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ARBITRARY SELECTION FOR AGITATE FLEXIBLE LOAD BALANCING IN HETEROGENEOUS PEER TO PEER NETWORKS

[1]Mr. P. MURUGESAN , [2]Dr. A. SHANMUGAM

[1] Assistant Professor (Senior Grade), Department of Computer Applications, Bannari Amman Institute of Technology, Sathyamangalam – 638401, Tamil Nadu, India.

[2] Principal, Bannari Amman Institute of Technology, Sathyamangalam – 638401, Tamil Nadu, India

E-mail: [1]murugesan.vibu@gmail.com , [2]principal@bitsathy.ac.in

ABSTRACT

Peer to Peer Network access is the integral part of the day to day business for most of the computer users. Preserving load balance on heterogeneous peer to peer networks is a challenging purpose and several existing works presented load redistribution algorithms for load division and load diversions at the instance the new peer enters. The aim of load balancing in P2P networks is to equilibrium the workload of the network nodes in quantity but lacks to eliminate traffic occurring in the routes of the P2P network efficiently. In this paper, the behaviors are characterized by eliminating the traffic using the Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model. Tremendous store model is investigated to extend the impact of node heterogeneity and agitate to the load distribution in P2P networks. The performance of the Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model reduces the network traffic routes with minimal cost of P2P in contrast to existing Saturn load balancing scheme. An analytical and empirical result offers a collision free system with the quantization of information by balancing the load in the P2P network system. Performance of the Arbitrary Selection Load Balancing is measured in terms of peer failure probability and traffic control efficiency.

Keywords: *Peer To Peer Network, Traffic Control, Load Balancing, Tremendous Store Model, Load Diversions, Arbitrary Selection, Heterogeneous, Failure Probability.*

1. INTRODUCTION

The next creation among the network is a heterogeneous network, with diverse constituent networks which might be wired and wireless, all with incredibly diverse distinctiveness in terms of broadcast speeds, errors, and intrusion tolerance. P2P networking has engendered incredible attention worldwide amongst both Internet surfers and computer networking experts.

A peer-to-Peer (P2P) network is one of the fastest growing and most accepted Internet applications. An important class of the P2P overlie networks is distributed hash tables (DHT) that plot keys to nodes of a network based on a consistent hashing function. Theoni Pitoura.,et.Al., 2012 an overlay architecture for large-scale data networks maintained over Distributed Hash Tables (DHT) that efficiently processes range queries and ensures fault-tolerance but less efficient in balancing of load in routes. In a DHT, each node and key value has its own unique Id, and a key is mapped to a node according to DHT description. The Id hole of a DHT is screened among nodes and every one of them is responsible for those keys who are Ids are situated in its whole portion. A significant goal in the design of Distributed Hash Tables (DHT) is to attain an objective partition of the hash hole among peer nodes.

Yuzhe Tang.,et.Al., 2010 propose LIGhtweight Hash Tree (LIGHT), a query-efficient yet low-maintenance indexing scheme. LIGHT employs a novel naming mechanism and a tree summarization strategy for graceful distribution of its index structure. It shows through analysis that it can support various complex queries with near-optimal performance. Extensive experimental

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results also demonstrate that, compared with state of the art over-DHT indexing schemes, LIGHT saves 50-75 percent of index maintenance cost and substantially improves query performance in terms of both response time and bandwidth consumption.

It is often desirable that each node assumes accountability for a portion of the hash space that is proportional to its authority, measured in terms of its processor speed, available bandwidth, and storage capacity, and that this property is maintained as nodes join and leave the system. A similar goal is desirable in unstructured P2P networks as well.

However, these theoretical works analyzed a system where compute nodes have homogeneous and infinite capacities. Moreover the node agitate defines a characteristic of P2P systems which is not modeled by these existing approaches. As an effect it cannot honestly argue the performance bounds derived in these work of P2P networks. In this paper, dynamic behavior of arbitrary selection paradigm in general P2P systems are analyzed, where peer nodes join or leave at runtime and they have heterogeneous and restricted capacities.

