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REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

SCOPE FOR FURTHER RESEARCH

ACKNOWLEDGMENTS

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APPENDIX/ANNEXURE

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BOOKS

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

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CONFERENCE PAPERS

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UNPUBLISHED DISSERTATIONS AND THESES

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, KurukshetraUniversity, Kurukshetra.

ONLINE RESOURCES

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

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- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

GRID COMPUTING: INTRODUCTION AND APPLICATION

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ABSTRACT

Computational grids are a promising platform for solving large-scale intensive problems. [4]Because grid based computational infrastructure involves a variety of geographically distributed computational resources, storage systems, data sources and databases and presents them as a unified integrated resource, the mutual relationship needs to be established and removed in a dynamic manner in grid environments. [1]Despite the wide adoption by the scientific community, grid technologies have not been given the appropriate attention by enterprises. This is merely due to the lack of enough studying and defining security requirements of grid computing systems. More specifically, access control in grid systems has been addressed with the same models for collaborative systems based on distributed computing across multiple administrative domains. However, existing solutions are not based on a foundation for a holistic approach in grid access control. This paper aims to provide an adequate approach in this direction. Additionally, a comparative review of current access control models is provided in the context of our proposed four-layer conceptual grid categorization.

KEYWORDS

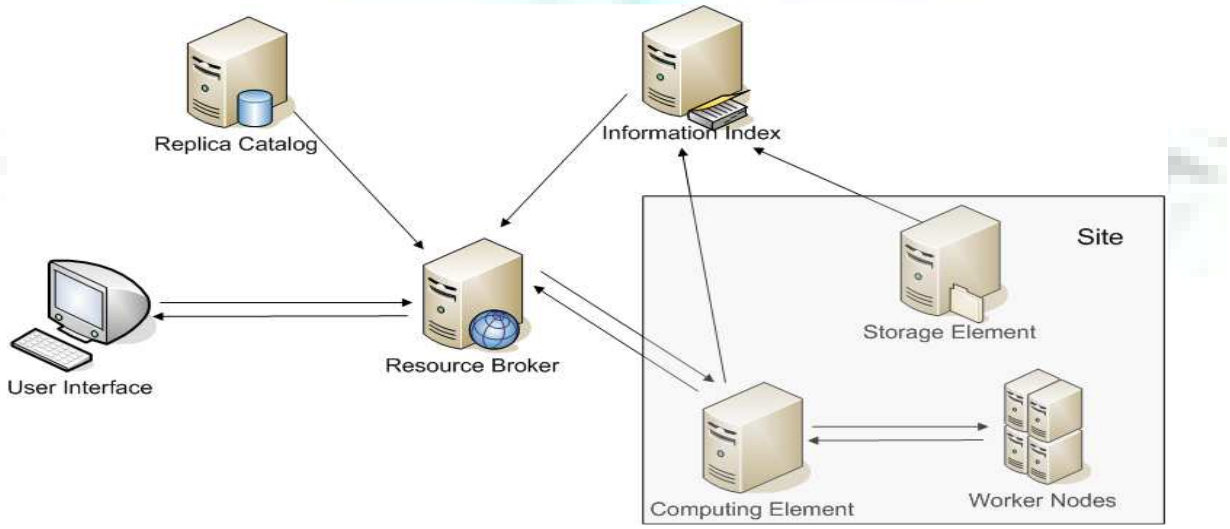
Grid Access to Secondary Storage (GASS), Grid Resource Allocation Manager (GRAM), Grid Security Infrastructure (GSI), Monitoring and Discovery Service (MDS).

INTRODUCTION

rid computing [2] combines computers from multiple administrative domains to reach a common goal. The grid can be thought of as a distributed system with non-interactive workloads that involve a large number of files. Grids tend to be more loosely coupled, heterogeneous, and geographically dispersed. Although a single grid can be dedicated to a particular application, commonly a grid is used for a variety of purposes. Grid computing finds its application in go fight against malaria, computing for clean water, discovering dengue drugs, help fight childhood cancer, help conquer cancer, fight aids nutritious rice for the world.

EUINDIAGRID

[6]Started on 1st of october 2006 and sponsored by EU, aims at enabling the interconnection between the most relevant European Grid infrastructure, EGEE, and the Indian Grid infrastructure, GARUDA INDIA.



USER INTERFACE

This machine runs the User Interface (UI) software which allows the end-user to interact with the grid system. This is typically the machine the end-user uses to submit jobs to the grid system and retrieve output of the completed jobs. The interface is also used to monitor the execution of jobs after submission.

COMPUTING ELEMENT

A Computing Element (CE) can be described as a gatekeeper machine with a number of worker nodes, A gatekeeper is the front-end of a computing element. It handles the interaction with the rest of the grid environment accepting jobs, dispatching them for execution and returning the output. An actual CE should consist of a gatekeeper machine and a number of worker nodes however; in some sites, you will find only a gatekeeper machine acting also as worker node.
The gatekeeper hides the details of WNs from the end-user; however, these are the nodes on which user computations are actually performed.

