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Efficient Content Downloading in Multi hop Vehicular Network

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ABSTRACT: In the vehicular Adhoc network there are lot of works proposed, this paper speaks about the network in different concept such that, a system where users aboard communication-enabled vehicles are interested in downloading different contents from Internet-based servers. This development captures many of the infotainment services that vehicular communication is envisioned to enable, including news reporting, navigation maps and software updating[14], or multimedia file downloading. In this paper, we outline the performance limits of such a vehicular content downloading system by modelling the downloading process as an optimization problem, and maximizing the overall system throughput. Our approach allows us to investigate the impact of different factors, such as the roadside infrastructure deployment, the vehicle-to-vehicle relaying, and the penetration rate of the communication technology, even in presence of large instances of the problem. Results highlight the existence of two operational regimes at different penetration rates and the importance of an efficient, yet 2-hop constrained, vehicle-to-vehicle relaying.

Keywords: Multi hop, vehicular system, Content Downloading.

I. INTRODUCTION

Vehicular Networks is the major and effective in the networking platform, it formulates the concept of various levels of the road side networks, sensor network, etc. The difference between those networks are related to each in the form of reference medium that is for the road side networks the router will be the access point and for the senor network the sensor are processing in as access point. This will be the overall functionality in which the platform will be different in other network related process.

The multi hop environment gives the path dependency and also efficiency in the cost for the transmission rate and also the level of the transmission, it means that the various process are there while transmission.

Content downloading is the process in which the nodes are transferred by each individual this can be processed by means of the road side network in case of multi hop environment by means of router.

II. LITERATURE SURVEY

A. *Mix-Zones for Location Privacy in Vehicular Networks*

In this paper, vehicular network should provide the safer driving condition. To obtain the safer condition vehicular network often traces the broadcast messages and gives the position of the nearby vehicle [8] . By tracing the track we get drivers privacy at stake to mitigate this threat we use the mix zone variations to avoid such intersection. In cryptography we study about the combination of mix network into mix zone. By using the analysis we can yield the location privacy.

1. SYSTEM AND THREAT MODEL
   - Vehicular network and threat model: This provides the relevant information about the vehicle and should satisfy these requirement sender and data authenticity, availability, liability, and real-time delivery.

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2. CRYPTOGRAPHIC MIX-ZONES IN VEHICULAR NETWORKS
   - Cmix protocol and its analysis: This protocol help to avoid the location privacy by encrypting the sending broadcast safety messages by using symmetric key encryption.

3. LOCATION PRIVACY OF VEHICULAR MIX-NETWORKS
   - Vehicular mix-zones and mix networks: Mix zones are the relation between the entry and exiting region.mix networks are created by joining the various mix-zones into the single network by providing the unlink ability.

B. GeOpps: Geographical Opportunistic Routing for Vehicular Networks

Here we study about the geograpical position that routed for vehicular network. A vehicle that travels from source will defintely reaches the destination part in very short cost [6].

Delay tolerant network protocol is used in base of performance challenged environment. This protocol evaluates the time and speed up the performance measure.

Geopps will provide the data packet to send along the destination is evaluated often to find the shortest path for reaching the destination.

This also forms the systems

- Navigation system: It provides the suggested route for the current position to reach the destination.
- Utility function: This calculates the minimum time required to reach the destination.
- Carrier choice: The current carrier keeps the packet or forwards the packet by calculating the lowest value.

C. *Co-operative Downloading in Vehicular Ad-hoc Wireless Networks*

In this paper, traffic crowds that obtained over the internet are reduced using spawn protocol. This protocol achieves the scalability of the network.

Scalability obtained by providing peer network [7]. This network downloads the content in parallel mechanism. Here not only shows the content server but also wireless access to develop an analytics model to characterize the performance of increasing with spawn protocol.

D. SPAWN: Swarming Protocol for vehicular Ad-Hoc Networks

There are many spawn available to increase the scalability

- Probabilistic Spawn: There are two spawns uninterested and interested. In these they forward with low probability deals with uninterested and forward the message with high probability deals with interested spawn.
- Rate limited spawn: Rate limited recent spawn gives you gossip message with recent time stamp. Rate limited random spawn gives you gossip message with random

There are two models described namely

- Simple deterministic model: In this model we determine the single downloading of peer network.
- Traffic pattern model: This model provides the traffic related ways of downloading the content.

III. EXISTING SYSTEM

In the existing system the traffic relaying is calculated through one or more vehicles in the individual process which can be also maintain the single-hop transfer of data [14]. This is the traditional approach to traffic delivery in ad hoc networks. Although longer periods of time under coverage can undoubtedly favour the download of contents by vehicular users, important differences with the work exist. The main disadvantage of this is that no multi hop data transfer is investigated.

