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Cloud Migration Is Actively Embraced, But Not For Everything

An Examination Into The Motivations And Practices Of Public Cloud Migrators

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Executive Summary

Cloud migration is all the rage. Unlike in software-as-a-service (SaaS) migration, enterprises are evaluating whether to move existing apps, not built for the cloud, to a public cloud environment — a practice previously viewed as prohibitively expensive and time-intensive. However, barriers to migration have lessened, and prominent enterprise voices are now actively designing cloud strategies around this concept.

Early stories of cloud migration describe massive endeavors to migrate all or most existing applications to a public cloud platform, heavily using lift-and-shift tools rather than more cost-intensive complete rewrites.¹ Besides these highly publicized stories, there is little data available on the actual migration practices of enterprises today. Despite the hype surrounding cloud, today's cloud migration conversation still lacks details.

In July 2017, Red Hat commissioned Forrester Consulting to evaluate the cloud migration strategies of organizations. Forrester conducted an online survey with 272 respondents and four interviews with cloud decision makers at enterprises all over the world to explore this topic. Complete cloud migration may have started the story, but in practice, cloud migrators appear to balance cost, performance, security, and total benefits to determine whether to move a specific workload.

KEY FINDINGS

- › **Migration is firmly here.** Enterprises have fully embraced the idea of moving existing applications to the public cloud, largely for digital transformation. And this is no small endeavor — a majority of firms plan to move 100 or more workloads in total. In two years, migrators estimate that 25% of their total workloads will live in a public cloud, compared to 21% today.
- › **Evaluations by application are the norm, not mass migrations.** Companies may be moving plenty of workloads, but it's not a mass migration story. Rather, firms are evaluating workloads and their related application ecosystems via multiple criteria to determine where they need to ultimately reside. In fact, many decide that certain legacy apps will never make it to the public cloud.
- › **Cost is the top motivator for migration.** The main driver to migration is scalability to cut costs. But cost cuts are app-specific and dependent on the app's ability to scale. In order to move to public cloud, enterprises need to be able to make the case for lowered costs for each application or the subset of workloads within a given ecosystem. Collectively they must be able to scale to experience savings.
- › **Migration isn't easy.** It's not all smooth sailing. Security and regulatory issues that previously deterred migration efforts still cause issues when workloads are in the process of moving to cloud. Most internal teams also lack important migration skill sets. Hiring and training are key elements to cloud migration strategies, but they can also escalate costs.



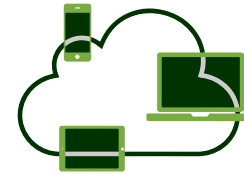
Despite the hype surrounding public cloud, today's cloud migration conversation still lacks details.

Enterprises Are Embracing Cloud Migration Today

This study explores the scope, drivers, challenges, and investments made by today's cloud migrators as part of a two-part series on cloud migration. Specifically, this study explores whether these enterprises are in fact undertaking mass migration efforts to migrate all workloads to a public cloud using a single lift-and-shift method.

In an effort to uncover cloud migration in practice today, Forrester Consulting fielded a survey to those enterprises explicitly migrating workloads to the public cloud in order to better understand their strategies and actions. Our survey found:

- › **The primary public cloud use case is migration.** Two-thirds of respondents identify migrating legacy applications as their primary use case for public cloud today. This is a significant pivot. Rather than viewing public cloud as an extension of their initial usage for development or new use cases, these firms are now taking a migration-centric view. To these firms, public cloud is primarily used for migration rather than for its unique financial model or its wealth of developer services for new workloads.
- › **Digital transformation is a key use case for both public and private cloud.** Migrators also note that digital transformation is a primary use case for both public cloud (57%) and private cloud (55%).
- › **Migration is no small endeavor, but it doesn't include most apps.** While migrators state that 21% of infrastructure is in the public cloud now, this percentage is expected to increase to 25% in two years — showing an increase of only 4% (see Figure 1). But despite this low reported change, nearly two-thirds of all cloud migrators say they are moving over 100 applications to the public cloud. These are not small portfolios that are being moved, but neither is this a mass migration where all or most applications are making the move.



