
Leveraging cloud computing to your advantage

by **Dr Claude Diderich** | innovate.d, Switzerland

Cloud computing has become one of those buzzwords found on the mouths of many senior executives. When listening to the sales pitches, especially from the big cloud vendors, people may think the cloud looks like heaven. Although not fundamentally new, relying on cloud services comes with its own challenges. To ensure an educated decision about which services to outsource to the cloud, firms need to understand its key features, both favorable and unfavorable.

Even though cloud computing has only gained broad traction in recent years, the concept of using computers remotely is nearly as old as computers themselves. It can be found as early as the creation of Arpanet, the precursor to the Internet, in 1969, and the development of server clusters and virtual machines. The term cloud computing can be traced back to an internal document from Compaq dated 1996 and was originally linked to the concept of distributed computing.

More recently, the cloud has been described as remote servers that are accessed over the Internet to store, manage, and/or process data. These remote servers are typically not owned by their users, who only know them by their characteristics, rather than their physical presences. It is that virtual concept that makes the cloud and cloud computing so interesting. Customers can rent the computing resources—CPU power, memory, mass storage, network bandwidth, and software licenses—that they need, rather than buying hardware and software in anticipation of possible needs. If implemented properly, this permits an organization to save money.

Statista estimates the public cloud market size at 395 billion in 2022 on top of 53.3 billion in private cloud services.

FIVE REASONS IN FAVOR OF IMPLEMENTING CLOUD COMPUTING

1 Lack of scale. Firms may need computing resources, like running their Exchange e-mail server or their Internet presence, but lack the economy of scale to implement them. This is typically the case when outsourcing the required services is cheaper than deploying them on premises.

2 Lack of skills. Operating computing resources requires not only capital investments but also in-depth skills, especially when cloud requirements are not part of the core value proposition of the firm. Making the required skills available or hiring them at a competitive price may be hard or even impossible.

3 Avoiding capital lockup. Even if a company has the scale and skills to run the needed servers on premises, the capital to do so may be deployed more appropriately for other investments that support the core business and its competitive advantage. Cloud computing allows IT expenses to be closely matched to the value obtained, with minimal overheads for handling the outsourcing.

4 Elasticity over time. Computing resources that support core business processes may induce different workloads over time. For example, during the Christmas season, orders may be higher than

in the summer. Buying computing resources from the cloud if and when needed avoids budgeting for peaks and thus allows significant savings.

5 Ad-hoc demand. Depending on the business model, especially in project-driven firms, ad-hoc computation power and/or software license requirements may pop up irregularly. In those cases, it is sound to procure hardware and software on a project-by-project basis. Cloud computing allows those calculation and storage resources to be rented in a just-in-time manner.

THREE REASONS AGAINST IMPLEMENTING CLOUD COMPUTING

1 Outsourcing overhead. Outsourcing computation resources and data storage to the cloud comes with overhead costs. The most relevant self-incurred costs are those of managing the interface with the outsourcing partner. Many cloud computing projects fail because of a lack of these in-house skills or the unwillingness or inability to invest in such skills.

2 Customization. Cloud computing providers base their business model on economies of scale. This requires the offered services to be as standardized as possible. Although most successful cloud service providers implement some type of mass-customization approach, this may not be sufficient for specific businesses and/or may require accepting significant limitations.

3 Data privacy. Data privacy requirements are the most common argument against using cloud computing and storage services. Although all professional cloud service providers adhere to data protection regulations, such as GDPR, and offer to locate their data centers in jurisdictions preferred by customers, this is hard to control and enforce. It is important when evaluating data privacy concerns to do so against alternatives, rather than in absolute terms.

LOOKING AT CLOUD COMPUTING FROM A STRATEGY PERSPECTIVE

Whether or not to use cloud services is not a simple *yes or no question*. At the core of the decision-making process should be the *three question make-or-buy approach*.

- First, if the computing requirements are key to providing the differentiating elements of the firm's value proposition, that is, they are critical to the competitive advantage of the firm, they should not be moved to the cloud but implemented on premises, investing in the required infrastructure, resources, and skills.
- Second, if the calculation and/or storage requirements lack scale, and the risks from using cloud services are manageable, the firm should outsource these needs to the cloud.
- Third, for all other requirements where economies of scale exist, but the contribution to success of the business model is not essential, the decision cloud: yes or no should be based on a combination of a business case and a risk assessment.

Considering cloud computing can be done at different levels, that is, at the infrastructure level (dedicated hardware, pooled hardware), at the platform level (storage, CPU power, network, connection, etc.), and at the software license level (applications, API-based services, etc.).



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