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IV. PROPOSED SYSTEM

Vehicular networks, as well as on the connectivity challenges posed by such an environment. The authors show that a random distribution of APs over the street layout can help routing data within urban vehicular ad hoc networks. The impact of several AP deployments on delay tolerant routing among vehicles is studied. More precisely, each AP is employed as a static cache for content items that have to be transferred between vehicles visiting the AP at different times. Other than in the scope, the works in differ from ours also because they do not provide theoretical justification of the AP placements they propose. AP deployment is formulated as an optimization problem in [13], where, however, the objective is not content downloading but the dissemination of information to vehicles in the shortest possible time. The study in [14], instead, estimates the minimum number of infrastructure nodes to be deployed along a straight road segment so as to provide delay guarantees to the data traffic that vehicles have to deliver to the infrastructure, possibly with the help of relays.

A similar problem is addressed with the aim to support information dissemination. The different objectives of the above studies lead to completely different formulations, thus to results not comparable with the ones we present. Infrastructure placement strategies are proposed that maximize the amount of time a vehicle is within radio range of an AP. Although longer periods of time under coverage can undoubtedly favour the download of contents by vehicular users, important differences with our work exist.

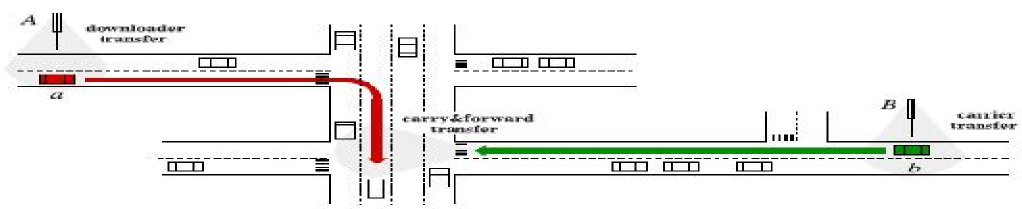

Fig: 1 Architecture Diagram

First, our analysis is not limited to direct transfers from APs to vehicles, but includes traffic relaying. Second, while the problem formulation in [3] guarantees a minimum coverage requirement and the one in [4] maximizes the minimum-contact opportunity, we optimize the actual throughput, accounting for the airtime conflicts deriving from the contemporary presence of an arbitrary number of vehicles.

The main advantages of this are,

- Efficiency is high.
- Transmission rate is high compared to existing one.
- Network capacities are improved.
- Files can be downloaded for large size.
- Time complexity is very high when compared to the existing system.

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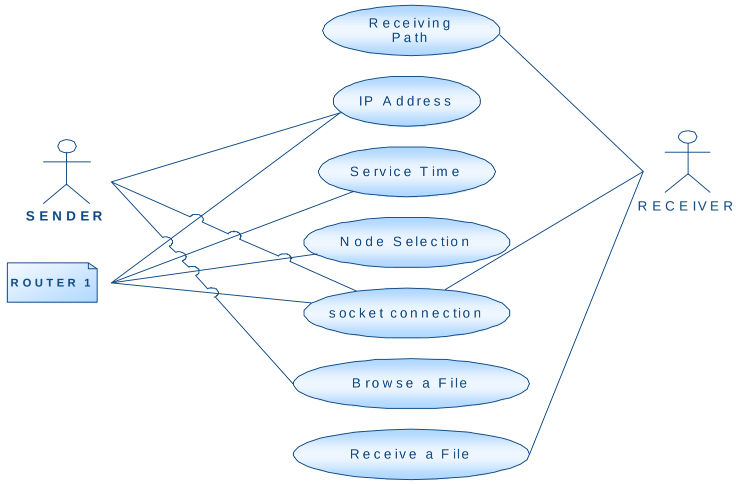

Fig: 2 Use Case Diagrams

V. EXPRIEMENTAL RESULT

The experimental result Shows that the processes as in the Content download is that file is to be transfer and then follow the Carry forward and finally Dynamic Network Topology Graph (DNTG). That is initially the file is send to forward from the source to destination, for this the ip of the system is needed then followed with that the node are processed to carry that is shown in the fig 3. After the file transfer to the entire node by means of carry download, then the delay tolerance is to be found out by means of transferring. It can done for the source, destination and for the router it is shown in the fig4, 5, 6, 7. Then at last the file gets download in the specified folder.