We model active P2P systems, where load queries arrive as a Poisson stream at a collection of 'm' peer nodes, where m is an arbitrary variable reflecting nodal agitate. For each query, a number of 'e' nodes are selected separately and consistently at arbitrary, and query is queued at the node presently containing the fewest queries. This refer to multiple choices query as e-way snooping. Queries appear to peer nodes at rate λ comparative to the node population. They are served according to the FIFO protocol, and the service time for a query is exponentially distributed with mean 1.

Tremendous Store model formulate the behaviors of the preceding dynamic system in the general case and quantify system properties by reducing the traffic in P2P. The average response delay and the maximum load among active nodes are characterized and conversely quantify these metrics in a general P2P system with minimal cost. It's difficult to find clogged solutions to the differential equations describing system dynamics. It removes the static system configuration with homogeneous and infinite node capacities in P2P network. As an alternative way of solving the equations directly to obtain lesser traffic load is that the lower and upper bounds of situation variables are analyzed at equilibrium points with reference to those in a special case.

Based on these bounds, we quantify the average response delay and the maximum load, and come to the following conclusions of e-way snooping in P2P networks. The arbitrary snooping algorithms for load balancing with tremendous store model are designed and analyzed within the context of P2P networks; the results have wide applicability and area of interest beyond the specific applications.

2. LITERATURE REVIEW

In the prospect heterogeneous wireless networks with a diverse operation of universal nodes in the network, diverse nodes will contend for the similar resources for obtaining mobile services. This facade huge confronts to resource organization and organization. One serious tread to accomplish the finest resource procedure is for the networks to attach to the access nodes that present the finest conditions to them. The R. Q. Hu, et.Al., 2010 proposes a novel connection method in such a heterogeneous surrounding that aspires to supply the finest service to the networks on both uplink and downlink as reducing the intrusion stage. Relaying and frequency separation numerous accesses are the established expertise's for promising wireless transportation principles by Qualcomm Europe, 2008.

In hopeful OFDMA (orthogonal frequency division multiple access) schemes, downlink signs creating from the similar base station (BS) are orthogonal, as those from diverse BSs obstruct with every other. As a result, inter-cell intrusion (ICI) turns out to be main presentation deprivation factor. Chiefly, boundary users go through from cruel ICI as well as the intrinsic near-far crisis. To progress cell edging presentations and hold a more unbiased data rate amongst all users, incomplete frequency regain (PFR) and load-balancing strategies are examined by S. Kyuho, et.AL., 2009.

Claudia Canali., et.Al., 2008 address the problem of enabling effective peer-to-peer resource sharing in this type of networks. In particular, it considers the well-known Chord protocol for resource sharing in wired networks and the recently proposed Mesh Chord specialization for wireless mesh networks, and compares their performance under various network settings for what concerns total generated traffic and load balancing.

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In, M.Salem et al, 2010, enlarges a novel logical method for the valuation of the outage prospect of supportive decode-and-forward (DF) automatic-repeat-request (ARQ) communicating beneath packet-rate vanishing (fast vanishing or block vanishing) channels, wherever the channels hang about permanent inside every ARQ communication round, but modify separately from one round to another by S. Lee, et.Al., 2010. A central pairing system and a dispersed pairing method are urbanized for efficient load balancing strategies by Y. Yang, et.AL., 2010.

Tai-Ting Wu., and Kuochen Wang., 2009 propose an efficient multiple hashes method (called KAD-N) to balance peer loads in the KAD (Kademlia) network. Several algorithms have been planned formerly for the load balancing approach employed in standardized environment. For mixed environment, Hung-Chang Hsiao, et.Al, 2010 presented a load balancing technique for P2P systems.

Sumit A. Hirve., and Dr. S.H. Patil., 2011 focus is on an important issue vital to the performance in the virtual server framework, such as the effect of the number of directories employed in the system and the performance ramification of user registration strategies. We systematically characterize the effect of heterogeneity on load balancing algorithm called as dual-space local search (DSLS) and the conditions in which heterogeneity may be easy or hard to deal with based on an extensive study of a wide spectrum of load and capacity scenarios.

