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AN IMPROVED EFFICIENCY OVERLAY NETWORK FOR TCP THROUGHPUT USING PATH INFLATION

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ABSTRACT

In the recent past, most of internet routing architecture enjoys the privilege of Resilient Overlay Network architecture which is consider as one of the top existing Internet routing infrastructure. The main goal of this architecture is to replace the existing routing scheme, if necessary, using the overlay infrastructure. This work mainly focuses on the overlay infrastructure such as monitoring and detecting routing problems, and maintaining the overlay system, and it does not consider the cost associated with the deployment of such system. Overlay routing has been proposed in recent years as an effective way to achieve certain routing properties, without going into the long and tedious process of standardization and global deployment of a new routing protocol. Overlay routing has been proposed in recent years as an effective way to achieve certain routing properties, without going into the long and tedious process of standardization and global deployment of a new routing protocol. In this paper we have proposed two sequential scenarios. The first scenario motivates for path inflation and second scenario considers TPC improvement. In this paper, we test the algorithm on a synthetic random graph, and we show that the general framework can be applied also to this case, resulting in very close-to-optimal results.

Key Words: Overlay network, optimal result, RON, Scenarios.

I. Introduction

Overlay routing is a very attractive scheme that allows improving certain properties of the routing such as delay or TCP throughput without the need to change the standards of the current underlying routing. However, deploying overlay routing requires the placement and maintenance of overlay infrastructure.

II. LITERATURE SURVEY

How Good Is Random Linear Coding Based Distributed Networked Storage Ralf Koetter et al [1] there are multiple storage locations, each of which only have very limited storage space for each file. Each storage location chooses a part of the file without the knowledge of what is stored in the other locations. We compare the performance of three strategies: un-coded storage, traditional erasure coding based storage, random linear coding based storage motivated by network coding.

A High-Throughput Overlay Multicast Infrastructure with Network Coding Zongpeng Li et al [2] Network coding has been recently proposed in information theory as a new dimension of the information multicast problem that helps achieve optimal transmission rate or cost. End hosts in overlay networks are natural candidates to perform network coding, due to its available computational capabilities. In this paper, we seek to bring theoretical advances in network coding to the practice of high-throughput multicast in overlay networks.

Multicast with Network Coding in Application-Layer Overlay Networks by Ying Zhu et al [3] list all of the advantages of application-layer overlay networks arise from two fundamental properties: (1) The network nodes in an overlay network, as opposed to lower-layer network elements such as routers and switches, are end systems and have capabilities far beyond basic operations of storing and forwarding; and (2) The overlay topology, residing above a densely connected IP-layer wide-area network, can be constructed and manipulated to suit one's purposes.

Network Information Flow Yeung, R.W. Study the problem with one information source, and we have obtained a simple characterization of the admissible coding rate region. Our result can be regarded as the max-flow min-cut theorem for network information flow. Contrary to one's intuition, our work reveals that it is in general not optimal to regard the information to be multicast as a "fluid" which can simply be routed or replicated.

Polynomial Time Algorithms for Multicast Network Code Construction by Sanders, P. et al [5] The famous max-flow min-cut theorem states that a source node s can send information through a network (V, E) to a sink node t at a rate determined by the min-cut separating s and t. Recently, it has been shown that this rate can also be achieved for multicasting to several sinks provided that the intermediate nodes are allowed to re-encode the information they receive.

III. Implementation

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system.

The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. The form Client Service 1 get an IP address, subject of message and a message to transform from Client Service 1 (refer fig 1) to the Main Service Provider by clicking Transform button.

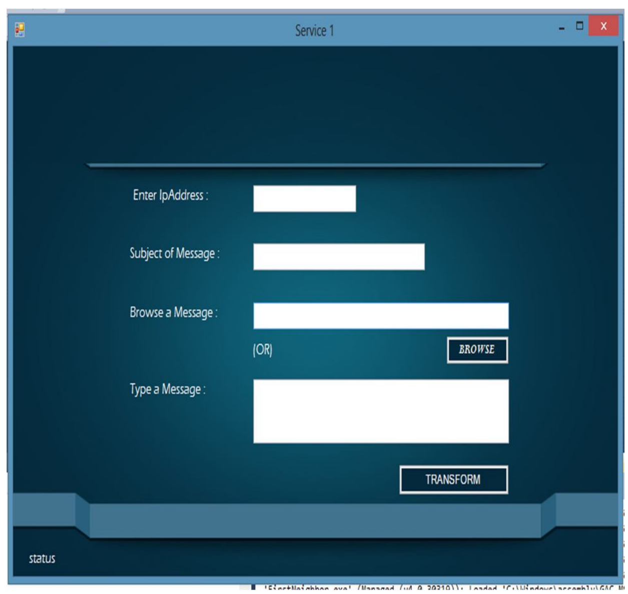

Fig 1: Client Service 1

The status will be display as message transferred if message delivered else message failed will display. Browse option is to select a text document.

