



Cloud Going Mainstream

All Are Trying, Some Are Benefiting; Few Are Maximizing Value

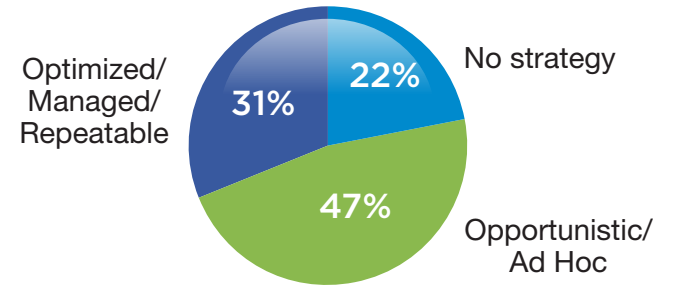
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Executive Summary

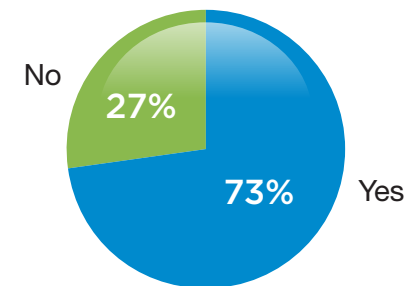
Cloud adoption has increased 61% from last year, with 73% pursuing a hybrid cloud strategy and on-premises private cloud spending projected to increase by 40% over the next two years. But many still lack cloud maturity with only 31% pursuing Optimized, Managed, or Repeatable cloud strategies. Obstacles to achieving greater cloud maturity include skill gaps, legacy siloed organization structures and IT/LOB misalignment.

The greater the level of cloud maturity the better the level of business outcomes, including increased revenue and more strategic allocation of IT budget. The most mature cloud organizations are defined by their use of DevOps, hybrid and multi-provider cloud, microservices, containers (Docker), and cloud-based Internet of Things (IoT).

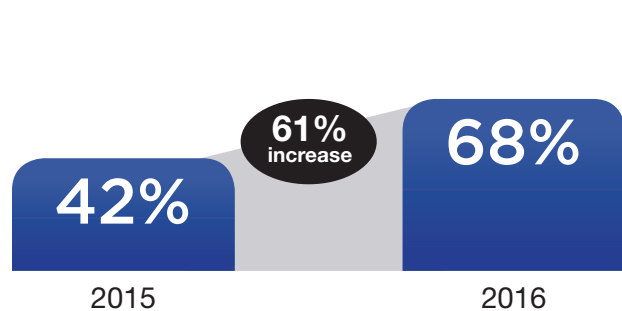
Organizations' Cloud Strategies



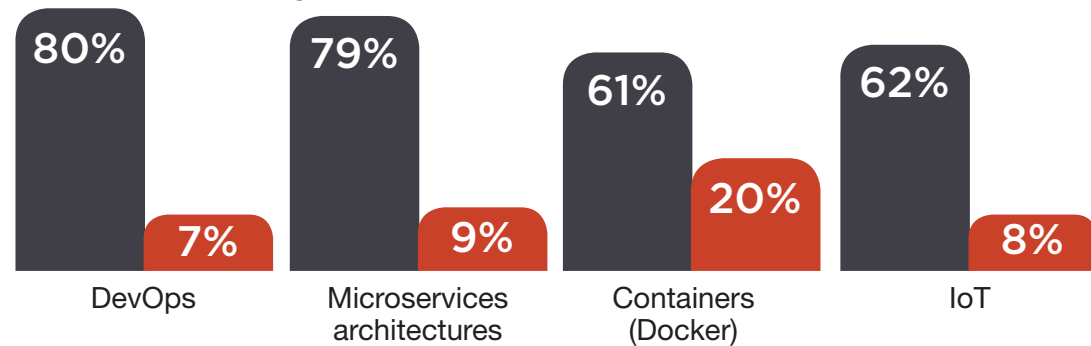
Have a Hybrid Cloud Strategy



Use of Public or Private Cloud



Implemented for Cloud Environments

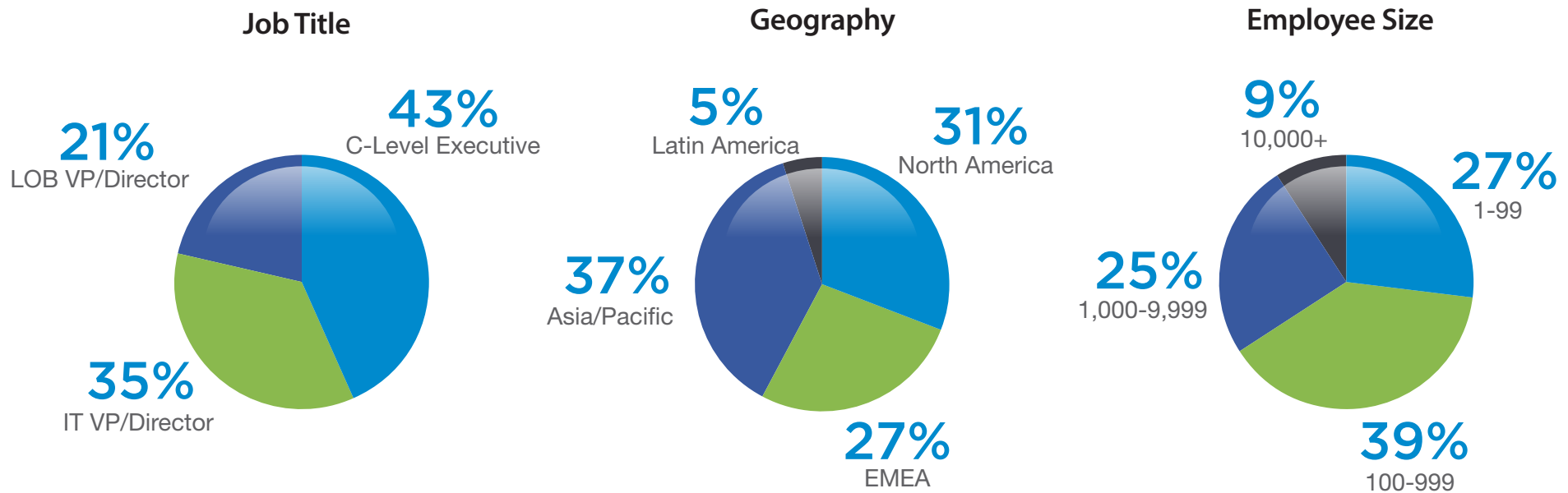


■ Optimized cloud organizations ■ Ad Hoc cloud organizations

Study Methodology

IDC's 2016 CloudView Survey interviewed director-level and above respondents from a global sample of 11,350 executives knowledgeable about IT decisions. Of this sample the full survey was conducted on the 6,159 respondents actively using cloud for multiple workloads.

