Optimal Routing: A Critical Review

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Abstract

The companies are striving to optimize the routers to implement managerial part and optimize the overall system as the prior research manifest the importance of the routing heuristics and optimal routine in a volume-based and random storage environment is analyzed in detail and it has been concluded that routing and policy performance should be enhanced to have better future of the company. The performance of the routing policies and optimization of heuristic routing policies is based on the performance and the application of the advanced heuristics solutions in the organization along with optimal routine for fast solutions.

Introduction

The services provided by the IT professionals in order to visit the roamers and networks, it is used extensively in increasing the performance of roaming. The consultants of energy education are striving for optimal routing network in their organizations. Data usage is required for control roaming charges while traveling internationally to generate revenue from Optimal Routing Service. The famous USA management-consulting firm Energy Education applies different programs in schools associated with energy conservation with the largest budgets like the other consultancy firms and travel expenses are high. It is difficult to manage the consultancy travelling cost along with meeting the customer demand has become very critical with the passage of time. It has been observed that the trend of routing and managing the network on large scale has been increased and the consultancy firms tend to use routing (Bierstaker, Burnaby, & Thibodeau, 2001). Energy Education, Inc. is observed that it uses labor intensive, manual process that is more time consuming and far away from the optimal solutions.

The objective of this study is to compare different findings on optimal routing and to critically analyze the prevailing situations in global village. The consultancy firm Energy Education, Inc. is observed to use cluster routing, route second approach and binary integer program through heuristic clusters. The routing network can be based on the geographical locations and various routing solutions are provided by mixed integer linear model of programming that uses cluster locations as the demand for the skills and availability (Chulkov & Desai, 2005).

The evidences manifest that the research and development for optimal routing solutions to decrease the cost of the routing solutions as it has potential to enhance the ability of the organization to become more successful and deliver qualitative benefits as well. In a   suggestive

manner another study focused on the decision making process improvement through the existing processes by additional modification. There are some key metrics defined for the dramatic changes in optimal solutions of the firm that includes the prevailing situation and the assessment of the routing system maintenance for traveling consultancy.

Different researchers have integrated different models in order to develop optimal routing in their organization (Refer to figure 1). Various organization apply heuristic techniques in order to create a weekly schedule with proper networking according to the demand and balance flow with the aim to minimize the total cost and employee travelling as per the variable expenses in optimal routing. Variety of the methods is involved in optimal routing such as EEI programs with unique requirements of clients and consultants are varied (Chung, Bae, & Lee, 1999).
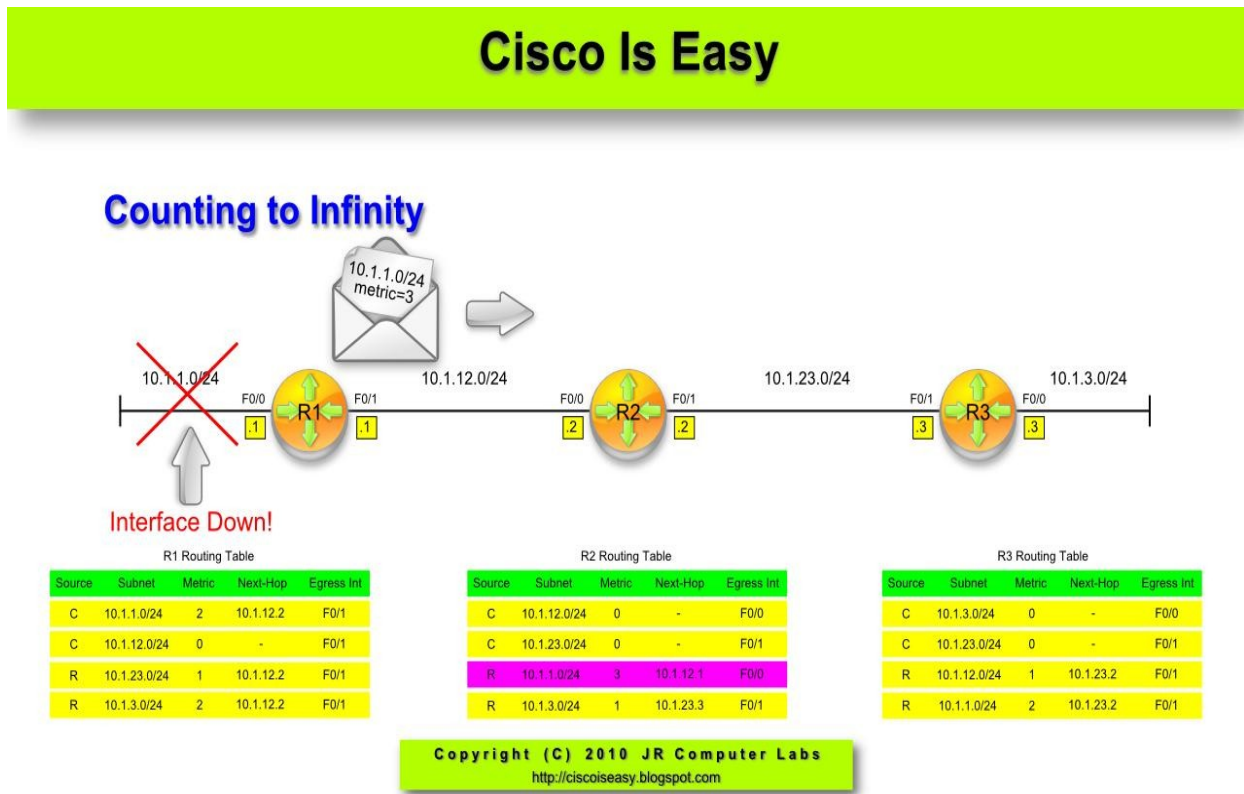

