Chapter 2

Significance of Clouds for Connected Governments: The Government Clouds in India

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ABSTRACT

Clouds are emerging as the core IT infrastructure for all kinds of organizations across the globe. Business and government are embarking on the cloud journey with all the clarity and confidence to tackle the associated challenges. The cloud idea represents bringing in optimization and transformation of IT infrastructures to be innately robust and resilient for the forthcoming era of knowledge. With the maturity of ICTs, governments too are keen to embrace them to deliver a bevy of people-centric services to citizens. IT vendors are also working with worldwide governments to chalk out viable plans and methodologies to enhance the service delivery assurance, competency and capability. In this chapter, we aim to discuss how the cloud paradigm is shaping up the unique requirements of connected governments. We also discuss how the Indian government is investing in cloud infrastructures to bring in the much-demanded transparency and accountability in electronic governance.

INTRODUCTION

Without an iota of doubt, the IT landscape is continuously captivating due to the faster maturity of newer and nimbler technologies that open up fresh possibilities and hitherto unforeseen opportunities. Especially, there are a bevy of new-generation applications and services being developed and delivered due to the unprecedented stability of disruptive and transformative technologies. For example, we extensively read about enterprise (transactional and analytical), embedded, social, mobile and cloud applications in the recent past. Converged platforms and infrastructures are being readied meticulously in order to streamline application design and development (from the ground-up or assembling), deployment, management, integration and delivery requirements for the above-mentioned application categories. In other words, there is a paradigm shift. IT has been the prime enabler of worldwide businesses and these

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days, IT is being prescribed as the viable, venerable and value-adding mechanism for empowering individuals. With the self-surroundings and situation-aware technologies emerging and evolving, scores of context-sensitive services could be readily built and deployed to substantially enhance the care, choice, convenience and comfort for people.

In the recent past, a horde of automation, augmentation and acceleration technologies in the IT domain are being positioned salivatingly in order to fructify the journey towards the realization of revolutionary, real-time and real-world people-centric applications. The well-known and recognized accomplishments, hitherto unheard, include software-defined cloud environments, cognitive computing, ambient communication, ubiquitous sensing, vision and perception, predictive and prescriptive analytics based on big data, knowledge engineering, social networking sites, ad hoc networking, mobility, smart spaces and digital societies. The future too seems to be very bright and blessed with a lot of pragmatic breakthroughs. Situation-aware edge technologies (tags, stickers, codes, chips, labels, sensors, microcontrollers, smart dust, LED lights, motes, speckles, etc.) carrying our personal profile and preferences digitally will map, merge and mingle with other entities and elements in our locations (personal and professional) towards the effortless fulfilment of precisely and perfectly understanding people’s needs, accomplish and deliver them deftly and dynamically in time in synchronization with IT.

The commonly found artifacts and articles in our midst can be digitally empowered to be smart in their outlooks. This purpose-specific transition gets done mainly by two matured processes. The first one is by internally embedding multifaceted functional modules into any tangible objects, whether mechanical, electrical (Simmhan, 2013) or electronics, using nano-scale technologies and by adeptly instrumenting new-generation devices to be distinct in their characteristics. The second one is through externally attaching diminutive, disappearing and disposable computers, communicators, sensors (Yerva, 2012) and actuators. The ultimate idea is to enable every physical thing to be interconnected, interactive and finally to be intelligent. For example, our coffee cups, dinner plates, tables, tools, terminals, tangibles and tablets, and clothes will be skillfully empowered to act smart in their dealings with other products in the vicinity and even with human beings. Eventually all sorts of physical items in our daily places will be smoothly transitioned into smart and sentient digital entities. It is hence no doubt that the future generation will experience and realize completely new technology-sponsored and flourished digital living. The impact of IT in our life becomes bigger, deeper, yet calmer as days go by.

Technologies for enabling minimization, interconnectivity, service-enablement, federation, virtualization, perception, analytics and actuation etc. are fast maturing towards producing affordable, connected, dependable, people-aware and context-sensitive systems and services. In a nutshell, technologies are increasingly penetrative, participative and productive. The technology-driven integration among digitalized objects at the ground (physical) level with scores of web, social, embedded and enterprise software applications at the cyber level is to pour out a stream of futuristic, adaptive and knowledge-filled and mission-critical applications. That is, the role and responsibility of IT are bound to thrive substantially in peoples’ lives. Already, machines are talking to one another locally as well as remotely. Services hosted across geographically distributed cloud infrastructures are interacting with one another as per any evolving needs in an ad hoc manner to conceive, compose and provide sophisticated facilities, features and functionalities. With the emerging idea of Internet of Things (IoT), casual and cheap items are being endowed to join in the mainstream computing. Business ventures, investors and entrepreneurs are hence strategizing to embrace competent technologies to keep the edge earned intact and IT is gradually yet...