SNS COLLEGE OF TECHNOLOGY

Coimbatore-36.
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade Approved by
AICTE, New Delhi & Affiliated to Anna University, Chennai

COURSE NAME :. **19CSE310 - Grid and Cloud Computing (Professional Elective II)**

Ms.R.Aruna
Assistant Professor

Department of Computer Science and Engineering

Roots of Cloud

We can track the roots of clouds computing by observing the advancement of several technologies, especially in

- Hardware (virtualization, multi-core chips),
- Internet technologies (Web services, service-oriented architectures, Web 2.0),
- Distributed computing (clusters, grids), and
- Systems management (autonomic computing, data center automation).

Roots of Cloud
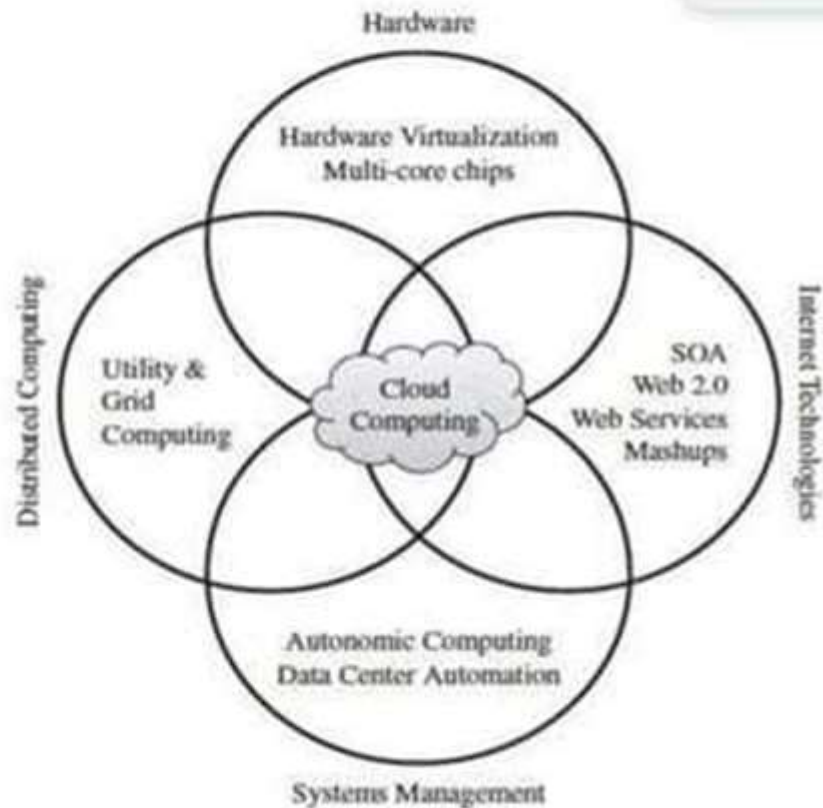
Roots of Cloud

Evolution Path

- From Mainframes to Clouds
- SOA, Web Services, Web 2.0, and Mashups
- Grid Computing
- Utility Computing
- Hardware Virtualization
- Autonomic Computing

Roots of Cloud

From Mainframes to Clouds

- We are currently experiencing a switch in the IT world, from in-house generated computing power into utility-supplied computing resources delivered over the Internet as Web services.

- Several technologies have in some way aimed at turning the utility computing concept into reality.

- In the 1970s, companies who offered common data processing tasks, such as payroll automation, operated time-shared mainframes as utilities, which could serve dozens of applications and often operated close to 100% of their capacity.

Roots of Cloud

- For instance, from 1950 to 1970, a handful of mainframes, including the IBM 360 and CDC 6400, were built to satisfy the demands of large businesses and government organizations.

- In fact, mainframes had to operate at very high utilization rates simply because they were very expensive and costs should be justified by efficient usage.

Roots of Cloud

- The mainframe era collapsed with the advent of fast and inexpensive microprocessors and IT data centers moved to collections of commodity servers.

- From 1960 to 1980, lower-cost minicomputers such as the DEC PDP 11 and VAX Series became popular among small businesses and on college campuses.

- From 1970 to 1990, we saw widespread use of personal computers built with VLSI microprocessors

Roots of Cloud

Distributed Computing (Cluster, Grid)

- A distributed system is a collection of independent computers that appears to its users as a single coherent system.

- A distributed computer system consists of multiple software components that are on multiple computers, but run as a single system. The computers that are in a distributed system can be physically close together and connected by a local network, or they can be geographically distant and connected by a wide area network.

- A distributed system can consist of any number of possible configurations, such as mainframes, personal computers, workstations, minicomputers, and so on. The goal of distributed computing is to make such a network work as a single computer.

Cluster

- Cluster computing or High-Performance computing frameworks is a form of computing in which bunch of computers (often called nodes) that are connected through a LAN (local area network) so that, they behave like a single machine.

- Cluster computing is a form of computing in which a group of computers are linked together so that they can act like a single computer.

- It is the technique of linking two or more computers into a network (usually through a local area network) in order to take advantage of the parallel processing power of those computers.

Grid Computing

- Grid computing appeared in the early 1990s as an evolution of cluster computing. In an analogy to the power grid, grid computing proposed a new approach to access large computational power, huge storage facilities, and a variety of services.

- Grid computing is a group of computers physically connected (over a network or with Internet) to perform a dedicated tasks together, such as analysing e-commerce data and solve a complex problem. Grids are a form of "super virtual computer" that solve a particular application.

- Grids initially developed as aggregations of geographically dispersed clusters by means of Internet connections.