The responsibility of the fuzzy-based load balancing process itself, however, has not been discussed and in most reported work is assumed to be performed in a distributed fashion by all nodes in the network. AliM. A lakeel., 2012 proposed algorithm utilizes fuzzy logic in dealing with inaccurate load information, making load distribution decisions, and maintaining overall system stability.

Quang Hieu Vu., Et.al, 2009 present a general framework, HiGLOB, for global load balancing in structured P2P systems. Each node in HiGLOB has two key components: 1) a histogram manager maintains a histogram that reflects a global view of the distribution of the load in the system, and 2) a load-balancing manager that redistributes the load whenever the node becomes overloaded or under loaded. We exploit the routing metadata to partition the P2P network into non overlapping regions corresponding to the histogram buckets.

To develop traffic free routes in P2P network, a new technique named Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model is presented.

3. ARBITRARY SELECTION LOAD BALANCING APPROACH FOR AGITATE FLEXIBLE IN P2P NETWORK

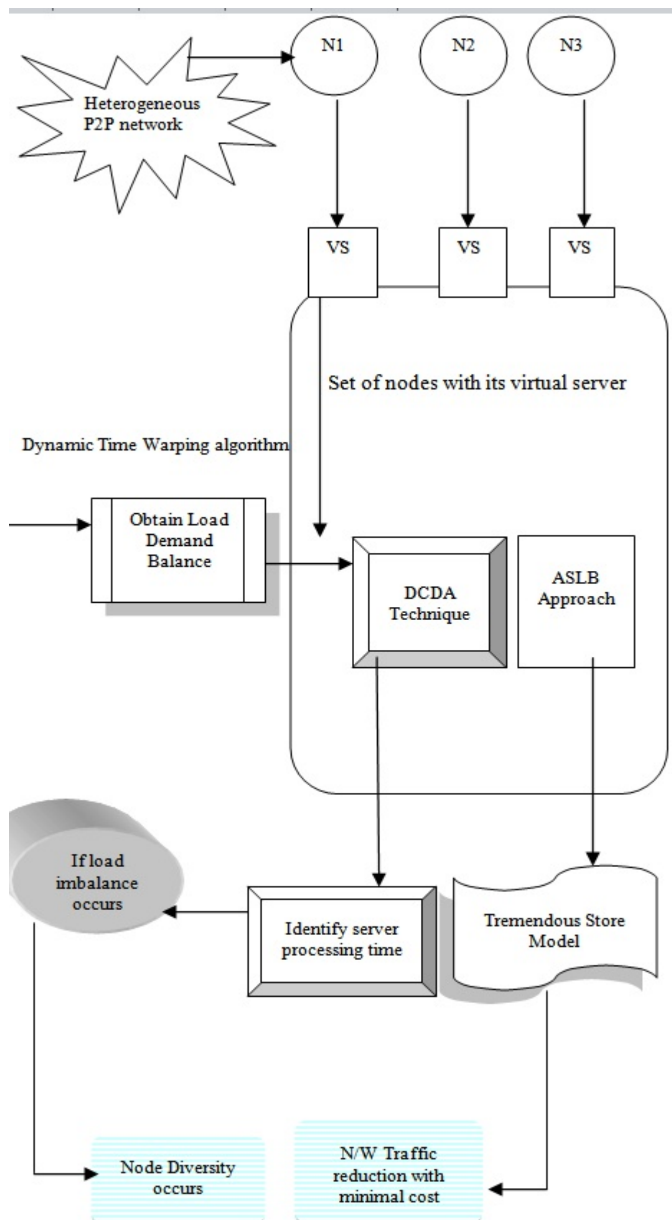

Fig 3.1: Arbitrary Selection Load Balancing (ASLB) Approach in Heterogeneous Peer to Peer Networks

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The Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model in the heterogeneous peer to peer network consists of three different phases. The first phase is to identify and analyze the peer node server cycle requirements using Duty Cycle Data appropriate technique with the load demand balance factor outcome. The second phase is to employ the node selection strategy for enhancing the load diversions factor if load imbalance occurs. The third phase is to utilize the tremendous store model for analyzing balancing workload in a particular distributed environment. The architecture diagram of the Arbitrary Selection Load Balancing (ASLB) Approach in heterogeneous peer to peer network is shown in Fig 3.1.

