

Emerging technologies of century computer science essay

[Technology](#), [Computer](#)



This paper outlines the two emerging technologies and their impact on society and on business. Emerging technology, the name it self implies the technologies that are emerging or growing with time as result of researches in those technologies. Some of the emerging technologies are nanotechnology, cloud computing, biogenetics, robotics, artificial intelligence etc. Here we are discussing two prominent emerging technologies of 21 century,

- * nanotechnology and

- * Cloud computing.

Nanotechnology is a dominant technology in all areas in coming decades. It will have revolutionary changes in health sciences, energy resources such as water etc. Many business organizations are interested in investing nanotechnologies to gain the fruit of the technology

Cloud computing is a virtual emerging technology that increases the speed of the computing applications at lower costs. It permits us to perform unlimited applications and data storage either with in organization or over internet. Now we discuss these two technologies in brief.

Introduction:

Emerging technologies are bringing revolutionary changes as because of growth in technology. In the present paper we are discussing brief about the two emerging technologies, cloud computing, nanotechnology. And in each technology a brief explanation of technology, its growth and applications is

presented. And the discussion leads us to social and business impacts of both technologies in positive and negative faces with the evidence from statistical data. Lets start with the cloud computing.

Cloud computing:

The idea about the cloud computing is very complex. Of the several meanings, Lets go with one of the meaningful definition. What perfectly is a cloud computing? From its easiest form, the terminology, “ cloud” will be a metaphor which originates from the symbol of cloud on a flowchart of the network designer, which is indicating that the information about the packet will be sent over the Internet.

“ The term ‘ cloud computing’ encompasses many areas of tech, including software as a service, a software distribution method pioneered by Salesforce. com about a decade ago. It also includes newer avenues such as hardware as a service, a way to order storage and server capacity on demand from Amazon and others. What all these cloud computing services have in common, though, is that they’re all delivered over the Internet, on demand, from massive data centers.”

While the cloud computing has been move into IT jargon in the most recent days, the market at the consumer point of view is using more longer. More people in the united states are connecting to the Web services over the some variety of service with cloud service, containing web based emails. In the same manner, Google and Amazon are the largest companies which are using “ cloud” from so many years. And as The Economist (Oct. 25 2008)

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notes, “ Firms that provide enterprise software as a service (SaaS) over the Internet, such as Salesforce. com and NetSuite, have grown steadily.”

Fresh businesses, without any legacy funds to protect, and with the easiness which are presented by Information Technology resources which are being provided over the off-premise position in metered quantity (as much or little as needed) and quality which are likely to find out the cloud facilities which are mainly appealing.

Upton now the conclusion is very clear for the customers in the enterprise. They are hesitating to invest large investments and want to have services from outside. Some of the barriers which may be needed to overcome are data availability, security, geographic location of programs, having small support of commercial ISV. Now days many MNC companies are struggling with old hardware, requirements of power and with very complex data centers. To overcome this situation they have to adopt a hybrid computing model called cloud computing.

How to make cloud vision to reality

“ cloud computing” means the computing which dynamically facilitates access to the measurable services, which are shared to each other in a network that may be private or public. These services takes place from IT services which are basic (like storage, power for computing etc. to computing services which is specific for industry (like logistics, healthcare and finance). In this cloud computing the storage is infinite and programs can be accessible anytime, anywhere.

What could Cloud computing enables:

- 1) Previously new and fresh business models which were not implemented because of technical limitations in existing system.
- 2) Business ideas which may need less consumption of computing power and preventive measures.
- 3) Information sharing without the very high coordination costs, reductions of cost and increase in some IT service responses to companies, governments and mostly for individuals.
- 4) According to some studies cloud computing have good effect on economic progress.
- 5) In future millions of new jobs can be get through Cloud computing because of the development of many of tiny business.

There are many doubts to develop cloud in any disruptive technology. Some doubts are about the delays to develop the cloud, and some doubts are the effect of privacy laws and restrictions.

- 6) Some are concerned about the possibility of long delays or problems in the development and deployment of cloud.

Four types of cloud players are emerging:

§ Providers of Cloud -

Amazon, Google and also dozens more and more; they have their own set up of the hardware.

§ Publishers of Cloud –

Vendors contribution web services , SaaS, and application expansion platforms for making cloud applications

§ Enablers of Cloud –

Companies that make platforms, standards, tools, etc. enabling continuous grid computing in the cloud by providing the groundwork for inventiveness (SLAs) Service Level Agreements.

GRAPH 1: MEMORY BENCH MARK DISK AND PERFORMANANCE

Impact on business:

Mediation is a secret weapon

The importance of a intercession layer is not distinctive to cloud computing. From the provider changes the mediation of the is created by the enterprise. This is the most single perilous architecture improvement a company could make when the cloud is using, because that permits the inventiveness to alter on their self-terms and which is not be given by the exterior provider.

Continue to consider service level management

Mediation also helps a secondary key advantage, which of policy and control enforcement. Addition of mediation layer which offers the enterprise with the perceptibility into how the cloud computing will be used and and also

controls to declare enterprising of standards. To determine optimizing business and determining the risk Visibility is critical. Mediation permits watching of the vendor's servicing level contracts to authorize that they're transporting as assured in methods that are significant for the business.