The form Client Service 2 get an IP address, subject of message and a message to transform from Client Service 2 (refer fig 2) to the Service Provider by clicking Transform button.

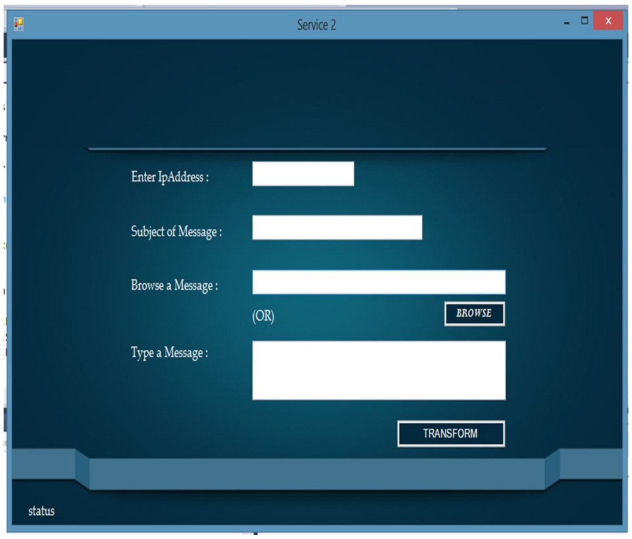

Fig 2: Client Service 2

The status will be display as message transferred if message delivered else message failed will display. Browse option is to select a text document.

The form Client Service 3 get an IP address, subject of message and a message to transform from Client Service 3 (refer fig 3) to the Main Service Provider by clicking Transform button.

Fig 3: Client Service 3

The status will be display as message transferred if message delivered else message failed will display. Browse option is to select a text document.

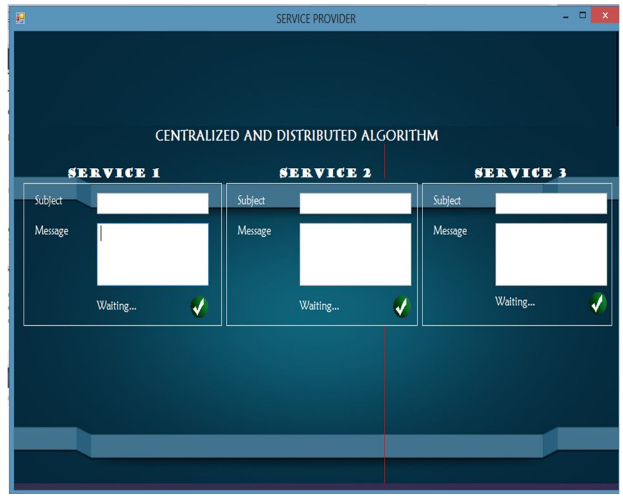

Fig 4: Service Provider

The Service Provider form (refer fig 4) is to display the transforming subject and message of the Client Service 1, Client Service 2 and Client Service 3. After receiving it, displays the status as received.

IV. Conclusion

In this paper, we addressed this fundamental problem developing an approximation algorithm to the problem. Rather than considering a customized algorithm for a specific application or scenario, we suggested a general framework that fits a large set of overlay applications. Considering three different practical scenarios, we evaluated the performance of the algorithm, showing that in practice the algorithm provides close-to-optimal results.

The business relationship between the different players in the various use cases is complex, and thus it is important to study the economical aspects of the scheme as well. For example, the one-to-many BGP routing scheme can be used by a large content provider in order to improve the user experience of its customers.

The VoIP scheme can be used by VoIP services such as Skype to improve call quality of their customers. In both these cases, the exact translation of the service performance gain into actual revenue is not clear and can benefit from further research.

V. Reference

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