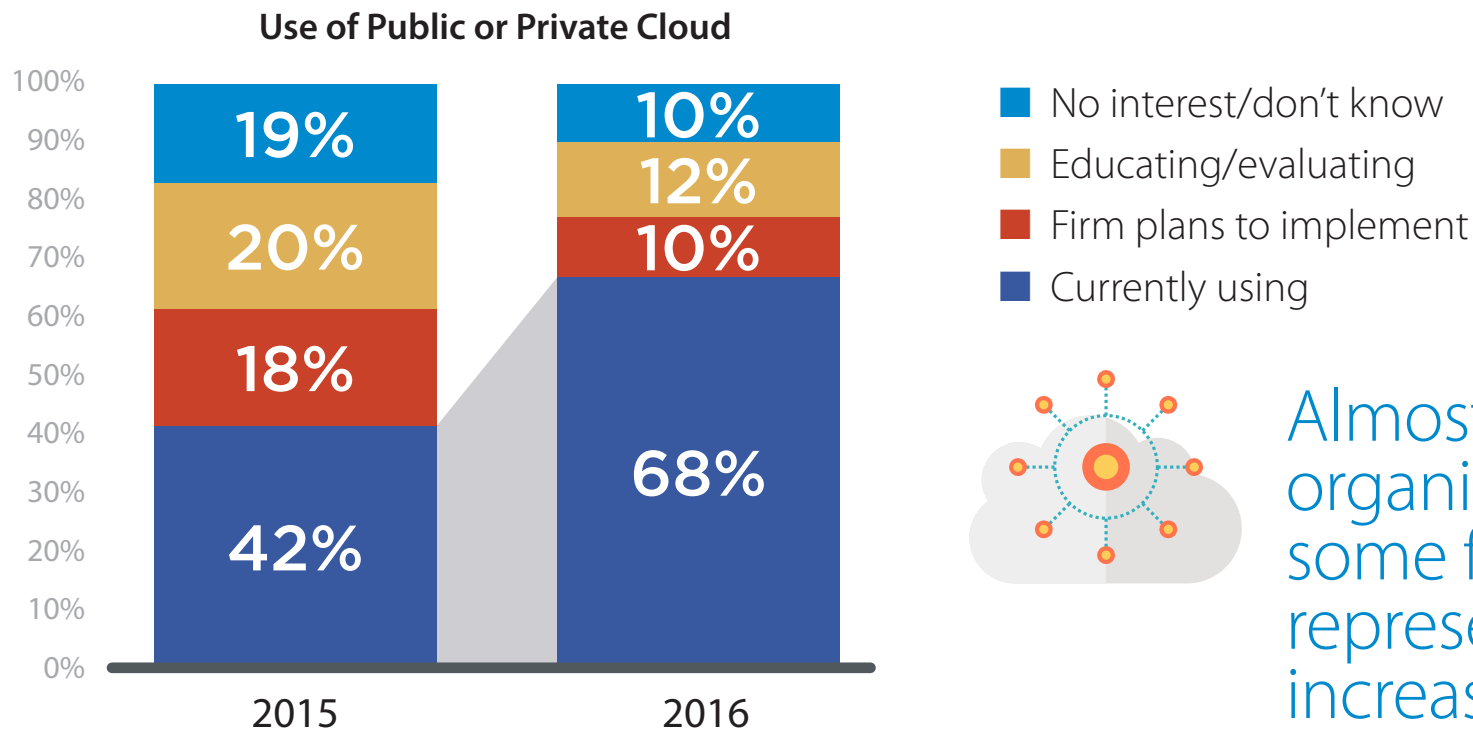
Survey Participant Profile



Q: Which of the following best represents your job title?

Q: Approximately how many employees are there in your entire organization?

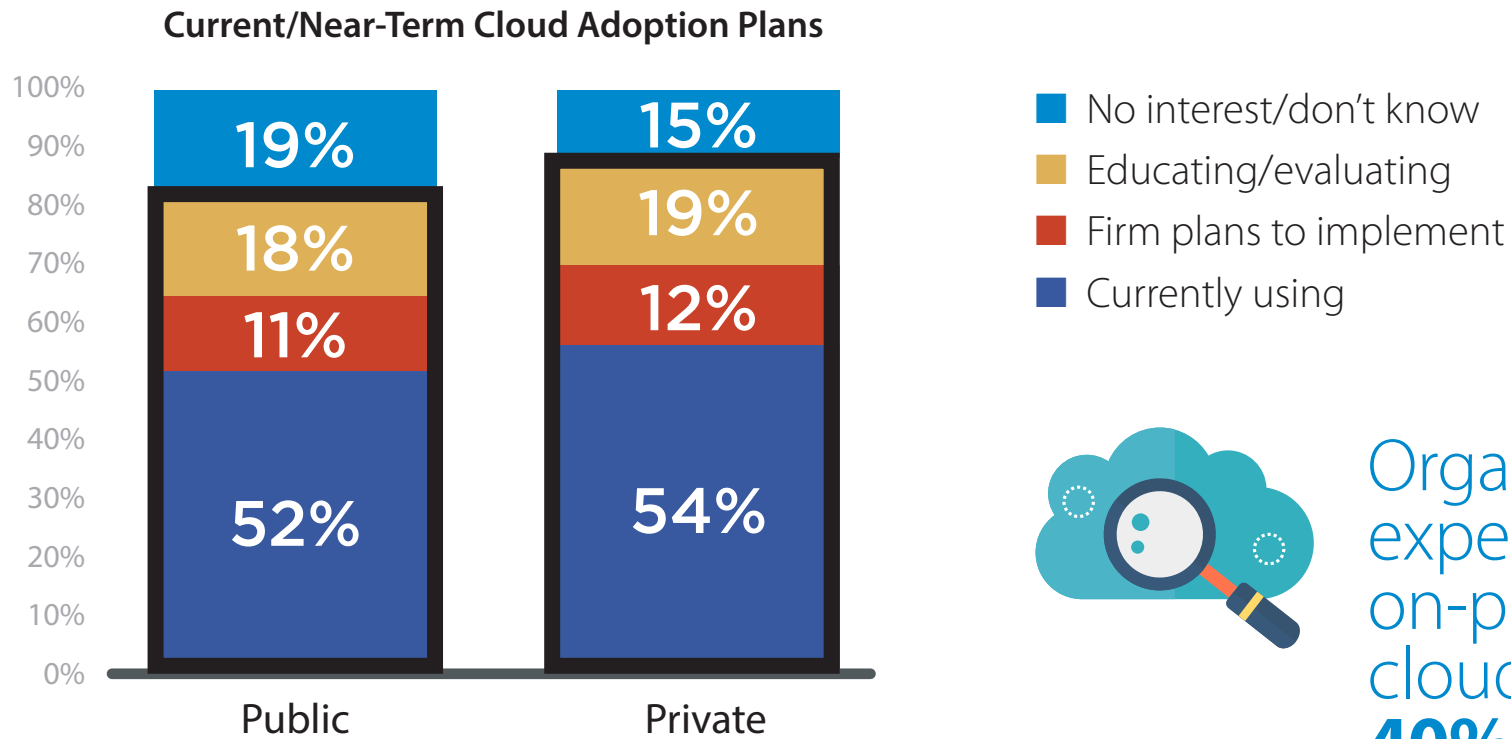
Cloud Adoption Is Accelerating



Almost **68%** of organizations use some form of cloud, representing a **61%** increase from last year

Q: How would you best describe your organization's current or near-term plans to use public cloud or private cloud solutions to support production workloads and services?

Adoption Is Relatively Evenly Split Between Public and Private Cloud

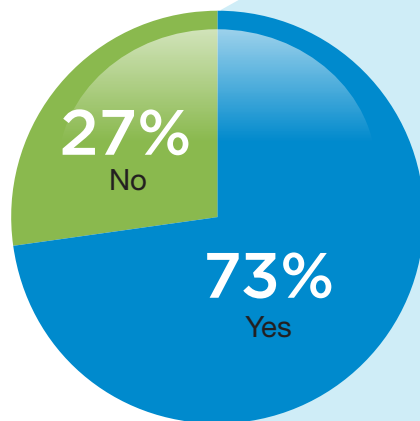


Organizations expect to increase on-premises private cloud spending by **40%** over the next two years

Q: How would you best describe your organization's current or near-term plans to use public cloud or private cloud solutions to support production workloads and services?

