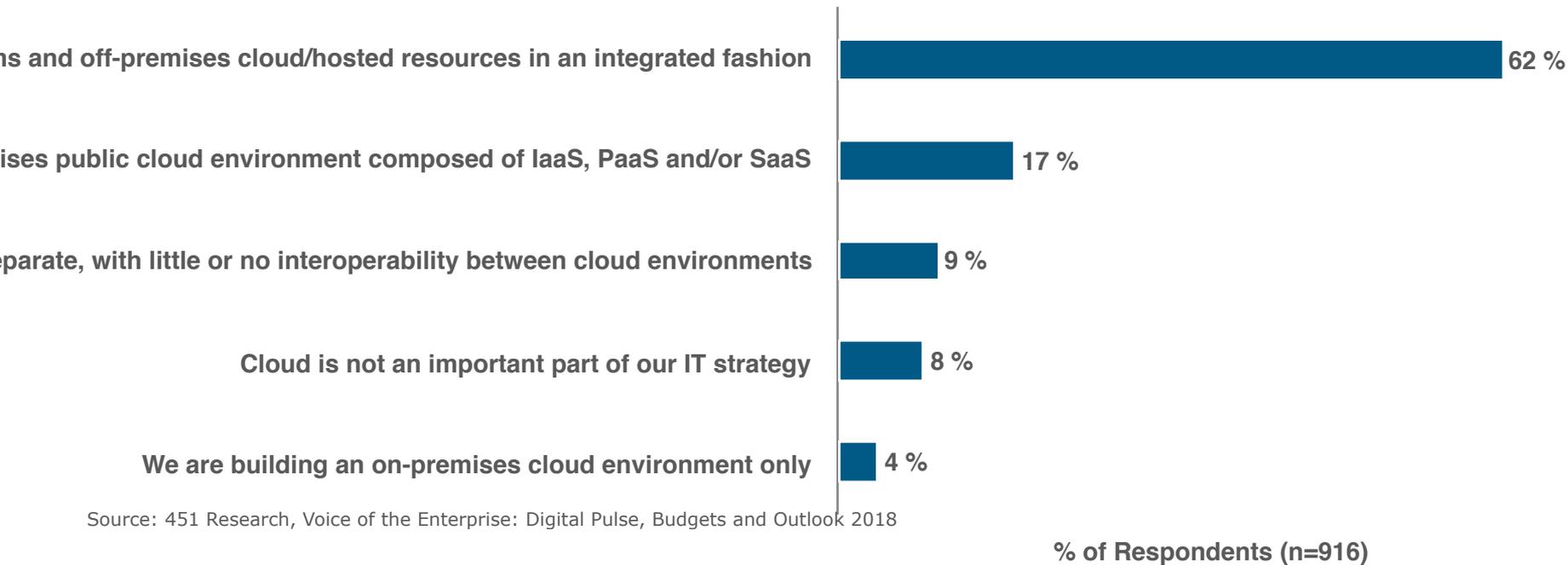
Q15. When developing cloud-native software, which, if any, of the following approaches does your organization take to designing that software?

Source: 451 Research, Voice of the Enterprise: Cloud, Hosting & Managed Services, Workloads and Key Projects 2018



