

# Whitepaper 'Cloud Migration Guide'

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## Introduction

Jitscale is the market-leader in managed scalable (cloud-) infrastructures with a focus on providing infrastructure- and software management as a full-service integrator. From a business approach, Jitscale translates the business needs of companies to functionalities, based upon all the available technical possibilities cloud computing has to offer.

Customers can focus on their core business while Jitscale ensures all technical business needs are being fulfilled. The possibilities of flexible infrastructures like cloud computing are increasing monthly, while service levels increase and prices decrease.

Therefore, companies and multinationals realize they need to get on board with cloud computing and find out how all these possibilities can benefit them. This raises all kinds of questions: What clouds are there? Which one is the most suitable for our company? Is it secure enough for our data? How can we keep up with the technology changes? What are the differences between the available clouds? And above all, which application or infrastructure do we start with?

As a company you might like some guidance in helping you to see the wood of opinions and options for the trees that were created as a result of the diversity of opinions. Jitscale compounded this guide to take you through the opportunities and to help you migrate and consolidate.

### Three types of clouds

In general, there are three different types of clouds; private, public and hybrid. With a public cloud the available underlying infrastructure is shared between multiple users. If organizations prefer sole use of the underlying infrastructure, they can choose for a private cloud where the organization's services are run on a dedicated infrastructure. A hybrid cloud is a combination of a public and private cloud.

### Different cloud services

Besides different cloud types, the cloud can also be differentiated based on services. Cloud application services or "Software as a Service (SaaS)" deliver software as a service through the Internet, eliminating the requirement of installing and running an application on the customer's own infrastructure and therefore simplifying maintenance and support.

Cloud platform services or "Platform as a Service (PaaS)" deliver a computing platform and/or solution stack as a service, often consuming cloud infrastructure and sustaining cloud applications. It facilitates deployment of applications without the cost and complexity of purchase and management of the underlying hardware and software layers.

Cloud infrastructure services or "Infrastructure as a Service (IaaS)" deliver computer infrastructure - typically a platform virtualization environment - as a service. Rather than purchasing servers, software, data centre space or network equipment, clients buy these resources as a fully outsourced service.

## Selecting the right migration candidates

Your organization's application portfolio might contain tens, hundreds or even thousands of different applications. Choosing a strategy for moving applications into the cloud can be daunting. One of the most important challenges in defining a strategy is finding a way to prioritize between migration candidates. Jitscale has compiled a list of questions that will help organizations decide which applications to move into the cloud first, which applications to move at a later stage and which applications to keep in-house. We have divided these questions into two kinds of assessments: security and compliance, and technical and functional.

### Security & compliance assessment

Organizations are often subject to IT security policies and compliance requirements. Depending on the type of application and data, these policies might affect the ability to run the application on a shared infrastructure. Cloud providers like Jitscale, Amazon and Google continuously work to address any security and compliance requirements organizations might have, by certifying their processes according to ISO 27001 and willing to consider audits like SAS70 type II.

The following questions will help you identify which applications and data sets to move to the cloud, and which ones to keep in-house.

Is there a classification of data and do any of those classifications prohibit the data to be placed on a shared or outsourced infrastructure? Let's assume your organization uses the classifications "public", "internal", "confidential" and "secret" and your application's data is classified as being "confidential". What kind of security measures need to be in place for this kind of data according to your company's security policies? Do these security measures in some way prohibit outsourcing this part of your infrastructure to a third party?

Are there any regulatory or contractual obligations to store data in a specific jurisdiction (e.g. specific country, state or within the European Union)? Individual countries and states have different laws governing the way data has to be stored, especially for storing data that is privacy sensitive. Storing your data in a cloud which has its data centers located in the United States could make it possible for the US government to gain insight into your data through local regulation like the [PATRIOT Act](#).

