Cloud Computing in India

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Kshetri, Nir (2012). “Cloud Computing in India,” *IEEE IT Professional*, 14(5), September/October, pp. 5-8. http://doi.ieeecomputersociety.org/10.1109/MITP.2012.94

Abstract:

Cloud computing is still in its infancy in India, but as economic and institutional factors improve, it could greatly accelerate India's digitization and transform how cell phones are used. If appropriate measures are adopted at various levels, the cloud might serve as an important catalyst in driving economic and social progress and development in India.

Keywords: India | cloud computing | economics | supply and demand | social factors | cloud computing | emerging markets

Article:

The Cloud's Rapid Growth

The NASDAQ-listed Indian IT company, SIFY Technology, announced that its revenue from cloud-based value-added services grew by 95 percent in the third quarter of fiscal year 2011–12. 1 According to Zinnov Management Consulting's July 2011 report, "Private Cloud Landscape in India," the cloud accounted for 1.4 percent of total IT spending in India in 2010, but this should increase to 8.2 percent in 2015. Similarly, according to a 2011 study of IT business process outsourcing (BPO), conducted by the National Association of Software and Services Companies (Nasscom) and Deloitte, titled, "Deconstructing the Cloud: The New Growth Frontier for Indian IT BPO Sector," the Indian cloud market will reach US$16 billion by 2020. In the same vein, a survey released in early 2012 indicated that 68 percent of Indian firms were using, evaluating, or planning to use the cloud within the "next year." 2

Given such growth, it's not surprising that India has received considerable attention from global cloud players, including IBM, Parallels, Microsoft, VMware, and Salesforce.com.

Global Players

In 2008, IBM opened a cloud center in Bangalore for mid-market vendors, universities, government bodies, and microfinance and telecommunications companies. Then, in early 2012, it helped India-based Tulip Telecom construct a 900,000 square-foot data center—the largest in

the country—which will provide cloud infrastructure services. 3 Parallels has also been operating in India since late 2008.

In 2009, Microsoft started offering productivity apps on the cloud for approximately $2 per month, including email, collaboration, and conferencing services. Also in 2009, VMware opened a cloud center in Pune. Salesforce.com started operations in 2005, and in September 2011, it acquired a social customer-service SaaS startup, Assistly, for $50 million. Salesforce.com has many high-profile clients in India, including Bharti, eBay India, SIFY Technology, Polaris, and the National Research Development Corporation.

Local firms have also jumped on the cloud bandwagon, and some are acquiring foreign firms. For example, in early 2012, Bangalore-based Aditi Technologies acquired Cumulux, a US-based cloud startup.

Cloud-related venture capital (VC) and other investments are also flowing. In February 2012, Indian cloud provider Knowlarity announced an investment by the Silicon Valley-based VC firm Sequoia Capital. Knowlarity reportedly has over 40,000 clients in India and Indonesia, including General Motors, Pepsi, and Procter & Gamble. 4 Japan's NTT Communications announced that it would buy a 74 percent stake in the Indian company Netmagic Solutions, which has cloud computing as a major business.

Cloud-Related Entrepreneurs

Clearly, Indian firms are playing a crucial role in the global cloud industry. Platforms developed by global players also provide developers in India with opportunities to build applications.

CRL, Zoho, and Tata Communications are three high-profile Indian cloud providers, 5 – 7 and other big IT players, such as TCS and Infosys, have also entered the cloud market in India (see Table 1). In the same vein, Pressmart (based out of Hyderabad) provides SaaS-based e-publishing and digitization services to the print industry. Pressmart can help firms deliver content across multiple platforms such as Web, mobile, RSS, podcasts, blogs, social networking sites, articles directories, and search engines.

Table 1. Cloud-related business activities in India.

Novatium, which is partly owned by Ericsson, developed cloud-based mobile applications, mainly in its Indian R&D centers. In September 2011, Novatium services had over 40,000 users in India. Ericsson's principal target groups for the applications are emerging markets, where most consumers can't afford a PC. In developed markets, the company aims to focus on young consumers.

Remote Infrastructure and Offshore Growth

According to Nasscom and Mckinsey, remote infrastructure management will be a $15 billion industry by 2013 in India. Likewise, CyberMedia Research's May 2011 report, "India Cloud Computing Market Review 2011," indicated that the Indian public cloud market would grow with a compound annual growth rate of 53 percent between 2010 and 2014, reaching $543 million. A report published 27 September 2011 by Nasscome and Deloitte—"Deconstructing the Cloud: The New Growth Frontier for Indian IT-BPO Sector"—noted that about two-thirds of the Indian cloud market would be new businesses and the rest would come from existing services.

Cloud computing should also affect India's offshoring industry. The demand for cloud services is especially high in the offshoring industry and technology hubs such as Bangalore and Delhi. Amazon noted that its Indian customers, especially those serving international markets, were showing increased interest in its cloud services. In "Deconstructing the Cloud: The New Growth Frontier for Indian IT BPO Sector," Nasscom and Deloitte noted that cloud computing will have a significant impact on the IT and BPO services industry. The cloud should help Indian firms diversify the services offered and improve the business models and delivery mechanisms.