Overall IT approach and strategy

All respondents

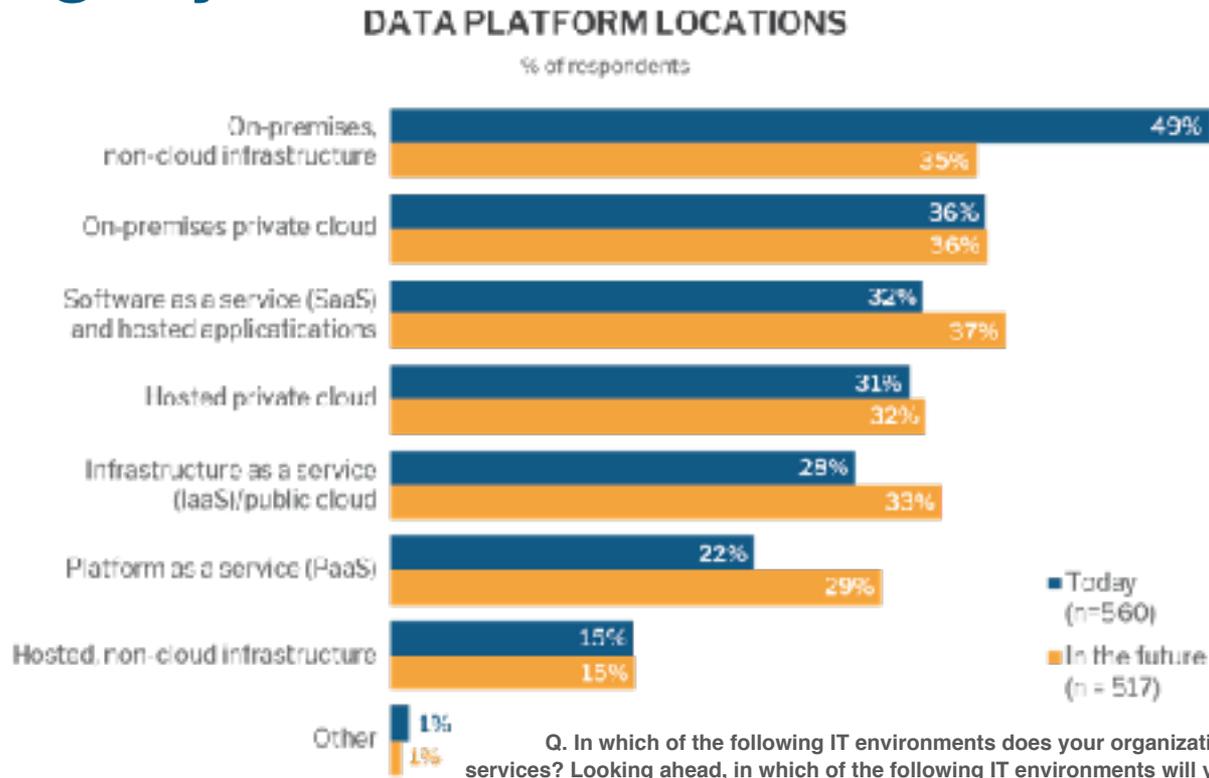


Source: 451 Research, Voice of the Enterprise: Digital Pulse, Budgets and Outlook 2018

Q7. Which of the following best describes your organization's overall IT approach and strategy?



Enterprises are moving data platforms away from legacy environments



Q. In which of the following IT environments does your organization currently deploy data platforms/services? Looking ahead, in which of the following IT environments will your organization be deploying data platforms/services two years from now?

Containers and container management

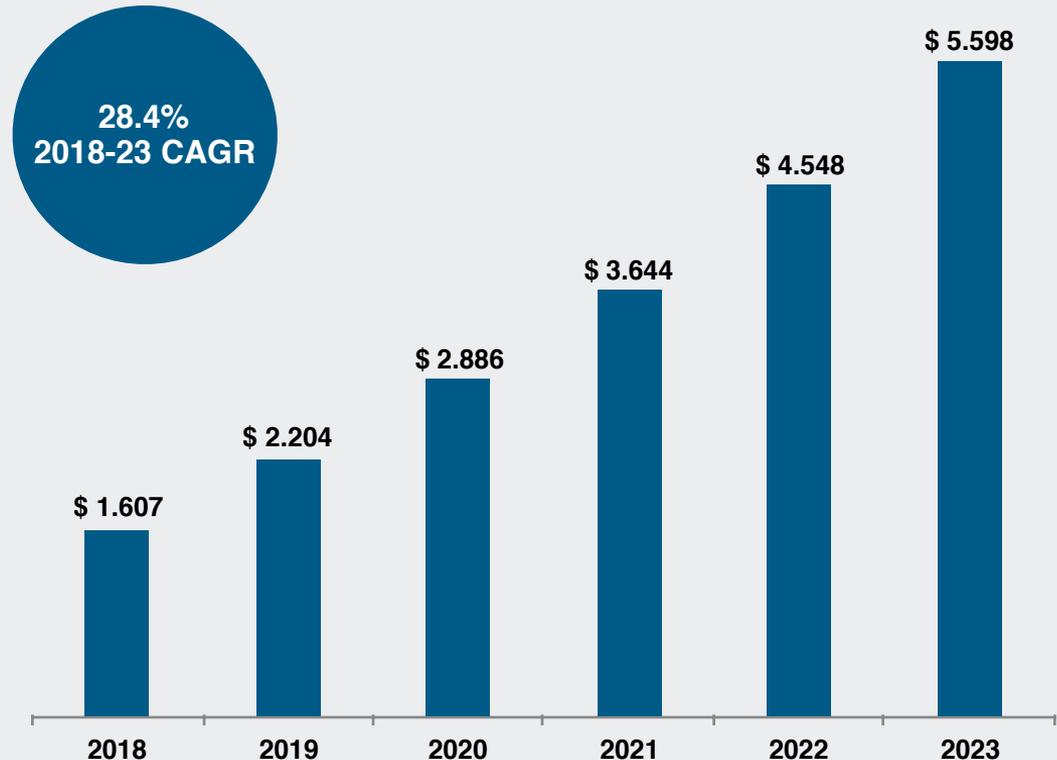


Total Market Revenue (\$m)

The modern application container market and ecosystem are growing fast, with new open source software projects adding to an already crowded field characterized by a fairly even mix of new and established vendors. We see the same enterprise customer growth that survey respondents cited in our latest Voice of the Enterprise (VoTE) research, indicating increased interest and use overall, with growing production use, as well.