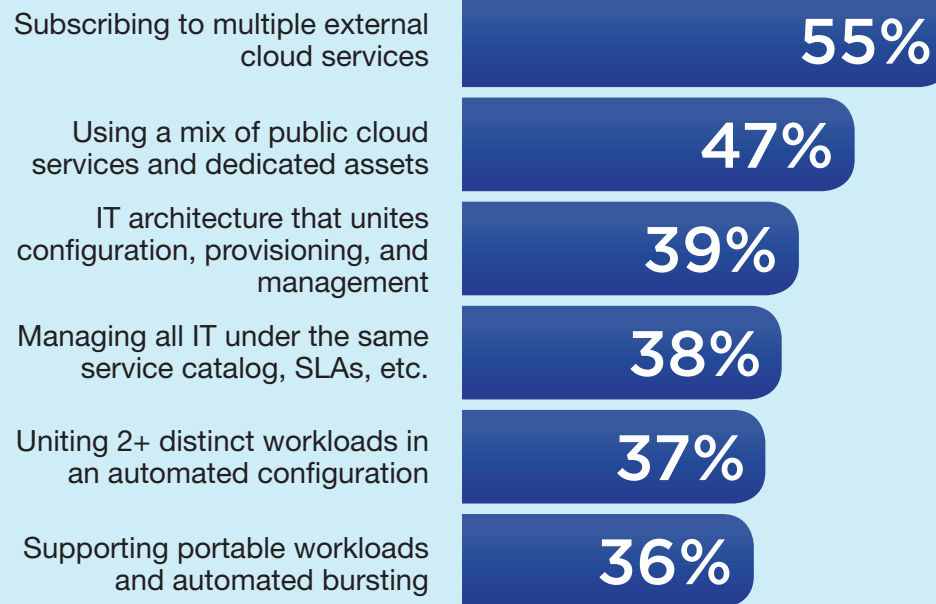
Most Cloud Adopters Are Using Some Form of Hybrid Cloud

Have a Hybrid Cloud Strategy



Q: Do you think your organization has a hybrid cloud strategy today?

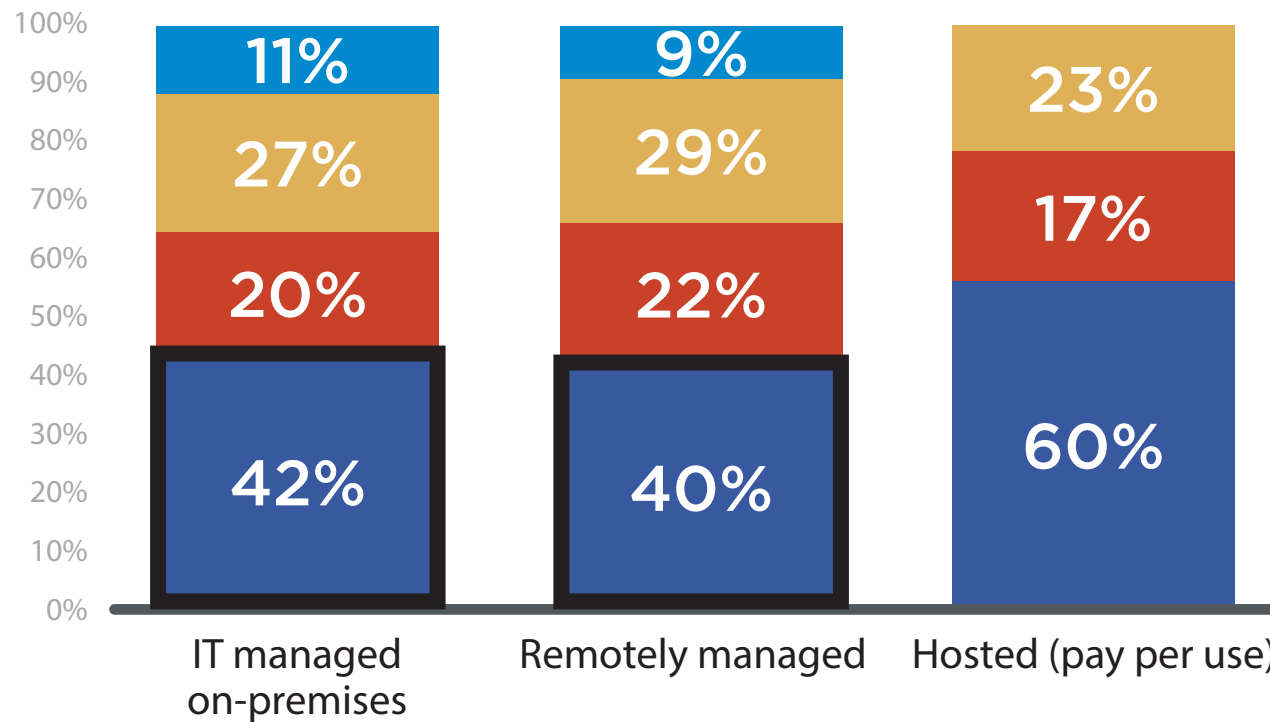
Characteristics of Hybrid Cloud Adopted



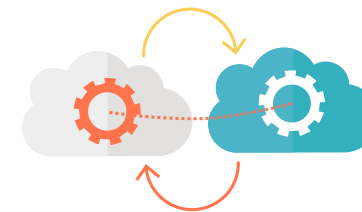
Q: Which of the following potential characteristics of a hybrid cloud has your organization adopted?

