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A Multipath Connection Model for Traffic Matrices

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ABSTRACT
Peer-to-Peer (P2P) applications have witnessed an increasing popularity in recent years, which brings new challenges to network management and traffic engineering (TE). As basic input information, P2P traffic matrices are of significant importance for TE. Because of the excessively high cost of direct measurement. In this paper,A multipath connection model for traffic matrices in operational networks. Media files can share the peer to peer, the localization ratio of peer to peer traffic. This evaluates its performance using traffic traces collected from both the real peer to peer video-on-demand and file-sharing applications. The estimation of the general traffic matrices (TM) then used for sending the media file without traffic. Share the media file, source to destination traffic is not occur. So it give high performance and short time process.
Index Terms—Traffic matrix, peer-to-peer (P2P), traffic engineering

I. INTRODUCTION

A computer network or data network is a telecommunications network that allows computers to exchange data. In computer networks, networked computing devices pass data to each other along data connections. Data is transferred in the form of packets. The connections (network links) between nodes are established using either cable media or wireless media. A computer network, or simply a network, is a collection of computers and other hardware components interconnected by communication channels that allow sharing of resources and information. Today, computer networks are the core of modern communication. All modern aspects of the public switched telephone network (PSTN) are computer-controlled. The best-known computer network is the Internet.

Media files can share the peer to peer, the localization ratio of peer to peer traffic will occurred. The network traffic is usually illustrated by a traffic matrix (TM), which presents traffic volumes between each pair of ingress and egress nodes (e.g., routers) in the network. As basic input information, TM in the context of the Internet is crucial for a wide range of traffic engineering (TE) tasks, such as network planning and load balancing.

This evaluates its performance using traffic traces collected from both the real peer to peer video-on-demand and file-sharing applications. The estimation of the general traffic matrices then used for sending the media file without traffic. Share the media, source to destination traffic is not occur.

II. SYSTEM ARCHITECTURE

The architecture we propose a multipath connection model for traffic matrices in peer to peer network.

2.1.ARCHITECTURE MODEL

Media files can share the peer to peer, the localization ratio of peer to peer traffic. This evaluates its performance using traffic traces collected from both the real peer to peer video-on-demand and file-sharing applications. The estimation of the general traffic matrices then used for sending the media file without traffic. Share the media, source to destination traffic is not occur. Give high performance and short time process traffic is reduced.

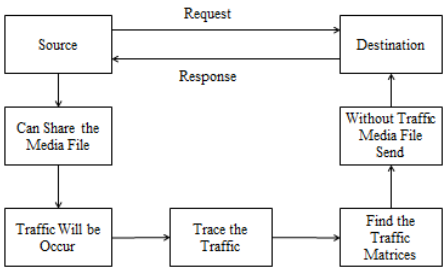


Figure 1: peer to peer traffic matrices

III. SYSTEM MODULES

3.1 TRAFFIC CHARACTERISTICS IN PEER TO PEER SYSTEMS

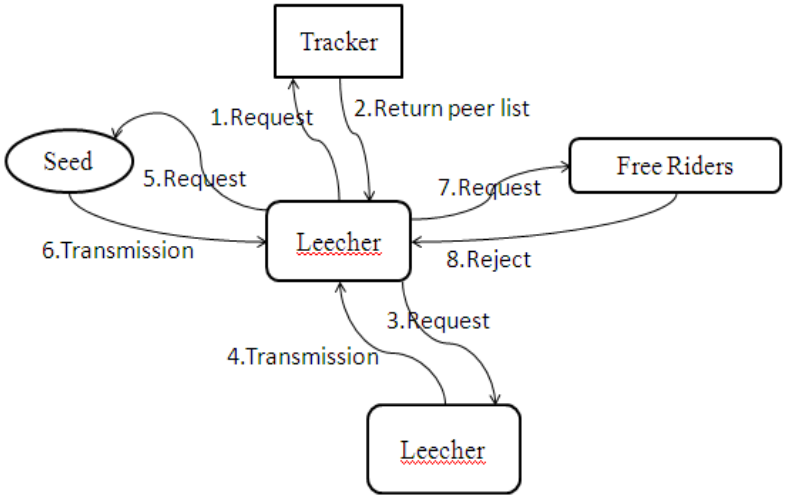


Figure 2: Working process of Youtube

In Youtube, **Seed**: Do not have any bias on choosing which neighbor(s) to upload data to.