Figure 1 (Source:http://withfriendship.com/user/svaruna/routing-protocol.php)

Companies Using Optimal Routing

There are many consultancy firms that uses optimal routing as compared to the education of energy conservation and routing systems are used by other firms such as retail industry and aviation industry as major part because the demand is high. The current status has been received and it has been observed that routing and scheduling is associated with the planning problems in different organizations. At the strategic planning level the design of routing network and transfer systems is practiced. Companies use tactical and operational planning to consider problems with various routing and scheduling aspects. Different modes of operations for optimal routing networking are used on industrial level.

All the related applications and problems are fall naturally under the issues of routing and the development of optimal routingregarding the future developments in consultancy industry. The support systems for optimization-based decisions are implemented by various firms to facilitate the consultancy services in the education industry (Hyun-Gyung, Yates, & Orlikowski, 2005).Routing and scheduling are optimized by various trends in the industry and further support is provided by the developed network.

Optimal routing of a time-chartered containership extensively deals with the model and solution algorithm for the formulation of the mathematical programming model in order to evaluate the network. Firms have maintained optimal sequence of the ports and pairs of ports through strong integration of network subprograms as the network is properly arrange in sequence (Refer to figure 2). If the network routing is efficiently completed then the programs can optimize in less time. Many of the consultancy firms are also using embedded dynamic program in order to support the system and its optimization.
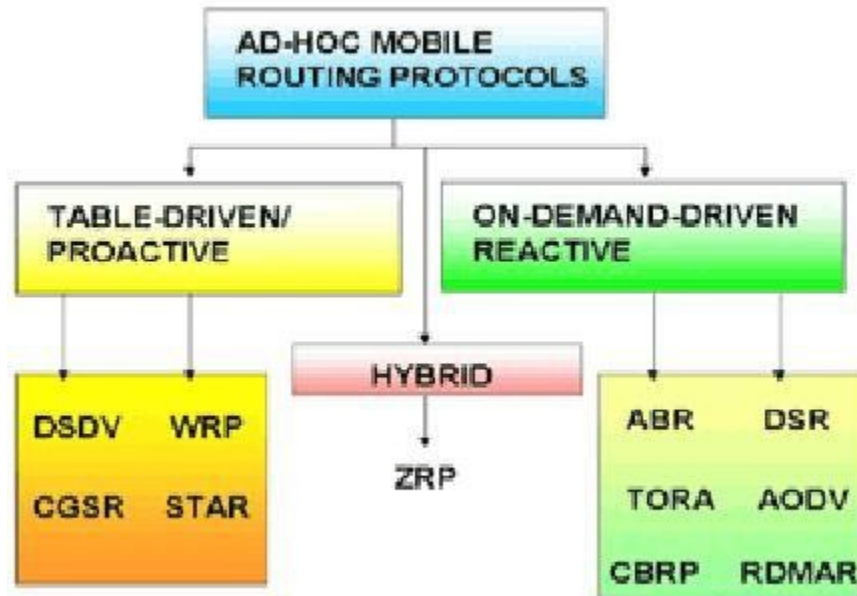
Figure 2 (Source: http://withfriendship.com/user/svaruna/routing-protocol.php)

