



# IT@INTEL

## A Holistic Cloud Approach for Big Savings

With a cloud-native app development plan, cost-reduction strategy, and centralized management, Intel IT has reaped big savings on cloud computing

Intel IT's multi-cloud strategy with centralized management saved the organization USD 940,000 in 2016.

### Introduction

The availability of new software applications, coupled with easy access to cloud computing, has allowed businesses to optimize their workloads for faster time-to-market (TTM). But without a clear plan, IT organizations can find themselves playing catch-up with shadow IT. When business groups engage solution providers directly, they often face common challenges and lack best-known methods. Over the past decade, Intel has implemented a data center transformation strategy that focuses on placing the right workload in the right place. When it comes to applications best suited for the cloud, we developed a comprehensive multi-cloud strategy that includes centralized management of all cloud accounts, applications, and workloads; a planned approach to cost reduction; and a cloud-broker strategy to guide Intel's business groups. This approach saved Intel approximately USD 940,000 in 2016.

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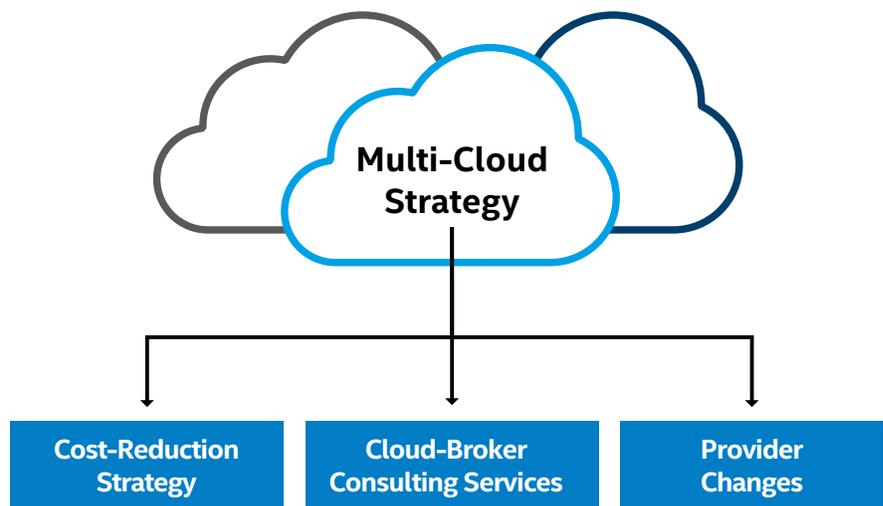


Figure 1. Intel IT's multi-cloud strategy with centralized management saved the organization USD 940,000 in 2016, and savings continue to grow.

## Acronyms

<b>AI</b>	artificial intelligence
<b>RI</b>	reserved instances
<b>ROI</b>	return on investment
<b>TTM</b>	time-to-market

## Business Challenge

At Intel, we developed a comprehensive data center strategy designed to provide our internal business customers with optimal infrastructure capabilities and innovative business services. As a part of that initiative, which began in 2009, we created key performance criteria to help determine the best computing environment for each workload. In recent years we have experienced a shift from dedicated, on-premises computing to hybrid cloud computing as applications have improved and proliferated, and services have become more accessible. But keeping up with this digital transition has been challenging because we had little or no insight into the variety of accounts and vendors being used as business owners discovered new solutions. Not only was it difficult to ensure that Intel security standards were in place for enterprise data in these accounts, but we sometimes found that employees were using personal and corporate credit cards to pay for services.

The rapidly growing use of cloud services that do not include IT oversight resulted in the following:

- **Slower time-to-market (TTM).** Without a standard approach to implementing cloud solutions, business owners often faced similar issues without the benefit of shared knowledge and best-known methods.
- **Inefficient management.** Existing on-premises applications are often custom-built and many are not cloud-enabled. Likewise, technology stacks may differ widely based on workload needs. We were missing opportunities to align workloads for optimal performance.
- **Higher costs.** Disparate accounts reduce the opportunity to negotiate hosting fees for similar workloads across different business areas.

Intel IT wanted a consolidated view of what was happening in the cloud, as well as an opportunity to guide business owners through the process of using cloud services to improve TTM and reduce the overall cost.

## Solution

We developed a comprehensive approach to application and infrastructure development to address the growing demand from business groups for solutions available in the cloud.

We also evaluated our existing software applications and transitioned them where it made sense. With a broader range of providers and solutions to choose from, our approach offers the following benefits to our customers:

- **Greater agility.** Developers can write code for best-fit workload placement instead of worrying about infrastructure. This provides developers with more capabilities and the ability to deploy apps faster. By selecting cloud providers that use standard solution stacks based on Intel® technology, we gain a high level of reliability, with built-in redundancy and resiliency.
- **Reduced costs.** Centralized management of our cloud engagements allows us to optimize workloads and obtain greater discounts from cloud providers. We have also developed a strategy to further reduce cost as we look to the future.
- **Improved security.** Intel maintains strong security standards for all organizational data, and central cloud management helps verify that all cloud solutions meet these standards.
- **Better developer experience.** Developers have more agility to focus on the business and application needs instead of the infrastructure.

## Guiding Business Groups to Solutions

Intel IT created a team called “cloud brokers” whose central mission is to guide our internal business customers. The team’s charter is to negotiate contracts with cloud providers, define policies for business groups (such as curbing the use of personal credit cards), and develop minimum security standards to help protect enterprise data. Cloud brokers also maintain knowledge of current and emerging services and capabilities to help business groups quickly adopt solutions for their specific needs. We tailor the experience to

### Shifting the Mindset to Cloud Development Developing and provisioning applications for the cloud is different

A comprehensive cloud strategy includes evaluating existing applications for cloud computing—often called application rationalization. But moving applications to the cloud is a big job because the architecture and design varies significantly between native and cloud-ready development.