Free-Riders: peers that download a lot of data but seldom upload. Free-riders are more likely to reject the data requests from other peers.

Leechers: peers that not only download but also upload data. In Youtube, leechers prefer uploading peers who have uploaded more data to them before

3.2 PEER TO PEER TRAFFIC MATRICES TECHNIQUE

Recently developed techniques have been very successful in accurately estimating intra-Autonomous System (AS) traffic matrices. These techniques rely on link measurements, flow measurements, or routing-related data to infer traffic demand between every pair of ingress-egress points of an AS. They also illustrate an inherent mismatch between data needed and data most readily available. This mismatch is exacerbated when try to estimate inter-AS traffic matrices, i.e., snapshots of Internet-wide traffic behavior over coarse time scale between ASs. Present a method for modeling inter-AS traffic demand that relies exclusively on publicly available/obtainable measurements.

Very few techniques have been proposed for estimating traffic matrices in the context of Internet traffic. The primary contribution is the outcome of a detailed comparative evaluation of the three existing techniques. Here evaluate these methods with respect to the estimation errors yielded, sensitivity to prior information required and sensitivity to the statistical assumptions they make.

3.3 ESTIMATION ALGORITHM

Input: Peer files matrix A, file similarity graph S
Output: Peer similarity matrix P
1: for all pairs of peers $(p_i, pj) \in A$ do
2: $B \leftarrow \emptyset$
3: for all pairs of files $(f_i^k, f_j^r) \in (pi, pj)$ do
4: if $f_i^k = f_j^r$ then
5: w = 1
6: else
7: $w = d^{-1}(\text{shortest\_ path } (f_i^k, f_j^r))$, on S
8: end if
9: $B(f_i^k, f_j^r) \leftarrow w$
10: end for
11: M = maximal _ weighted matching (B)
12: $P(p_i, p_j) = M / \min\{|p_i|,|p_j|\}$
13: end for
14: Return P

IV. RELATED WORK

A Measurement Study of Peer-to-Peer File Sharing Systems

Provide a first step toward understanding the differences between pollution and poisoning, and their respective impact on content availability in peer-to-peer file sharing networks. To that effect, conduct a measurement study of content availability in the most popular peer-to-peer file sharing networks, in the absence of poisoning, and then simulate different poisoning strategies on the measured data to evaluate their potential impact.

Caching the P2P Traffic in ISP Network

Some research efforts focus on P2P systems, trying to understand the mechanism of various implementations and the behavior pattern of P2P users, and then improve the systems' performance. Others look at the issue from the angle of ISPs, trying

to help ISPs solve various issues brought by P2P applications. In this article, conduct a review study on recent research efforts in these two areas. The first part of this article focuses on several key strategies that have significant influence on the performance of P2P systems.

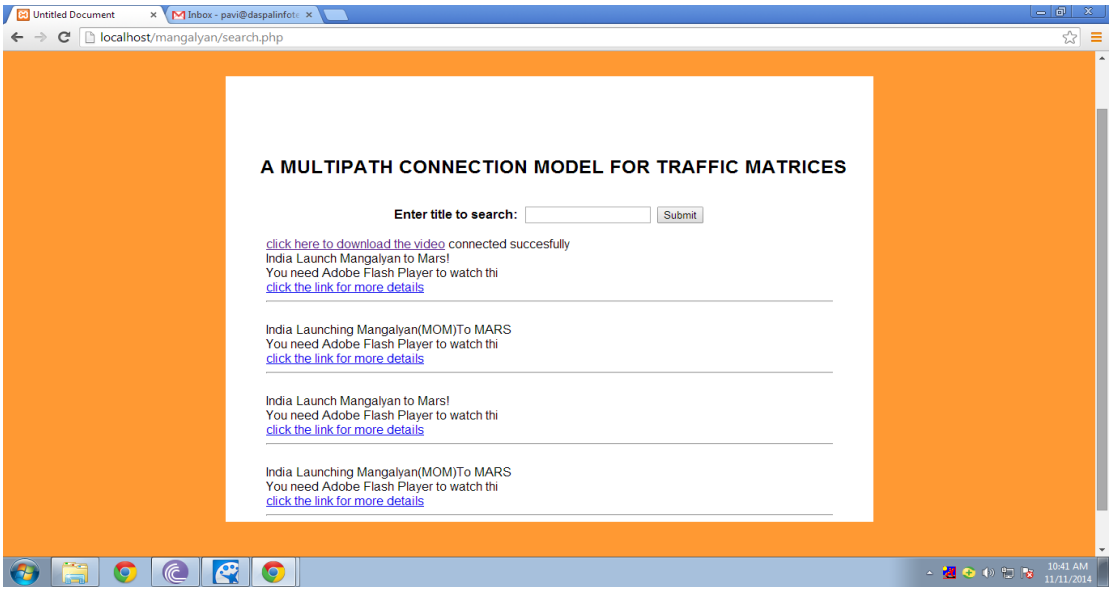
An Information-Theoretic Approach to Traffic Matrix Estimation

