

Symposium on Cloud Computing

Co-located with ACM Bangalore Chapter Compute-2009 Conference

<http://compute.acmbangalore.org/compute2009.html>

Friday January 9, 2009

OVERVIEW

Cloud computing as a technology trend is capturing the imagination of many. There are several definitions for this term to be inclusive of “everything” as a service—software to flexible computing infrastructure.

Ease of solution deployment is attractive to IT solution developers. Dramatic cost advantages are truly compelling for the users of flexible computing infrastructure. Cloud computing also represents a paradigm shift from owned IT infrastructure to using software applications, computing and storage as services over a wide-area distribution network such as the internet. This trend is being enabled by quantum performance improvement in the IT infrastructure components combined with enabling technologies such as virtualization, distributed computing, multi-core processors, service-oriented architectures and key innovations in the way cloud computing infrastructure is built.

ACM Bangalore Chapter symposium on Cloud Computing aims to develop an Indian perspective besides presenting some of the practitioners involved in Cloud Computing.

- Is cloud computing representing a paradigm shift in IT or is it an over-hyped fad struggling to find a sustainable business model?
- How is cloud computing affecting the enterprise-computing infrastructure and approaches?
- How does *cloud computing* present opportunity for Indian entrepreneurs, practitioners, researchers and Indian business enterprises and/or IT consumers? How does cloud computing fit in the global economic downturn scenario?
- What are some of the key state-of-the-art technologies of Cloud Computing?
- What kind of research/technology development is happening in the Indian community?
- What are the important technical issues in realizing the promise of cloud computing such as virtualization, multi-tenancy, service life cycle management, power management, security, network infrastructure, fault management and so on?

The following schedule brings together some of the finest minds from the domain, speaking on different perspectives and providing a kaleidoscopic view of cloud computing and services. There will also be a 15 minutes session exclusively meant for speakers from the audience to share their insights, experience, requirements from the technology, research/technology development they are working on or collaboration requests, each restricted to a maximum of 5 minutes without any slide presentation.

Time	Speaker	Topic	Abstract
10:00 AM	Sundara Nagarajan	Welcome and kick-off the symposium	
10:15 AM	Dr. Prasad Bhaarat Ram, Head, Google R&D India	Keynote Address	
11:15 AM		Coffee Break & Networking	




11:30 AM	Dr. Jawahar Malhotra, VP & CTO, Yahoo! India	Managing Petabytes with Open Source Grid	This presentation will talk about Hadoop architecture and some case studies on how it is used to solve high performance computing problems. Hadoop is a grid-computing framework for running applications on large clusters built of commodity hardware. It lets one easily write and run applications that process vast amounts of data (terabytes to petabytes).
12:00	Venki Nishtala CTO, Rediff.com	Cloud computing - Real <i>Virtuality</i> ?	What we are witnessing is a definite change in the computing industry, driven not just by factors of efficiency and savings, but also by some innovations and usage of the computing services on the web. Cloud computing is also being presented to both technical and business sides of an organization, with as much excitement and hype, as the web technology initially was in its earlier years. The presentation will focus on some of the key factors influencing the adoption and success of computing utilities. Venki will present some of the important considerations and the limits, of out-boarding operations.
12:30 PM	Suresh Srinivasan, Consulting Member Technical Staff, Oracle India	Orchestration of Clouds	Currently the focus of all the players in Cloud Computing field is on "creating clouds." Orchestration of cloud services to produce new customer value is an interesting problem to explore. This talk is about how to go about orchestrating various clouds and provide a seamless experience to the end customer. Agenda of the talk would be: What is Cloud Computing (just to provide a context); Big players in this area and what they are doing; How to orchestrate; Proposal for standards in various phases of orchestration.
01:00 PM		Lunch Break	
01:45 PM	Dr. Naresh Sehgal, Lead Software Architect, Enterprise Systems Group, Intel Corporation	Clouds in Emerging Markets	Naresh will list various issues faced by the current data-center and cloud operators while proposing future usage models & technologies. Specifically, we will look into the challenges of improving server utilization and lowering operational costs of running a cloud. We will also touch upon advanced technologies that promise to drive new & unexplored cloud-computing usage models. We will examine cloud adoption challenges in the emerging markets, and propose new solutions to address intermittent power and connectivity issues. This talk will offer opportunities for various eco-system providers to work together and bring the goodness of Cloud to new markets while stimulating & challenging (ecosystem) innovators to generate yet unknown applications of computing for the benefit of the (average) end-user.
02:15 PM	Dr. Shailab Nagar, Manager - Service Delivery Process Mgmt; IBM India Research Lab	Opportunities & Challenges in Cloud Computing	Cloud computing is being heralded as the next paradigm shift in the evolution of IT and its adoption by consumers and the enterprise. As with other technologies that have changed the course of IT, the success of the promise of cloud computing will depend on the guiding vision and execution adopted by various stakeholders. The talk will introduce IBM's evolving vision of cloud computing covering both the opportunities and challenges. It will also touch upon some of the efforts and initiatives by IBM and its IT partners in cloud computing.