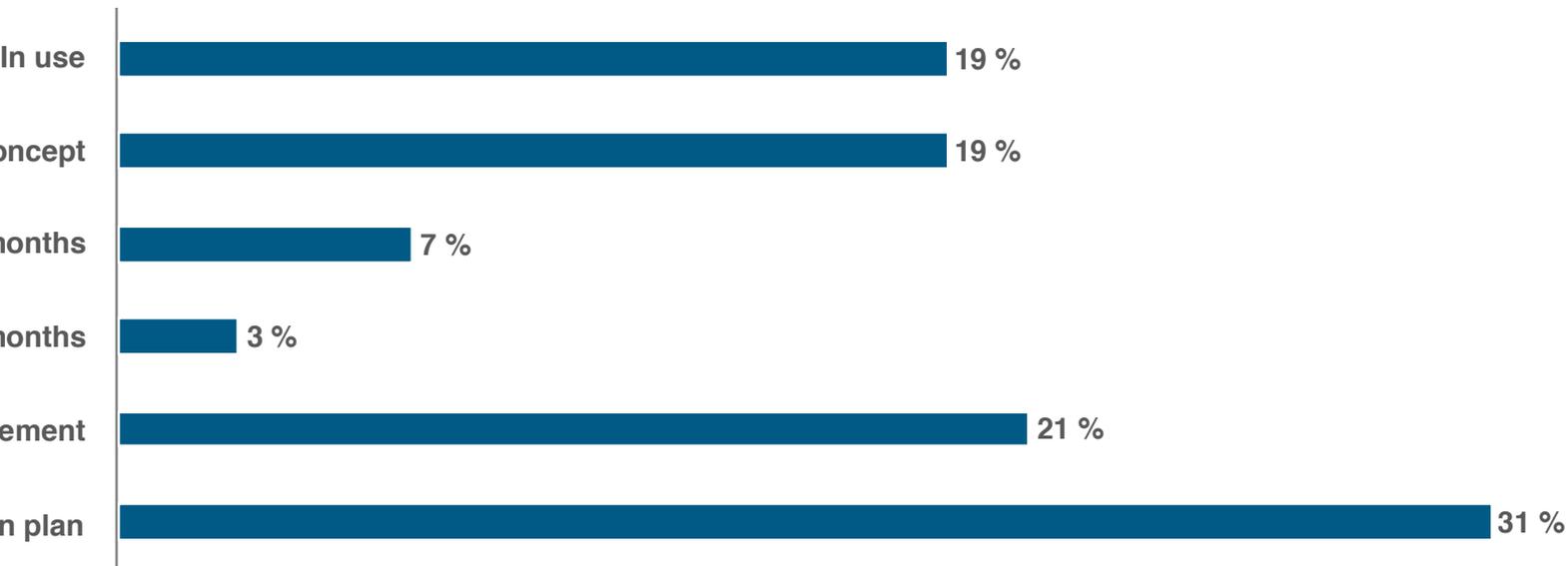
We expect an increase in enterprise use of containers, particularly in production, to drive more vendors and investment toward plugging the enterprise gaps. The early involvement of the largest vendors in the industry is further evidence that the application container market is real and presents a significant change in the way enterprises develop and deploy software and manage their IT infrastructure. The participation of startups and newer vendors serves to further disrupt not only the greater enterprise software market, but also the processes, planning and spending of enterprise customers. We also expect this will fuel consolidation, mergers and acquisitions among vendors across the market segments we cover in this report.

The ecosystem and market around modern application containers is still nascent and growing rapidly, given that enterprise use is still in the early stages. However, the container trend has attracted a plethora of startups, as well as involvement from the largest vendors in the enterprise software industry.



