

CLOUD COMPUTING- OPPORTUNITIES AND CHALLENGES

Opening Remarks by “Prof O R S Rao (VC, The ICFAI University Jharkhand)”

In the last 60 years, since the first computer was installed, computing underwent dramatic changes. There was exponential growth of computing power, in line with Moore’s law (which states that Computing Power/Performance of chips, in terms of Processing speed and memory capacity) doubles every 18 months. This enabled explosive growth of applications ranging from weather forecasting, Unmanned Aerial Vehicles (Osama bin Laden was tracked and killed by the US, using technology) to life style tracking (wherein everybody’s living habits are analysed by computers and right products/services are offered). Internet enabled extra-ordinary growth in consumption of digital content (It is estimated that about 100 Peta Bytes of data is processed by Google every day). These factors have driven computing from an equipment based usage to a utility (like power and water), wherein a user can access computers (Memory & Storage), Networks, and software (databases, Application Packages, Engineering Design software, Tools etc) “on demand” and pay for “only actual use”. This is termed as Cloud Computing.

Though this concept was under discussion for a long time, curiously, the first commercial Cloud Service was offered by Amazon in 2008, called Elastic Cloud Compute (EC2), wherein any credit card holder could access/use Amazon’s computer Servers in its data centers at 10 cents/ hour.

In the last 4 years, adoption of Cloud Computing has grown by leaps and bounds, as a range of services are offered by leading IT vendors like IBM, HP, Microsoft, Oracle, Google, Amazon etc. They include Infrastructure (Computer hardware and networking) as a Service(IaaS), Platform (databases, software tools) as a Service(PaaS), Software (Application packages like ERP,CRM) as a Service (SaaS). They are offered in multiple formats like Public Cloud, Private Cloud, Community Cloud and Hybrid Cloud.

Though, initially users were wary, more and more users (Small and Medium sized Businesses, individuals, large corporate & governments) have been moving to Cloud Services, as it costs less, in addition to flexibility in terms of large capacity on demand, coupled with higher reliability. It does not call for large capital expenditure by IT users and need for highly skilled IT Professionals. Cloud computing will trigger new wave of computing and is expected to create a revolutionary impact, as much as Microprocessors.

As per IDC, during 2011, cloud based services were estimated to have generated revenues of US\$ 600 billion, which is expected to double, to cross US\$ 1.2 trillion by 2016. About 1.5 million new jobs were estimated to have been created around Cloud Technologies in 2011, expected to jump 10 times to 15 million by 2016.

As per Frost & Sullivan, a reputed international consulting company, Indian market for Cloud Computing services was estimated to be Rs. 1350 crores in 2011, which is expected to scale up 8 fold to Rs. 11,000 crores by 2016. 35 % of the market was for SaaS, 34% for PaaS (driven by cloud based advertising services) and 13% IaaS. 10,000 new jobs were estimated to be created, which is expected to gallop to 2 lakh jobs by 2016.

It is an excellent opportunity for students to skill up themselves by learning new technologies in areas like File Systems (HDFS), new programming models (like MapReduce) and supporting IT tools, and gear up to seize the emerging career opportunities. Industry and Academic Professionals must build awareness of it so that they can exploit it, in their day-to-day Professional and Personal lives.

I request all of you to take advantage of today’s Seminar, in which eminent speakers from academics & industry will deliberate on various themes of Cloud Computing.