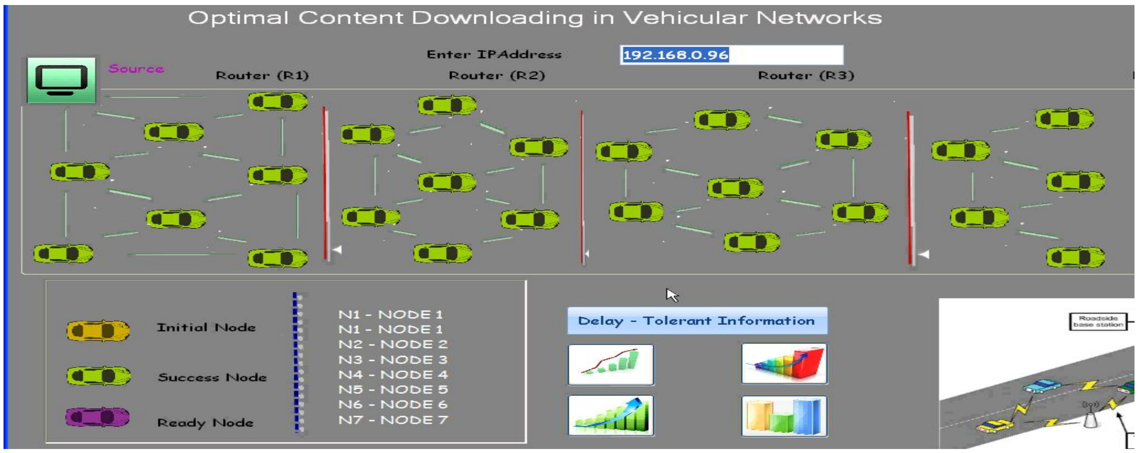

Fig: 3 Carry Forward

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Fig: 4 Delay Tolerances.

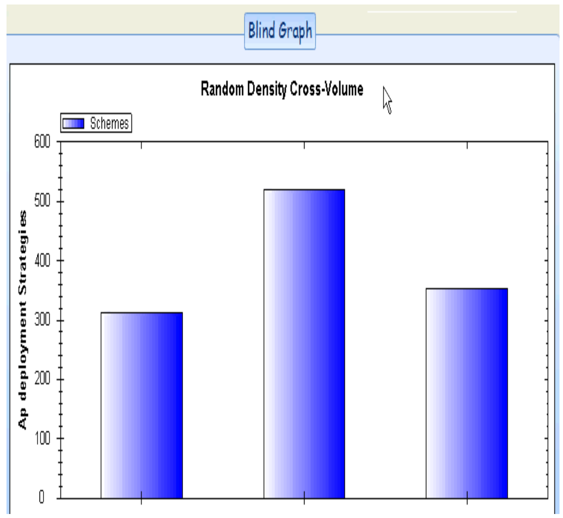

Fig: 5 Density for Source

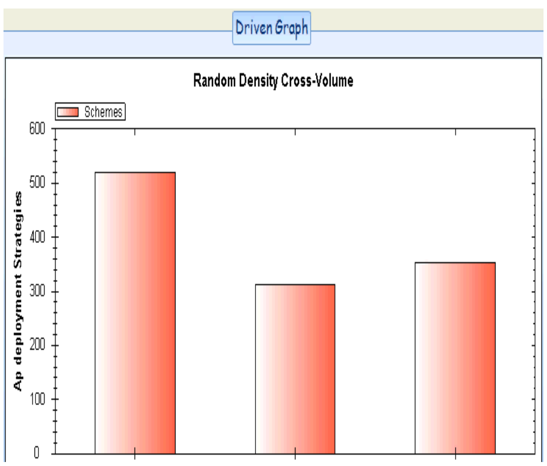

Fig: 6 Density for Router

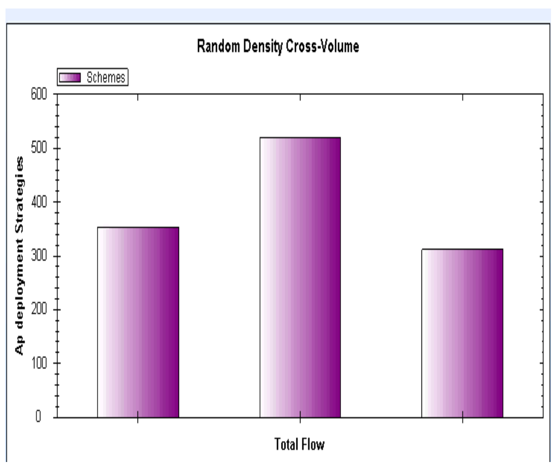

Fig: 7 Density for Destination

VI. CONCLUSION

Thus the system is implemented for the content downloading in the vehicular process by means of the roadside environment. This works well and the efficiency also process in better platform by means of multi hop environment, the file is to transfer from one node to another by means of vehicle to vehicle environment. The proposed framework is based on the time expanded graphs based on the content gets downloaded. This approach allows to capture the space and the time in the overall network by the upper bound solution to the system performance. The problem is solved by means of the physical and Mac layer assumptions by means of frame work in a tight upper bound. Thus the efficient content gets downloaded in the multi hop environment.

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BIOGRAPHY

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