64% of firms plan to move more than 100 applications to the public cloud.

Figure 1

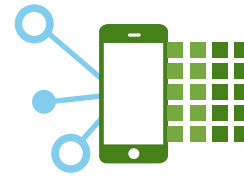
“What percentage of your infrastructure is in the following categories? What do you expect it to look like in two years?”
(Percentages are means)



Base: 248 cloud migration decision makers (today), 245 cloud migration decision makers (in two years), excludes respondents who answered “Don’t know”

Source: A commissioned study conducted by Forrester Consulting on behalf of Red Hat, July 2017

- › **Cost savings generated by application scalability drive migration decisions.** The primary driver identified by cloud migrators and planners was the ability to scale quickly and easily (46%). Thirty-six percent also aim to achieve significant cost savings (see Figure 2). This desire to reduce costs through scalability may seem obvious, but in practice, it shows migrators aligning their plans to the strengths of the cloud cost model.²
- › **Scalability evaluations must be done for ecosystems of dependent applications.** One interview with the head of infrastructure, architecture, and design at a US financial services firm made two key points. First, applications need adjustments to take advantage of potential scaling — many weren't built to scale with variations in their own usage. And second, applications live within ecosystems of dependencies. It doesn't matter if a single application scales; its immediate ecosystem must meet a certain threshold of scalability to be worth the move.
- › **Most are confident that migration is a financially responsible decision.** Cloud migrators aren't drastically overestimating their savings. In fact, more than 75% of migrators already feel that they have achieved the financial returns they expected from their workload migration efforts to public cloud. Of those that remain, the opinions are split: half believe they will achieve their ROI while the remaining 50% either think they won't or just aren't sure. Although not all benefits and expectations outlined by cloud migrators are aligned to reality, their reported cost savings are mostly on par with expectations.



“If I can leverage scalability in public, I can lower the cost of running that workload. But an app isn't an island. We can't consider moving one app to public without moving all the other apps in its immediate ecosystem. For that to be worth the effort, you need to be able to scale up and down across the subset of 12 or so applications.”

Head of infrastructure, architecture, and design, US financial services company



Figure 2

“What were/are the key reasons driving you toward migrating existing applications to a cloud computing infrastructure?”



Base: 272 cloud migration decision makers
 Source: A commissioned study conducted by Forrester Consulting on behalf of Red Hat, July 2017



Cloud migration is largely a story of scalability and cost control.

Migration Comes With Security And Staffing Challenges

Although enterprises are openly embracing migration today and financial expectations are being met, there's more to the story. This large and complicated endeavor is not without its own set of specific challenges, all of which are part of the big picture. Specifically, these results indicate that migrators expect a long list of unlikely benefits and overestimate the expertise of their internal teams. Migrators today highlighted a number of issues that they faced when migrating their workloads, including:

- › **Migration was previously delayed by security and cost concerns.**
Public cloud isn't new. When migrators were asked about why they hadn't previously migrated existing workloads, 47% stated security concerns. Other reasons noted were regulatory or governance concerns, a general lack of the knowledge necessary to deploy and operate cloud workloads, and high cost (see Figure 3).
- › **Security issues are still the greatest challenge to migrators.**
Thirty-one percent of migrators report problem solving for their specific security or compliance issues as the biggest challenge faced during migration. Additionally, 29% say their biggest migration challenge is regulatory or governance concerns. It seems that these previous blockers have evolved into hurdles. But these concerns are also classic multitenancy and outsourcing issues — and aren't necessarily specific to migration.



