Chapter 15
Concept of Cloud Computing in ESB

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ABSTRACT

Cloud computing is evolving as a very important IT service platform with Its advantages of cost effectiveness and international access. To become a wide adopted IT infrastructure and service platform, cloud computing should be integrated with different systems in organizations. In academia, there's terribly restricted study of cloud computing integration. In follow, the industry lacks a comprehensive systems integration design or tools that may integrate any system universally. Built upon Enterprise Service Bus (ESB) as an integration backbone, this text proposes a universal integration design. With this design, any system or service (e.g., ERP and cloud computing) will simply be integrated through the ESB without needing software system renovation. so as to completely support the enterprise-level business operations during a heterogeneous computing setting, this design conjointly introduces a rule-based business method management (BPM) engine to contour business method management across disparate systems.

INTRODUCTION

Cloud computing (is also called utility computing) mainly refers to an IT service model and platform which provides services over the Internet. So many definitions are there for cloud computing. But the National Institute of Standards and Technology, an Institution recommended a very standard definition which is considered as the most accurate definition. According to the definition given by NIST, The cloud computing can be defined as the combination of five essential characteristics, three service models & four models for deployments. The five characteristics areas are as below:

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- The On-demand self-service,
- Access to Broad Network,
- Pooling of Resources, and
- Rapid elasticity,

What Cloud Computing Is and Why We Tend to Use It

Cloud computing (Sometime considered as a utility computing) represents an IT service model and a kind of platform which provides on-demand IT services over the internet. As we talked earlier that there a range of definitions for cloud computing. But we take the definition given by NIST (National Institute of Standards and Technology) into consideration as the foremost correct and comprehensive one. According to NIST's definition, cloud computing consists of five essential characteristics, three service models, and four readying models. The five peculiar characteristics are as given: Access to broad network, self-service, Pooling of resources, rapid elasticity, and measured Service (Mell&Grance, 2009).

The three service models include:

- **SasS (Software as a Service):** That delivers software service on demand, such as, salesforce.com – client Relationship Management (CRM) service and Google Gmail; "software that is deployed over the internet… Here provider licenses an application to the customers either as service on demand, with the help of subscription, in a "pay-as-you-go" model, or without charge when there exists opportunity to generate revenue from streams other than the user, such as through advertisement or user list sales. "
- **Characteristics of SaaS:** Here it is important to ensure that solutions sold as SaaS in fact comply with normally accepted definitions of Cloud Computing. Some defining characteristics of SaaS include:
  - Web access to commercial software.
  - Software is managed from a central location.
  - Software delivered in a "one to many" model.
  - Users are not required to handle the software upgrades and the patches.
  - Through application Programming Interfaces (APIs) we can integrate different pieces of software.
- **PaaS (Platform as a Service):** It makes available the computing platform for Industries to deploy and modify business applications as per demand, such as, Google Engine and Microsoft's azure; Platform as a Service (PaaS) provides those benefits that SaaS gives for applications, but over to the software development .PaaS is basically a computing platform that allows us to create the web applications in simple manner without any complexity of buying and maintaining the software and infrastructure. PaaS is analogous to SaaS except that, beinga software delivered over the web, it is a platform for the creation of software, which is delivered over the web.
- **Characteristics of PaaS:** There are a number of features and characteristics which are constituted by PaaS but some basic characteristics include:
  - Services to develop, test, deploy, host and maintain applications in the same integrated development environment. These varying services need to fulfill the application development process.