Research Paper   **Information Science**

Cloud Computing Based Green Information Infrastructure: The Future of Eco Friendly Information Science Practice

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ABSTRACT

Cloud Computing [CC] is an emerging area in the field of Information Science and Technology [IST]. This is the Computing practice in which software, hardware, application, Information Technology Infrastructure and other resources utilized with the help of virtualized and Networked Services. Cloud Computing is the design and development of computing and systems. It improves the hassle free deployment of computing and systems. It improves the hassle free deployment of database and software. It also provides opportunity to share IT Infrastructure centralized way to its client. Like Cloud Computing; Green Computing is a kind of approach or model or design. It is talks about Green disposal, deployment, and optimization, virtualization of computing and technological devices. Use of Green Computing in Information Systems called as Green Information Systems or Green Information Infrastructure. This paper is talks about Cloud Computing and Green Computing and its several facets; paper also highlights relationship of Cloud Computing and Green Computing for healthy Eco Friendly Information Systems building, briefly.

Keywords : Cloud Computing, Green Computing, Information Science, Green Computing, Green Information Infrastructure, Virtualization, Information Science
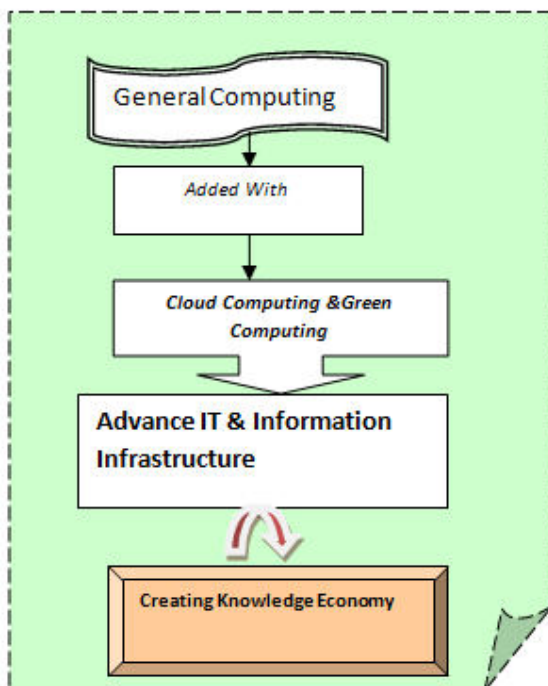

Fig: 1: Role of Green & Cloud Computing for society building

Introduction:-
Cloud Computing has brought in a new epoch in computing and technologies; especially for business houses, Governmental enterprises, Educational Sector, Medical Sector and so on. Computing means designing and building hardware and software system for Information Processing, structuring and managing and so on.; so that, in simple manner Cloud Computing is actually designing and building of hardware, software and software systems; more over the total IT infrastructure in the sense of Virtualization. We can see many benefits from Cloud Computing for technology as well as governance. In other hand Green Computing is the designing of effective, efficient and energy consumed computing. In Green Computing use of effective algorithm and strategies are needed for energy consumed and less carbon emission play an important role. Cloud Computing with solid nature may also serve and fulfillment of Green Computing instead of so many machine and devices of decentralized nature.

Objective:-
Some of the aim listed bellow for which we conduct this research work including:-

- To know basic about Cloud Computing and Virtualization.
- To know the role and importance of Cloud Computing.
- To learn the emerging area of Cloud Computing and Green Computing.
- To learn the contemporary challenges of Cloud Computing emphasizing developing countries.
- To learn the main problems of Cloud Computing and there probable solution.

Cloud Computing : Fundamentals:-
Cloud Computing is actually type of electronic consortium in which virtualization play an important role. It makes centralized software, hardware, information systems, application, utilities sharing among the dedicated stakeholders through the dedicated Network and Systems. Cloud Computing needs so many arrangement and requirement like healthy and sophisticated broadband connection, centralized service provider, security and privacy, proper and meaningful policy and so on. Cloud Computing service when offered by ay centralized agency and any one avail such services; then the Cloud Computing is called Public Cloud. However, if services are arranged in house of an organization and uses only for the connected organization or sister organization; that is called Private Cloud. Combination of Public Cloud Computing and

Private Cloud Computing is called Hybrid Cloud.