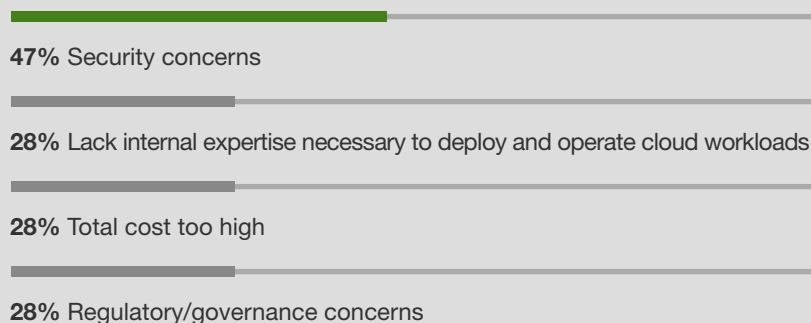
“Our paramount concern is the security of our data as it impacts the customer. But security and compliance can translate into costs sometimes. Once we've ensured we can meet a minimum set of standards, costs within that are discussed.”

Senior business systems analyst, American insurance company



Figure 3

“Cloud technology has been around for several years now. Why has your company chosen not to engage in cloud migration until now (versus the deployment of net new services)?”



Base: 272 cloud migration decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of Red Hat, July 2017



Security and regulation concerns were both a previous deterrent to migration as well as a current challenge to migrators.

- › **Only 35% reported cost challenges due to application architecture.** Oddly enough, what should have been the biggest cost barrier only challenged about one third of adopters. Application architecture issues are the fundamental crux to migrating existing applications — forcing enterprises to find the trade-off between cost and performance. Failure to change or isolate these applications leads to diminished performance. It is possible that migrators avoid these workloads, are underreporting these challenges, or are using alternative models to allow their traditional monolithic applications to scale vertically and be isolated from other demanding workloads. Some enterprises use specialty providers or dedicated cloud environments to circumvent these issues.
- › **Staffing needs are responsible for the largest costs.** Thirty-three percent of migrators say training, hiring, and reskilling their internal staff are their biggest costs associated with cloud migration. Though migrators say they are comfortable leveraging security and management skills internally, they are far less confident in their ability to leverage specific workload, cloud cost, and cloud ecosystem expertise, as well as monitoring of cloud services (see Figure 4). The problem is that many of these skill sets are identified as the most critical for a successful migration. Given that these are new skill sets, these issues are to be expected, but they must still be addressed. Consequently, 34% of firms plan to retrain or reskill their current staff in order to migrate to the cloud, while 29% simply plan to hire additional staff with specific cloud experience and expertise.
- › **Migrators have high and unrealistic expectations.** Among the list of expected benefits are IT cost management improvements, improved data management, and improved application performance — all of which are factors notorious for diminishing when an existing application moves to the cloud.³ More commonly, these are listed as key challenges that require additional spending or managed services in order to mitigate the pain experienced. Migrators may be in for a rude awakening when their expected benefits remain unrealized.
- › **Migration practices currently don't align with the promise of outsourcing.** Outsourcing is supposed to increase productivity or lower head count. With outsourcing comes the ability to focus on core services unique to the business — but not every employee's skill set translates to this new role. As migrators hire additional staff and train existing workers, it is unclear where staffing costs decline. In fact, 32% say costs for ongoing support and maintenance are a concern for their migration efforts. Few firms intend to lower their headcount. Companies that have managed to decrease staff costs rely on attrition or removal of contractors from their budget.