Cloud Computing Apps in India

Cloud providers in India have developed products, services, and applications to meet diverse customer needs. Some have developed specialized applications to meet the demands of specific industries and sectors.

E-Commerce and Customer Relationship Management

India's largest retailer, Future Group (www.futuregroup.in), uses the cloud to support data warehousing and analytics for its retail chains. The retailer uses clouds to manage its customer loyalty program, which involves storing and analyzing millions of gigabytes of data. 4

In February 2011, Dr. Reddy's Laboratories deployed Salesforce customer relationship management to improve its deals pipeline, track sales cycle, and analyze sales funnel. Dr. Reddy's expects cloud-led streamlining to increase revenue by over 30 percent. 8

Education

Indian universities, including the Indian Institute of Technology, Kanpur, are banking on the cloud to develop innovative research and education activities. 9

In January 2012, the Indian government, in cooperation with E-Tutor and Oztern Technology, launched the country's first cloud-based tablet, known as the E-tutor Tablet, targeting first- through 12th-grade students. 10 E-Tutor developed the content for the $150 tablet, and Oztern designed the technology.

In April 2012, Microsoft announced its biggest global cloud deal, which would provide free services to All India Council for Technical Education (AICTE). As part of Microsoft's corporate social responsibility initiatives, the project will make resources on the cloud available to 7.5 million students and 450,000 teachers in 11,000 AICTE-affiliated institutions. 11

Healthcare

An innovative application in the early phases of development aims to identify counterfeit or substandard drugs. 12 While buying a drug at a pharmacy store, a customer can find a 12-digit code by scratching a sticker on the surface of the package and then send a text message to a given number. The code sent by the customer is matched with that registered by the pharmaceutical company in HP's cloud database. The customer then receives a response back that tells whether the drug is counterfeit or genuine.

Although this application provides obvious commercial benefits to drug manufacturers and patients, one of the most important benefits of this technique is that it helps save lives by enabling the customers to check the authenticity of life-saving drugs. This system was developed in Africa by the nonprofit organization, mPedigree, and HP Labs. The technology provider had launched a program to track and authenticate drugs in Nigeria and Ghana. As of September 2011, HP was negotiating with Indian pharmaceutical companies such as Cipla, Tablet India, and CAMA. This application holds a special appeal for India, as the number of cell phone subscribers in the country is more than seven times higher than the number of Internet users.

Also, the insurance arm of ICICI (a major bank in India) has used Zoho's Web-based applications to develop innovative services such as a personalized insurance for diabetes. 13 Premiums are adjusted depending on how well the policyholder sticks to his or her fitness plan.

Social and Economic Changes

In October 2010, Intel announced an agreement with an alliance of 70 companies, including Bombay Stock Exchange (BSE) and CtrlS, to develop hardware and software for an open and interoperable cloud. The Open Data Center Alliance works to address security, energy efficiency, and interoperability. The BSE expects that the new trading platforms supported by mobile telephony and clouds would broaden participation by allowing real-time and seamless access to data across phones, laptops, and other devices. This approach would also deepen and

widen asset classes traded. The new platforms will increase participation of younger Indians in pensions, insurance, and mutual funds. The popularity of mobile-based cloud applications is particularly promising. As of early 2012, only 121 million Indians were online, but there were 898 million mobile subscribers—292 million of which reside in rural areas. 14

Cloud development and diffusion are tightly linked to supply and demand in India. Demand is being strengthened through the increased availability of e-governance services and solutions for businesses and citizens—such as healthcare and educational services as well as online services for paying bills, receiving payments, obtaining land records, filing tax returns, and registering for benefits. India's Unique Identification Card project, which aims to provide a unique 12-digit number to every resident in the country, is probably the most visible and sophisticated e-governance project from the cloud standpoint. 15

At the same time, the supply side is improving in India through various cloud-related R&D activities and increased development of the supercomputer industry. For example, CLR's EKA supercomputer, which was the world's fourth fastest in March 2009, was used for joint cloud research with Yahoo.

However, most cloud services rely on bandwidth, which is the most glaring shortcoming of India and other developing countries, especially in the rural areas. According to the International Telecommunication Union's World Telecommunication/ICT Indicators Database (www.itu.int/ITU-D/ict/statistics), as of 2010, India had 0.9 fixed broadband subscriptions per 100 inhabitants. So although India is a heterogeneous cloud market with divergent demands, low cost rather than advanced performance is likely to be a driving force in the short run.

For global cloud providers, affordability will be a key consideration to compete in India. A related point is that cloud-related products and services offered in India must recognize the local technological reality, such as low bandwidth and mobile-driven digitization.

Foreign companies could benefit by collaborating with local cloud providers, characterized by lean cost structures and experience in developing low-cost products. For Indian cloud providers, on the other hand, their ability to deliver value for money in the domestic market could give them a competitive advantage in foreign markets, especially if they're in a position to reconfigure their resources to operate effectively in emerging markets.

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