Private Cloud Implementations Span a Broad Range of Deployment Options

Hosted Private Cloud Deployment Plans



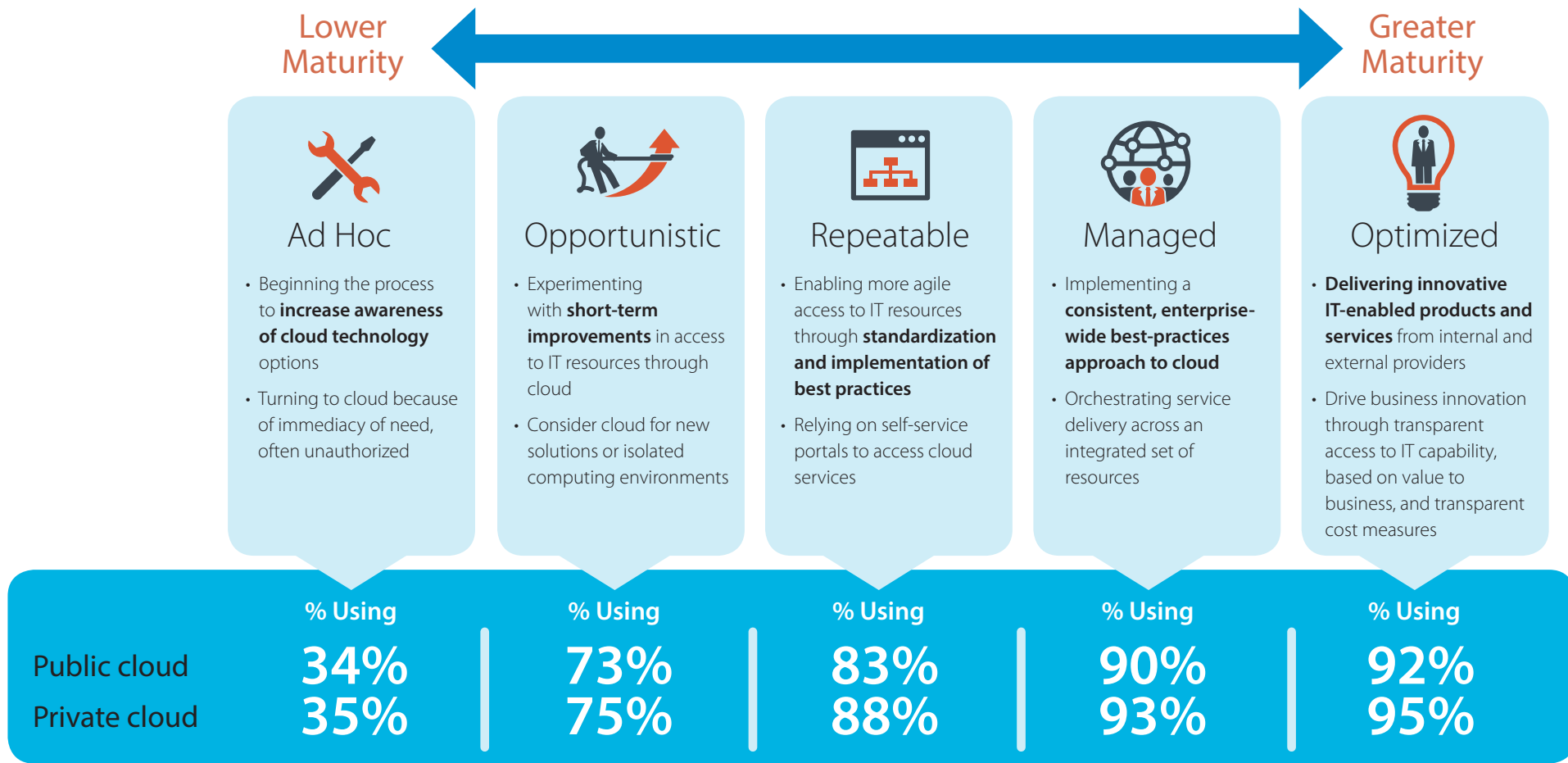
- Not currently interested
- Evaluating, but have no firm plans
- Firm plans to implement within 12 months
- Currently using



50% of organizations are running more than one type of private cloud deployment

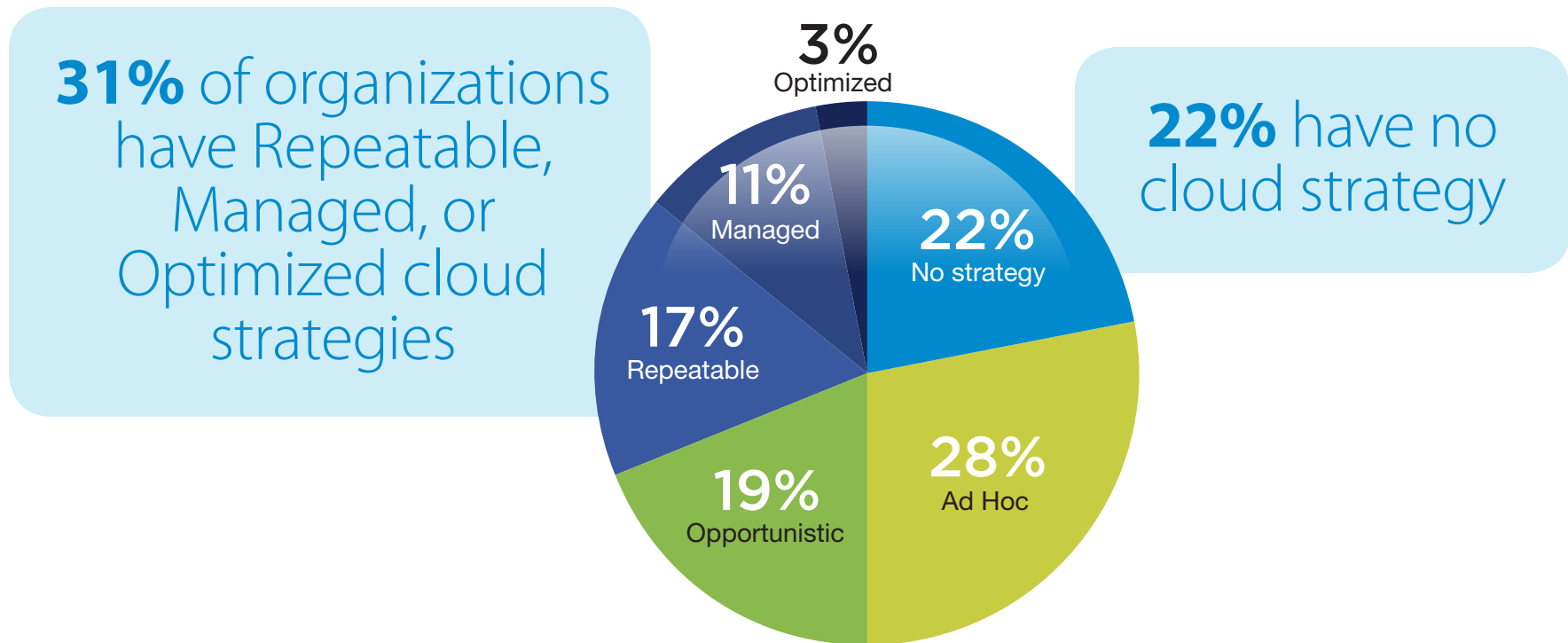
Q: Please describe your organization's current or near-term plans for each of the following private cloud deployment options