02:45 PM	Dr. Badrinath Ramamurthy, Technologist, Hewlett-Packard R&D	Infrastructure in the Cloud	While there are several notions of cloud computing, almost all of cloud computing relies on efficient management of infrastructure cost. This talk will deal with identifying the problem of providing infrastructure in the context of cloud services or cloud computing. We identify challenges, solutions in place and open problems. We will also describe in some details solutions and open problems for virtualization and service level agreement management.
3:15 PM		Coffee Break	
3:30 PM	Srikant Rao CEO, Affordable Business Solutions	Delivering on the Software-as-a-Service Model leveraging Cloud Computing to Indian SMEs	Affordable Business Solutions enables Small and Medium Enterprises (SME) to enhance their competitive advantage by offering industry vertical business solutions coupled with business consulting services aggregated with information technology solutions—all on a per-user/per-month subscription-based pricing model (Software+ Service.) Srikant will present the challenges faced by their customers and their team, how they addressed them and the tangible/intangible returns on investment and the associated learning.
4:00 PM	Harshavardhan Jegadeesan ("Harsh"), Project Manager, SAP Labs	Web Business-Platforms on the Cloud - An Engineering Perspective	Web businesses such as eBay®, Amazon® and a whole lot of others have long ceased to be mere websites; they have morphed into web business platforms on the "cloud". By adopting a platform strategy, they are building an ecosystem of developers, partners and entrepreneurs to build innovative applications for customers. As platform owners, catering to his heterogeneous ecosystem is a huge engineering challenge in itself. This session, we would discuss some of these challenges along with some recipes to overcome them.
4:30 PM	Sumit Kumar Bose (Co-author: Rajarshi Bhose), Infosys Research	Making of a Successful Cloud Business: Current Status & Future Requirements	The growing interest in Cloud Computing clearly points to the fact that it is no longer confined only to a few research labs and research topics, but also there is widespread interest for its adaptation and into making its way into the mainstream market. Riding on this wave, a customer opting for a Cloud solution however soon faces a lot of issues since his requirements generally are heterogeneous in nature and cannot be fully provided by one single cloud provider and there is, as of now less compatibility of different clouds by different vendors as well as comes the questions of support and licensing of various applications over the cloud. The issues are many fold as we see it and thus system integration (SI) aspects for Cloud Computing becomes an important part for the proper penetration of cloud into service areas and be cost effective and profitable. We present our thoughts on how there can be a seamless integration for cloud and what associated research needs to done particularly focusing on the SI aspects.