STORAGE ELEMENT

The Storage Element (SE) provides access to large storage spaces. This element hides the details of the backend storage systems.

SHARED SERVICES

The resources within a grid site and the total number of sites change over time as new resources are added to the grid or are temporarily withdrawn for reasons such as maintenance.
There are also several nodes which provide shared services and are not site-specific but shared by various subgroups of the grid users. Resource Broker, File Catalog are some of the common services.

RESOURCE BROKER

The Resource Broker (RB) accepts jobs from users (via the User Interface), match the jobs' requirements to the available resources at the various sites within the grid, and dispatch them.

THE LOGICAL FILENAME CATALOG

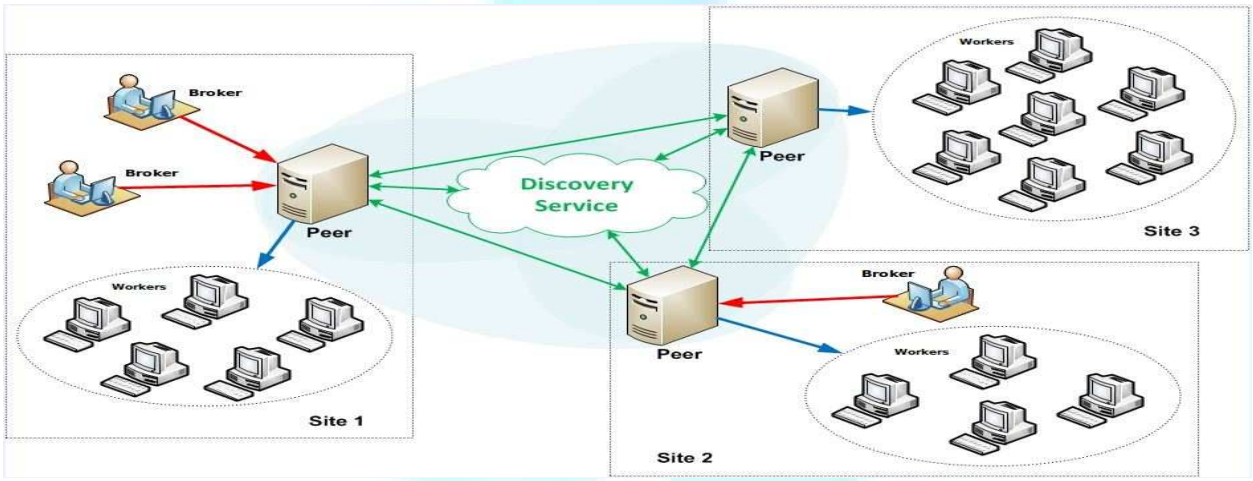
The Logical Filename Catalog (LFC) maintains a database of the locations of master copies of files and the locations of any replicas for a Virtual Organization. They do not hold the actual data only the database describing them (metadata). These machines are used by users and grid services to locate appropriate copies of data files.

THE INFORMATION SYSTEM

Infrastructure used to propagate local information to the whole grid.