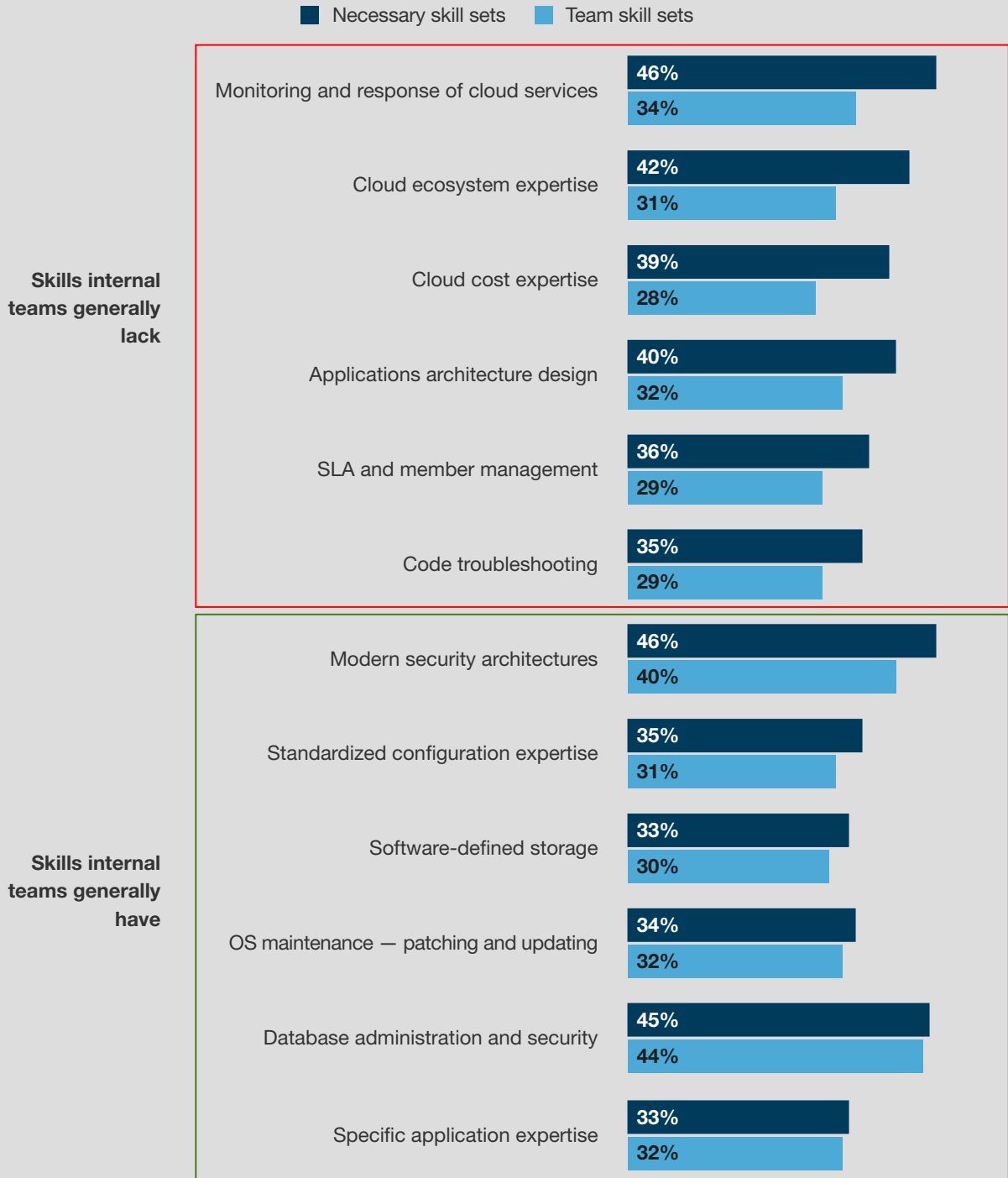
Despite the challenges, migrators persist. The key to a successful migration strategy is to make decisions based on your organization's specific goals while remaining clear-eyed about the very real risks involved in the process.



People are the top expense for moving workloads to the public cloud because of the costs involved in staff training and maintaining ongoing support.

Figure 4

Required migration skill sets vs. internal team skill sets



Base: 272 cloud migration decision makers

Source: A commissioned study conducted by Forrester Consulting on behalf of Red Hat, July 2017

Key Recommendations

Forrester's in-depth survey of and interviews with public cloud migrators on their particular experiences yielded several important recommendations for all professionals seeking to migrate existing workloads to the cloud:



Evaluate by application ecosystem scalability and suitability.

Not every application has enough scalability to experience savings without performance decreases. Furthermore, dependencies between workloads require enterprises to evaluate scalability and suitability by ecosystems of highly dependent workloads.