Organization's adoption plans for containers

Partial respondents



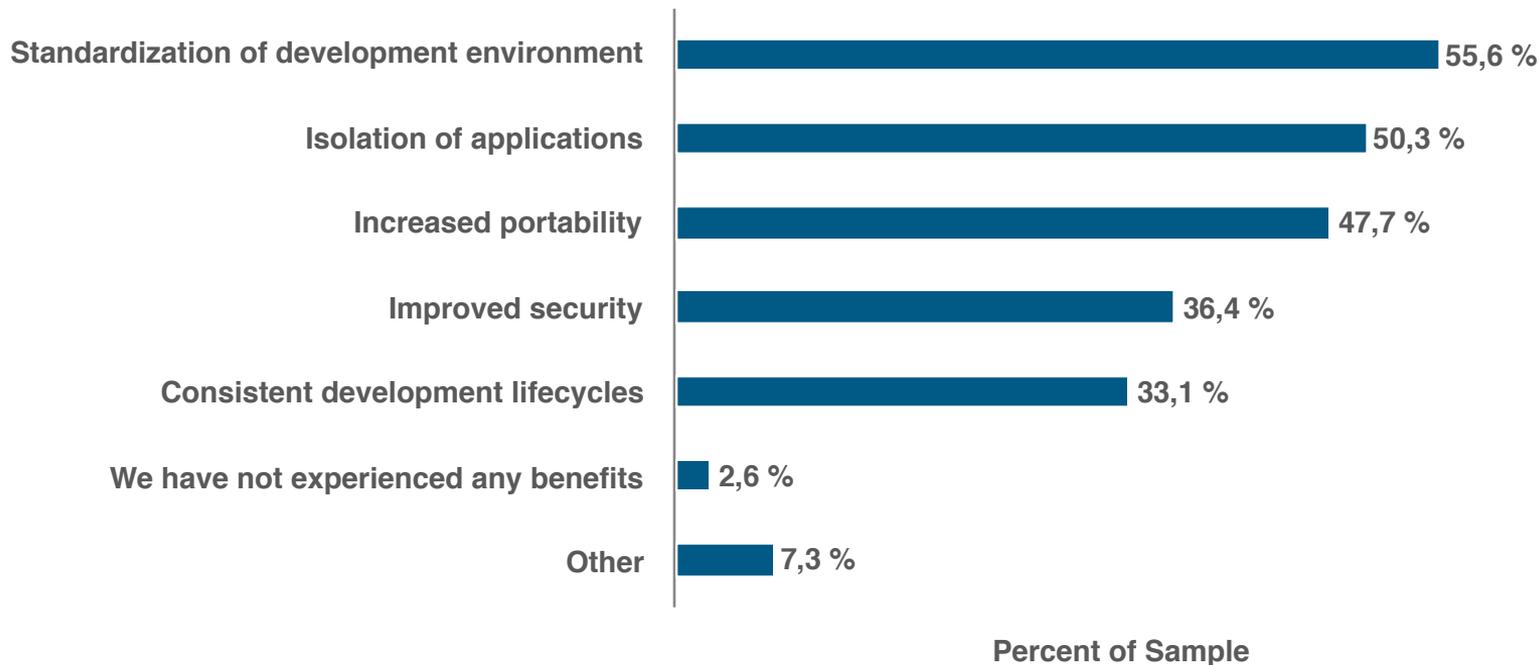
% of respondents (n=426)

Q18. Please indicate your organization's adoption plans for containers (e.g., Docker).



Benefits of deploying containers

Respondents who have servers running containers



n = 151

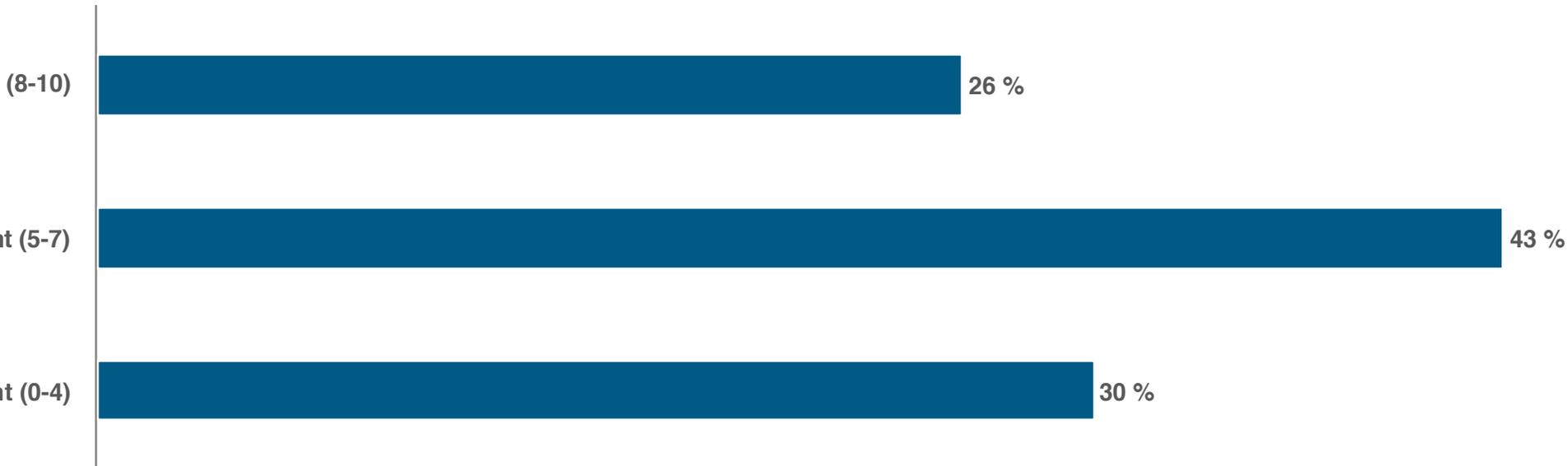
Q12. Which of the following benefits has your organization experienced due to deploying containers on your organization's x86 servers?

Please select all that apply.