Features of Optimal Routing

Various directions and routing are placed on various routing places in order to generate optimal routes and the nearest place for the calculation of the accessible amount of time according to the planned schedule.

Key Features

- A to B ports are connected internally.

- The multiple locations of the optimize routes

- The desired locations in the network will be set according to the optimized levels.

- The roamers are inbound within the routing network and it is cost saver (figure 3).
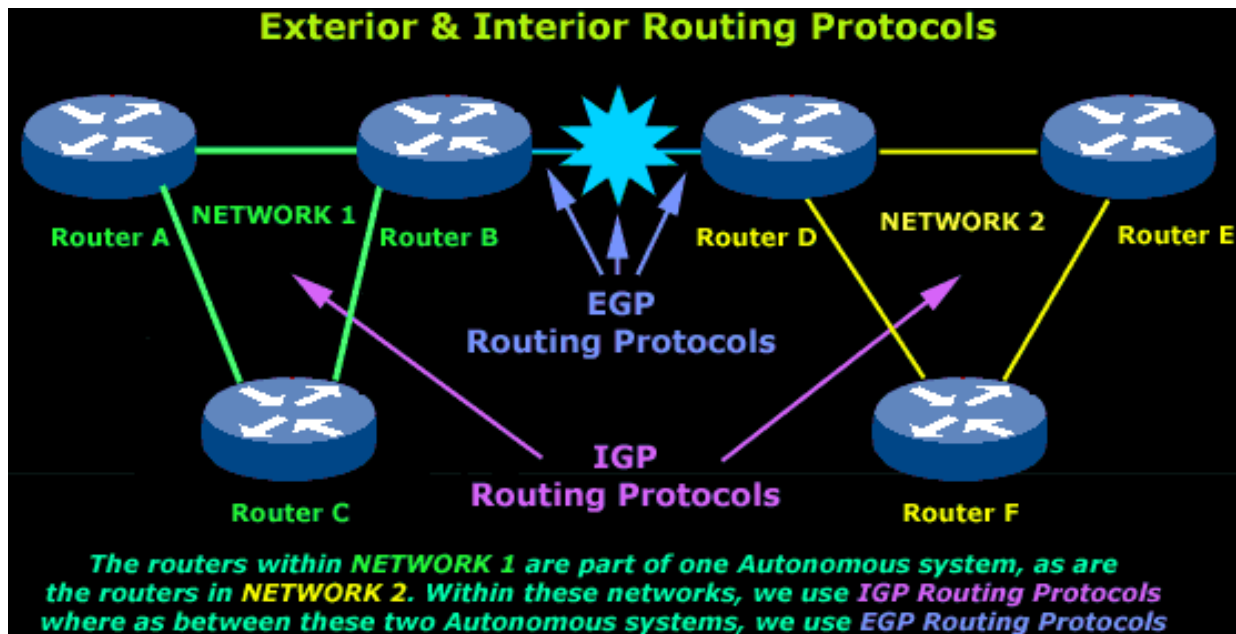
Figure 3 (Source:http://www.firewall.cx/networking-topics/routing/routing-protocols.html)

Many firms also retain their revenues by managing the network and routing plans effectively to grab more customers and facilitate more audience through optimization of the routing by visiting roamers and maintaining route-optimized international interaction (Chulkov & Desai, 2005).