However, it is very difficult to estimate the traffic matrix for a large-scale network. This is because the estimation problem from limited link measurements is highly under constrained. Here propose a simple probability model for a large-scale practical network. The probability model is then generalized to a general model by including random traffic data. Traffic matrix estimation is then conducted under these two models by two minimization methods. It is shown that the Normalized Root Mean Square Errors of these estimates under our model assumption are very small. For a large-scale network, the traffic matrix estimation methods also perform well. The comparison of two minimization methods shown in the simulation results complies with the analysis.

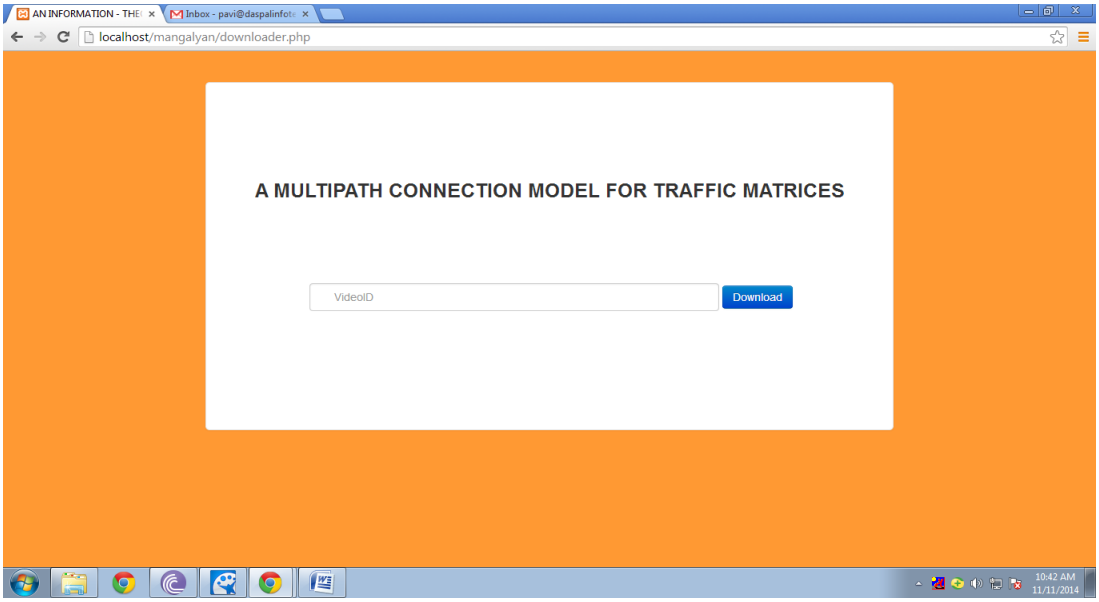
V. COMPARISION BETWEEN EXISTING AND PROPOSED ALGORITHM

PARAMETERS	EXISTING	PROPOSED
ALGORITHM	Iterative Algorithm	Estimation Algorithm
PERFORMANCE	Low	.High
PROCESS	Long Time Process	Short Time Process
COST	High cost	Low Cost