Confidence in portability

Respondents who develop their own software



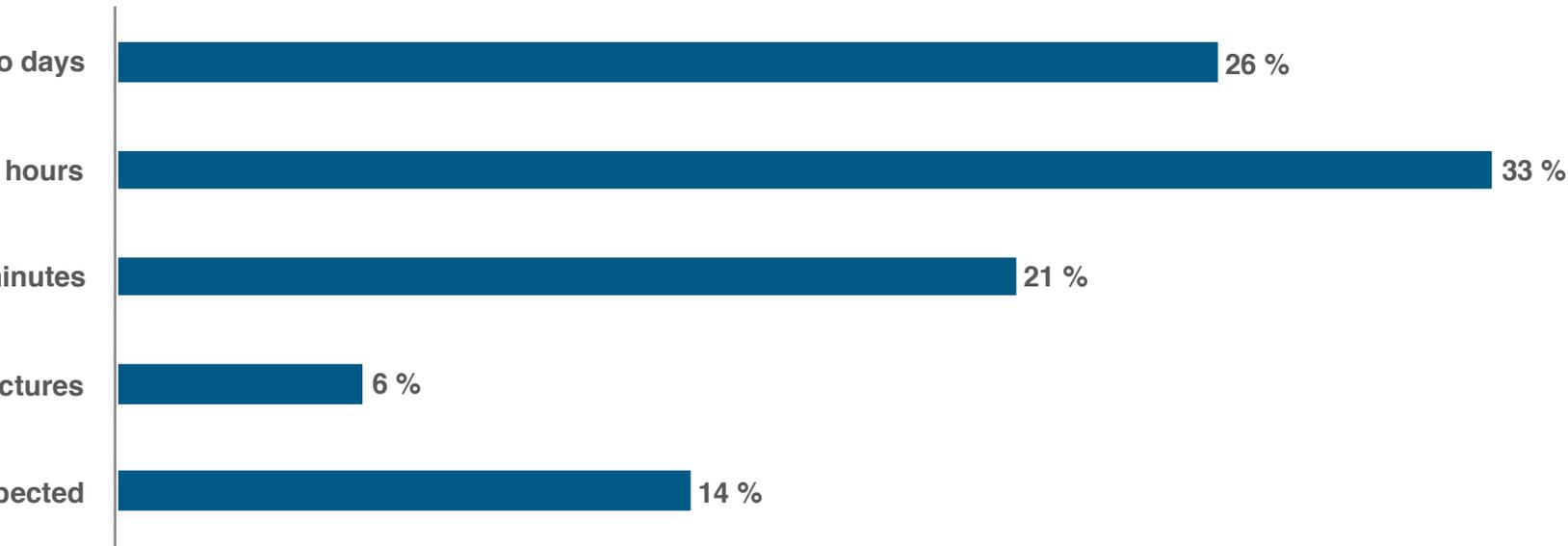
% of respondents (n = 351)

Q16. How confident are you that cloud-native or cloud-enabled applications you have developed for particular public cloud environments will be able to run in other environments without significant refactoring?



Faster application resource provisioning

Respondents who use or plan to use containers



% of respondents (n=168)

Q19. How will the use of containers impact the speed of your organization's application resource provisioning, relative to your traditional and virtualized infrastructure?



Resiliency (compared with VMs)

Respondents who use or plan to use containers



% of respondents (n=172)

Q20. What are your resiliency expectations for containers compared with VMs?



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Source: 451 Research, Voice of the Enterprise: Servers and Converged Infrastructure, Workloads and Key Projects 2018

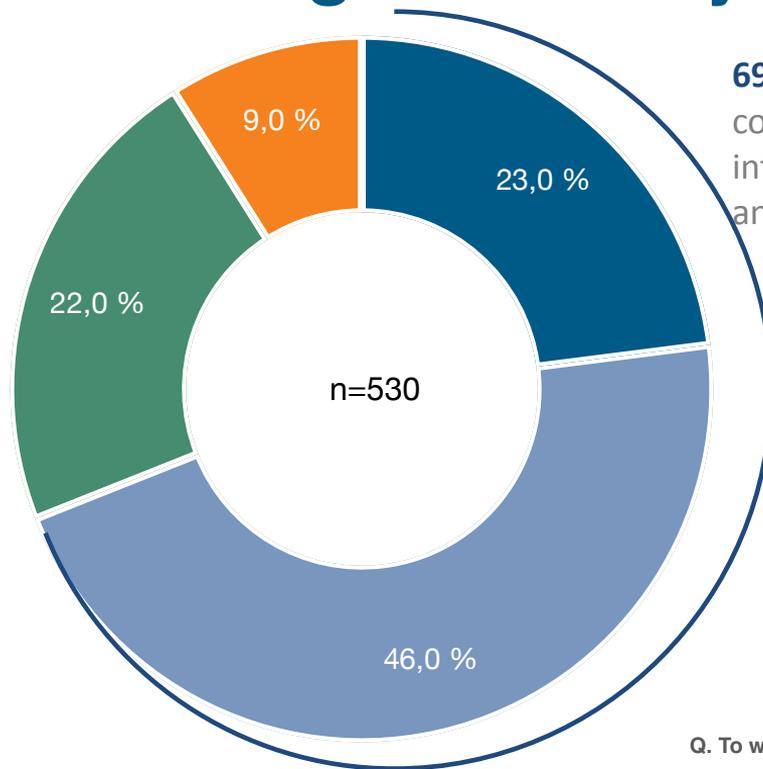
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Use of on-premises cloud infrastructure for data processing and analytics