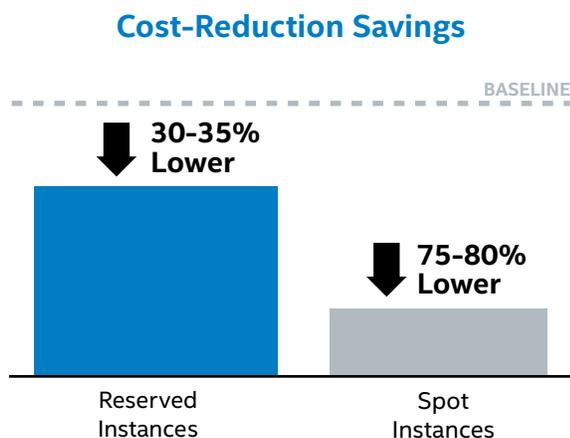
In some cases, there are new cloud-aware applications that can replace existing software. In other cases, it requires a mindset shift in how developers approach application development and deployment. Training developers on best-known methods is critical to the overall success.

the specific needs of the business customer when possible. For example, some internal business customers prefer that IT manage all aspects of their computing needs, while others simply need clear guidelines and IT governance to help them to do much of the work themselves. In both cases, cloud brokers help internal business customers overcome common issues and benefit from shared knowledge.

### A Strategy for Reducing Costs

Combining and managing the cloud-computing needs of the entire enterprise allowed us to optimize workloads and reduce costs. Our strategy is built on the following four-step savings strategy:

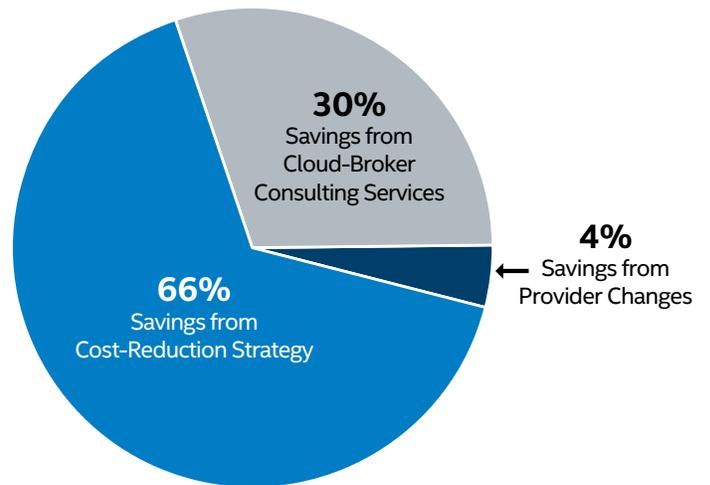
- The right workload in the right place.** Our first approach to savings is to determine the optimal workload placement to balance cost with capability.
- Reserved instances (RI).** Using RI, we can reserve resources and capacity for one or three years, lowering our hourly on-demand rate significantly. We have saved an average of 30-35 percent over on-demand costs (see Figure 2).
- Run-rate discounts.** We initially worked with Intel procurement to gain an understanding of where we were spending money. With that information, we combined our workload computing across the enterprise, which allows us to calculate average run rates and qualify for much larger discounts from our cloud providers.
- Spot instances with artificial intelligence (AI).** As we look ahead to additional cost savings, we have begun to bid on spot instances—or spots of resource availability. Using AI, we can predict the loss of spot instances about 15 minutes ahead of time and move workloads to other resources without interruption. Spot instances have so far saved us 75-80 percent over on-demand costs (see Figure 2).



**Figure 2.** While using reserved instances (RI) has resulted in 30-35 percent savings over on-demand costs, bidding on spot instances using artificial intelligence (AI) has saved 75-80 percent over on-demand costs.

### Cloud Strategy Savings

Breakdown of Savings in 2016



**Figure 3.** We saved approximately USD 940,000 in 2016: Our cost-reduction strategy saved 66 percent, with an additional 30 percent in savings from cloud-broker consulting and 4 percent in provider changes.

### Results

At Intel, we have found that employing a best-fit strategy—the right workload in the right place—often results in greater return on investment (ROI), faster workload deployment, improved security, and lower costs. In 2016, our cost-reduction strategy specifically for cloud applications saved the organization approximately USD 627,000 and our cloud-broker consulting services saved approximately USD 271,000. We realized an additional USD 42,000 by changing some products and providers, resulting in an overall savings of USD 940,000 (see Figure 3).

Additionally, we are now managing over 300 accounts and have centralized the RI on those accounts. To increase our RI coverage and savings, we have begun to standardize cloud regions and have achieved 80 percent coverage as of Q4 2018.

### Conclusion

Keeping pace with the computing needs of any organization can be challenging for IT, and the shift to cloud solutions increases the need to implement a sound strategy. Intel IT developed a comprehensive strategy for cloud computing, which centralizes management of all cloud contracts, applications, and workloads. This has not only helped us confirm that all solutions meet the security standards of the organization, but it has also allowed us to define and implement a successful cost-reduction strategy.

In 2016, our centralized cloud management, including our cloud brokers who consult with business groups to provide

the best solutions, saved the organization nearly a million dollars. We are now looking at new ways to improve those cost saving by using AI. We expect our comprehensive cloud strategy to continue to improve the ROI of the cloud solutions we use.

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