Chapter 77

Virtualization and Cloud Computing: Business Models in the Virtual Cloud

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ABSTRACT

This chapter explores the interface between virtualization and cloud computing for global enterprise mobility. It also investigates the potential both virtualization and cloud computing hold for global enterprises. In this context, it argues that the virtualization of computing operations, applications, and services and the consumerization of digital technologies serve as one of the key drivers of cloud computing. Against this backdrop, the chapter first provides an overview of virtualization, consumerization, and cloud computing. Second, it showcases real life instances in which five enterprises leverage virtualization and cloud computing as part of their cloud business solutions. Third, it outlines some of the hollows and pain points characterizing cloud computing. Fourth and last, the chapter briefly presents possible future trends likely to typify cloud computing.

INTRODUCTION

In the ever-evolving and rapidly expanding trajectory of the world of computing, virtualization and cloud computing have become irresistible buzz words attracting the attention of enterprises and consumers alike. Both these twin concepts and processes are at the cusp of revolutionizing the way conventional enterprise Internet and computing practices operate. By their very nature, these two cognate computing processes are disruptive and transformative, thereby necessitating enterprises to rearchitect and reconfigure themselves as next generation virtual and cloud based organizations. In this way, enterprises that are willing to virtualize their computing architectures, services and activities in the cloud are likely to have a competitive differentiator and value added benefits over their rivals. This is particularly so for global enterprises leveraging mobility as part of their global business strategy. That is, for global enterprises cloud computing serves as a game changing force.

At the core of enterprise cloud computing, especially, is virtualization since the latter is one of the key enablers of cloud computing in general. So, for enterprises to be able to cloud compute...
their services and operations, they also need to
virtualize those services and operations including
aspects of their technologies (e.g., IT infrastruc-
tures, architectures, platforms and applications)
from which those services and operations are
deployed. Only then, can cloud computing have
a requisite disruptive impact expected of it. An
essential ingredient into the virtualization and
cloud computing mix is consumerization. The
latter serves as one of the main drivers for cloud
computing and lends itself well as a touchstone
that enterprises can use in determining how they
can embrace cloud computing.

Based on the foregoing paragraphs, the fol-
lowing areas constitute the main discussion points
of this chapter: virtualization, consumerization
and cloud computing: an overview; tapping into
virtualized clouds: business models in the clouds;
hollows and pain points in the clouds; and future
trends.

VIRTUALIZATION, CONSUMERIZATION, AND CLOUD
COMPUTING: AN OVERVIEW

In the computing and Internet environment, virtu-
alization has at least two related senses. Firstly, it
refers to creating an unreal or a simulated replica
of something such as a server, an application, an
operating system, a storage device, a network
resource, a help desk, or a piece of hardware (see
Figure 1). Secondly, it is a computing technology
allowing users to virtually utilize multiple devices,
thereby eliminating the need for their physical
deployment (see Gondaliya, 2010). In this sense,
it embodies abstract computing platforms and
applications (Jäätmaa, 2010) and signifies a shift
from traditional siloed IT infrastructures and archi-
tectures to virtually distributed and shared ones.

For its part, consumerization is a dual value
chain in which consumers or end users utilize digi-
tal devices and technologies (e.g., smartphones,
iPads, instant messages, social networking sites,
microblogs, and virtual storages) in their private
lives and end up employing the self-same devices
and technologies for enterprise purposes. Put
differently, it is a technology trajectory in which
technologies with consumer-oriented offerings are
embraced and harnessed by businesses for enter-
prise offerings. Known also as the consumerization
of IT, this phenomenon results in the blurring of the
classical line between personal and professional
lives for employees. Moreover, as more employees
trend towards adopting consumer technologies
for business purposes, their behavioral practice
in turn helps facilitate the consumerization of
enterprise mobility (see Chaka, 2012; Signorini
& Hochmuth, 2010).

Both virtualization and consumerization serve
as key enablers of cloud computing in that they
provide an enterprise milieu in which the latter
can occur. That is, virtualized computing and IT
infrastructures, architectures, platforms, applica-
tions, services, operations and functions that have
a higher degree of consumer and enterprise uptake
provide an ideal opportunity for cloud computing.
The latter has generated a lot of buzz in the IT
world and has also been a subject of myriad defini-
tions. Hence, as suggested by Cloud Computing
World [CCW] (2011a, 2011b), Hagel and Brown
(2010), Jäätmaa (2010), Steele (2011) and Winans
and Brown (2010), there is a plethora of opinions
and theories as to what cloud computing is and is
not. In this chapter, cloud computing is viewed as
a process, a concept, a model and a metaphor. As
a process it has evolved over time in the same way
as technologies such as the Internet, the Web, web

Figure 1. A screenshot of a virtual keyboard and
a real keyboard