Know that cost and performance may be a trade-off. For some applications, migrators must either spend time or money rearchitecting or suffer from performance hits. For critical workloads, don't make this compromise. Reconsider other cloud options that don't require a choice between these two options. The pain or trade-off required for moving most applications won't be worth the short list of benefits that it delivers.



Use multiple migration methods — including SaaS. Only eight of the migrators in this study reported using a single migration method. The vast majority of migrators pick and choose the best migration methods for their particular set of workloads, weighing criteria like cost optimization, performance optimization, flexibility, speed, and mitigating disruption. This is because migration is not — and should not be viewed as — a one-size-fits-all endeavor.



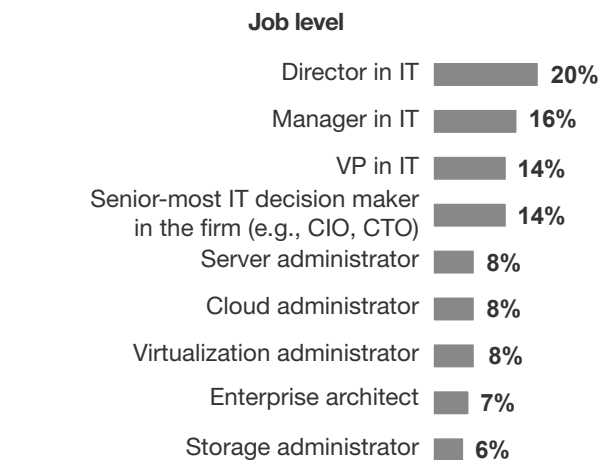
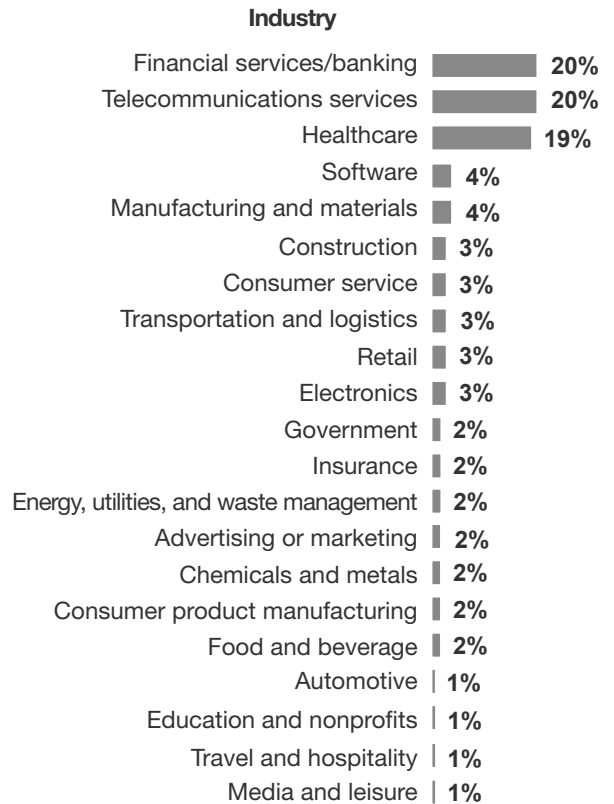
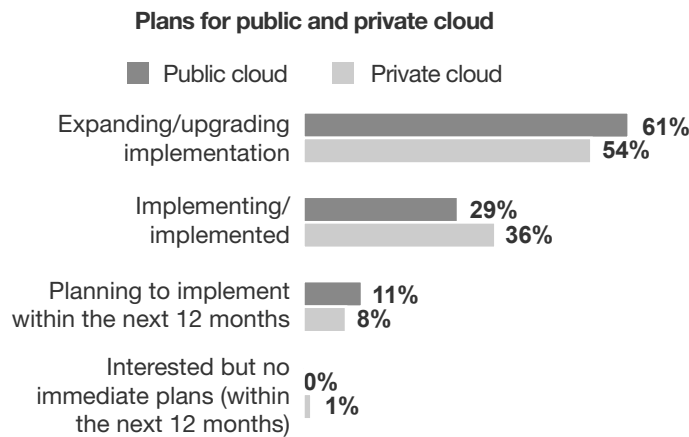
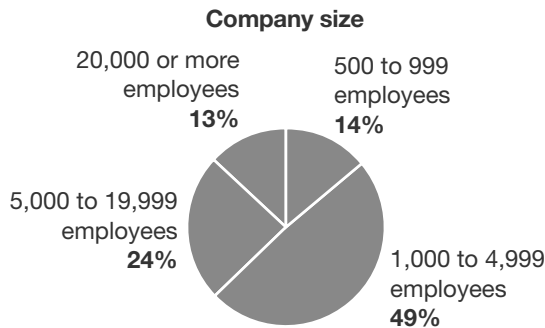
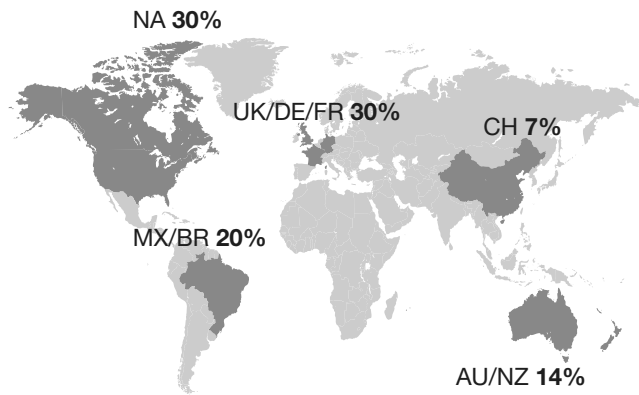
Expect time delays for security, app architecture, and skills gaps.