Network routing services is also used by many firms and telecom sector utilizes at its full capacity, people having inbound roaming in order to invite the contacts about the inbound services. It has been observed that optimal routing networking platforms are used in order to transfer the calls through the most convenient ways in order to connect with roamers directly. Optimal routing networking platforms utilize IDD paths in roamers. The request through optimal routing networking can be two steps and one of the agents by interconnecting the roamers and the local numbers at the same time. Secondly, there is availability of direct request to the firms as well in order to add short prefixes in the mobile generated calls for inbound roamers.

Inter Cluster Routing:

The routing process used by various firms has cluster formation in order to optimize the network and the major features of cluster routing are addition of protocols. Before the cluster procedure starts various factors are involved such as router shortening, the location of the hub, the size of the hub to form the first stage of cluster routing. Both the features include 2 hop topology interactions in the routing of multinational companies in order to optimize the business functions. Radio broadcasting firms messages are send by end nodes (Rogerson, Weckert, & Simpson, 2000). The source route of data package lessens the length of the process dynamically. Some sources have automatic repairs by the local routing in their network of the company. Designing routing protocols for MANET is difficult task as it has ever changing topology. The routing protocols are supported by the moving nodes and cover conventional routing includes the vector routing protocol.

Critical Analysis

It has been observed that the MANET is not utilizing its routing network as the system itself lacks many things. Optimal routing will be disturbed if the IP sub netting is inefficient and the routing protocols are flat without dealing in any hierarchy will increase the overhead expenses of the company as the results of the study revealed (Sharma & Singh, 2011). It has been analyzed that the size and connectivity of the network will be limited in case of routing dependence on asymmetries. In addition the results of their study were different as compared to the previous reviewed as the network partitions can improve the routing significantly by unit-directional routing.

The network partitions of CBRP have ability to reduce the network by improving the performance level of routing of the networks. CBRP is fully distributed operation and the traffic is less flooding as the route is dynamic, in addition the exploitation is explicit. The results of their study showed that there is no rediscovery for the broken routes but sub optimal routes are short (Refer to figure 4).
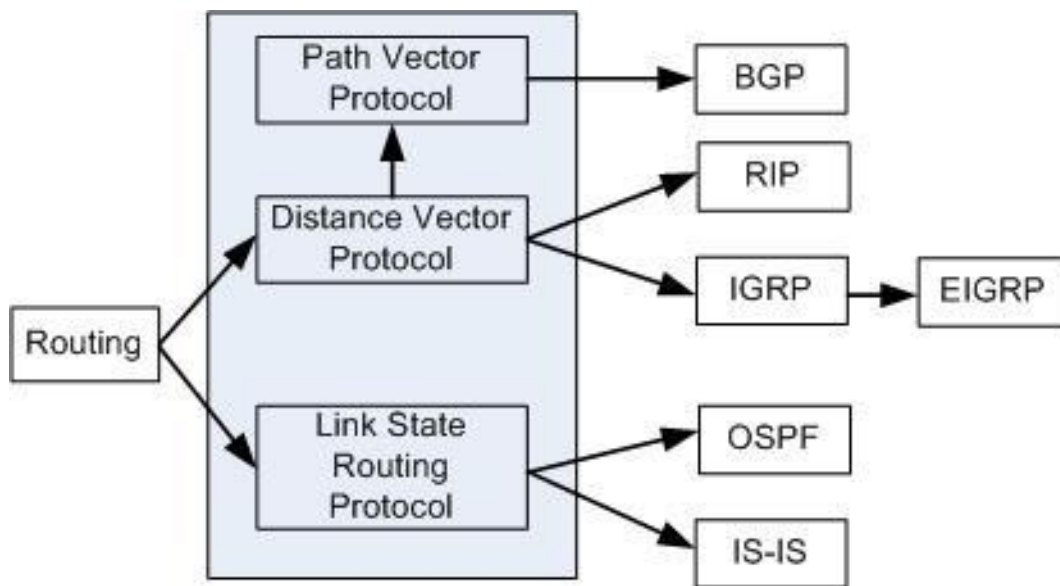

