

Guest Editorial

Sri G S Raju
Senior VP, Mahendra Satyam Computer Services Ltd.



Future Opportunities – Growing demand for specialized skills

Current market conditions have made college graduates to plan themselves on the areas they should specialize. The specialization is absolutely essential and can help them to focus on a particular area and upgrade the skills to match the current market needs. The Current IT industry in India has need for talent in either horizontal and/or vertical domain based areas. Some examples of Horizontal competencies are

- Business Intelligence and Data Warehousing
- Application development using Java, .NET
- Using Enterprise Business Applications or Enterprise Application Portfolios

Each of these Horizontals have vertical or domain based interest areas such as

- Banking, Insurance and Finance
- Retail
- Health Care
- Manufacturing and Supply Chain

For individuals or students who want to build a career, the decision to choose a particular Competency (either horizontal or vertical) depends on following

- Current Graduation area such as Engineering, Business Administration or Commerce
- Area of interests
- What they see are their skills and passion they possess
- Industry sector which is fueling growth in current economy.

For example, a student with Mechanical Engineering background might have an interest to learn and study Enterprise Applications catering to Manufacturing and Supply Chain. Similarly, an MBA graduate might be interested only in understanding nuances of Banking or use of Business Intelligence in Banking.

Similarly the institutions, teachers and finishing schools should cater to this industry need of making sure the student who passes out has necessary skills to meet the demand. Some of the steps which these institutions can look at are

- Have training programs based on Industry demand
- Make sure students are counseled and their interests are taken into account
- Bring in Industry experts and advisors who can provide insight into current market and economical conditions
- Arrange webinars and seminars where students are made aware the depth in each of these horizontal or vertical domain areas.

Guiding students in their career by institutions, parents and industry advisors with a horizontal and/or vertical focus will help them to focus further in their areas. This in turn will help industry have domain or IT savvy students. It is up to all of us to make sure we are part of this eco system to guide students in their next steps.

G S Raju

From Chairman's Desk



The Higher and Technical Education sectors in India are currently undergoing significant reforms, through Bills to be passed by the Parliament; such as the integration of AICTE (All India Council for Technical Education), UGC (University Grants Commission) and other similar Agencies into NCHER (National Commission for Higher Education and Research), and of NBA (National Board of Accreditation), NAC (National Assessment and Accreditation Council) and other similar Accreditation Agencies into NARAHEI (National Authority for Regulation in Accreditation of Higher Educational Institutions).

It is worth noting that the Indian Society for Technical Education (ISTE) has been the pioneer in India for initiating the discussions and design of the accreditation framework, as early as in 1985, even before the announcement of the National Policy on Education in 1986, which prescribed the formation of AICTE (in 1988), and the establishment of NBA (in 1994).

An International Conference on Accreditation was organized by ISTE in Chennai on May 18-19, 2011

- in the backdrop of major initiatives and reforms currently being proposed in India,
- both to align our accreditation system and processes with the Washington Accord and ABET; and
- to bring in legislation to integrate the accreditation systems of different sectors of higher and professional education into a common framework, NARAHEI (National Regulatory Authority for Higher Education Institutions).

The National Board of Accreditation, NBA, currently responsible for accreditation of engineering programs, has initiated reforms to get closer to the outcomes-based Washington Accord and ABET frameworks.

One of the major elements of the new legislation is to distribute the responsibility of accreditation of the eligible engineering programs among multiple agencies, to be carefully selected on the basis of competitive and comparative assessment. In the past, NBA has not been able to respond to the accreditation demands, and a huge backlog has piled up.

Let me give you an idea of the magnitude of the problem:

As of now, we have a total of 3241 Engineering Colleges, out of which 1511 are eligible for accreditation i.e. more than 5 years old); 551 institutions have at least one program accredited; this amounts to 36.46 % of the eligible institutions; or 17% of the total number. This means that approx. 2/3 of the *eligible* engineering colleges have not been accredited.

Obviously, each year the number of eligible institutions will increase, and unless urgent steps are taken, the magnitude of the backlog is bound to increase. It is practically impossible to tackle this huge backlog, unless the task is distributed among professional societies and other designated organizations with demonstrated credibility and competence.

There is the additional problem of maintaining Quality in the younger institutions, which are not yet eligible for accreditation. In the past, a Performance Appraisal system had been evolved, for assessing the Quality through analysis of relevant data, without a Visit. In addition, there is the issue of re-accreditation, since the normal period of validity of each accreditation is 5 years.

The program of this International Conference featured **8** International Experts and **8** Indian Experts; **9** are from the academe, **2** are from Industry, and **5** are from Professional Societies.

Several major Themes were discussed during the Conference :

- International, Regional and National Approaches to Accreditation of Engineering Programs
- Washington Accord, NBA and ABET Accreditation Systems and Processes.
- International Collaboration / Cooperation for Promoting Quality in Engineering Education.
- Industry Perspectives on Quality Assurance in Engineering Education.

