Chapter 35
The IT Readiness for the Digital Universe

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ABSTRACT

The implications of the digitization process among a bevy of trends are definitely many and memorable. One is the abnormal growth in data generation, gathering, and storage due to a steady increase in the number of data sources, structures, scopes, sizes, and speeds. In this chapter, the authors show some of the impactful developments brewing in the IT space, how the tremendous amount of data getting produced and processed all over the world impacts the IT and business domains, how next-generation IT infrastructures are accordingly being refactored, remedied, and readied for the impending big data-induced challenges, how likely the move of the big data analytics discipline towards fulfilling the digital universe requirements of extracting and extrapolating actionable insights for the knowledge-parched is, and finally, the establishment and sustenance of the smarter planet.

INTRODUCTION

One of the most visible and value-adding trends in IT is nonetheless the digitization aspect. All kinds of common, casual, and cheap items in our personal, professional and social environments are being digitized systematically to be computational, communicative, sensitive and responsive. That is, all kinds of ordinary entities in our midst are instrumented differently to be extraordinary in their operations, outputs and offerings. These days, due to unprecedented maturity and stability of a host of path-breaking technologies such as miniaturization, integration, communication, computing, sensing, perception, middleware, analysis, actuation and articulation, everything has grasped the inherent power of interconnecting with one another in its vicinity as well as with remote objects via networks purposefully and on need basis to uninhibitedly share their distinct capabilities towards the goal of business automation, acceleration and augmentation. Ultimately, everything will become smart, electronics goods will become smarter and human beings will become the smartest.

DOI: 10.4018/978-1-4666-9840-6.ch035

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The Trickling and Trend-Setting Technologies in the IT Space

As widely reported, there are several delectable transitions in the IT landscape. The consequences are vast and varied: incorporation of nimbler and next-generation features and functionalities into existing IT solutions; grand opening of fresh possibilities and opportunities; eruption of altogether new IT products and solutions for the humanity. The Gartner report on the top-ten trends for the year 2014 reports several scintillating concepts (Forbes, 2014). These have the inherent capabilities to bring forth numerous subtle and succinct transformations in business as well as people. In this section, the most prevalent and pioneering trends in the IT landscape will be discussed.

IT Consumerization and Commoditization

The much-discoursed and deliberated Gartner report details the diversity of mobile devices (smartphones, tablets, wearables, etc.) and their management to be relevant and rewarding for people(Vodafone, 2010). That is, it is all about the IT consumer trend that has been evolving for some time now and peaking these days. That is, IT is steadily becoming an inescapable part of consumers directly and indirectly. And the need for robust and resilient mobile device management software solutions with the powerful emergence of Bring Your Own Device (BYOD) is being felt and is being insisted across. Another aspect is the emergence of next-generation mobile applications and services across a variety of business verticals. There is a myriad of mobile applications, maps and services development platforms, programming and mark-up languages, architectures and frameworks, tools, containers, and operating systems in the fast-moving mobile space. Commoditization is another cool trend penetrating in the IT industry. With the huge acceptance and adoption of cloud computing and big data analytics, the value of commodities IT is decidedly on the rise.

IT Digitization and Distribution

As explained in the beginning, digitization has been an on-going and overwhelming process and it has quickly generated and garnered a lot of market and mind shares. Digitally enabling everything around us induces a dazzling array of cascading and captivating effects in the form of cognitive and comprehensive transformations for businesses as well as people. With the growing maturity and affordability of edge technologies, every common thing in our personal, social, and professional environment is becoming digitized. Devices are being tactically empowered to be computational, communicative, sensitive, and responsive. Ordinary articles are becoming smart artifacts in order to significantly enhance the convenience, choice, and comfort levels of humans in their everyday lives and works.

Therefore it is no exaggeration to state that lately there have been a number of tactical as well as strategic advancements in the edge-technologies space. Infinitesimal and invisible tags, sensors, actuators, controllers, stickers, chips, codes, motes, specks, smart dust, and the like are being produced in plenty. Every single tangible item in our midst is being systematically digitized by internally as well as externally attaching these miniscule products onto them. This is for empowering them to be smart in their actions and reactions. Similarly, the distribution aspect too gains more ground. Due to its significant advantages in crafting and sustaining a variety of business applications ensuring the hard-to-realize Quality of Service (QoS) attributes, there are a bevy of distribution-centric software architectures, frameworks, patterns, practices, and platforms for Web, enterprise, embedded, analytical and cloud applications and services.

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