Keep a focus on security:

Reasonably, security has the information technology executives' largest protest linked with the cloud computing. All most all the noticeable mechanisms of safety with an external dealer apply, but the cloud computing enlarges the problem, and also the fear. To address the security over the cloud, the data safety must change up the load, the similar way that Information technology value will be done. Information technology wants to the attention on the data layer safety, meanwhile the subordinate layers are outside its controlling. Corporations that twitch the change to the cloud would find where security is being strongly combined with their setup stack at the network layers primarily, to the socket where it converts hard to mocker infrastructure and security apart. However, by touching to the cloud, the well level of mechanism through the network will be lost, and the security at the upper layers should take over. That should go without any aphorism that cloud computing is motionless immature. As a result, corporations should evade putting the information which is in the cloud without having a facsimile elsewhere. Which is just similar all the things else, stock in a possibility plan, plus testing the plan, is very critical.

Impact on society:

Cloud computing which will have the considerable impact on the step of economic progress. Cloud computing might possibly donate almost a million fresh jobs from the expansion of numerous hundred thousand minor businesses in the next years. Cloud might also offer leap fogging growth chances to emerging nations.

Nevertheless, as with any disorder technology, there persist so many questions and doubts about the environment in which cloud will develop. Some are troubled about the likelihood of extended stays or problems in the expansion and deployment of cloud. Others are worried about the possible control of cross border privacy laws or other controlling limitations. A strong, multi investor dialogue to measure together areas of risk and promise.

Nano technology:

Nanotechnology makes use of materials of size less than 100 nanometers. In practical the width is about 1/800 of human hair and 1/70th of red blood cell diameter. The purpose of nanotechnology is to produce the materials in atomic scale. In coming decades nanotechnology brings revolutionary changes in computers in terms of speed, data storage.

“ Nanotechnology is the principle of atom manipulation atom by atom, through control of the structure of matter at the molecular level. It entails the ability to build molecular systems with atom by atom precision, yielding a variety of nanomachines”

(Mick Wilson and et. al 2002 NANOTECHNOLOGY)

Characteristics of nanotechnology:

The materials formed by nanotechnology exhibit different properties compared to conventional material. According to the arrangement of nano particles in a material, they exhibit different properties physically, chemically and biologically. In general, we cannot predict the material properties by physics and chemistry. Electricity laws which hold good for big materials may not work for nanomaterial. For example a material acts as a conductor at its normal size and it may act as insulator at nano sizes.

Rapid Development:

Nano technology is emerging rapidly in 21 century. It was not in use until the year 1959. A magazine of science named the year 2001 as “break through of the year”. At present nanotechnology is involved in hundreds of different applications. NSF (National Science Foundation) expected nano services and materials will have \$1 trillion market in business by 2015. Many countries are dependent on nano technology because of its ability to produce products in different areas using nano technologies.

Applications:

It has a wide range of application areas, which will help in increasing human life standards in developing countries. Some important nanotechnology applications are

* Energy production, storage and energy conversion

- * Agriculture productivity
- * Construction
- * Food storage and processing
- * Health applications such as diagnosis disease
- * Water purification systems
- * Health monitoring
- * Vector and pest detection control
- * Drug delivery system
- * Air pollution control.

Impacts of Nanotechnology on society

Each technology has good and also adverse impacts on society. When coming to nano technology, it has potential to make revolutionary changes in people lives across the world. It helps in reducing global warming; Fuel consumption is decreased by the fuel additives and water purification system with greater efficiency.

Military services use these technology for detecting enemies and producing advanced weapons. In negative, it act as a weapon for terrorism. Terrorists make use of nano technology to produce toxic weapons. In medical sciences, diagnosis disease can treated by this technology. If the growth of this

technology follows the same flow, in future computer think as a machine.

The life span of human will be increased as a result of DNA repair, improved improved drugs and medicines. (Mihail C. roco and William sims binbridge, 2001)

Impact of nanotechnology on business:

Innovations of new technology and developments in existing technologies will affect the economy of the country. As because of its demand and applications in wide areas such as medicine, electronics, computers etc., all countries around the world investing massively in nanotechnology.

* In 2006, the amount spent globally for research and development in nano technology reached \$12. 4 billion, which is 13% more than invested in 2005.

* The amount spent by the governments of all nations in the world is about \$6. 4 billion for the year 2006 where as for the year 2005 is \$5. 9 million. From the year 2005 to 2006 the investment growth is 10%.

* Established business organizations spent \$5. 3 billion for research and development on nanotechnology in 2006. The growth is 19% from the past year 2005.

* As because of growth, the nanomarket is expected \$1 trillion for the year 2015.

Conclusions:

The two emerging technologies namely cloud computing and nanotechnology is attracting the attention of the world by its rapid growth. In future cloud computing makes great changes in computer world. Internet and computer applications in future may be come simple than now. In coming decades we can expect revolutionary changes in the world which leads to nano size electronics instead of chips now we are using , medical nano applications increasing the lives of people. And it also shows impact on social life of human.

References:

Mihail C. roco and William sims binbridge, 2001 NANO SCIENCE AND NANO TECHNOLOGY.

Mick Wilson, et. al 2002 NANOTECHNOLOGIES

Mark ratner, Daniel ratner , NANOTECHNOLOGY

Dr. james canton 1999, “ The statagic impact of nano technologyon the future of business and economics.”

<http://www.mediaplanet.com/>

http://www.lifeissues.net/writers/irvi/irvi_32biotechnology.html