The major objectives of this international conference were:

- To spread awareness of the Quality Assurance and Accreditation systems world-wide.
- To take stock of our own national initiatives and reforms.
- To share Best Practices from different systems ; and
- To assist our Engineering Colleges to incorporate a Quality culture in their activities.

By and large these objectives were met during the Conference.

Prof. R. Natarajan

Faculty Development Workshop on Cloud Computing - Challenges, Opportunities and Microsoft Azure

Date: 24th February 2011

Venue: Canara Engineering College, Bantwal



Cloud Computing has emerged as an exciting and cost effective way to deploy and deliver software over the web in a reliable and robust fashion. According to the *International Data Corporation (IDC) October 2008* report, projected Cloud IT Spending in 2012 will be \$42 Billion; a growth of about 27% from 2008. And Asia Pacific spending on IT cloud services will grow fourfold. This workshop introduced to the participants the salient features and benefit of cloud computing, Differences between **Infrastructure as a service (IaaS)**, **Platform as a Service (PaaS)** and **Software as a Service (SaaS)**.

IaaS is the base layer of the cloud stack and serves as a foundation for the other two layers, for their execution. Based on the principle of **Virtualization**, the client application will be executed on a virtual computer (also known as an instance), with a configuration of CPU, memory and storage that is optimal for one's application. The IaaS provider supplies the whole cloud infrastructure viz. servers, routers, firewalls, storage with load balancing. The customer buys these resources as a service and is billed on pay per use basis.

PaaS is the middle layer of cloud and offers a development platform on the web for developers. The end users write their own code and the PaaS provider uploads that code and presents it on the web. PaaS provides services to develop, test, deploy, host and maintain applications in the same integrated development environment. It also provides some level of support for the creation of applications. Thus PaaS offers a faster and more cost effective model for application development and delivery. The PaaS provider manages upgrades, patches and other routine system maintenance. PaaS is based on a metering or subscription model so users only pay for what they use.

SaaS is the top most layer of cloud and is based on the concept of renting software from a service provider rather than buying it yourself. The software is hosted on centralized network servers to make functionality available over the cloud. Also known as “software on demand” it is currently the most popular type of cloud computing because of its high flexibility, great services, enhanced scalability and less maintenance. Yahoo mail, Google docs, CRM applications are all instances of SaaS.

Participants were given an overview of Windows Azure cloud services platform, Azure storage services, SQL Azure, and also the tools and technologies to develop and deploy applications on Azure

The **Windows Azure Platform** is a PaaS offering from Microsoft used to build, host and scale web applications through Microsoft data centres and forms part of Microsoft's cloud computing strategy, along with their SaaS offering, Microsoft Online Services. The platform consists of various on-demand services hosted in Microsoft data centers and commoditized through three product brands. These are Windows-Azure (an operating system providing scalable compute and storage facilities), SQL-Azure (a cloud-based, scale-out version of SQL Server) and Windows Azure -AppFabric (a collection of services supporting applications both in the cloud and on premise).

Windows Azure has three core components: *Compute*, *Storage* and *Fabric*. As the names suggest, Compute provides a computation environment with *Web Role* and *Worker Role* while Storage focuses on providing scalable storage (*Blobs*, *Tables*, *Queue*, and *Drives*) for large-scale needs.

Fabric (Windows Azure Fabric) makes up the physical underpinnings of the Windows Azure platform as the network of interconnected nodes consisting of servers, high-speed connections, and switches..

Fabric resources and applications and services running on those resources are managed by the *Windows Azure Fabric Controller* service. It acts as the kernel of the Windows Azure distributed cloud operating system, providing scheduling, resource allocation, device management, and fault tolerance for the nodes in the Fabric. It also provides high-level application models for intelligently managing the complete application lifecycle, including deployment, health monitoring, upgrades, and de-activation.

Windows Azure can be mainly used for quickly developing web applications that will fully support Microsoft products and provides full compatibility for the Microsoft ASP.NET web applications. Windows Azure also supports other languages like PHP, REST, SOAP and, XML, and facilitates trusty features also, so that applications supported by the languages such as PHP can be upgraded and executed in quick manner. Windows Azure facilitates storage of data in a well-organized way that could be in any form such as graphs, charts, and tables. Windows Azure supports different network protocols. Various workloads can be provided for building, modifying, testing, debugging, and distributing scalable applications. Windows Azure enables batch processing of data with without compromising the performance.

It also offers the Microsoft Visual Studio tool to build, test, debug, and run the web applications. It facilitates the calculation and storage capabilities in a dynamic manner based on the needs of the customers. Autonomic computing feature of Windows Azure allows automatic diagnosis of performance issues of a server or server peripherals in the network.

BITES PhD Awards

BITES is pleased to announce the Best PhD Thesis Awards for the year 2009 in Electronics & Communication and Computer Science disciplines. A distinguished committee comprising of academia and industry members set up by BITES has recommended following faculty members for the awards

1. Dr. Santhi Thilagam, NITK (Computer Science Category)
2. Dr. Satish Babu, SIT, Tumkur (Electronics & Communication Category)

Our heartiest congratulations to the winners.