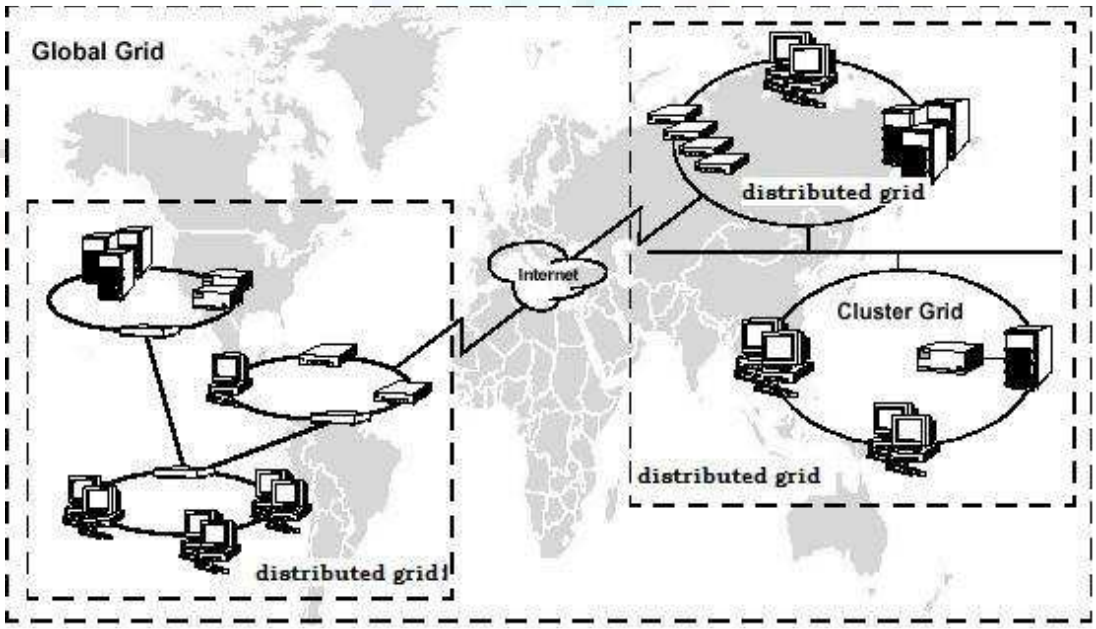
THE GRID NETWORK

The Grid network has three main components: the Grid workers (individual computers that run grid jobs), the peer (responsible for managing local workers, interacting with the other peers to donate computer resources and use remote resources), and the broker (the Grid software client for users). Peers use a 'Discovery Service' to find each other in the P2P network.



DIFFERENCE BETWEEN DISTRIBUTED GRID AND CLOUD COMPUTING

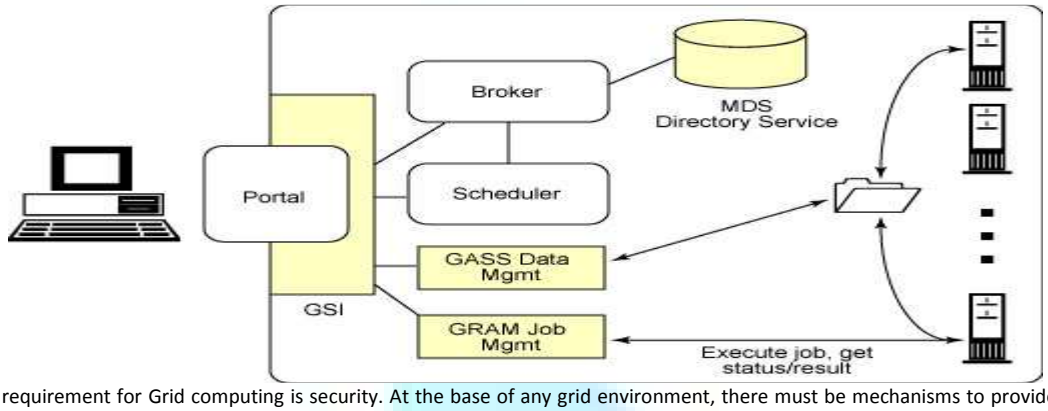
Distributed Computing normally refers to managing the hundreds or thousands of computer systems which individually are more limited in their memory and processing power. On the other hand, grid computing has some extra characteristics. It is concerned to efficient utilization of a pool of heterogeneous systems with optimal workload management utilizing an enterprise's entire computational resources (servers, networks, storage, and information). There is no limitation of users, departments or originations in grid computing.



NEED BEHIND GRID COMPUTING

- Low Cost
- Resource sharing on a global scale: Sharing is the very essence of grid computing.
- Secure access: There must be a high level of trust between resource providers and users, who often don't know each other. Sharing resources is fundamentally in conflict with the conservative security policies being applied at individual computer centers and on individual PCs. So getting grid security right is crucial.
- Resource use : Demand for grid resources should be balanced, so that computers everywhere are used more efficiently.
- The death of distance: For grids to work, we need to ensure that distance makes no difference to efficient access to computer resources.

HOW IT WORKS



Security [5]A major requirement for Grid computing is security. At the base of any grid environment, there must be mechanisms to provide security, including authentication, authorization, data encryption, and so on

Portal A user log in to the grid through a portal, the portal acts as a user interface, through which user can log in and use the grid. After identification verification of the user he/she can submit its task to the task manager.

Scheduler Next the scheduler is responsible for scheduling submitted tasks on the resources identified by resource broker, which sets rules and priorities for scheduling task on a grid infrastructure.

Job manager Job manager supplies the user task, data to the selected resources and after execution of the task it returns the computed result to the user.

Monitoring and Discovery Service (MDS). This service provides information about the available resources within the grid and their status. A broker service could be developed that utilizes MDS.

APPLICATIONS

[3]Perhaps the most ambitious is Oxford University's Centre for Computational Drug Discovery's project that utilizes more than one million PCs to look for a cancer cure. People around the world donate a few CPU cycles from their PCs through "screensaver time." The project eventually will analyze 3.5 billion molecules for cancer fighting potential.