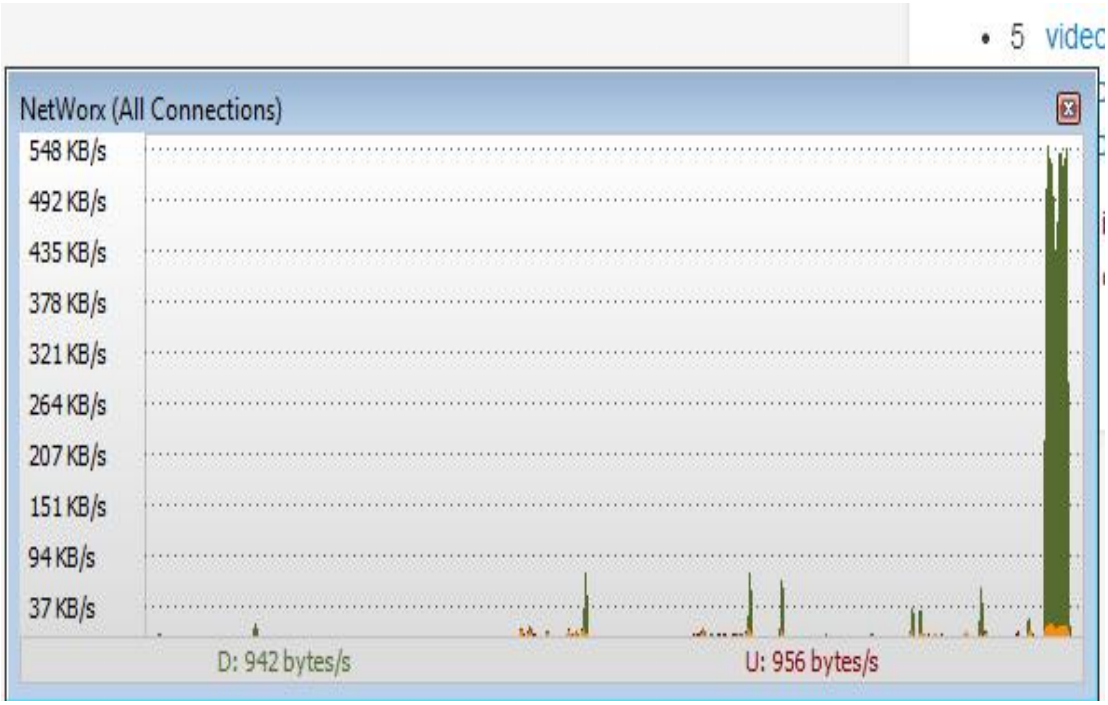
AFTER CREATING PEER TO PEER NETWORK
SEARCH RESULT PAGE



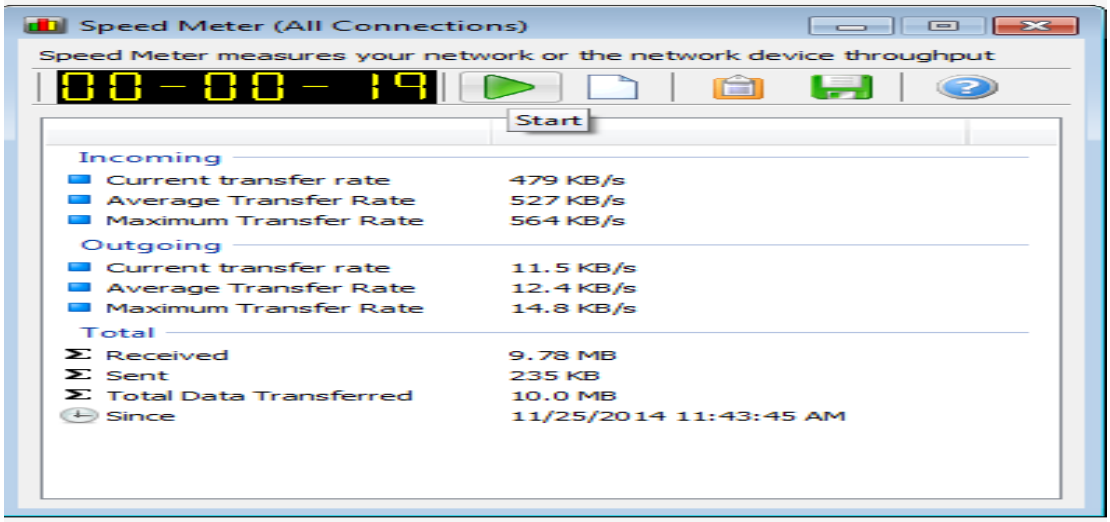
AFTER SEARCHING THE DATA
VIDEO SHARING



TRAFFIC OCCURRED



SPEED MEASURE



VI. CONCLUSION

Develop a deep insight into user behaviors and traffic characteristics of peer to peer systems, and then propose a novel model to estimate P2P traffic occur. In order to better reflect the features of peer to peer traffic, consider several important factors, including the localization ratio of peer to peer traffic.

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