IDC Categorizes Organizations Using Five Levels of Cloud Adoption



Most Organizations Are Still Attempting to Optimize Their Cloud Strategies

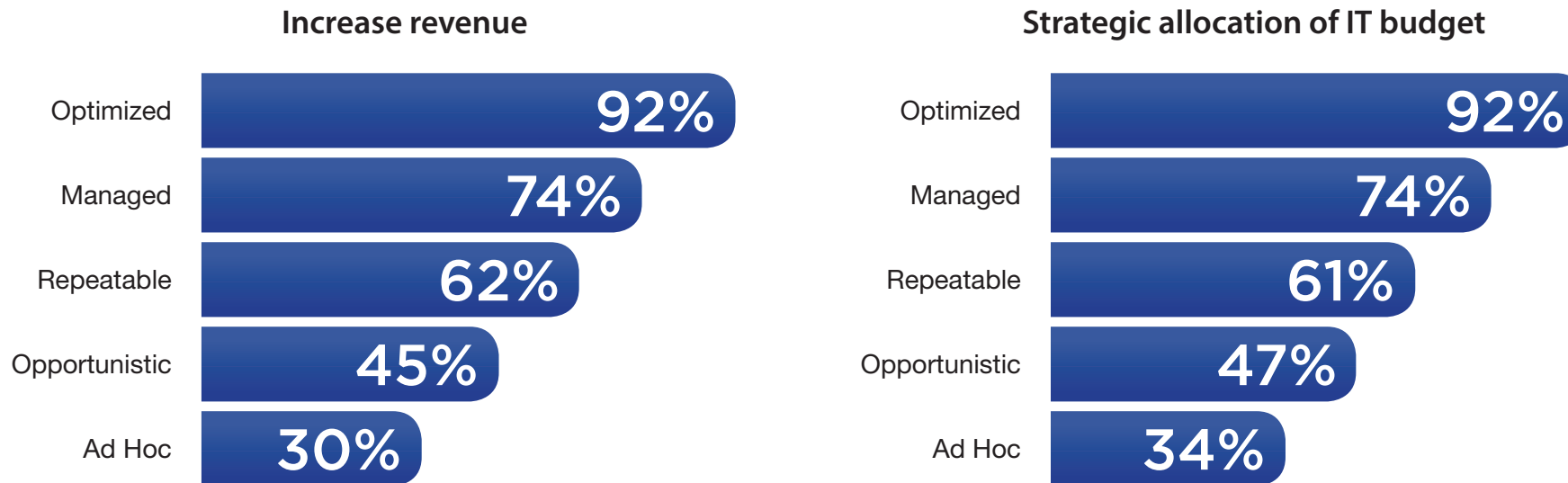
Cloud Maturity Level



More Mature Organizations Continue to Expect Cloud to Drive Strategic Outcomes

The greater the level of cloud maturity, the more organizations expect cloud to drive strategic business outcomes including increased revenue and more strategic allocation of IT budget.

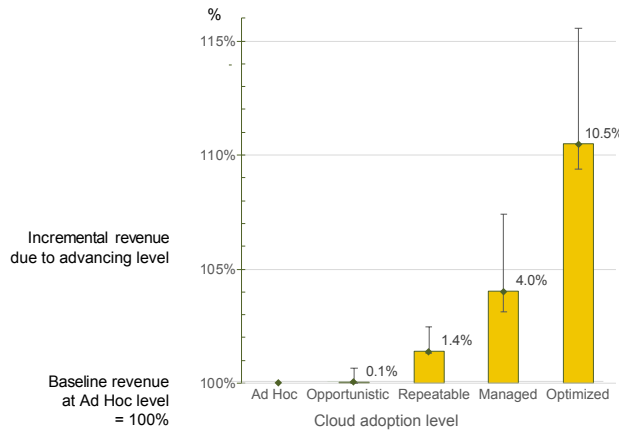
Expect Cloud to Improve KPIs Over Next 2 Years



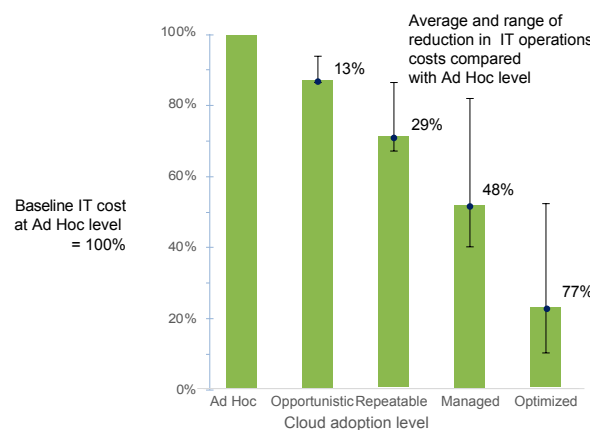
Q: Do you expect an improvement in the following key performance indicators (KPIs) over the next 2 years based on your organization's use of public, private, or hybrid cloud services [ability to help LOBs positively impact revenue growth, ability to fund strategic versus routine/maintenance projects]?