In the above Figure, it illustrates a brief explanation of the Heterogeneous peer to peer network traffic control system. In network communication, the sending and receiving of packet data and the arrangement of the data policy to the superior layer can discover an easy model. It is to be noted that the process of identifying the server peer node cycle requirements are analyzed and processed using Duty Cycle Data appropriation technique using load demand balance factor. The load demand balance factor is obtained using Dynamic Time Warping algorithm (DTW). The DTW efficiently identified the liveliness of server of peer node in the heterogeneous network and the load balance of the peer server node is also been identified.

Through the load demand balance factor, the peer node cycle requirements are analyzed and node diversity also takes place when load imbalance occurs. The tremendous store model used in the ASLB approach with each request has some constant number of servers. They are selected independently and consistently at arbitrary with replacement from the servers, and request waits for service at the server presently containing the fewest requests.

The first phase describes the process of implementing the Duty Cycle Data appropriate technique for identifying the peer node server processing cycle requirements are identified through load demand balance factor which is obtained from Dynamic time warping algorithm. The DCDA technique identifies the processing time of the server node for a cycle per second.

The second phase refers to the process of node diversity. If peer node server is full i.e., load imbalance occurs, load diversity takes place. Load diversity of the peer node is done based on node selection strategy. Node selection is done for diverting the nodes from peer node to neighbor nodes and is chosen based on DCDA rank representations.

The third phase explains about the tremendous store model in the ASLB approach. It utilizes the tremendous store model for analyzing balancing workload in a particular distributed environment. Client requests arrive as a Poisson stream at a collection of servers. For each demand, some regular numbers of servers are chosen separately and consistently at arbitrary with replacement from the servers, and request waits for service at the server presently containing the smallest requirements. Requests are served according to the FIFO protocol, and the service time for a request is exponentially disseminated with mean 1.

3.1 Duty cycle Data Appropriate technique

Duty Cycle Data Appropriation technique is mainly focused to identify the peer server node cycle requirements. The DCDA technique identifies the behavior of the peer nodes in the network i.e., nodes exchange among active and sleep periods depending on network activity in routes. This identifies the appropriate amount of data to be processed by a peer node server for a cycle. If the peer node server cycle requirements are identified then it will be easy for the peer node to share its data with other nodes in the heterogeneous peer to peer networks based on the outcome obtained through DCDA technique.

The DCDA technique is usually a distributed algorithm based on which peer nodes in the heterogeneous P2P networks choose when to alteration from active to sleep, and back. It permits neighboring nodes to be dynamic at the similar time, thus creating packet data exchange viable even when nodes function with a distinct duty cycle. A duty cycle is the instance of an entity expends in a dynamic position as a portion of the total time beneath deliberation. In general, for a cyclic event, duty cycle is the ratio of the period of the occurrence to the total stage of a signal. The duty cycle of an event is shown in Fig 3.2.

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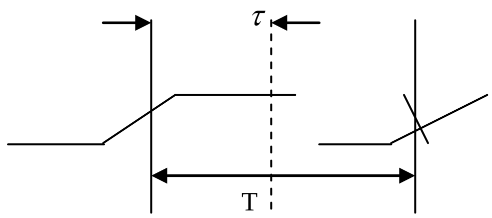

Fig 3.2: Duty Cycle Event

$$D = \frac{\tau}{T}$$ ……. Eqn (1)

Where, τ - Duration that the utility is dynamic.

T - Period of the function.

The challenge for a duty cycle data appropriation technique is to determine a proper duty cycle such that the peer nodes has its own virtual server in the heterogeneous peer to peer networks often sufficient has the prospect to broadcast its messages via the relay node; no jamming ought to happen. On the one hand, if the virtual server is active too often, while the peer server node has only a few messages to broadcast, energy is shattered owing to over-activity by the virtual server of that node. On the other hand, if the peer server node is active too rarely, messages may obstruct the queue and the transmission delay would increase noticeably or the system may revolve instable.

