

## All about the cloud: The view from the top

by Umang Gupta, Chairman and CEO, Keynote Systems

Adding an additional virtualisation layer that hides the complexity of software applications in the cloud frees end-users to focus on the things that really matter. The shift to SaaS pricing models results in greater empowerment of the end-user and provides businesses with more flexibility and increased efficiencies. Those companies that deliver a consistently pleasing and trouble-free online experience will become the leaders in this new cloud-based economy.



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I'm often asked what the software industry will look like three, five and even ten years from now. The software industry has gone through a series of cycles over the past 50 years or so that resulted in successively greater empowerment of end-users. We've gone from mainframes, which served only a few specialised corporate users, to the desktop PC, which increased the productivity of millions of people and businesses, to the Internet, which connects hundreds of millions of people to one another and to information across the world. Now, we have the mobile revolution, which is empowering billions of people. None of this could have ever taken place without the creative energies of the software developers who developed these computing platforms. The next exciting revolution is the cloud, where

users get transparent access to information and entertainment in a way that transforms traditional notions of computing platforms.

### Increased virtualisation and transparency

Technically, this means that we carry virtualisation to its logical end-point. Over time, virtualisation has allowed operating systems, storage and networks to transcend different computers and different systems. Putting an additional virtualisation layer that hides the complexity of various software applications in the cloud will free end-users to focus on the things that really matter.

Relieved of much of the maintenance burden, IT staff can focus more on developing capabilities that respond

to market changes, add efficiency to operations, and create competitive advantages. And they can appropriate cloud resources for their development work and testing without having to provision in-house servers and bandwidth. The result is faster 'time to value'. The cloud can also deliver elasticity. Retailers need tremendous capacity in November and December that would lie idle the rest of the year. Accountants hit their peak workload in March and April, with the other ten months quiet by comparison. For CPU-intensive business processes, elasticity can mean having an army of machines available to quickly complete tasks that would take much longer on a company's own, smaller, internal array of machines.

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This trend towards increased virtualisation and transparency is reflected on the business side with the shift to SaaS (*Software as a Service*) pricing models and away from the idea of buying or licensing software or data storage. This all results in greater empowerment of the end-user and provides businesses with more flexibility and increased efficiencies.

In the future, there will be a significant difference in the way people will perceive, interact with and purchase technology products and services. Those products and services will be more transparent, they will be easier to use, the user experience will be better, and there will be a profound evolution in how pricing is approached, moving from a licence-based model to more of a transaction- and usage-based model. We're seeing the early stages of this today. For example, subscription-based per-user pricing is now quite common. But some software companies are also experimenting with more innovative approaches like charging based on specific business metrics, or providing 'tokens' to access/unlock certain features and tools similar to video games. All these trends will continue to pick up steam going forward.

Transaction and usage-based models for pricing and acquisition of services are the dominate motion in consumer commerce. One of the things that has driven our industry in the past decade has been the broader shift from business computing to consumer computing. In the early days of the technology industry, a large part of what was being built was intended to make businesses more productive. But starting with the Internet, we have been shifting to a world where technology is not just about touching people in their professional lives, but also in their personal lives.

#### The consumer perspective

Most innovative information technology that has been introduced recently has been in the area of helping consumers. People are demanding tools that make their lives easier and get them more connected with one another and with information sources worldwide. At the

same time, the walls between people's professional lives and their personal lives are coming down. Companies like AOL were some of the first to recognise this shift, even before the Internet went mainstream. Over time, we have continued to see powerful new consumer-oriented technology companies successively enter the industry: Yahoo! and Google, Amazon and eBay, and now Facebook and Groupon. All these companies represent a huge shift from the world of business computing to consumer computing. Even business applications themselves treat the user more like a consumer. Social conventions such as those pioneered by Facebook are finding their way into CRM (*Customer Relationship Management*) and other applications. Business applications are also getting consumer-inspired user interfaces, 'mashups' of other cloud-based applications, and features originally designed with the consumer in mind, like search, the application marketplace, and rich media.

It is important to recognise that with this shift in orientation towards the consumer point of view, it has become critically important to ensure the best possible user experience. The more information that is provided from the cloud, the more consumers get empowered through different devices and interfaces, and the more applications that emerge for these new platforms, the greater the complexity of the online environment. However, with increased complexity comes increased challenges in delivering a user experience that keeps customers engaged and loyal. Minute by minute, degraded performance exacts a painful toll when a company's mission-critical operations are involved. Research of IT executives conducted by consulting firm Enterprise Management Associates estimates the cost of downtime 'clusters' at around US\$60,000 an hour. Some 40 per cent of those surveyed reported 30 minutes or more of unscheduled downtime in any given month.

By making use of an advanced test and measurement infrastructure for Internet and mobile cloud monitoring, organisations can gain access to accurate

data that they can use to mitigate performance issues and optimise the user experience. No two users access a website, e-business application or mobile content in the same way. There are different backbone and cellular networks in different geographies, and different devices, browsers, apps and access speeds. By gaining full insight into all of these variables, companies can gain the most accurate and authentic real-time portrayal of the end-user experience. Going forward, it will be those companies that have figured out how to deliver a consistently pleasing and trouble-free online experience that will become the leaders in this new cloud-based economy. ●



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