Increasing Cloud Maturity Yields Significant Benefits

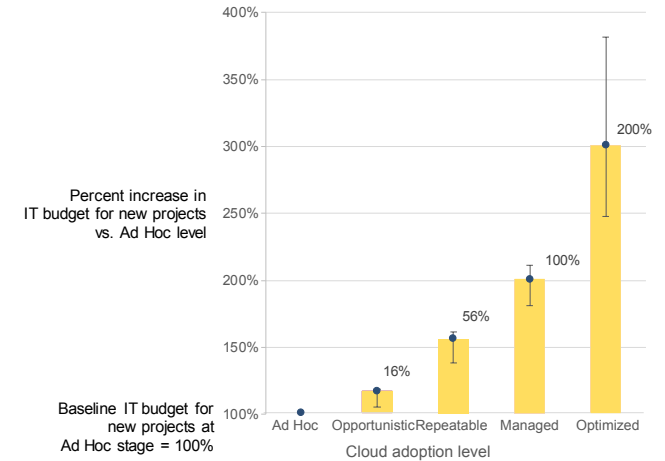
Increase Revenue



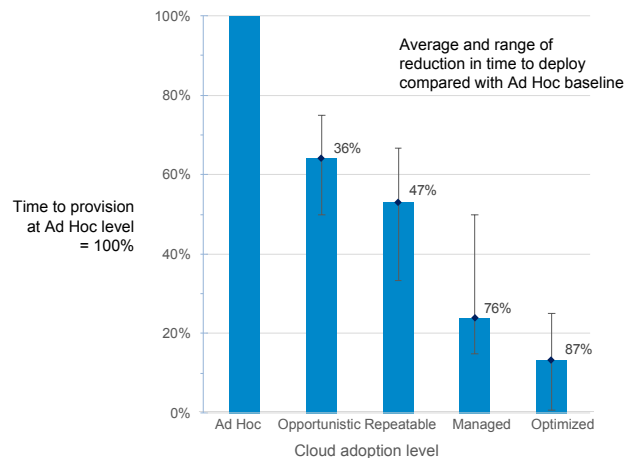
Cost of IT Operations



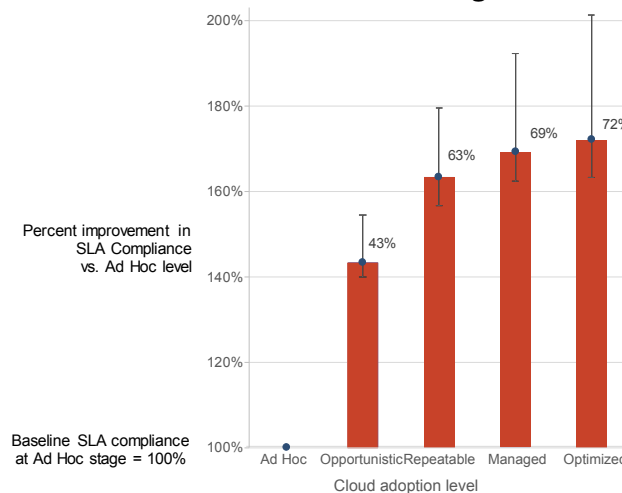
Strategic Allocation of IT Budget



Agility: Time to Provision



Meet Service Level Agreements



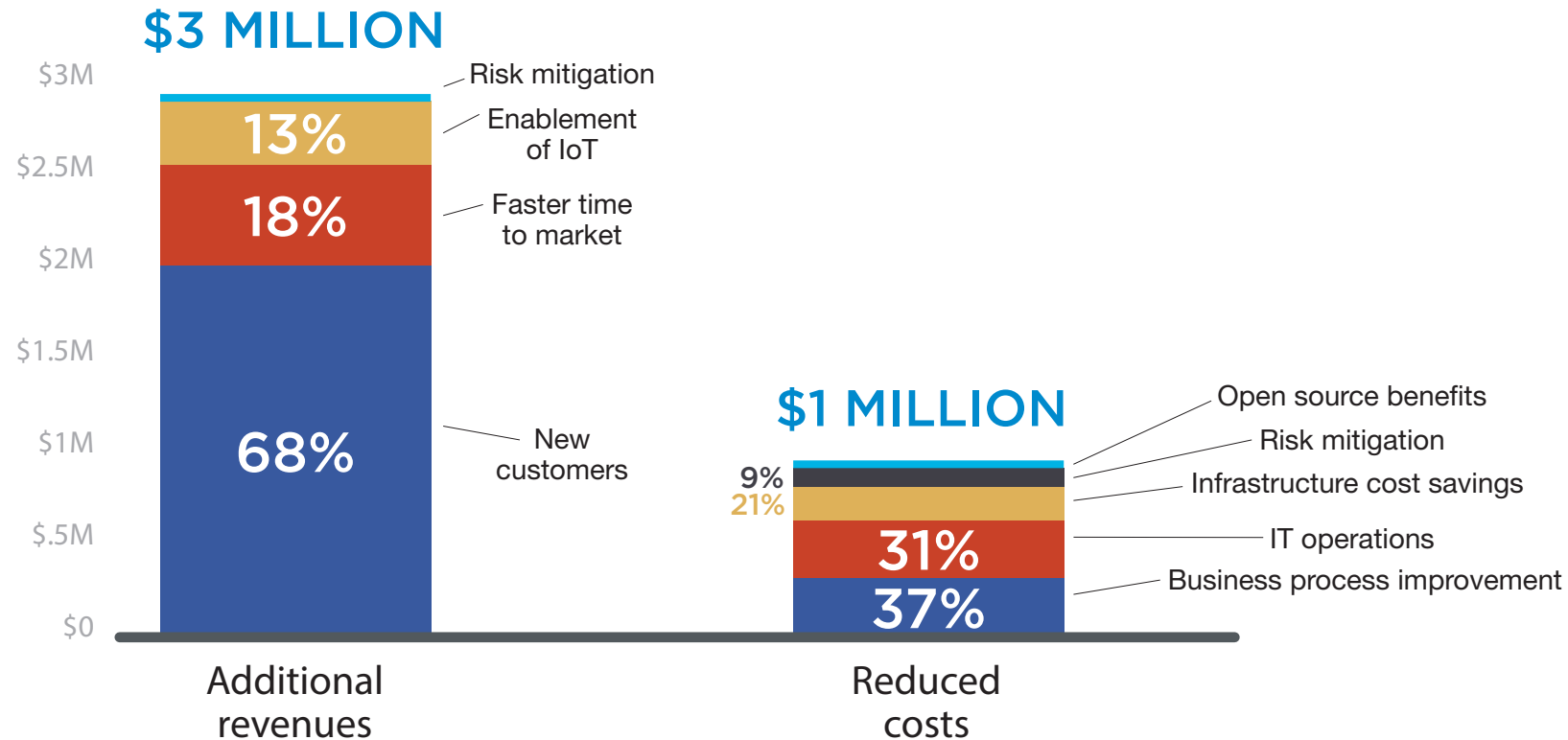
Legend

- Upper Bound
- Average
- Lower Bound

Source: 470 responses from 25 IDC Business Value Research studies from 2012 to 2016 covering cloud maturity levels, adoption of private cloud, implementation of private cloud and converged infrastructures in support of cloud and 35 respondents from a specialized study of Optimized/Managed cloud maturity organizations for Cisco in December 2014 and April 2016.

Greater Cloud Maturity Leads to Millions of Dollars in Benefits

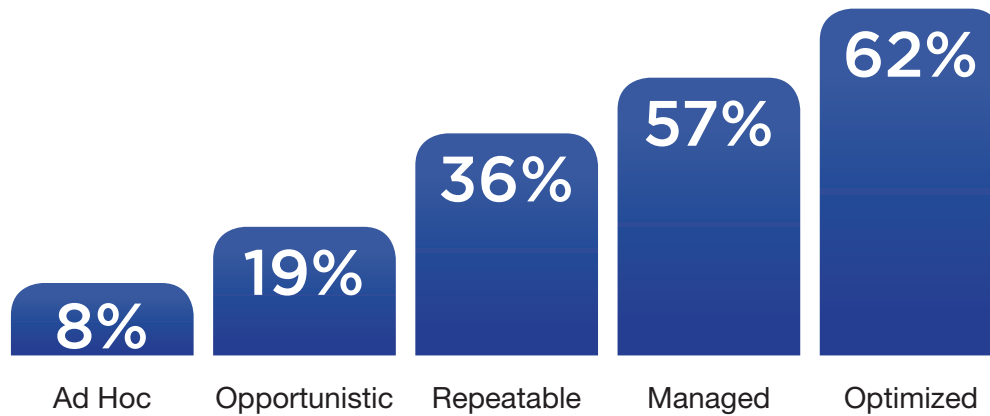
Annual Benefit per Cloud-Based Application



Source: 470 responses from 25 IDC Business Value Research studies from 2012 to 2016 covering cloud maturity levels, adoption of private cloud, implementation of private cloud and converged infrastructures in support of cloud and 35 respondents from a specialized study of Optimized/Managed cloud maturity organizations for Cisco in December 2014 and April 2016. Figures may not add to 100% due to rounding.

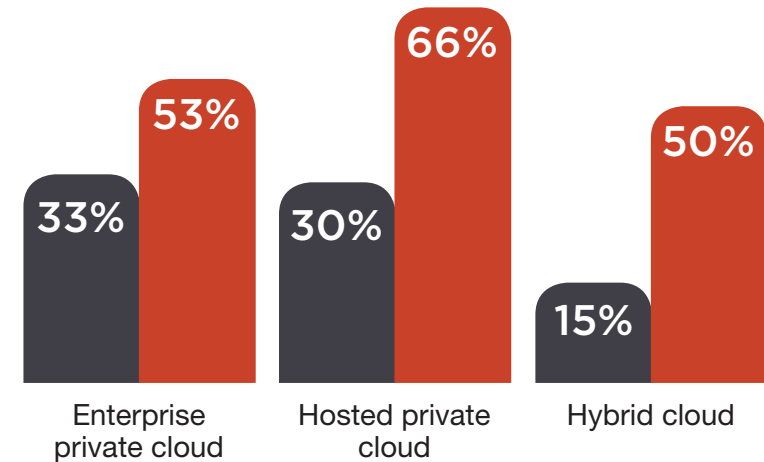
Cloud Is Enabling the Internet of Things (IoT)

Deployed Cloud-Based IoT Applications¹



Q: Has your organization deployed any cloud-based IoT (Internet of Things) applications?