5:00 PM	Dr. Srikumar Venugopal, The University of Melbourne, Australia	Market-Oriented Cloud and Grid Computing: A Vision, Hype, and Reality	Despite a number of advances in grid computing, utility-oriented resource management and application scheduling in such environments continues to be a challenging and complex undertaking. In this talk, we present technological evolution and key challenges in building and managing Utility-Oriented Clouds and Grids. We place emphasis on fundamental challenges of Grid economy, how to design and develop Grid technologies and applications capable of dynamically leasing services of distributed resources at runtime depending on their availability, capability, performance, cost, and users' quality of service requirements. We then introduce Gridbus Project R&D efforts with focus on distributed computational economy for effective management of resources. We briefly present various components of the Gridbus Toolkit and then discuss Aneka (a software system for building enterprise Clouds) and Gridbus Service Broker along with its economic-based scheduling algorithms. Case studies on the use of Gridbus middleware in the creation of various e-Science applications (such as distributed molecular docking and high energy physics) and their deployment on national/international Grids and its impact on emerging Cloud computing paradigm will also be highlighted.
5:30 PM	From audience	<i>Technical topics</i>	<i>Technical topics of their views, experience/research findings, interests/requests for collaboration, challenges they face or insights to share—restricted to 5 minutes max. per speaker.</i>
5:45 PM	Subu Iyer, Engineering Manager, Hewlett-Packard R&D	<i>Wrap-up, summary and closing remarks</i>	<i>Conducts the symposium through the day and summarizes the key points.</i>
6:00 PM	Closing		




SPEAKERS

Speakers are from organizations that are either creating the technology for cloud computing or are power users of the technology. The objective is to get speakers from different disciplines such as technology creators, solution builders, infrastructure vendors, SMEs, academic researchers, end-users and so on. It is also our goal to invite speakers from different kinds of organizations—Industry, academics and IT user community. We endeavor to get leading practitioners and thought leaders from industry and academia to speak. What follows are the profiles of the speakers & contributors in the *alphabetical* order.

<p>Badrinath Ramamurthy</p>		<p>Dr. Badrinath is a Technologist at Hewlett-Packard's Enterprise Storage & Servers R&D at Bangalore. He has been with HP since 2003 and has worked for the most part on engineering high performance computing systems.</p> <p>He obtained his M.Sc. (Tech) from BITS, Pilani in 1987. He worked for a year at NIC, New Delhi, before obtaining his MS and PhD degrees from Rensselaer Polytechnic Institute, NY, in 1990 and 1994 respectively. From 1994 to 2003 June he served as a faculty member of the Computer Science and Engineering Department at the Indian Institute of Technology, Kharagpur with focus on interconnection networks and graph theory. Between May 2002 and May 2003 he was a visiting researcher at INRIA/IRISA in France working on Distributed Shared Memory systems.</p> <p>His areas of specialization include high performance computing, semantic web and graph theory. He has about 30 refereed published research works in his areas of interest. He has been associated with organizing the International Conference on High Performance Computing (HiPC) for the last few years and has been the General Co-Chair for the years 2006, 2007 and 2008.</p>
<p>Harshavardhan Jegadeesan ("Harsh")</p>		<p>Harsh currently works as a Project Manager in the SOA team within the Business Suite organization in SAP Labs, India. Prior to this, he was working with the Research & Breakthrough Innovation group on SAP® ByDesign®. He follows his passion for teaching, as an adjunct faculty with BITS, Pilani, teaching graduate courses in software engineering. He actively contributes to JournalServer.Org, a free library of scholarly articles. His areas of interest include service-oriented architectures, enterprise systems and business process platforms.</p>
<p>Jawahar Malhotra</p>		<p>Dr. Jawahar Malhotra is the CTO of Yahoo! India Research & Development, Bangalore and is responsible for building new technology platforms and architecting the technology roadmap for Yahoo! India R&D. Jawahar brings with him 20 years of industry experience, which includes leading the re-architecture, re-design and operations of high-scale web applications by the internet giant.</p> <p>He was instrumental in leading My Yahoo (my.yahoo.com) as well as the Yahoo Front Page (www.yahoo.com). Jawahar has also been the growth driver for Yahoo's RSS platform, taking it from a few hundred feeds to over 5 million feeds in a relatively short time.</p>

