

Chapter 67

The Benefits of Cloud Computing: Evidence From Greece

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ABSTRACT

Cloud computing is gaining ground in the global ICT market and day by day a significant number of Small and Medium Enterprises (SMEs) are adopting cloud services with sole purpose to improve their business environment and become more efficient, competitive and productive. Migrating a business IT infrastructure to the cloud offers reduction on server and storage costs, software maintenance expenditures, network and energy expenses as well as costs associated with disaster recovery. Since the cloud computing model works on a “pay-as-you-go” basis, it provides the option to pay for what is used. Thus, its adoption can offer slow start-up or expansion costs, creating an environment for rapid innovation and development. Into that context, this article presents the Greek side of cloud evolution through two representative case studies, the migration of an IT system of a Greek industry, from an in-house data center to Google Cloud and a study of the “in-house” IT infrastructure of the National Confederation of Hellenic Commerce. Findings from the Greek industry, indicate that the cloud proposal could cost 50%, or 24% less per month (depending on the solution). As far as the National Confederation of Hellenic Commerce is concerned, the article proposes only a new measure of security using Cloud services for reasons that will be discussed at the case study. Both case studies take into account the present costs of the IT system (energy consumption, third party contracts and maintenance) and propose alternatives through cloud migration. Results indicate that cloud computing offers benefits and significant cost savings for both studied cases, showing promising ways for the successful adoption of the cloud.

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1. INTRODUCTION

According to (Mell & Grance, 2011) cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

This cloud model is composed of five essential characteristics, three service models, and four deployment models. At this time of its expansion, everybody should be familiar with the benefits and risks cloud computing bears. Before this paper analyses the two Greek adoption case studies, a short introduction to the cloud is included, for the sake of completeness. Briefly, according to (Hassan, 2011) these attributes characterize cloud computing:

- **On-demand Computing Model:** Organizations are able to escape from complex and expensive in-house infrastructure and choose the amount of resources they require for their operation;
- **Autonomous:** Clients are separated from the technical details of the cloud services they use;
- **Predefined Quality of Service:** Cloud providers state QoS terms in their service level agreements to inform clients about expected level of service;
- **Internet-based:** All cloud services are hosted beyond organizations and delivered over the Internet;
- **Easy-to-use:** Cloud providers offer easy-to-use interfaces that enable clients to make use of their services;
- **Scalable:** Clients are not limited with fixed amounts of resources. They can scale up and down at free will;
- **Inexpensive:** Cloud computing offers small-and-medium-sized enterprises (SMEs) a significantly lower-cost option than building an in-house infrastructure;
- **Subscription-based Model:** Clients subscribe to services they are interested in, and they are charged accordingly.

The architecture of cloud computing is pyramid shaped, starting with IaaS as a foundation and on top, SaaS (Varia, 2010). The main logic behind the pyramid shape, is that on the road to the top, the user is not required to know in detail how things work in the cloud:

- **Infrastructure-as-a-Service (IaaS):** IaaS provides hardware such as CPUs, memory, storage, networks, and load-balancers. The next architectures are based on IaaS in order to work;
- **Platform-as-a-Service (PaaS):** Supplies users with development and administration platforms that provide on-demand access to available hardware resources. Many PaaS platforms are available to enable access to IaaS resources;
- **Data-as-a-Service (DaaS):** Frees organizations from buying high-cost database engines and mass storage. This service offers database capabilities for storing client information;
- **Software-as-a-Service (SaaS):** The ultimate form of cloud resources that delivers software applications to clients in terms of accessible services. With SaaS, clients subscribe to applications offered by providers rather than building or buying them.

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