CASE STUDY

world community grid.
technology solving problems

Help Defeat Cancer Project

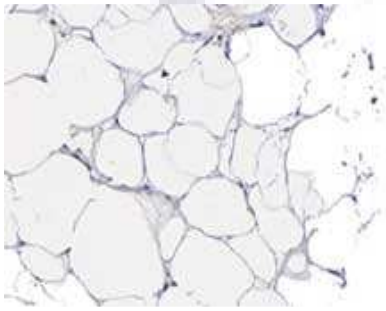
Dr. David Foran, Principal Investigator

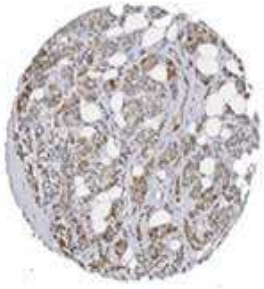
IBM's World Community Grid will enable the most computationally expensive components of the software to run at optimal speed, By harnessing the collective computational power of World Community Grid, researchers will be able to analyze a larger set of cancer tissue specimens and conduct experiments using a much broader ensemble of biomarkers and stains than is possible using traditional computer resources. To date, only a fraction of the known biomarkers have been examined. The long-term goal is to create a library of biomarkers and their expression patterns so that, in the future, physicians can consult the library to help them in rendering diagnoses and providing the most effective treatment for patients with cancer. In the absence of World Community Grid, TMA's are processed in individual or small batches. Using World Community Grid, analysis can be carried out for hundreds of arrays in parallel, allowing multiple experiments to be conducted simultaneously.

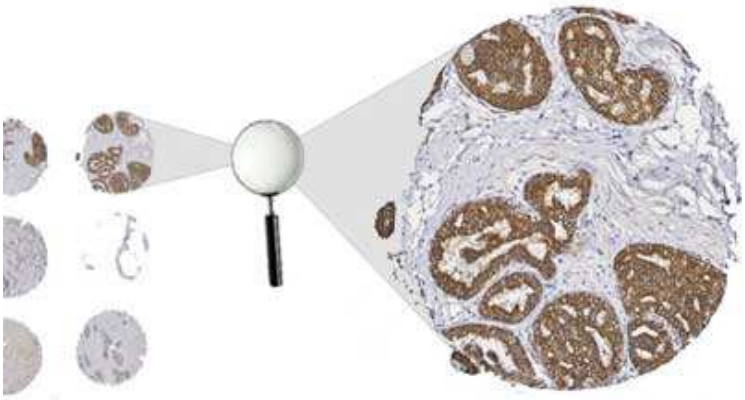
TISSUE MICROARRAYS

A relatively new investigative tool called tissue microarrays (TMA) holds great promise in helping doctors in selecting proper treatment strategies and providing accurate prognosis for cancer patients. Although TMA is not currently being used by doctors to render primary diagnoses, it does make it possible for researchers to determine the specific type and stage of cancer present and systematically investigate which therapies or combinations of treatments are most likely to be effective for each kind of cancer based upon the known outcomes of individual patients. Specific courses of treatment can then be prescribed for actual cancer patients based on whether a specific set of antigens is present or not.

There is a special type of protein(antigen) that cause cancer when a antibody(usually a protein)is treated with its corresponding antigen the antigen protein get stained and the cancer in the cell is detected which further tells the damage caused by the antigen to the cell. After cancer cell presence is known we treat the antigen with the suitable protein.







Much of the difficulty in rendering consistent evaluation of expression patterns in cancer tissue microarrays arises from subjective impressions of observers. It has been shown that when characterizations are based upon computer-aided analysis, objectivity, reproducibility and sensitivity improve considerably.

WHAT IS TISSUE MICROARRAY TECHNOLOGY?

Tissue Microarray (TMA) technology is a relatively new investigative tool for harvesting small tissues sections and arranging them on a on a single microscope glass slide in a grid-like manner. The arrays are subsequently treated with antibodies

WHAT DOES A TISSUE MICROARRAY SLIDE LOOK LIKE?

Below is a photo of an actual Tissue Microarray slide. Each of the colored dots is a tissue slice which was an image for a work unit. That image corresponds to the large circle on the left side.

How long does the scanner take to scan in a whole slide?

Usually under an hour, but it depends on how many slices are on the specimen.

What is the average number of tissue slices per slide?

Most slides have 300-40. However some of them only have around 100.

FUTURE SCOPE

- € GO FIGHT AGAINST MALARIA
- € COMPUTING FOR CLEAN WATER
- € DISCOVERING DENGUE DRUGS
- € HELP FIGHT CHILDHOOD CANCER
- € HELP CONQUER CANCER
- € FIGHT AIDS
- € NUTRITIOUS RICE FOR THE WORLD

CONCLUSION

Though till now distributed computing has been much in use for various streams including business, research purposes. Grid computing which exploits the collective computational power of global computers more than that of distributed computing and can solve large problem sizes that require ample space and computations. Security measures used in distributed system can easily work with grid computing so it can be applied for different areas.

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8. http://www.worldcommunitygrid.org/

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Thanking you profoundly

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