IJRRECS/July 2014/Volume-2/Issue-7/2785-2790 **ISSN 2321-5461**

INTERNATIONAL JOURNAL OF REVIEWS ON RECENT ELECTRONICS AND COMPUTER SCIENCE

IMPLEMENTATION OF TRAFFIC MANAGEMENT BY ROUTING SYSTEM

Panchakshari Madhavi Chandrashekhar[1], B.Ravi Prasad[2]

[1]M.Tech Student, Dept of CSE, RRS College of Engineering & Technology, Muthangi (V), Patancheru (M), Hyderabad, T.S, India

[2]Professor, Dept of CSE, RRS College of Engineering & Technology, Muthangi (V), Patancheru (M), Hyderabad, T.S, India

ABSTRACT:

Traffic engineering for plain IP-based networks has received a lot of concentration in research neighbourhood. To avoid network management by handling traffic dynamics and consequent service disturbances is the significant tasks performed by the current network management systems. The adaptive traffic control component performs intelligent traffic splitting adjustments across routing topologies in response to observed system dynamics at minute timescale based on these diverse paths. To minimize the maximum link utilization is the optimization objective of Adaptive traffic control, which is defined as the highest consumption among all the links in the network. Adaptive traffic control which is to perform periodic and incremental traffic splitting ratio re-adjustments across virtual routing topologies, but unnecessarily performing a global routing re-optimization process from scratch every time.

Keywords: Adaptive traffic control, Virtual routing topologies, Network management, Traffic dynamics.

1. INTRODUCTION:

In recent years, with the general strength being to facilitate virtualized network resources on top of the same physical network infrastructure the idea of virtual networks has received increasing concentration from the research community [4]. A hop-by-hop based monitoring mechanism which is accepted by efficient traffic engineering and management system that is related to the proposal. The basic design is that a devoted monitoring agent organized at every point of presence node is

accountable for monitoring: The volume of the traffic initiated by the local customers toward other point of presence nodes and the exploitation of the directly attached inter point of presence links. The most important reason is that new traffic splitting ratios are calculated by the traffic engineering manager who is capable to have the comprehensive view of the network, facilitating it to achieve a global optimum in traffic control [1]. This monitoring agent assembles data on the locally originated traffic volume from each and every access router connected to customers at the point of presence node. Temporarily the agent also collects the exploitation of the directly attached inter-PoP links from individual backbone routers [1]. The central traffic engineering manager polls individual monitoring agents within each point of presence node and collects their locally monitored traffic volume and link utilizations in a periodic fashion. This information are then used by the central traffic engineering manager for update its preserving traffic engineering information base and computing traffic splitting ratios for the next intermission [11]. With a central manager a hop-by-hop based paradigm works proficiently in traffic engineering system. Without flexible traffic splitting for active load balancing interior gateway protocol based Traffic Engineering only allows for fixed traffic delivery through inhabitant interior gateway protocol paths. Effectively, it has been recently disputed that active route re-computation is to be considered destructive even in the case of network breakdowns for dealing with traffic dynamics [3]. Our motivation differs from the existing proposals focusing on virtual network provisioning to support service differentiation, resource sharing or co-existing heterogeneous platforms.

2. METHODOLOGY:

Traffic Engineering is an important feature of existing network management. To avoid network management by handling traffic dynamics and consequent service disturbances is the significant tasks performed by the current network management systems [14]. Existing interior gateway protocol based Traffic Engineering system are merely restricted to offline process and consequently cannot manage proficiently by important traffic dynamics. By means of one particular traffic matrix like input in support of offline computing a static Traffic Engineering configuration is