Migration isn't easy. That's why there's an entire ecosystem of services, tools, and consulting that surrounds this world. Don't overpromise on getting all your applications to the cloud. Strong migration strategies require due diligence on application evaluations and significant buffers built in for problem solving for application architecture and skills gaps. Training and hiring for these highly desirable skill sets won't be without issue. You may find consulting or services may be required — and escalate your costs unexpectedly.

Appendix A: Methodology

In this study, Forrester conducted an online survey of 272 organizations in the US, Canada, the UK, Germany, France, Mexico, Brazil, China, Australia, and New Zealand to evaluate the experience of those enterprises that had already or were in the process of migrating existing workloads to the public cloud. Survey participants included IT managers and above with knowledge of cloud computing architecture, strategy, and implementation. Additionally, Forrester conducted four interviews with similar respondents. The online survey began and was completed in July 2017. Interviews began in July 2017 and were completed in September 2017.

Appendix B: Demographics/Data



Base: 272 cloud migration decision makers
 Note: Percentages may not total 100 because of rounding.
 Source: A commissioned study conducted by Forrester Consulting on behalf of Red Hat, July 2017

Appendix C: Supplemental Material

RELATED FORRESTER RESEARCH

“Brief: The Cost Of Migrating An Enterprise Application To A Public Cloud Platform,” Forrester Research, Inc., March 9, 2016.

“Adoption Profile: Public Cloud In North America, Q1 2017,” Forrester Research, Inc., March 1, 2017.

“Adoption Profile: Public Cloud In Europe, Q1 2017,” Forrester Research, Inc., February 8, 2017.

“Your Three-Step Guide To Planning Cloud Migration,” Forrester Research, Inc., May 11, 2016.

Appendix D: Endnotes

¹ Source: “Brief: The Cost Of Migrating An Enterprise Application To A Public Cloud Platform,” Forrester Research, Inc., March 9, 2016.

² Source: “Brief: The Cost Of Migrating An Enterprise Application To A Public Cloud Platform,” Forrester Research, Inc., March 9, 2016.

³ Source: “Brief: Top 10 Facts Every I&O Pro Should Know About Cloud Economics,” Forrester Research Inc., January 7, 2016.