What are my options if I need to retrieve all of my data back from the cloud? A day may come when it's necessary to retrieve all the data for your application that resides in the cloud. Whether you're using SaaS, PaaS or IaaS, different providers offer different ways of getting your data out of the cloud. You might consider deploying a multi-cloud strategy for applications using IaaS. By making sure data is replicated across multiple different clouds, events like Amazon's regional outage in April 2011 will not impact your applications significantly. Cloud management layers providing a 'cloud-over-cloud' approach can assist you in deploying a multi-cloud strategy.

Most issues raised by the above questions are in no way unique to cloud computing and are relevant in any outsourcing scenario.

### **Technical & functional assessment**

The technical and functional design of your organization's applications will typically vary widely. There are ERP systems, CRM, HR Services, Payroll, customer-facing web applications, internal corporate IT applications, etc. All these types of applications have technical characteristics making them more or less suitable for migration into the cloud.

The following questions will help determine which candidates can be moved into the cloud initially:

Which applications do or don't have dependencies on other applications? Typically, ERP systems used in production have a lot of dependencies on other systems and a lot of systems are dependent on the ERP-system. Conversely, a web-facing customer application isn't very much depended on by other systems.

Do applications use any under-utilized assets, e.g. hardware that has a lot of unused capacity? Hardware may be oversized or the initial planned workload may have been greatly reduced. Migrating the application running on it to the cloud will free it for redeployment.

Are there any restrictive software licenses for software used in your applications, prohibiting your software from running in the cloud? Most major vendors (IBM, Microsoft, Oracle) offer a 'Bring Your Own License' model with regard to the cloud. Always consider the level of support a vendor would be willing to grant you when running your application in the cloud. Some might view it as a challenge, some might decide they're currently not willing to support your application running in the cloud. This last scenario could be a good incentive to redesign your application specifically for the cloud, using better supported products.

Which applications have an immediate business need to scale and are running out of capacity? Initial capacity planning might not have been sufficient, or a workload has drastically increased. Applications that more capacity, or applications that just need a high peak capacity for short periods of time are good candidates for consideration.

Which applications require specialized hardware to function? Applications that need specific CPU architectures or specialized encryption hardware cannot be moved to the cloud readily. IaaS clouds provide us with a generalized toolbox of infrastructure parts, that cannot be customized to fulfill very specific needs. We will not be able to migrate applications running on a mainframe to a public cloud any time soon.

Are there any applications that need to be rolled out on a global scale? For example, marketing or advertising applications (websites, mobile applications) often need to reach an audience as wide as possible. In order to ensure an acceptable user experience across the globe you need to deliver your content as close to your users as possible. Building your own geographically dispersed infrastructure is a costly business.

## The next steps

It might seem like a giant step for companies to outsource their infrastructures and management of a complete platform, especially when an agile, high tech and evolving technology like cloud computing is involved. Let Jitscale help you by providing you with all the necessary knowledge of various flexible infrastructures like cloud computing.

Jitscale's engineers and architects can:

- Help you comprehend the possibilities of cloud computing even better
- Elaborate on financial and technical differences between different cloud vendors
- Analyze your current infrastructures and applications
- Consult and advise on migrations and consolidations

### About Jitscale

Jitscale was founded in 2008 by IC&S, an international integrator with over 12 years of experience in managing high-end IT-infrastructures for listed companies and multinationals, and has offices in The Netherlands and USA.

Jitscale offers full management and optimization of company-critical IT-infrastructures with an autonomous view on usage of technology and soft- and hardware. Jitscale engineers are specialized, experienced, certified and trained in supporting complex internet-related platforms; from operating systems to database and application clusters.

Jitscale liberates companies - supported by consultancy and optimization, excellent customer services, strong customer focus and leading technologies - to focus on their core business and meeting company and business objectives by fully outsourcing their IT-infrastructure.

All Jitscale services are accompanied by a comprehensive and tailor-made service level agreement guaranteeing the highest level of customer satisfaction.

Jitscale is ISO 27001-certified. The ISO 27001-standard concentrates on a process-oriented approach to planning, implementation, application, control, evaluation and maintenance, as well as on the continuing improvement of information security management.

Jitscale makes business & IT scalable.