Figure 4 (Source: http://www.firewall.cx/networking-topics/routing/routing-protocols.html)

The Transport Virtualization as Enablers of LAN Extensions Overlay by Cisco in the development of the LAN extensions between data centers. The service providers of various firms have to develop the VPNs as a transport service of the customer networking. The enterprises in consultancy and energy conservation services strive to manage the challenges of LAN extensions in order to continue the innovation and industry-leading technology(Tyagi & Chauhan, 2010).Multiprotocol Label Switching is used in order optimize the routing process and Cisco has played significant role in it. The route maps are supported by the EIGRP for the recent

enhancements to EIGRP and its integration in the organization. The routing maps are flexible and robust in order to provide the facilities and the new facilities within the organization are supported by enhanced route map feature.

It has been observed that the consultancy firms and IT firms move on with new facilities in order to address the issues in optimal routing in shortest-path data networks. The Internet protocol networking as the shortest path for the routing information protocol has more ability to enhance the performance of the company. Interior gateway protocols involve the combinatorial algorithm used by the firms to analyse the optimal shortest-path routing problem. Various organizations are compared and the results manifested that the link-distance metric should be maintained properly in the routing network. The emerging voice over IP is difficult to manage and centric virtual private networks will support the delay-sensitive traffic on the routing network (Whittaker, 1999).

The problem of inverse shortest-path is a special case solved by the optimal link metrics within the organization. In order to optimize the networking system in different countries it is important to combine approximation algorithm for the effectiveness of the results with several data network instances. The evidences also manifested that the sensitivity of the solutions is dependent on the performance of the algorithms of routing networks. The near-optimal solutions of the organization are interloped from the distance metrics in order to optimize the solutions associated with general routing problem.

It has been observed that the optimal routing of consultancy firms is dependent on the performance issues related with the protocols of routing in mobile information technology in different countries. The authors supported that the wireless networks are interconnected through

the node and it utilize the multi-hop links for infrastructure network is crew of wireless to maintain the interaction with centralized administrator.

It has been observed that the companies using partial range of network routing are less efficient in their working and the wireless transmission is managed. Organization stimulate their communication through utilizing better routing services mechanism in order to find out new paths and future extensions for data transfers. Optimal routing paths involve the data transfers through internet work. The firm also suggested adopting optimal routing path in order to determine the complexities and forwarding the selected path.

The complex activities of the organization can be managed routing in ad-hoc networks with various challenging task to manage during the project in the organization. Ad-hoc networks and the wireless networking are facilitated by the optimal routing. It is the nature of the networking topology that it can never be static in its state as it is non-static nature to increase the network for enhancing the performance for routing protocols. Information can be exchanged through various nodes and the most essential part of routing in the organization is routing protocols in order to facilitate the process of routing in effective and efficient way. The routing components can become more efficient only in case of proficient and reliable communications within the organization.

The most considerable factor for the routing protocol is reliable communication, although the need could be assessed by optimal routing and various scenarios for the improvement in the optimization of the routing in the organization. Different routing protocols are managed in different organization according to the need and the requirement of the routing in the organization but optimal level selection is based on the protocol in different situation. The

overall performance of routing network in all the organizations and in every sector is dependent on the routing protocols.

According to (Bierstaker, Burnaby, & Thibodeau, 2001)the above issues presented by different studies can be solved as the study revealed that routing protocols are disturbed in their efficiency and triggers the optimal routing to fall. In such situation the routing protocols and their challenges are due to unguarded channel in routing network from the exterior signal. In addition it has been analyzed that the performance of the router can be disturbed by lack of consistency in wireless devices and crossing the limits in routing mechanism. Lack of central unit, lack of fast policy transfer and demand for networking is increasing day by day.

High network performance is required in order to mitigate the risks and maintaining the efficient routing protocol and its selection is desirable. The routing protocols will be efficient if the selection is desirable. Organizations tend to evaluate the routing protocols the performance of matrices are delayed it will increase the overhead of the output (Chung, Bae, & Lee, 1999). The categorization of the routing protocol is not static as the routing is hop-by-hop routing for the distance vectors as the state of centralized versus distributed routing protocol in the organization.