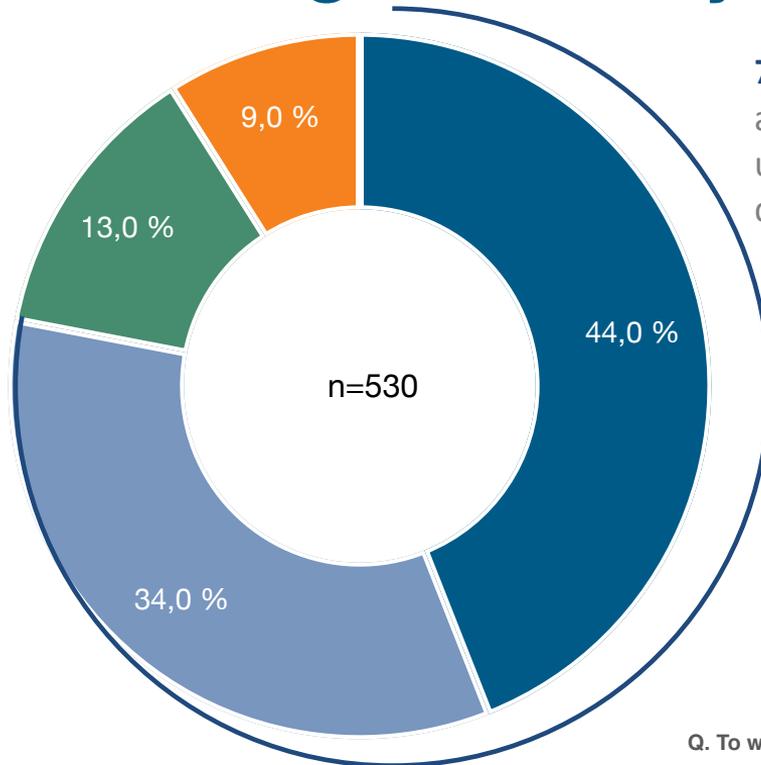


69% agree that their organization would consider using on-premises cloud infrastructure for data processing and analytics workloads

- Completely agree
- Mostly agree
- Mostly disagree
- Completely disagree

Q. To what extent do you agree or disagree with each of the following statements?

Use of on-premises cloud infrastructure for data processing and analytics



78% of the most data driven companies agree that their organization would consider using on-premises cloud infrastructure for data processing and analytics workloads

- Completely agree
- Mostly agree
- Mostly disagree
- Completely disagree

Q. To what extent do you agree or disagree with each of the following statements?

Containers and machine learning



Containers and stateless applications



MSKU 769 753 0
22G1

MAX UNCLD WT 20400 KG
47200 LB
MAX CLD WT 21700 KG
47900 LB
MAX GROSS WT 28210 KG
62420 LB
CUBIC CAP 107.7 M³
1430.0 CU YD

MRKU 734 355 6
22G1

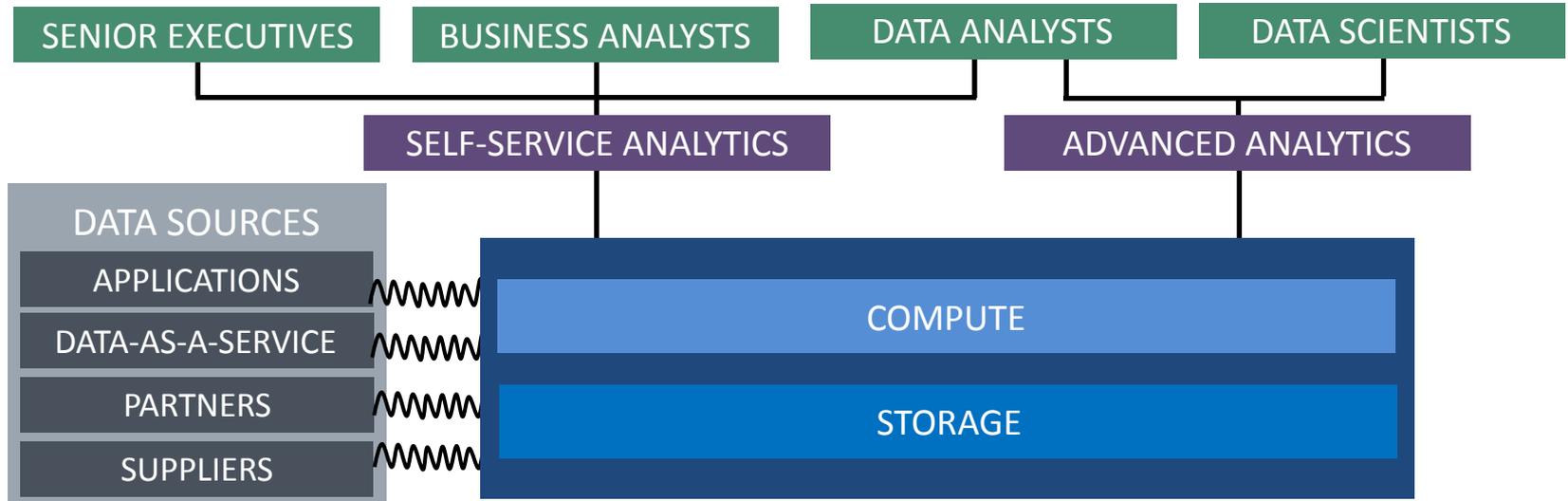
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SUUU 76996899