3.2 Load Redistribution Strategy

The objective is to equalize the workload on node 'P' and the peer 'T' who possesses the zone 'P' will unite. The separation of the workload formerly considered on 'T' is dogged by numerous issues, for instance the capabilities of peers T and P, the projected future workload in the zone possessed by T, etc. In conventional DCDA systems, when a peer enters, a unique identifier is allocated in P2P network. In common, the peer's distinctive information for instance IP address can be employed as the starting point for this creation. Then the ranking terms are assigned and load diversion strategies are made.

The abilities for peers 'P' and 'T' are 'C_P' and 'C_T'. Prior to the peer join process is accomplished, for peer T, the fields which are dropped in the zone (n1, n2] are af1,af2,...,afe, and the resultant admittance frequencies of these files (attained from file access record table) are Faf1; Faf2; Fafe. As a result, the combined workload in [n1, n2] is

$$W_T = F_{af1} * O_{af1} + ... + F_{afe} O_{afe} = \sum_{i=af1}^{afe} F_i O_i$$

…….Eqn (2)

To fine separate W_T, we require discovering a number u, such that af1 < u < afe, and we contain:

$$\frac{C_P}{C_T} = \frac{\sum_{i=af1}^{afe} F_i O_i}{\sum_{j=u+1}^{a} eF_i O_i}$$ ……

Eqn (3)

After this exacting value "u" is established, can arbitrarily prefer a location p', such that u < p' < (u + 1), as the peer id of the peer node P, in place of p. Since the prior workload W_T on T is separated into the novel workloads W'P on P, and W'T on T. We encompass the subsequent formulas,

$$W_T = W'_P + W'_T$$ ……

Eqn (4)

Where,

$$W'p = \sum_{i=af1}^{u} F_i O_i$$

$$W'T = \sum_{j=u+1}^{afe} F_j O_j$$

Thus,

$$\frac{W'p}{W'T} = \frac{C_p}{C_T}$$ …………

Eqn (5)

Then, the preceding workload WP is fine dispersed on peers P and T. For the file admittance to be occurred it waits for the workload should be capable to be fine owed to these two peers. In case, if there's no peer is congested prior to the peer join process happened, no peer will be jammed subsequent to the peer join process ends, since in this process, it cannot append any supplementary workloads on any peers apart from the novel peer. Even for the novel peer P, no workload further than

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its capability will be allocated in heterogeneous peer to peer network.

3.3. Tremendous Store Model

In P2P systems, an enormous number of nodes share the resources and concern queries to each other in network. More frequently they contain heterogeneous configurations of storage capacity and processing speed P2P networks. Dynamic characteristic of P2P networks contains the node joining and leaving frequently. Load balancing in such large-scale and dynamic distributed environments is demanding in heterogeneous environment. Obtaining the capacity information of all active nodes before dispatching jobs to the most lightly-loaded nodes is less expensive in ASLB approach.

By applying arbitrary snooping algorithms it makes a dispatch decisions based on the load dynamics of a small number of nodes that are selected arbitrarily. In this method, the number of load query messages that are exchanged is condensed considerably. The scalability of these algorithms is ensured because the number of control messages for each decision making is approximately constant even when the system scale expands.

The Tremendous Store model analyzes the effect of e-way arbitrary snooping in balancing load in P2P systems with heterogeneous capacity. However, in practical P2P networks, participant nodes generally have different configurations. To tackle this nodal heterogeneity, extend the preceding model to analyze behaviors of peer nodes with different capacities in face of arbitrary snooping to balance load on P2P.

Let s* denote the maximum values in the sequence

$$\{S_i\}_{i=1}^{M} \quad \text{..........}$$

Eqn (6)

Then, the residue capability is calculated as

$$\{S^* - S_i\}_{i=1}^{M} \text{...........}$$

Eqn (7)

Thus, value of the situation variables ci for 0 <= i <=s* at time t = 0 equals to

$$C_i(0) = \left|\{S_i \mid S_i <= S^* - i\}\right| / M \quad \ldots$$

Eqn (8)

The fraction of nodes bearing initial load in heterogeneous P2P n/w has the residual capability not less than i. When the system runs and queries. Come / leave, the area of residue capability is reserved and load changes in the rest area within s*. With this transformation, peer nodes with heterogeneous capability as s* are used to model the dynamic system.