Enhanced Route Map Support

Route map enhancement is facilitated by route-map command through integration of EIGRP to increase the capability of the router map in the organization. The commands of the route map are supported by the set Metris, set tag and match tag. The capability of the route map EIGRP ha minor capacity in the route map and redistributing router have many clauses because it is redistributed in the EIGRP but it can be facilitated only within a limited number of the routers in the network.

Issues in optimal routing

There are many issues faced by different networks and Enhanced Interior Gateway Routing Protocol for EIGRP has issues with opening with protocols. The protocols can be replaced with each other if they are paired by the same network route through gateway protocols of advanced interior. The routing protocol engineers are able to maintain autonomous system boundary in network routing as the transformation and convergence is greater on the other side of the models of protocols to switch on the other protocol.

The node distribution is uniform in their nature and the consumption will increase the imbalances in the cluster networks, as cluster-based routing protocol is required with node distribution. Organization also utilizes clustering algorithm EADC for optimization of cluster-based routing algorithm (Rogerson, Weckert, & Simpson, 2000). The construction of the cluster and simultaneously the routing algorithm through nodes and the cluster heads needs to be more efficient. The energy consumption has ability to create balance between the nodes and network for a lifetime.

The potential to improve performance is important for the organizations to develop an optimal routing metric of a wireless network in which planning and designing of ad hoc networks is most important factor to manage within the time. In wireless mesh networks the routing metric are useful to integrate as it increases the performance of the company and sustain the WMNs and MANETs to maintain the long term growth of the company. Optimal performance of routers and the development of the router require different features for different types of wireless networks in all existing routing metrics to allow better performance of MANETs. In addition it is important for the firm to evaluate the WMNs and MANETs routing metrics. Different

researchers have compared the routing networks however the consistency is not checked in routing metrics. Researchers have evaluated the performance of existing routing metrics in order to compare different companies to design optimal process for them. The Wireless Mesh Networks has been analyzed by their performance by NS2 simulation in the process of routing to design an optimal one. Four major routes are utilized in designing an optimal routing metric includes HOP, EETT, ETX and RTT.

The companies are compared on the basis of the twenty existing routing metrics for the above given four routing metrics. It has been observed that the ETX outperformed in the routing metrics in various sectors such as consultancy firms, retail industry, intra business and routing metrics for various group of companies. The results of the routing matrices manifests that the routing metric for WMNs and the study also suggested that the optimal routing metric for WMNs needs extensive planning.

Routing

The routing policies of the organization should be managed effectively in order to align it with the policies range and heuristics to optimal procedures of the organization. If the routing is optimal then the traveling time would be less as compared to the other facilities and heuristic routing benefits the performance by supporting the wireless networking. It is important for the organizations to routing out, explore out the networks for better performance in the market. Companies need to strive for the optimization of the routing as they need the routing process to be implemented for the moving packets of information throughout the network developed by the organization and the routs host one another in the network. The fundamental units of the

information used as the moving packets in the routing network in the entire modern computer to managed along with the networking of the communication as well.

Routing of different companies and sectors can be different however the basic function that the data is transferred by moving packets and transferred by the switched networks. Data is transferred after the data is subdivided into small segments and either the same path is utilized or the different path is used to transfer the data to the common destination within the organization or outside the organization to various places can be implemented (Hyun-Gyung, Yates, & Orlikowski, 2005). The messages are reassembled auto generate and recreated in order to forward it as the original message. Internet is based on the routing process and manages the redundancy of the high capacity transmissions of the lines in the firms and managing their networks.

Messages are transferred to one router to another and self-configuring routing is done in various networks on the similar design however the design varies organization to organization. It is important for the firms of education and consultancy sector that they need to improve the software in order to perform more complex and optimal path for better circuit switched networking and for the transmission of the messages through optimal paths. The public switched telephonic networks are the dominant circuit networks in order to interconnect the world through telephonic networks.

