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Multithreaded Servers for Sleep Learning and Refinement using allocation of new space for Storage

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Abstract: *In this thesis we have integrated the idea of sleep memory within the server memory. The server is a system which can receive multiple traffic and can be overloaded sometimes resulting in crashing of the system and affecting the whole network. We have implemented the idea of sleep learning to resolve the issue, in which the overloaded system can be brought to a sleep stage analogous to a human sleep stage, during which the server will be refined by using certain algorithms and functions to enhance the performance of the server and boost up its functioning, even if the server is overloaded with traffic and after resuming or wake up stage, system is refined so that we can allocate new space for storage. We have overcome the overhead and hurdle of memory overload to a good extent during servers' sleep stage.*

Keywords: *Multithreaded servers, sleep learning, sleep stage, clients, server, memory consumption, refinement, kill.*

1. INTRODUCTION

We know that our Brain cannot keep working continuously; it has some threshold value beyond which it cannot work. So a person needs to take some rest to make the brain rejuvenate and boost up its functioning after having a proper rest for at least 7-8 hours of sleep. During sleep the brain is active but is largely isolated from sensory neurons. It is here proposed that during sleep the mind further subdivides into isolated neuron groups. This division decomposes imprinted experience from the waking period into pieces which then form the building blocks for analyzing and responding to future circumstance. The approach is based on the perspective that the central purpose of the brain is not to remember experiences, but rather to obtain from them knowledge that will serve in future circumstances. Now we relate this neural system with artificial intelligence system. We know CPU is a brain of computer where information is processed. However it can also act as brain and can remain active but not shut down.

Nowadays due to large traffic over network and D-DOS Attacks the server gets busy and shut-off that it needs to be restarted. If we apply this on neural science we see that brain when works continuously and it gets tired, obviously brain can't be shut down then it needs sleep but it still works in sleep. While the longer term effects of sleep deprivation directly affect the architecture of the brain, the first manifestation of sleep deprivation should be overload failure. In a subdivided architecture, overload occurs in parts of the network rather than the network as a whole. Key to understanding the phenomenon of overload failure is dynamic locking described earlier an inability to shift from an existing state to a properly functioning state when stimulus changes.

Every Computer system is having a sleeping state because any intelligent system can't work continuously. Therefore the computer when is ideal is automatically set to sleep state. The operating system need not be rebooted to return the computer to the working state. The Applies with the server, But server needs the continuous

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working of the system. Servers work twenty four hours without sleep. However we can't give server the sleep mode because if we give the sleep mode to server, the system can't provide the service to the user sitting on network. Sometimes server gets too busy that it faces memory overloaded and server cant response. In that state we need separate memory to the server which works in the sleeping or overloaded mode of server. This memory shall be capable of waking up the server and de-allocate all the memory that is overloaded. In a short term the extra sleeping memory which is managing the high incoming traffic is indirectly awakening the server to respond to come back to the state and de-allocate the busy memory and refresh it.

Sleeping State Processor clock is off and bus clocks are stopped. When server is flooded with DDOS attack or high traffic over network it becomes exhausted unlike human brain. As a result it starts dropping the packets and if further traffic is uncontrollable the server get overheated and shut-off unlike human brain. The only solution to overcome this problem is requiring a sleep stage and then continuing the remaining work. Now this technique is applied in IT expert system to allocate the sleep memory to the server where server can also rest and work if it gets overloaded by traffic.

2. REVIEW OF LITERATURE

Koichiro Yamauchi, Member, IEEE, and Jiro Hayami [1]. This paper enhances on the importance of sleep to the human brain. Brain cannot learn and memorize new things we it can't get proper sleep. This shows that sleep is very essential to our learning and memorizing things firstly. However sleep is a human natural phenomenon it can too be implemented in artificial learning system.

Hobson JA [2]

In this paper the simulation of thalamocortical loops were performed. This paper is based on neural network. The simulations were

performed on various frequencies and those frequencies were observed and then can be applied to brain as well.). This result may be extended to the brain, suggesting that 40-60 Hz oscillations in the brain activate memory representations and thus maintain memory. The results also indicate that further studies to the exact mechanism of self-repair have to be done. The paper analysis gives the idea of working neural networks and how it can be implemented on expert artificial intelligence system.

3. PROPOSED SYSTEM

Multithread server for receiving multiple client traffic then refresh after certain memory usage by allocating new space.

- 1) First we create the server with the help of multithreading which receive the request from multiple clients.
- 2) After receiving the successful ping by various clients they will send some message or send files to the server.
- 3) While the traffic will come on the server from every client it will stored in the database and simultaneously check the memory usage.
- 4) We apply some check over that to receive the request at certain usage.
- 5) If that usage has been reached by server then server will set in sleep mode and we refresh the server by allocating new space at server side or delete some requested message.

a. Software Requirement

Operating system	window 7-32 bits
Language	java swing and java socket programming
Packages	Netbeans
Database	mysql

b. Hardware Requirement

Ram	1GB
Processor	core2 Duo

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Clients

The clients are the Command prompts that are connected via Java socket programming, where the client will send data packets via cmd window.

Server

Server, on receiving the request, sends back the reply to client and give the successful pings. The memory consumption will be displayed in a side window according to which the Administrator will decide to put the server in a sleep stage when the memory consumption of the system subsequently increases and when threshold of client request subsequently increases.

Sleep Stage

In the sleep stage, the server will be still working to tackle the already connected clients.

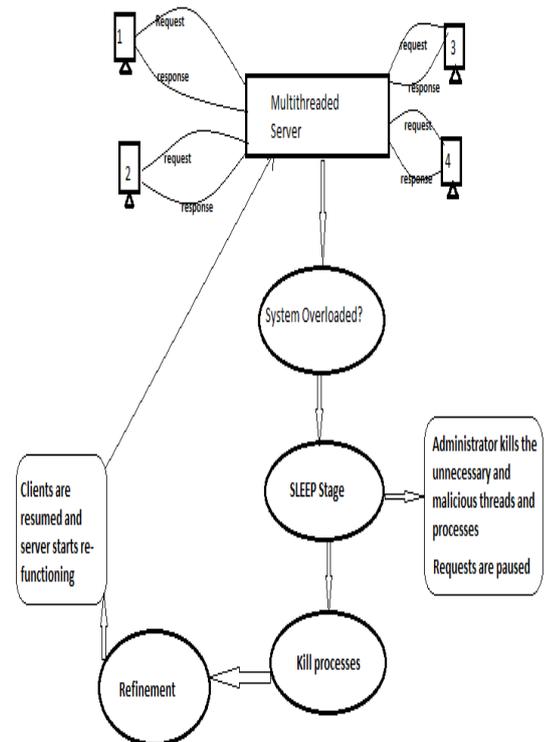
The server will kill the processes based on:

- 1) The memory used by a particular client.
- 2) Same client request being sent again and again by a particular client.
- 3) Various client requests being sent again and again by a particular client.
- 4) Same client request being sent again and again by different clients.
- 5) Time period for particular process approaches or increases the threshold value.

Refinement of Memory

The memory is being made available to other clients after killing certain processes by the administrator based on the analysis of client and client request.

4. LAYOUT DIAGRAM



5. CONCLUSION AND FUTURE SCOPE

The scope of this study deals on the expert system based on the idea of neural network of brain and its sleeping mode. We have got the idea of working of brain in its sleeping mode and have done the work. The idea is been implemented on working modes of server and one of the mode is sleeping mode memory which is expected to be future work of the thesis.

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