III.3.1 Algorithm of arbitrary snooping for ASLB approach

Input: *Set of peer heterogeneous nodes 'N', virtual servers 'VS' duty cycle' d1, d2,…,dn',*
T: *Maximum time needed to process the data*
S* - *Maximum values in sequence*
Output: *Reduction of Network Traffic using situation variable 'ci'*

Begin
Step1: Implement the duty Cycle Adaptation Technique
Step2: For Assigning peer node selection
Step 3: Using DCDA rank method
Step 4: End For
Step 5: For Load balancing Strategy
Step 6: Call function Peer Join (P)
Step 7: End For
Step 8: For each Tremendous Store (TS) Model
Step 9: $\{S_i\}_{i=1}^{M}$
Step 10: If (Residue capability >Initial Load)
$\{S^* - S_i\}_{i=1}^{M}$
Step 11: End If
Step 12: If time (T=0)
Step 13: Situation variable $C_i(0) = \left|\{S_i \mid S_i <= S^* - i\}\right| / M$ computed
Step 14: End If
Step 15: End for each
End

The above algorithm describes the process of duty cycle adaptation technique which describes the process of identifying each peer server node cycle requirements to identify how long the peer server node takes to access the appropriate data in the heterogeneous peer to peer networks. It describes the process of assigning the peer node selection strategy based

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on DCDA rank representation. The representation of rank is performed based on the duty cycle it consumes to process and share the data.

In Tremendous Store (TS) Model $\{S_i\}_{i=1}^{M}$ assigns the maximum value in sequence of P2P network. If residual capability is greater than initial load $\{S*-S_i\}_{i=1}^{M}$ is computed to obtain the load balancing in minimal cost. The Situation variable $C_i(0) = |\{S_i|\ S_i <= S*-i\}|/M$ computed when the time equals to zero.

4. EXPERIMENTAL EVALUATION

The experimental evaluation was carried to implement the Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model in the NS2 simulator. It is estimated with different set of nodes contrast to an existing Saturn method, ELBSHN model, HPSC framework and DTW Algorithm. The experiments are conducted with the USC / ISI dataset, network traffic from anarchy online and network traffic dataset. From the dataset, one can extract several key characteristics from such as payload sizes, packet charge, data delivery latencies, retransmission statistics, loss rates and stream association.

First, we explain the simulation environment we exercise in our experiments, and then we provide the simulation results. In our simulation, the holdups of intra-transit field links, stub-transit relations and intra-stub domain relations are locate to 100, 20 and 5ms correspondingly. In all the research, the number of peers in replicated system is 5000. We differ the number of files in the scheme from 20K to 100K. The proposed enhanced load balancing strategy in heterogeneous peer to peer networks is efficiently designed and implemented in NS-2 simulator.

In addition simulations are carried out to show the effectiveness of the ASLB work with bench mark data sets derived from UCI Repository. With the load-demand factor obtained from the peer nodes processing abilities, peer servers processing cycle requirements are identified. Load diversions are made to peer server if the peer node gets overloaded. The diverse data nature of the command required by the peer servers is absolutely recognized. A priori of Data Format Load Points are coordinated to present data design insisting of particular nodes and its cause on load balancing the peer servers are considered. The proposed Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model is measured in terms of

- Peer Failure Probability
- Traffic Control Efficiency
- Execution Time

5. RESULTS AND DISCUSSION

In this work we have seen how the traffic occurred in the heterogeneous network and to balance the load in P2P networks. The below table and graph describes the performance of the Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model. In this consequence, ASLB approach is compared against Saturn method, ELBSHN model, and HPSC framework to analyze the result.

Peer Failure Probability: It is defines as the each peer may fail with a specific probability in heterogeneous environment. It is denoted in terms of fpr.

