Chapter 65
Impact of Cultural Differences on the Cloud Computing Ecosystems in the USA and China

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ABSTRACT

The IT industry is both fundamental and strategic to a nation's economy. It continues to play a critical role in the industry's upgrade and economic development in the foreseeable future. The future of the IT industry lies in cloud computing. In the recent years, many countries in the world are responding to cloud computing with much enthusiasm. The USA, Japan, and European countries have created strategies to develop cloud computing, aiming to become the leader of the new era. The Chinese government also sees cloud computing as a historic opportunity to rebuild competitive advantages and leapfrog Western countries. Against this backdrop, this chapter compares and contrasts the evolution of IT towards cloud computing between China and the Western countries, especially the USA.

INTRODUCTION

Cloud computing, as it grows in popularity, is now a part of every CIO's agenda. It has been ranked #1 in Gartner's top 10 strategic Technologies for 2011. The global cloud computing market is expected to grow at a 30% compound annual growth rate (CAGR), reaching $270 billion in 2020 (Market Research Media, 2012). According to these projections, cloud computing is becoming the third revolution in the information technology (IT) industry, after the personal computer and the Internet. The cloud computing phenomenon can change the IT industry landscape and business

models for all the players. The driver of this change can determine pricing schemes, market shares and the overall bargaining power of forces at play. But who is to dominate the cloud computing service? We hypothesize that the dominant forces in the cloud varies in different geographical regions, and it depends on the cultural differences that drive the business ecosystem.

The United States and China are the two most powerful countries in the world, both in terms of economy and technology. The U.S. has the biggest IT market, and China has the fastest growing market with a remarkable potential for demand. Therefore, it is important to compare and contrast the U.S. and China's respective cultures, while the cloud computing ecosystems develop within their borders.

Culture has an impact on the development of IT systems and institutions. Furthermore, the U.S. and China are very different in the cultural dimensions, such as long term orientation, individualism and power distance (Hofstede, 1981). Based on our observations, we first point out those differences in the cloud computing ecosystems, and then theorize the role cultural differences play on the bargaining power of the key players in each country. The prominent feature of our research is a comparison of the cloud computing ecosystems of the U.S. and China, from the perspective of culture, and the key players' intended roles within each culture. Specifically, we focus on trying to understand the future of the cloud architecture, and the bargaining power of the players, in order to see which party is to play the dominant role in the development of cloud services. To the best of our knowledge, our study is the first to analyze cultural differences in the context of cloud computing services.

CLOUD COMPUTING

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, which can be rapidly provisioned and released with minimal management efforts or service provider interactions (Mell, 2011).

The conception of cloud computing dates back to 1961, when John McCarthy, an American computer scientist and cognitive scientist, in a public speech celebrating MIT's centennial, suggested that "computation may someday be organized as a public utility." A Canadian technologist and former research minister, as well as the author of several publications, Douglas Parkhill in his 1966 book: The Challenge of the Computer Utility, has thoroughly explored almost all the modern-day characteristics of cloud computing: elastic provision, provided as a utility, online and illusion of infinite supply, where he has made the comparisons to the electricity industry, the use of public, private, government, and community forms.

Despite its early conceptualization, cloud computing has not reached the critical mass until recently. The bursting of the dot com bubble, at the turn of the millennium, has introduced two important changes: first, significant increase of the Internet's bandwidth making broadband commonplace; secondly, the boom of commercial and consumer applications based on the Internet, which has created further demand.

After the bursting of the bubble, Amazon has played a key role in the development of cloud computing by modernizing their data centers. Amazon has been using as little as 10% of their capacity at any given time, just to leave room for occasional spikes similar to other IT companies. The discovery of the new architecture, which we call the cloud, results in significant internal efficiency improvements. Amazon has begun to provide cloud computing services to external customers, and thus launching the Amazon Web Service (AWS), on the basis of utility computing in 2006.

Meanwhile, newly successful Internet companies such as Google has started their effort to uproot the traditional personal computer (PC) based

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