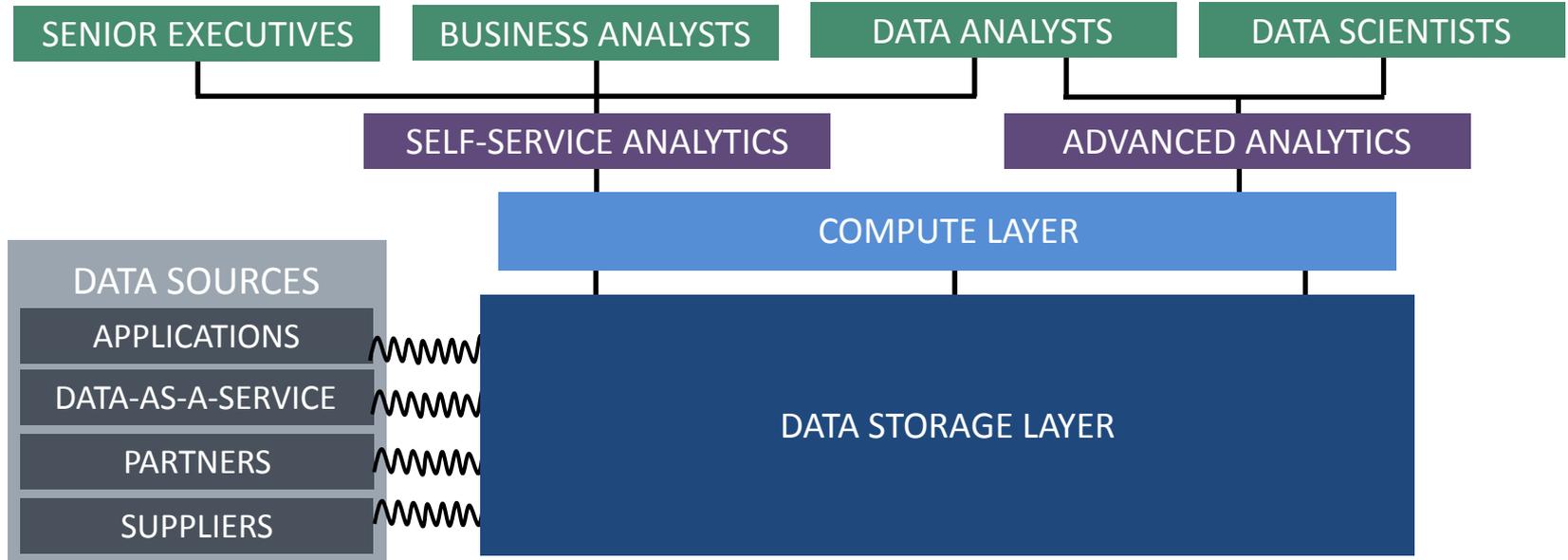
Containers and maintenance of state



The rise of the abstracted data architecture



The rise of the abstracted data architecture



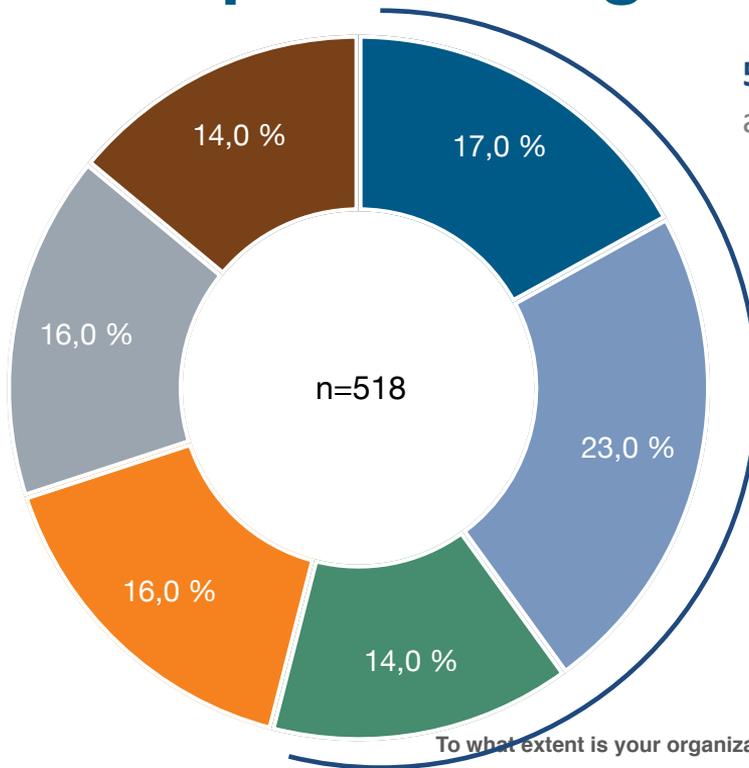
Cloud-native computing

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Adoption of hybrid operational and analytic (HOAP) data processing



54% are using hybrid operational and analytic data processing, at least sporadically

- Strategically
- Tactically
- Sporadically
- Considering
- Not at all
- Don't know

To what extent is your organization embracing hybrid operational/analytic processing (HOAP) databases?

Estimated incremental database market, 2022