Table 5.1 No. of Message per Query vs. Peer Failure Probability

No. of Message per Query	Peer Failure Probability (fpr)			
	ASLB Approach	Saturn Method	ELBSHN Model	HPSC Frame-work
0	10	14	17	25
0.01	10	14	18	25
0.02	9	14	18	24
0.05	9	13	18	23
0.1	9	13	17	23
0.2	9	12	16	23
0.3	8	12	16	22
0.5	8	10	15	21

The above table (table 5.1) describes the peer failure probability based on the messages per query on ISI dataset and network traffic from anarchy online dataset. The ASLB approach is compared against Saturn method, ELBSHN model, and HPSC framework for analyzing the peer failure probability.

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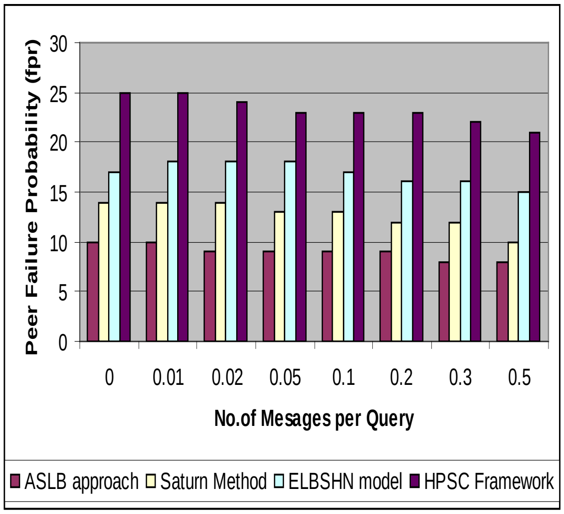

Fig 5.1 No. of Message per Query vs. Peer Failure Probability

Fig 5.1 describes the peer failure probability based on the messages per query on ISI dataset and network traffic from anarchy online dataset. The set of experiments was used here to examine the impact of peer failure probability on Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model. ASLB is capable to accomplish vastly precise results and its performance is normally reliable with less failure in the peer networks.

As we can see from Fig. 5.1, ASLB produce a better result with lesser failure occurrence in the heterogeneous peer to peer network In addition, the superior the peer failure probability, the larger the difference in hop-count competence. Experiments showed that the proposed arbitrary snooping algorithm efficiently identifies the traffic using the function and its scope precisely in a variety of situations. Compared to an existing Saturn method, ELBSHN model, and HPSC framework, the ASLB achieves the lesser failure occurrence in peer network with the variance of 30 – 40 % low.

Traffic Control Efficiency: It is defines as the amount of rate controlled in the network when the traffic occurred in the heterogeneous system.

Table 5.2 No. of Packets vs. Traffic Control Efficiency

No. of Packets	Traffic Control Efficiency			
	ASLB Approach	Saturn Method	ELBSHN Model	HPSC Framework
100	98	91	75	65
200	97	90	74	65
300	98	90	75	68
400	98	90	75	68
500	99	89	75	69
600	99	88	76	69
700	98	88	77	70
800	98	88	77	70

The above table (table 5.2) describes the traffic control efficiency based on the number of packets transferred from the sender to the receiver. The traffic control efficiency is explained in USC / ISI dataset, and network traffic dataset. The ASLB approach is compared against Saturn method, ELBSHN model, and HPSC framework for analyzing the result of the traffic control efficiency.