		<p>Prior to joining Yahoo! Jawahar was part of the executive team as VPE for M7 Corp, now a part of BEA. He has also spent considerable time with Netscape where he was involved in the development of the web from its early days. He was one of the architects of the first server-side scripting engine (live wire) released by Netscape in 1996.</p>
Naresh Sehgal		<p>Naresh is the lead Software Architect in Intel's Enterprise Platforms group. He has been with Intel for 20 years and worked in a variety of roles including development of chip design tools and algorithms for 3 generations of microprocessors for the first 11 years, a design automation manager and managing Intel-HP Alliance for the next 5 years. Before moving back to India in 2006, he led HW Virtualization Technology programs across servers, desktops and mobile computing. During last 2+ years, he has worked on server and energy management solutions. Naresh did his PhD from Syracuse University, NY in Computer Engineering and MBA from Santa Clara, CA.</p>
Prasad Bhaarat Ram		<p>Dr. Prasad Bhaarat Ram heads Google R&D in Bangalore, India. He is responsible for working with the India engineering teams to develop innovative Google products and technologies that will bring the next wave of users online in India and around the world.</p> <p>Prasad brings with him over 15 years of experience in computer science research and engineering. He started his career as a research scientist at Xerox PARC. Prior to joining Google, he was Chief Technology Officer at Yahoo! India Research and Development in Bangalore.</p> <p>In 2006 Prasad led a team of 1500 parents to create PSBB Learning Leadership Academy – a Kindergarten to Std.12 school. Prasad has traveled across rural India and works with NGOs such as SEWA, PRS, and RTI-India to help improve their operations and increase their impact through information transparency.</p> <p>Prasad has a B.Tech. in Computer Science from IIT-Bombay and a Master's and Ph.D. in Computer Science from University of California, Los Angeles (UCLA).</p>
Rajarshi Bhose		<p>Rajarshi is working as a Research Associate with the J2EE COE group at Software Engineering and Technology Labs at Infosys Technologies Limited. His research interests include Immersive Technologies and its applications, Cloud Computing and Scalable Enterprise Architectures. His current focus is to harness and extend the capabilities of Virtual Worlds into Business Domains and is one of the key Initiators behind this endeavor. When he is away from office, he can be found either playing his electric guitar or going on long drives or may be trying some new cuisine at a newly opened restaurant.</p>
Shailabh Nagar		<p>Dr. Shailabh Nagar is with IBM's India Research Lab where he manages a group researching improvements in service delivery, particularly infrastructure services. Earlier, Dr. Nagar worked at the IBM T.J. Watson Research Center on operating systems, security, multi-core architectures and systems management. As part of his work, he has contributed to the Linux 2.6 kernel, which also involved the challenge of realizing the promise of the open-source development model for the enterprise. He holds a PhD from the Pennsylvania State University and an integrated Masters from the Indian Institute of Technology, Delhi.</p>