Green Computing:-
Green Computing is actually a computing practice with environment friendly approach; here better algorithm helps to save energy and power management; thus during designing and preparation of computing devices it is try to build with Green Computing devices it is try to build with Green Computing agenda. It helps to make use of hexavalent and chromium free IT infrastructure and chromium free IT infrastructure and thus is keep eco friendly atmosphere. Green Computing helps in recycling process and helps to solve the main problems of unused computers. Thus by use of virtualization; means Cloud Computing uses, material cycling, Tele Comminuting and conferencing and power management is possible to builds healthy Green Computing practice.
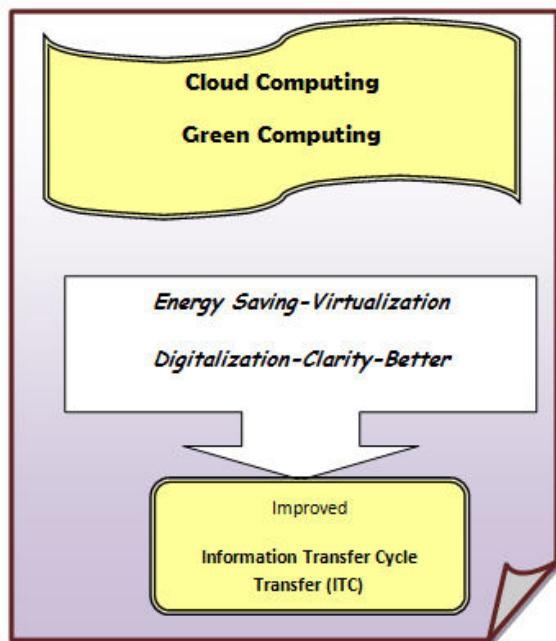
Cloud Computing

Green Computing

Energy Saving-Virtualization

Digitalization-Clarity-Better

Improved

Information Transfer Cycle

Transfer (ITC)

Fig:2:-Improved Information & IT Infrastructure

Cloud Information Systems:-
Information is one of the important facets in today's age and Information Science is the main knowledge domain which deals with Information and similar facet. Application of Cloud Computing in Information Science may bring Cloud Information Infrastructure or Cloud Information Systems. Cloud based Information Systems or application of Cloud Computing in Information Science brings following things:-

- Through Cloud Computing, it is possible to build healthy information collection policy;
- This models gives chances of Information Storage in their storage device;
- Cloud Computing plays an important role for Digital Library and Digital Archives building; which including collection, selection, organization as well as dissemination in Cloud environment;
- Building Social Networking much more sophisticated and building Web 2.0 and Web 3.0; Cloud Computing is useful;
- Designing and creation of E-Journal consortium and Digital repository; Cloud Computing is possible to utilize;
- Sharing Information among the Information Centre or Information Centre with Information Networks or Information Systems; Cloud Computing may be utilized;
- Providing online CAS and Document Delivery Systems are possible with Cloud Information Systems;
- Building subject based or mission oriented Information Systems and Networks; Cloud Information System plays

an important role.

Cloud Based Green Computing:-
Cloud Computing is actually results of several computing models and methods. These are service management, virtualization including consolidation, robust security, resilience, better energy efficiency and other benefit. Could Computing is a centralized computing service which provides software, hardware and application and packages from the remote place and so many clients may avail the service benefit from any where. Thus Cloud Computing promotes virtualization and use of some computing machinery rather than use of separate computing systems for each and every organization or computing. Thus, it indirectly saves energy of so many computing machines utilization rather than use of so many devices of each organization and institutions. Load balancing is another technology of Cloud Computing which also promotes Green Computing practice. Virtually, Load Balancing is one of the main technique which is need to distribute the dynamic workload access multiple note to ensure that no single node is overloaded. Thus, this way also by managing energy and power management Cloud Computing promoting Green Computing and Green Information Centre.