IoT Application Deployment Platform²



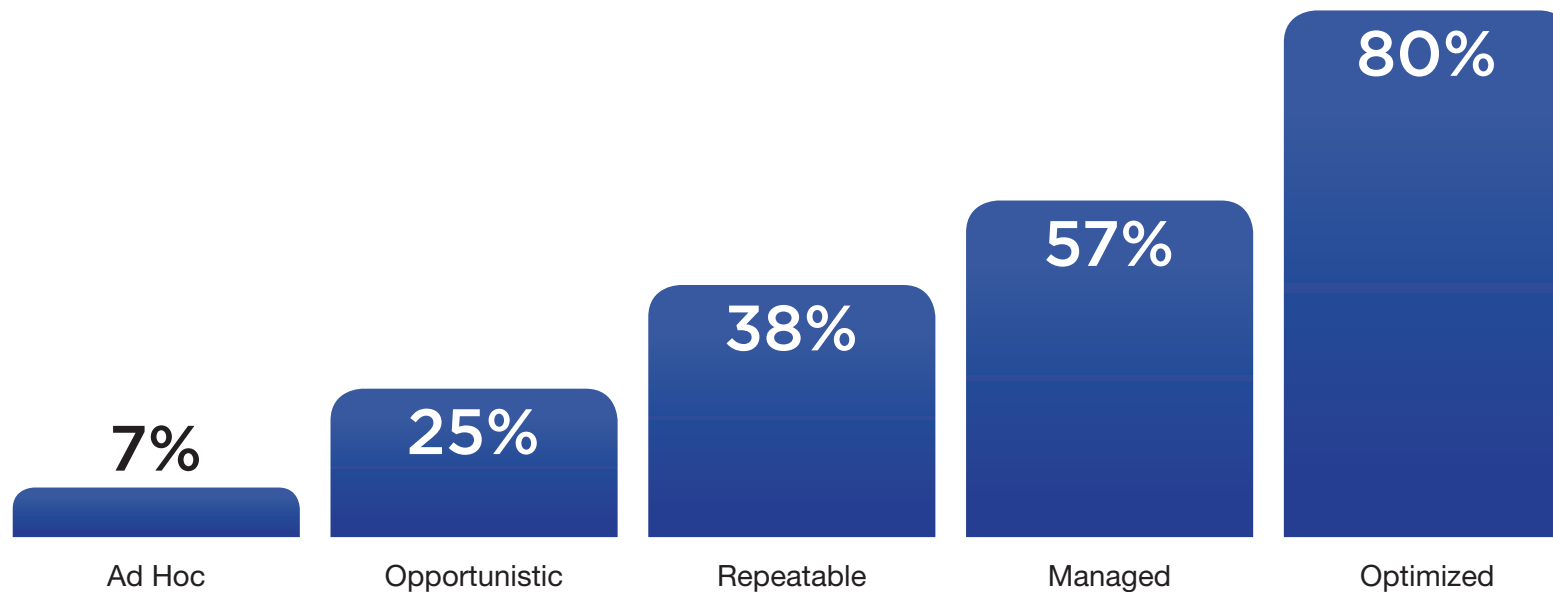
Q: Across which of the following has your organization deployed IoT applications?

■ Ad Hoc ■ Optimized

Overall, **29%** of cloud adopters are using cloud-based IoT applications

DevOps Is Widely Used in Mature Cloud Organizations

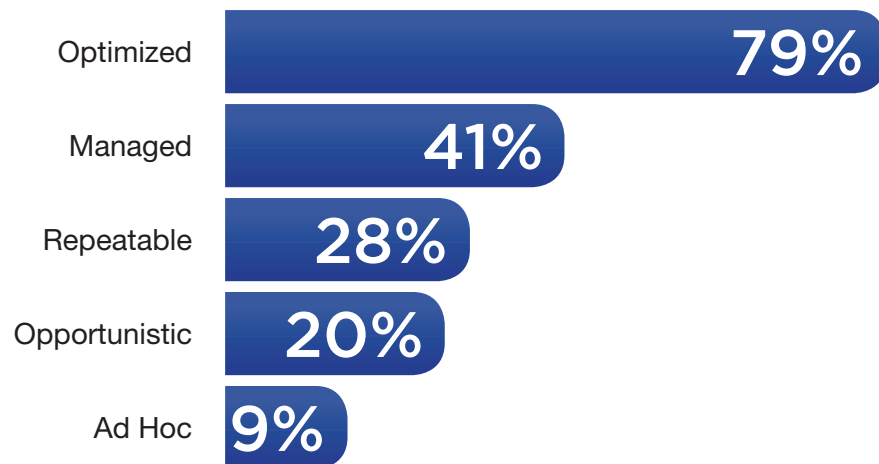
Practice DevOps for Cloud Environments



Q: Do you currently have DevOps practices in use for your cloud environments?

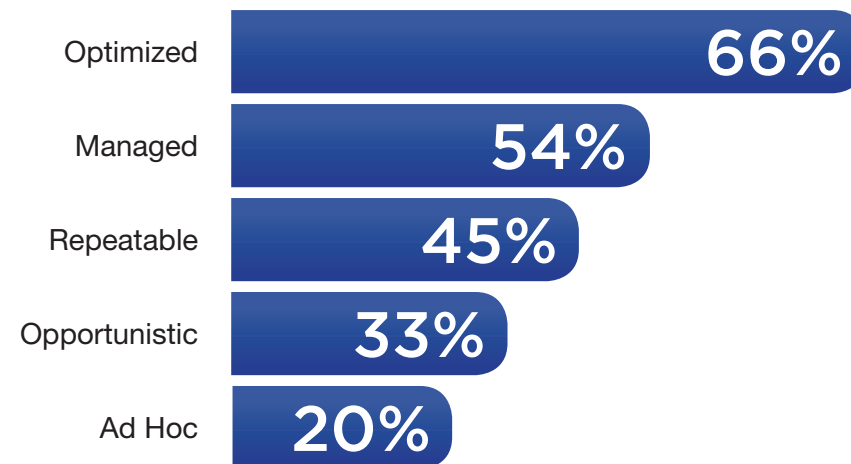
Microservices Architectures and Containers Are Widely Used by Mature Cloud Organizations

Perform Custom Cloud Application Development Using a Microservices Architecture



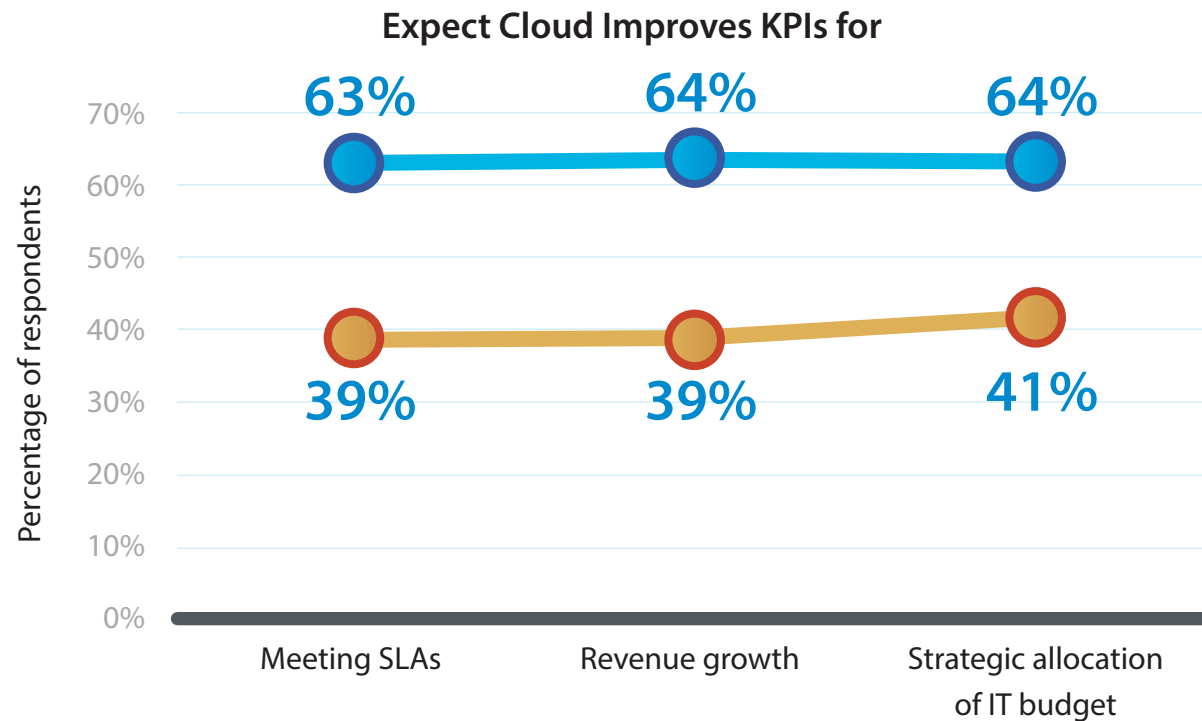
Q: Thinking about your organization's ability to manage its cloud environments efficiently, please indicate whether you currently have implemented the following technologies/tools. If not, when do you expect to implement them?

