Global Journal of Computational Intelligence Research.
ISSN 2249-0000 Volume 1, Number 1 (2011), pp. 71-74

http://www.ripublication.com/gjcir.htm

Parallel Processing and Cloud Computing

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Abstract

Parallel processing is a way of solving a problem in a tremendous &in a way full manner using serial computing which attempts to emulate what has always been the state of affair in the natural world. In real world all practical phenomena are working in a simultaneously mode. Parallel computing knowledge based on the high end of computing. Areas of parallel computing are to difficult scientific & engineering problems found in the real world. Cloud computing concentrate their areas on flexibility, scalability, wanting to run economically and independent in nature.

Keywords: Serial computing, cloud computing, parallel processing.

Introduction

Parallel computing has a characteristic feature of highly coupled that is a form of distributed computing may be seen as a loosely coupled form of parallel computing. Parallel computer is the continuous use of multiple resources to solve a computational problem. In parallel processing problems can be broken in to modules that can be solved simultaneously. In summary we says that the universe is parallel.

Uses of Parallel Computing

Parallel computing discussed with their "the high end of computing" features and mostly uses in scientific and engineering problems that belong to the real world. Some example:

1. Atmosphere, earth, environment.
2. Physics-applied, nuclear, particle, condensed matter, high pressure, fusion,

photonics
3. Biosciences, Biotechnology, Genetics
4. Chemistry, molecular sciences.
5. Geology, seismology
6. Mechanical engineering

Why use Parallel Computing?

1. We have a number of resources for performing a task.
2. In parallel computing we are doing a task using multiple computing resources for achieving a global collaboration network where people searching a task on google & perform their work experience.
3. Parallel computing takes the experience of non local resources also.
4. Solve larger problem with minimum time.
5. In parallel computing we are saving our resources & components.

Areas of Parallel Computing

The percentage of parallel computing in different areas is given below:

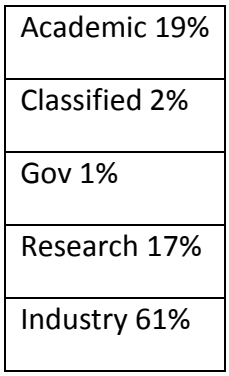

Figure 1: Areas of parallel computing.

Now a days parallel computing is used in aerospace, automotive, biology, consulting database, defence, energy environment, finance etc.

Future

We have seen that serial computing shared resources, multiprocessor computer architecture, WAN, WWW clearly shows that parallel computing is the future of our industry & research market.

Classification of Parallel Computers

Flymn's classical taxonomy

In this classification we have multiprocessor computers and they are categorized into parts:

1. Instruction.
2. Data.

Their parts have two possible states:

1 Single
2 Multiple

The Flymn classifies four possible disciples:

1 SISD (Single Instruction, Multiple Data)
2 SIMD (Single Instruction, Multiple Data)
3 MISD (Multiple Instruction, Single Data)
4 MIMD (Multiple Instructions, Multiple Data)

S I S D Single Instruction, Single Data	S I M D Single Instruction, Multiple Data
M I S D Multiple Instruction, Single Data	M I M D Multiple Instruction, Multiple Data

Figure 2: Types of Instruction.

Single Instruction, Multiple Data (SIMD)

In this as the name identifies they are non-parallel computers. In SISD single data and single instruction is being processed. This is the oldest type of classification. Examples of SISD:

Older generation mainframe, minicomputer & workstation.

Single Instruction, Multiple Data (SIMD)

This is the type of parallel computer, in this processing is done on single on single instruction on multiple data. In this we have a need of high degree of regularity. Two verities of SIMD arrays processor, vector pipelines.

Examples of SISD

1. Processor arrays: Connection machine CM-2, MP-1 & MP-2, ILLIACIV
2. Vector Pipelines: IBM 9000, CrayX-MP, Y-MP & C90, Fujit SU VP, Hitachi 5820.

Multiple Instructions, Single Data (MISD)

Processing will be done on multiple instructions on single data. In this data is individually processed. They are mostly used with filters cryptography algorithms.

Multiple Instruction, Multiple Data (MIMD)

In MIMD multiple instruction are processed on multiple data. It is commonly used in parallel computers; execution may be synchronized or asynchronized.

Examples of MIMD
Super Computers.

Cloud Computing

Figure 3: Cloud Computing.

Cloud Computing is used for storing the information on the web. The term cloud represents the internet Gmail and Hotmail are the web based e mail services they deliver a cloud computing services. Flickr is one of the great example of cloud computing. It is used for sharing photos & images. Cloud computing may be new concept for businesses & consumers. There are only four types of cloud computing namely-Public cloud, Private cloud, Hybrid cloud & community cloud.

Conclusion

This paper examines that parallel computing & cloud computing system satisfy the multiple user marks on a single workstations and maximize the utilization of resources. The researchers & industrialist takes more advantage of these computing systems.

References

[1] www.exforsys.com
[2] http://en.wikipedia.org/wiki/cloud_computing.
[3] http://www.microsoft.com/windowsazure/
[4] http://www.amazon.com/
[5] www.google.com
[6] www.intel.com
[7] www.ibm.com