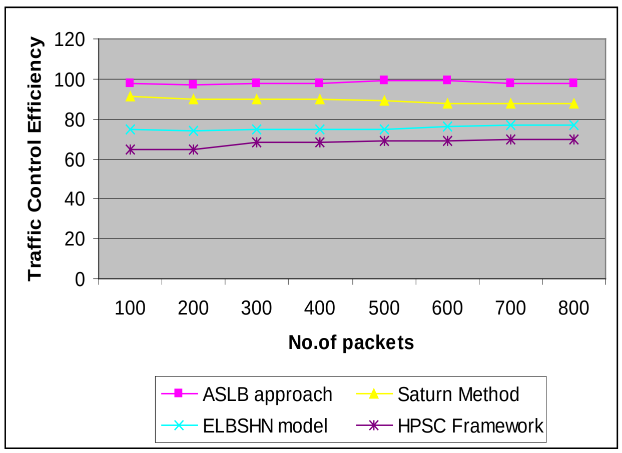

Fig 5.2 No. of Packets vs. Traffic Control Efficiency

Fig 5.2 describes the traffic control efficiency based on USC / ISI dataset, and network traffic dataset for the packets transferring. The load is balanced efficiently in the tremendous store model of the proposed scheme. Fig 5.2 describes the traffic occurred while transferring the packets in the network traffic dataset. The traffic controlling efficiency is measured. Compared to an existing Saturn method, ELBSHN model, and HPSC

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framework, the ASLB avoids the traffic occurrence and balance the load with variance of approximately 35 – 45 % higher.

Execution Time: It is defined as the amount of time taken to perform the execution process in the heterogeneous network. It is measure in seconds (sec).

Table 5.3 No. of Nodes vs. Execution Time

No. of Nodes	Execution Time (sec)			
	ASLB Approach	Saturn Method	ELBSHN Model	HPSC Framework
30	55	100	142	198
60	58	102	145	202
90	59	105	148	218
120	62	108	152	212
150	63	110	158	217
180	65	111	160	222
210	66	113	161	234
240	68	115	164	238

The above table (table 5.3) describes the execution time based on the no. of nodes in the network route used to transform the data from the source to the destination with the anarchy online dataset. The execution time of the Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model is compared against Saturn method, ELBSHN model, and HPSC framework to analyze the result.

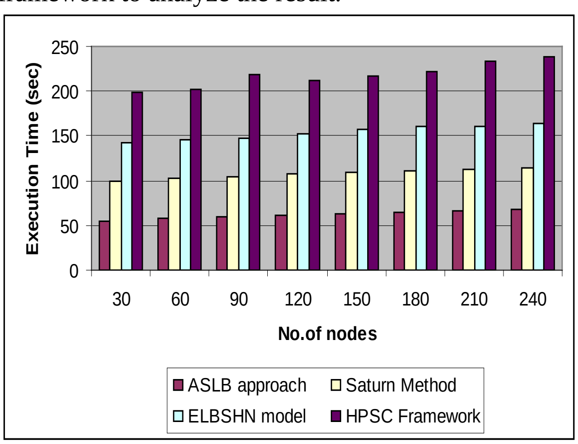

Fig 5.3 No. of Nodes vs. Execution Time

Fig 5.3 describes the execution time based on the number of nodes. The tremendous store model uses the efficient storage process to fetch the result quickly with the short span of time. The lesser time taken consumes a lesser cost in the peer to peer network to transfer the data from the source to destination. Compared to an existing Saturn method, ELBSHN model, and HPSC framework, the ASLB consumes the lesser time to execute the process and the variance in approximately 60 – 70 % lesser.

Finally, it is being noted that the HPSC used DCDA technique with the resultant of load demand balance factor obtained form dynamic time warping algorithm, peer server node processing cycle requirements are identified using Duty Cycle Data Appropriation (DCDA) Technique. Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model balances the load without traffic occurrence in a minimal cost.

6. CONCLUSION

In this work, we efficiently achieve the load balancing with the reduction in the network traffic of heterogeneous peer to peer network by Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model. Our arbitrary snooping model influence by nodal heterogeneity, capability distribution and agitate on search efficiency is investigated. The arbitrary approach is less sensitive to the node agitate and heterogeneity in terms of the number of explore conducted before finding suitable nodes and the average response time of queries. Simulation and experiment results confirm our analysis. The performance of the Arbitrary Selection Load Balancing (ASLB) Approach with Tremendous Store model reduces the network traffic routes with minimal cost of P2P in contrast to existing Saturn load balancing scheme. An analytical and empirical result offers a approximately 90 – 95 % collision free system with the quantization of information by balancing the load in the P2P network system. Performance of the Arbitrary Selection Load Balancing is measured in terms of peer failure probability, execution time and traffic control efficiency.

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