It has been analyzed that heuristic routing strategies plays important role in optimal routing procedures of the organization. Moreover it has been analyzed that there are many consultancy firms that are dealing with advanced routing heuristics for enhancing the improvement over

current routing. The nature of routes has been observed to be fairly consistent in nature even if they are similar as it helps in maximization of the performance enhancement.

The recent literature on the routing policies manifests that the development of optimal routing algorithms is based on the comparison of routing heuristics. Optimal algorithms for routing pickers are developed by various countries in order to compare the optimal and S-shape heuristic. The researchers focused mainly on the heuristics optimal routing to examine the manual routing and analyzing its influence on fixed-capacity warehouse. Moreover it has been analyzed that the companies also for volume-based storage in routing.

Detailed comparison of the companies enabled the analysis to found that there are many obstacles in optimal routing due to the trouble shooting memory issues of routing network. There are messages for router that there is some trouble shooting memory issues and memory allocation failure due to the inefficiency of the system and it is solved by the telnet sessions.

If the system is already managing with the error messages it indicates that the system is on very low memory along with router hanging and debugging. In order to develop BGP routing table from a complete perspective then it will require512 MB or 1 GB of RAM to store the data and the servers working on international level and route filters can be extended according to the need of the hour (Bierstaker, Burnaby, & Thibodeau, 2001).

Suggestions

- The networking and optimized routing is suggested to increase as there is need of communication need and the communication processes through a proper channel of multiprocessor system.

- The nodes should be implemented for heuristics to optimal procedures of the organization for the connection of the nodes with the host computer (Rogerson, Weckert, & Simpson, 2000).

- The communication nodes from the network as internal inputs should be given in order to create better opportunities for best performance of the organization.

- Message queue in routing the network should be managed effectively by the routers in order to connect the communication nodes, it should be used because it has unlimited store capacity.

- The queue servicing algorithm is FIFO should be integrated in the organization effectively by the IT expects to increase the networking along with improving the service of the incoming messages.

- Routing, diagnostics and fault recovery should be evaluated by the early demand in order to enhance the needed communication services within the organization and communication processors can be facilitated. Every firm should analyse the prevailing situation of the organization to increase the performance of the company for better future opportunities by enhanced capabilities of the organization.

- Message servicing should be facilitated by the organizations more or at least to the level of customer satisfaction. The process of routing to another node is supported by the transmission channel and servicing algorithm. More equipment and more personnel's should be hired for the most complex task of the organization with new perspectives to allow the company with new perspectives to handle the situations.

- Optimal routing solutions is suggested to continue research and development for years longer in order to enhance the ability of the organization and deliver qualitative benefits for better decision making process and continued improvement for additional modification.

- It is recommended that the firms should use key metrics for the dramatic changes in optimal routing system development in the organization. The growth of the business asserts pressure on the quality of the networking in the organization and constant monitoring to increase the performance of the organization.

Conclusions

The detailed literature review and comparison of various studies enabled the present study to reach at the point to conclude that the most important factor of all for firms today is optimization of the routing network in order to increase the performance of the company and to focus on the long term growth of the company. The companies are striving to optimize the routers to implement managerial part and optimize the overall system as the prior research manifest the importance of the routing heuristics and optimal routine in a volume-based and random storage environment is analyzed in detail and it has been concluded that routing and policy performance should be enhanced to have better future of the company. Many risks in the organization are

Related with optimization of the routing is associated with the consistent routes as well. It has been concluded that the routing heuristics and optimal routing are highly dependent on the time. It has been concluded that there are many gaps in the findings of the different researchers on optimal routing and some researchers supported the same fact that the organizations should increase the efficiency of networking by increasing the efficiency and performance of routing by managing them effectively along with selecting better options and designs for the development of the routing in order to optimize the routing network. It has been concluded that the performance of the routing policies and optimization of heuristic routing policies is based on the performance and the application of the advanced heuristics solutions in the organization along with optimal routine for fast solutions. At last the study also concluded that the planning problems in different organizations are different according to different situations and the process of scheduling is associated with the strategic planning level, design of routing network. Moreover companies should strive for tactical and operational planning in routing and scheduling aspects.

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