not deemed as an efficient approach for resource optimization purposes in such dynamic environments [9]. Traffic engineering for plain IP-based networks has received a lot of concentration in research neighborhood. Additionally, by changing interior gateway protocol link weights in reaction to rising network congestion possibly will make routing re-convergence troubles that probably break off ongoing traffic sessions [7]. A hop-by-hop based monitoring mechanism which is accepted by efficient traffic engineering and management system that is related to the proposal as shown in fig1. To avoid network management by handling traffic dynamics and consequent service disturbances is the significant tasks performed by the current network management systems [2]. On the other hand, due to repeated and considerable traffic dynamics in operational networks these approaches frequently display operational inefficiencies. To minimize the maximum link utilization is the optimization objective of Adaptive traffic control, which is defined as the highest consumption among all the links in the network [16]. Adaptive traffic control is invoked at short period time during function to re-optimize consumption of system resources in reaction to traffic dynamics. For adaptive adjustment of the traffic splitting ratio at individual point of presence source nodes to achieve this goal we present a lightweight but efficient algorithm that can be applied [12]. Based on traffic pattern continuity at short a timescale is the rationale behind Adaptive traffic control which is to perform periodic and incremental traffic splitting ratio re-adjustments across virtual routing topologies, but without necessarily performing a global routing re-optimization process from scratch every time. For gathering advanced traffic circumstances in instantaneous and plays a significant function for sustaining adaptive traffic control operations is liable by network monitoring [5]. The adaptive traffic control component performs intelligent traffic splitting adjustments across routing topologies in response to observed system dynamics at minute timescale based on these diverse paths. A traffic engineering information base is needed by the Traffic Engineering manager to maintain necessary network state based on which novel ration of traffic splitting are calculated to fulfill the second task [15]. On ration of splitting arrangement in preceding period we work out new traffic splitting ratios at individual

point of presence source nodes, consistent with recently considered traffic demand and network load in support of vibrant load balancing. A dedicated traffic engineering manager is required as far as implementation is concerned, having a global view of the entire network conditions and being responsible for computing optimized traffic splitting ratios according to its maintained traffic engineering information base [10]. Adaptive multi topology traffic engineering is introduced based on virtualized interior gateway protocol routing that enables short timescale traffic control against unexpected traffic dynamics using multi topology Interior Gateway Protocol -based networks is introduced by a novel Traffic Engineering system [6]. Offline link weight optimization and adaptive traffic control are two major components which encompass the framework. Based on adaptive multi topology traffic engineering a potential direction in future work is to regard as holistic traffic engineering paradigm, which is capable to concurrently tackle both traffic and network dynamics [13]. The offline link weight optimization component takes the physical network topology as the input and aims to generate maximum interior gateway protocol path variety across various routing topologies through the optimized setting of multi-topology aware interior gateway routing protocols link weights.

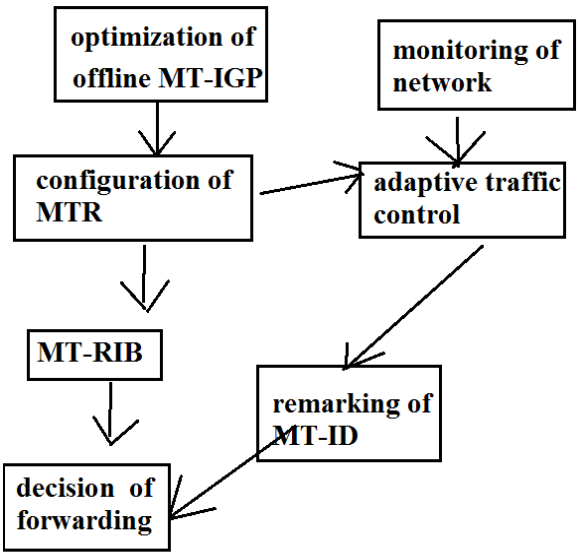

Fig1: An overview of AMPLE system.

3. RESULTS:

AMPLE has an incredibly high chance of achieving near-optimal traffic engineering performance under any situation of traffic traces with four routing topologies. Adaptive traffic control performs intellectual traffic splitting across individual routing topologies in response to the monitored network dynamics at small timescale based on these varied paths. A hop-by-hop based monitoring mechanism which is accepted by efficient traffic engineering and management system that is related to the

proposal and was observed that adaptive multi topology traffic engineering can considerably decrease the maximum link utilization for most of the traffic traces. Even if multiple traffic matrices with different pattern characteristics are measured in link weight optimization, unanticipated traffic spikes may still introduce unfortunate traffic engineering performance. The larger the number of routing topologies used, the earlier to the optimal performance can be achieving. Multi-TM approach does not attain good performance in minimizing the maximum link utilization and the ultimate objective is to reduce the cost represented by means of piece-wise linear utility to a certain extent than particularly on utmost association utilization.