Information Centre is the main item or component of Information Service. Information Centre is mainly deals with so many information activities which including information processing and management and dissemination; thus Information Centre and Information Service today mainly depends on Computing machinery as well as other Computing or Technological devices. So running so many computers in the Information Centre or Information Unit and Communication with other centre or Information Networks requires use of so many things such as Database, sever, networking and so many device's utilization. Thus ultimately these may not required by adopting Cloud Computing Model. Cloud Computing will helps in Energy Management and Power Management; thus it will promote Green Computing practice.

Use of computers ad other technologies such as Database, web systems, networking systems and common computing devices harmful for the society due to their carbon emission; but centralization and virtualization may help to keep Eco Friendly Environment as some machine act as node and run so many organization or Information Unit or Information Centre. Thu, the future Information Science practice will be Green Information Science adopted where design and development of eco friendly Information Unit, Information Centre, Information Networks, Information Kiosks will be there.

Apart from Virtualization CC is also helps in healthy Green Computing practice by the healthy Load Balancing Systems. Load Balancing is the way to secure balance and require utilization of IT devices and machines instead of centralized pressure of any or some of the machine or computers. It prevents and ensures that every computing resources is distributed equally and thus it will reduce the energy consumption and carbon footprints to achieve Green Computing Information Field utilization.

Findings:-
- Still people are not aware of the core benefits of cloud computing [19].
- For cloud computing we need consistent and speedy internet connection.
- Information Security is an important issue for advance cloud computing.
- In the country like India, still there is not any strong cloud computing related policy.
- For cloud computing most of the companies need to depend on a third-party ,i.e., computing service provider, and the fact is that many developing countries are not interested in using cloud computing.
- Hassle-free deployment of hardware, software, IT Infrastructure in many cases not possible.
- Green computing needs awareness among the stake-

holder of computing ranging from manufacturer, user to organization.

• Green computing requires a standardized policy from the government of each country.

• Many eco-friendly or green initiative supporting organizations still does not include green computing in their agenda, due to less awareness of the user.

• Green Computing shows the way of material reuse, but many materials cannot reused. We have to think about these used tools[22].
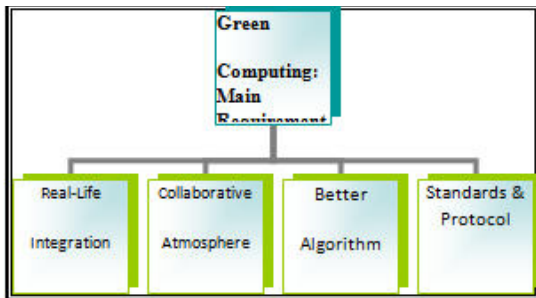

Fig: 3: the fundamental requirement of Green Computing

Suggestion:-

• It is essential that, the organization and Information Foundation should choose or start Cloud Computing practice it will helps to reduce own IT devices and so many extra cost such as running machines, power management and maintenance;

• Essential to build healthy and sophisticated mode development which will ensure Green Information Systems building;

• Keep R/D for developing Carbon emission Less product;

• Need to organize training programme and educational programme and Cloud Computing and Green Computing.

Conclusion:-

Cloud Computing is a kind of Computing Architecture which helps in virtualization of IT infrastructure which includes hardware, software, application packages and other Computer equipment and facet. Cloud Computing is actually run with out comprising the privacy and security of their data. Companies and Information Centers need to use Green Computing and adopt technological practice. Government Financial support is a must to promote Green initiatives. Information Science practice includes collection, selection, organization, management and dissemination in Cloud and Green Computing will be the future of Information Systems and Information Infrastructure.

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