Chapter 4
Business Models and Billing Challenges

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ABSTRACT
The advent of the Cloud has leveraged a number of challenges, both for customers and service providers. Companies willing to embrace the new paradigm must face some entrance barriers, such as security, privacy and trust concerns, vendor locking risk, legal issues, etc. While service providers may work to minimize these barriers, they must be especially careful when defining what may constitute the most crucial aspect for the success of their offerings: the business model. Different incarnations of the cloud (IaaS, PaaS, and SaaS) add to the possibility of offering public or private solutions, or even federated models. On top of this is the billing strategy: the ubiquitous pay-per-use approach (either in its most common post-paid incarnation, or in a novel pre-paid version) is only the starting point for a wide range of innovative solutions, including bundling or QoS considerations, which European project VISION Cloud is tackling as part of its research efforts. This chapter aims to provide a comprehensive discussion on the most relevant business factors that the Cloud confronts.

INTRODUCTION
“The Cloud” is a new paradigm that is increasingly consolidating itself inside IT industry and that will change computing inside companies they way we know it. The same way that in past times bread was kneaded and raised at each home, and nowadays this has become quite odd, in a few years time it will be strange for a company or public institution not to have its own IT platform in the Internet. The reasons behind this change are the clear advantages that the Cloud offers: flexibility to obtain resources on demand, easy management, access from any geographical location, cost shifting from CAPEX to OPEX (allowing finer control of expenditure and avoiding costly acquisition of assets), and cost reduction due to economies of scale and strong competition among cloud providers.
As of now, there are still great differences between the speed at which this paradigm change is taking place in one place or another. In some cases there are not yet enough companies demanding these kind of services to form a critical mass, or the services offered are scarce. Even in those places where there are strong cloud providers, the problem is often related to medium-to-large company CEOs that are reluctant to change. People in charge of IT in those companies are aware of the advantages of having a Cloud infrastructure, but they are hesitant to make the move, and prefer to be cautious and wait to have feedback from related companies in their sector before making a decision. On the other hand, small companies (except maybe those in technological sectors) do not show either a rapid transition to embrace cloud services, even if they could offer a competitive advantage, key to their survival. There are still high barriers, such as concerns over availability and business continuity (there are some recent examples of failures), concerns over security of the stored data, vendor locking, risks and costs for moving current IT platforms to Cloud, amortization of recent IT investments… that handicap a quicker adoption rate.

This context leads to different business models that this chapter will analyse in detail. A business model represents the set of characteristics to classify the different paths to make money by offering cloud services. These characteristics include the type of services offered, target market segment, billing models, alliances between providers to create different value chains…

The actual situation in cloud services development is creating a clear supremacy of a few companies that drive the development of this industry, by pushing their own rules. In contrast, some movements such as the “Open Cloud Manifesto” have appeared, to bet on some principles that enable the development of an open industry where much more players can participate, supporting rules in the interest of the end-user. It is expected that these principles and objectives make progressively their way into customer needs, which will force cloud providers to include them in their business models.

BACKGROUND

The Use Cases developed inside VISION Cloud (Enterprise, Telco, Media and Healthcare) have leveraged a number of requirements for the billing (and accounting) mechanisms to be deployed there. The general requirement is, of course, to have a distributed billing mechanism in place that is able to charge all tenants for their actual consumption, in a pay-per-use basis (ENRQ15: Automatic billing mechanisms). To this extent, it is required that a comprehensive list of metrics is identified, so that it covers the most common concepts related to the usage of a storage cloud (TCRQ45: Billing concepts): storage used, inbound/outbound traffic… considering also the particularities of VISION Cloud, such as Storlets. Accounting and billing mechanisms have to be agile enough to enable mechanisms for the tenants to control consumption prior to the generation of the bill (TCRQ44: Balance Query, TCRQ46: Billing alerts).

It is assumed that there are SLA agreements between VISION Cloud and its tenants, to control the quality of the service offered. In case of infringement of the SLA terms, the billing subsystem must keep track of this fact, and compensate the user for it (TCRQ36: User storage space SLA enforcement, ENRQ02, TCRQ58: SLA durability, TCRQ61: SLA latency, ENRQ46, TCRQ62, MDRQ40, HCRQ0408: Bandwidth requirements).

Finally, Use Cases demand that is performed following at least two different models: post-paid, where users is charged at the end of regular cycles, for the consumed resources (TCRQ47: Post-paid billing); and pre-paid, where users have available a variable amount of credit that enable them to operate for a cost, until their credit is exhausted (TCRQ48: Pre-paid billing).
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