4. CONCLUSION:

Existing interior gateway protocol based Traffic Engineering system are merely restricted to offline process and consequently cannot manage proficiently by important traffic dynamics. Adaptive multi topology traffic engineering is introduced based on virtualized interior gateway protocol routing that enables short timescale traffic control against unexpected traffic dynamics using multi topology Interior Gateway Protocol -based networks is introduced by a novel Traffic Engineering system. Adaptive traffic control performs intellectual traffic splitting across individual routing topologies in response to the monitored network dynamics at small timescale based on these varied paths. Based on adaptive multi topology traffic engineering a potential direction in future work is to regard as holistic traffic engineering paradigm, which is capable to concurrently tackle both traffic and network dynamics. Adaptive traffic control is invoked at short period time during function to re-optimize consumption of system resources in reaction to traffic dynamics. New traffic splitting ratios are calculated by the traffic engineering manager who is capable to have the comprehensive view of the network, facilitating it to achieve a global optimum in traffic control.

REFERENCES:

[1] S. Balon *et al.*, "Traffic Engineering and Operational Network with the TOTEM Toolbox," *IEEE Trans. Network and Service Management*, vol. 4, no. 1, June 2007, pp. 51–61, Project website (including GEANT/AbileneNetwork Topology and Traffic Dataset): http://totem.info.ucl.ac.be/

[2] Dulman, S., Nieberg, T.,Wu, J., & Havinga, P. (2003). Trade-off between traffic overhead and reliability in multipath routing for wireless sensor networks. In Proceedings of wireless communications and networking conference.2007

[3] G. Iannaccone, C. Chuah, R. Mortier, S. Bhattacharyya and C. Diot. "Analysis of Link Failures in a Large IP Backbone", Proceedings of 2nd ACM Sigcomm Internet Measurement Workshop (IMW), San Francisco USA, November 2002.

[4] Devisri, R., & Archana Devy, R. J. (2011). Reliable and power relaxation multipath routing protocol for wireless sensor networks. In Proceedings of international conference on advancement in information technology

[5] B. Fortz and M. Thorup, "Optimizing OSPF/IS-IS Weights in a Changing World", IEEE Journal on Selected Areas in Communications (JSAC), Vol. 20, No. 4, May 2002, pp. 756-767.

[6] Ning Wang, Kin Hon Ho, George Pavlou, AMPLE: "An Adaptive Traffic Engineering System Based on Virtual Routing Topologies". IEEE communications Magazine March 2012.

[7] T.D. Lagkas, G.I. Papadimitriou*, A.S. Pomportsis "QAP: A QoS supportive adaptive polling protocol for wireless LANs" Computer Communications 29 (2006) 618–633

[8] S. Uhlig *et al.*, "Providing Public Intradomain Traffic Matrices to the Research Community," *ACM Sigcomm Comp. Commun. Rev. (CCR)*, vol. 36, no. 1, Jan. 2006, pp. 83–86

[9] "AMPLE: An Adaptive Traffic EngineeringSystem Based onVirtual Routing Topologies", *Ning Wang, Kin Hon Ho, George Pavlou, ,2012*

[10] N. M. Mosharaf Kabir Chowdury and R. Boutaba, "A Survey of Network Virtualization," *Computer Networks,*vol. 54, issue 5, Apr. 2010, pp. 862–76.

[11] Yuxia Lin, Vincent W.S. Wong, "An admission control algorithm for multi-hop 802.11e-based WLANs". Computer Communications 31 (2008) 3510–3520

[12] N. Wang, K-H. Ho, and G. Pavlou, "Adaptive Multitopology IGP Based Traffic Engineering with Near-OptimalPerformance," *Proc. IFIP Networking 2008*.

[13] A. Kvalbein *et al.*, "Multiple Routing Configurations for Fast IP Network Recovery," *IEEE/ACM Trans. Net.*, vol. 17, no. 2, 2009, pp. 473–86.

[14] D. Xu, M. Chiang, and J. Rexford, "Link-State Routing With Hop-By-Hop Forwarding Can Achieve OptimalTraffic Engineering," *Proc. IEEE INFOCOM*, Apr. 2008.

[15] A. Asgari *et al.*, "Scalable Monitoring Support for Resource Management and Service Assurance," *IEEE Network Mag.*, vol. 18, issue 6, Nov. 2004, pp. 6–18.

[16] M. Caesar *et al.*, "Dynamic Route Computation Considered Harmful," *ACM Comp. Commun. Rev. (CCR)*, vol.40, no. 2, Apr. 2010, pp. 66–71.