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A PATH FOR HORIZING YOUR INNOVATIVE WORK

INTERNET AND GRID COMPUTING

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Abstract

This paper provide internet and grid computing overviews which focus on the fundamental principal and concept of distributed computation which underlie internet & grid system , both software and applications . This paper takes broad definition of internet and grid computing ranging of high performance of systems the focus is on the identification and analysis of internet and grid computing .It address the motivation and the driving force on the grid ,tracks the evolution of the grid ,discuss key issue of the grid .

1. INTRODUCTION

The growth of the Internet, along with the availability of powerful computers and high-speed networks as low-cost commodity components, is changing the way scientists and an engineer do computing, and is also changing how society in general manages information and information services. These new technologies have enabled the clustering of a wide variety of geographically distributed resources, such as supercomputers, storage systems, data sources, instruments, and special devices and services, which can then be used as a unified resource. Furthermore, they have enabled seamless access to and interaction among these distributed resources, services, applications, and data. The new paradigm that has evolved is popularly termed as “Grid computing”. Grid computing and the utilization of the global Grid infrastructure have presented significant challenges at all levels including conceptual and implementation models, application formulation and development, Programming systems and services resource management, networking and security and

have led to the development of global research community.

Computer and human and communication systems are gradually synergistically coupled to create system for sharing resource of all types with a goals including analyzing and solving problems and implementing sharing information sharing and collaborations are instance of each such systems.

2. MOTIVATION AND OVERVIEW

The Grid vision has been described as a world in which computational power (resources, services, data) is as readily available as electrical power and other utilities, in which computational services make this power available to users with differing levels of expertise in diverse areas, and in which these services can interact to perform specified tasks efficiently and securely with minimal human intervention.

Driven by revolutions in science and business and fueled by exponential advances in computing, communication, and storage technologies, Grid computing is

rapidly emerging as the dominant paradigm for wide area distributed computing

Its goal is to provide a service-oriented infrastructure that leverages standardized protocols and services to enable pervasive access to, and coordinated sharing of geographically distributed hardware, software, and information resources

This seminar takes a very broad definition of what constitutes an “Internet or Grid “ system ,collection of resources which is organized together through communication network to pursue some goals is taken to constitute an “Internet and Grid “ system. The system analyzed and studied in this seminar range from Grid infrastructure to composition system for web services, to distributed file systems and peer to peer network file sharing systems. All of this system based on upon fundamental principal and distributed computing. These fundamental principles constrain the design and development of these systems and understood the Grid system research community



Figure1: Structure of grid computing

To developers and practitioners using these new tools, it soon became obvious that computer networks would allow groups of machines to be used together by one parallel code. NOWs (Network of Workstations) were in regular use for parallel computation. Besides just homogeneous sets of machines, it was also possible to use heterogeneous sets of machines. Indeed, networks had already given rise to the notion of distributed computing. Using whatever programming means available, work was being done on fundamental concepts such as algorithms for consensus, synchronization, and distributed termination detection. Systems such as the Distributed Computing Environment (DCE) were built to facilitate the use of groups of machines.

3. DISTRIBUTED SYSTEM

The focus issues are system definition and system control including fault tolerance and programming model for creating applications of the Internet or Grid distributed system

3.1 Definition of Distributed System

A distributed system is a collection of logically and physically disjoint entities which have established process of making collective decisions

The fundamental requirements for implementing a distributed system are a capability for creation of system and capability for control of the system through decision processes. The algorithms which can be used in the decision process depend upon the properties of the computer and communication and data resources which comprise the distributed system and in particular upon the assumed reliability of the computer and communication resources.

Grid systems for instantiating distributed systems called virtual organizations implicitly assume some reliability

properties for the resources they assemble into virtual organization.

3.2 Decision Algorithm

Decision can be abstractly formulated as

If (Decision (Current State, Request))

Then

State = Transition (Current State, Request);

Decision is the specification of execution of a change of state. Decision is function which evaluates to true if request for state change to be accepted. Transition is function which transforms the current state to new state

4. CENTRAL AND DISTRIBUTED CONTROL

Ideally the state of the system to which Decision is applied is complete and accurate and Decision is also a complete function. This is straight forward in a single site system where the system state can be maintained in a consistent state in a local data structure and Decision applied to this data structure. Distributed control implies that Decision is partitioned among the entities composing the system and coupled by communication protocols. Central control of a distributed system can,

however, be implemented by gathering the system state at a single site, executing Decision at this site and propagating the decision to the other sites. In fact, this is what is normally done in most Grid systems. Execution of the Transition function is, however, intrinsically distributed. This leads to intrinsic uncertainty in the state since a resource can fail during the time span of making the decision and executing the state transition. Internet and grid systems should make provision for dealing with this uncertainty.

Distributed control implies that each entity makes decisions following a commonly agreed upon process and based upon agreed upon common knowledge. An important aspect of a distributed system which utilizes distributed control is specification of the commonly agreed upon processes and the common knowledge upon which distributed control is based. These aspects should be precisely specified for Grid systems which utilize distributed control.

5. PROGRAMMING MODEL

Grid software systems are commonly presented as first creating a transient "virtual organization" or virtual resource configuration, creating an application to execute on the virtual resource configuration and then executing the application. Therefore most Grid software systems implicitly or explicitly incorporate a programming model. The programming model determines the properties of the application. It is, however, not always the case that the papers describing the systems explicitly defined or specified a programming model. Additionally programming models incorporate assumptions concerning the environment in which the programs will execute. These assumptions are, as previously noted, not always explicitly specified for Grid systems.

6. DIFFERENCE BETWEEN INTERNET AND GRID

The internet is the networking infrastructure which connects millions of computer world wide and this will come from interconnected networks. If both connected to the internet then communication is easily in between

computers one another and that will be communicate using protocol and that protocol is format for transmitting data the common protocol used in it are TCP /IP

The Grid is service built on the top of the internet as web but the grid goes one step further , Grid computing will able to share computing power and resources like disk storage ,database and software applications.

CONCLUSION

This paper give the information about the grid computing how is it work at the top of Internet in the future , distributed control and decision algorithm are the concept that shows the area including the internet and grid make the relation of the internet and grid computing .

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