Source: 451 Research Total Data Market Monitor

Kubernetes support will become table stakes



The Operator as the differentiator

Phase I

Phase II

Phase III

Phase IV

Phase V

Basic Install

Automated application provisioning and configuration management

Seamless Upgrades

Patch and minor version upgrades supported

Full Lifecycle

App lifecycle, storage lifecycle (backup, failure recovery)

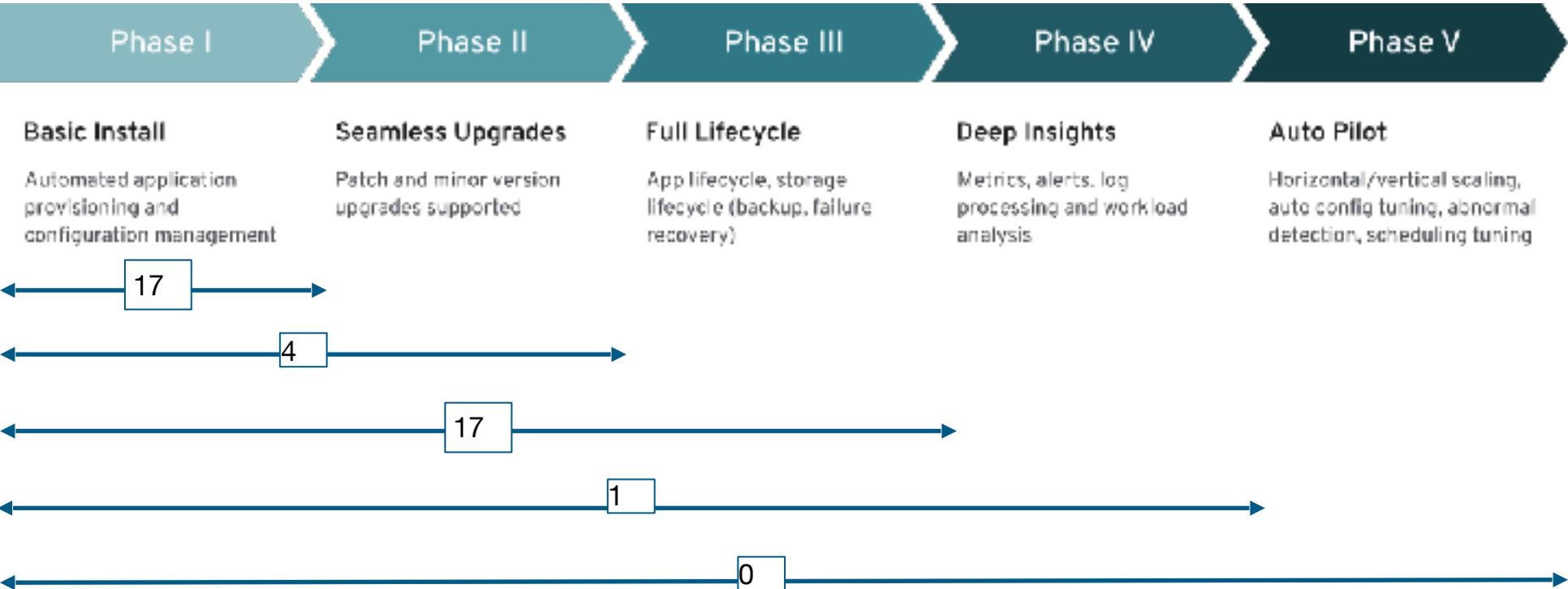
Deep Insights

Metrics, alerts, log processing and workload analysis

Auto Pilot

Horizontal/vertical scaling, auto config tuning, abnormal detection, scheduling tuning

The Operator as the differentiator



Thank you



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