<p>Srikant Rao</p>		<p>Srikant is an alumnus of the Indian Institute of Technology, Mumbai and the Indian Institute of Management, Calcutta. Presently, he heads Affordable Business Solutions (ABS) – an organization that he co-founded to address the requirements of Indian SMBs, offering Business Process and Analytics consulting and I.T. solutions on a subscription-based pricing model. ABS is a pioneer in the area of Software-as-a-Service and is the first company to offer Microsoft Dynamics ERP/ CRM solutions on a hosted, subscription-based pricing model to Indian SME customers. Microsoft’s Dynamics team in India also has awarded ABS the Best Debutante Partner of 2005-06, the President’s Award for 2006-07 and has invited ABS to be part of their Inner Circle of Dynamics Partners globally for 2007-08. URL: www.abs.in</p> <p>Prior to launching ABS, Srikant S. Rao was the Country Manager, India for BEA Systems, Inc. Earlier, he launched and established NCR (previously AT&T Global Information System) ’s Computer Systems business in India. Prior to joining NCR, Srikant has held executive positions in project management, materials management, marketing, sales and business development with Microland, TVS Electronics and Sundaram-Clayton Ltd.</p>
<p>Srikumar Venugopal</p>		<p>Dr.Srikumar Venugopal is working in the Grid Computing and Distributed Systems Laboratory (GRIDS Lab) in the Dept. of Computer Science and Software Engg., University of Melbourne, Australia. He is a senior member of the research Group and involved in Grid and Cloud Computing research (http://www.cs.mu.oz.au/~srikumar/research.html). In 2006, he completed Ph.D. on scheduling of data-intensive applications under the supervision of Dr.Rajkumar Buyya and Prof. Rao Kotagiri. He has been part of the lab's flagship <i>Gridbus</i> Project since its inception, and initially developed the <i>Gridbus</i> Broker. His research interests lie in the area of large-scale distributed systems, specifically in the topics of resource allocation in grids and middleware development. He completed Bachelor's degree in Computer Science and Engineering in 2001 from Model Engineering College, (Cochin University of Science and Technology), Kerala. He was part of a final year project team that developed <i>Echelon</i>; a prototype system using mobile agents for SETI@Home-like distributed computing.</p>
<p>Subu Iyer</p>		<p>Subu Iyer is an Engineering Manager at Hewlett-Packard India Software Operations Pvt. Ltd. He is responsible for the development of four products HP sells in the manageability domain. Prior to joining HP India, Subu was a Senior Researcher at HP Labs in Palo Alto, California for 11 years. Subu has published over 30 papers and filed 20 patents. Subu’s research interests are in the areas of Distributed Systems, Operating Systems, and Computer Networks.</p>
<p>Sumit Kumar Bose</p>		<p>Sumit is working as a research associate with the Grid and High Performance Computing group in Software Engineering and Technology Labs in Infosys Technologies Limited. His research interests include databases and optimization methods. Currently he is working on issues related to resource management in data centers and SLA optimization. He has numerous publications in well-acclaimed journals and conference proceedings.</p>

Sundara Nagarajan ("SN")		<p>SN is a Distinguished Technologist at Systems Technology and Software Division (STSD,) R&D of Hewlett-Packard Technology Solutions Group (TSG.) In this role, his responsibilities are in contributing to product generation in the area of server operating systems and systems management. He has over 25 years of experience in computer R&D. Prior to his current role at HP, he was Director (Systems) in STSD, delivering system software R&D for server products. SN had held the positions of Director of Technology at IPValue, Co-founder Bluefont Technologies, General Manager/Director/interim CEO at Philips Software Center and Technology Manager at Wipro R&D.</p> <p>SN is also a Visiting Professor at Indian Institute of Information Technology, Bangalore. He is a Senior Member of the IEEE, member of the ACM and member of TiE-Bangalore Chapter. SN graduated M.S (by Research) from the Indian Institute of Technology, Madras and B.Sc. (Engg.) in Electrical Engineering from the University of Calicut.</p>
Suresh Srinivasan		<p>Suresh Srinivasan is with Oracle since 2000 and has more than 14 years of Software development experience. Suresh's expertise are in the area of compiler optimizations, Virtual Machine Development, Oracle HTTP Server and Social networking. Suresh currently takes care of Oracle Http Server and Oracle Java Virtual Machine development team at IDC. He also heads the innovation team at Oracle IDC. Prior to Oracle, Suresh was working at IBM India, IBM Almaden Research Center and HP India.</p>
Venki Nishtala		<p>Venki Nishtala is the Chief Technology of Rediff.com. Venki is responsible for product and technology strategy at Rediff.com, and also oversees the product engineering and the portal operations.</p> <p>As part of his responsibilities, Venki also mentors and manages relationships with a variety of business, technology and solution partners around the country. Prior to Rediff.com Venki was the Managing Director of CyberCash's product development center at Bangalore. CyberCash pioneered the world's first micropayment on Internet and is now part of Verisign, USA. Venki obtained his Master's in Electrical Engineering from IIT Madras, and his Bachelor's Degree from Osmania University, Hyderabad.</p>

We expect this symposium to be a good platform to exchange notes via informal networking. Wish you a lot of interaction, learning and networking.

CLOUD SYMPOSIUM VENUE:

Auditorium 2, NIMHANS Convention Centre, Off Hosur Road, Bangalore-560 029 (Near Diary Circle.)

Symposium anchor:

Sundara Nagarajan ("SN")

Distinguished Technologist

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