Docker Containers Are Important to Cloud Strategy



Q: How important are the following open source and standards projects to your organization's cloud strategy?

OpenStack Is Seen as Important and Correlated with Better Business Outcomes



59% of respondents say OpenStack is important to their cloud strategy (via open source and/or commercial distributions)

Respondents for whom OpenStack is a more important part of their cloud strategy had higher expectations for cloud to improve key KPIs than those for whom OpenStack was less important.

- OpenStack is "important"
- OpenStack is "not important"

Q: Do you expect an improvement in the following key performance indicators (KPIs) over the next 2 years based on your organization's use of public, private, or hybrid cloud services?

Q: How important are the following open source and standards projects to your organization's cloud strategy? [OpenStack] (top-2 box and bottom-2 box scores shown)

Mature Organizations More Likely to Consume Security over the Cloud

Method of Consuming Security in Cloud Environments



Security is an important concern: **48%** characterize adequate security as an important inhibitor to cloud deployment

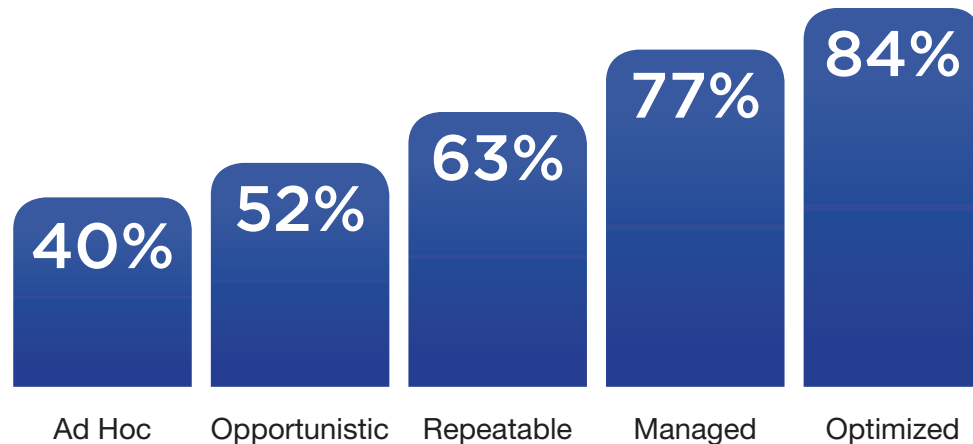
Cloud-mature organizations are more likely to consume security over the cloud

Q: How would you classify your consumption of security delivered from a cloud environment, either public or private?

Mature Organizations Plan to Consume Services from Multiple Cloud Providers

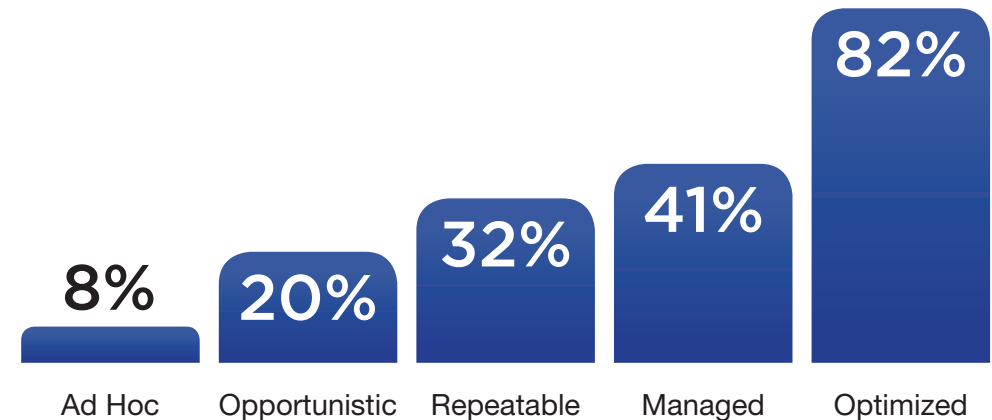
The most cloud-mature organizations expect to be able to choose from multiple cloud providers based on location, policies, and governance principles and have implemented collaborative business and IT governance to do so.

Expect to Choose from Multiple Cloud Providers Based on Location, Policies, and Governance Principles¹



Q: Please note the extent to which you agree with the following statements about your organization's use of external cloud vendors [top-2 box agreement]

Implemented Collaborative Business/IT Cloud Governance Policies²



Q: Thinking about your organization's ability to manage its cloud environments efficiently, please indicate whether you currently have implemented the following skills/processes?

Key Takeaways

Cloud adoption continues to grow, but few companies have mature cloud strategies in place

- ▶ **78%** of organizations are using or are planning to implement some form of cloud, a **61%** increase over last year. Only **31%** have Repeatable, Optimized, or Managed strategies. While this is an increase from 2015, there is still room for improvement

Hybrid cloud is a significant part of the mix, with on-premises private cloud spending continuing to grow

- ▶ **73%** of organizations are pursuing a hybrid cloud strategy, which includes subscribing to multiple external cloud providers and using a mix of cloud and dedicated (on-premises) IT resources
- ▶ Organizations expect to increase on-premises private cloud spending by **40%** over the next two years

Cloud adoption is driving significant benefits

- ▶ The greater the level of cloud maturity the better the level of business outcomes
- ▶ This includes strategic business outcomes such as improved revenue growth and more strategic allocation of IT budgets, as well as tactical benefits including lower IT costs, reduced time to provision IT services, and increased ability to meet SLAs

Key Takeaways

Cloud-mature organizations make greater use DevOps, containers, and microservices architectures

- ▶ **80%** of Optimized organizations use DevOps for their cloud environments, compared to **7%** of Ad Hoc organizations
- ▶ Microservices architectures are used by **79%** of Optimized organizations to develop cloud apps compared to **9%** of Ad Hoc organizations
- ▶ Docker containers are an important part of **66%** of Optimized organizations' cloud strategies, and only to **20%** of Ad Hoc organizations

The most cloud-mature organizations are using the cloud to support Internet of Things

- ▶ **62%** of Optimized organizations use cloud to support IoT, compared to **8%** of Ad Hoc organizations. Optimized organizations are also much more likely to use private or hybrid cloud for IoT

Mature organizations look to multiple cloud providers

- ▶ **84%** of Optimized organizations expect to be able to choose between multiple cloud providers based on locations, policies, and governance principles, compared to **40%** of Ad Hoc

The majority of adopters are facing challenges to advancing in maturity

- ▶ Key obstacles include skill gaps, legacy-structured and siloed organization structures, and IT/LOB misalignment