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Multi-Hop Transport Protocol Communication Route Switching for Mobile Ad- Hoc Networks

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ABSTRACT

Time and the Constraint are both typically interrelated and lead us to the next level high technological revolution journey where we analyses the Human Automation instead of System Automation. Technological in the View Point cognitive science Information technology will have to make high level of demanding journey; in that aspect we consider the best of the technical revolution in the Social media where we share the thoughts , informational to many more . In Transport Protocol networks (CRNs), secondary users (SUs) can flexibly access primary users' (PUs') idle spectrum bands, but such spectrum opportunities are dynamic due to PUs' uncertain activity patterns. In a multi hop CRN consisting of SUs as relays; such spectrum dynamics will further cause the invalidity of predetermined routes. In this paper, we investigate spectrum-mobility-incurred route-switching problems in both spatial and frequency domains for CRNs, where spatial switching determines which relays and links should be reselected and frequency switching decides which channels ought to be reassigned to the spatial routes. The proposed route-switching scheme not only avoids conflicts with PUs but also mitigates spectrum congestion.

Keywords : Routing, Spectrum Dynamics, Transport Protocol, Transport Protocol, Mobile Ad Hoc Network, Multi-Hop Communication

I. INTRODUCTION

In the Era of Smart Phone, where we implement the best to best innovative service in the trend of entertainment which PC or Laptop is providing. Keeping those points in the Modernization and innovation to smart phone we implement the best to best of the Introductory Part. Accidentally smart Mobile is an existing Mobile that is unable to accommodate and integrate the new technologies. It is a phenomenon in which technological components are embedded gradually in the environment rather than the new smart Mobiles that are purpose-built to support technologies. For example if a person brings Bluetooth-enabled speakers to Mobile and set those to the nearest sound source may get different programmers that are originally set by a neighbor. Due to their low costs, ease of deployment, increased coverage, and enhanced capacity (e.g., via spatial reuse), multi-hop wireless networks such as mesh networks that utilize inexpensive and readily available 802.11 wireless interfaces are touted as the new frontier of wireless networking. Multiple orthogonal channels are defined in IEEE standards, e.g., there are 3 orthogonal channels for 802.11b and 13 for 802.11a.

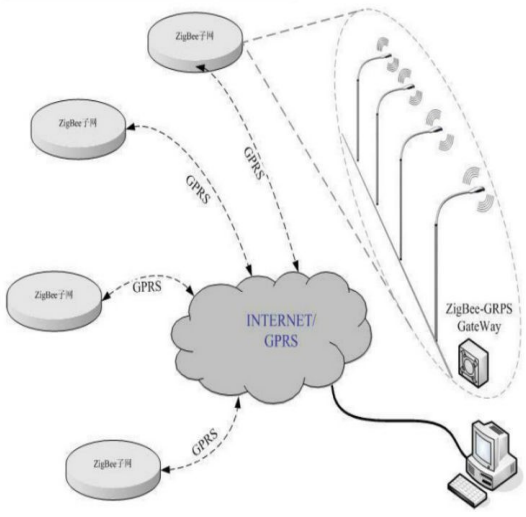

Fig.1.1 Illustration of Data Sharing Over the Protocol

These orthogonal channels provide the feasibility for interference mitigation among nearby wireless access networks. There can social consequences that can arise

with the technologies are implemented into the smart Mobile environment. The challenge of the designer is to deal with these social issues in efficient manner. The main social aspects to be considered are privacy, labor saving and good parenting. In his article defines a smart phone as "a device that lets you make telephone calls, but also adds features that you might find on a personal digital assistant or a computer".

II. RELATED WORK

In reality, if there are multiple radios on some nodes, it is most likely that these radios are heterogeneous. For example, a node can have an Ultra Wide-Band (UWB) radio and an 802.11 radio, or an 802.11a radio and an 802.11g radio simultaneously many attractive and promising features of M3WN motivate us to consider how to efficiently leverage the feature of multi-radio and multi-channel to conquer/reduce the wireless interference that widely exists in classical multi-hop wireless networks. To effectively mitigate interference, both routing and channel assignment (CA) should be carefully designed. Here, routing selects the path from the source to the destination for connections, and thus assigns traffic to each radio and link, while CA determines the channel which a radio interface should Wireless broadband networks are being increasingly deployed in a multi-hop wireless mesh network (WMN) configuration. These WMNs are being used on the last mile for extending or enhancing Internet connectivity for mobile clients located on the edge of the wired network. Commercial deployments of multi-hop wireless mesh networks (WMNs) are already in the works. The deployed mesh networks will provide commercial Internet access to residents and local businesses. In WMNs, the access points (or mesh routers) are rarely mobile and may not have power constraints.

It is apparent that CA and routing are coupled in M3WNs, as discussed below. On one hand, CA determines the connectivity between radios since two radios can communicate with each other only when they are on a common channel, and therefore CA determines the network topology. As we know, the routing decisions are made based on the network topology. Thus, CA has a direct impact on routing. On the other hand, as we will show later in the next section, to achieve better result, CA should be dynamically adjusted according to the traffic status, which is determined by a routing algorithm. Therefore, routing and CA are tightly coupled. Based on this observation, in this paper, we argue that CA and routing should be jointly optimized to improve the performance of M3WNs. Moreover, such a joint CA and routing (JCAR) algorithm should be performed by each and every node in a distributed and cooperative way so that the resultant network can have the highly desired self organization feature.

Fig.2.1 Multi Protocol Comatabilty with Cloud

III. PROPOSED METHODOLOGY

Transport Protocol has been proposed as a promising paradigm for relieving the spectrum shortage. In Transport Protocol Networks (CRNs), Secondary Users (SUs) who require the usage of spectra can access Primary Users' (PUs') idle channels. Dynamic spectrum access provides SUs with high flexibility in selecting spectra but brings new challenges to the design of CRNs at the same time, one of which is the spectrum mobility. same time, one of which is the spectrum mobility. In CRNs, PUs can reclaim their licensed channels at any time due to their high priority of channel occupation, and SUs must cease their transmission1 on those spectrum bands. Hence, from SUs' perspective, the availability of spectra is dynamic due to PUs' uncertain activities of channel reclamation, which causes the spectrum mobility in CRNs. In the context of multi-hop CRNs where multiple SUs act as potential relays2, one of the major influences of spectrum mobility is the break of routes of incoming data in flow since the unavailability of PUs' channels disables the transmission over some links on the

predetermined routes. To avoid conflicts with PUs and resume routing, each in flow initiator can either inform intermediate SU relays to switch their accessing channels or re-select a new spatial route3 where channels are not reclaimed. However, the following trade off implies that the two-dimensional route switching (i.e., the combination of both channel switching and spatial route re-selection) is a better choice. Unfortunately, frequent channel switching could also cause significant switching costs such as the additional power consumption and switch delay. On the other hand, re-selecting a new spatial route can yield fewer switching costs but may lead to additional routing costs at the same time. Consequently, there's a trade between the two costs, which must be achieved by switching routes in both spatial and frequency domain.

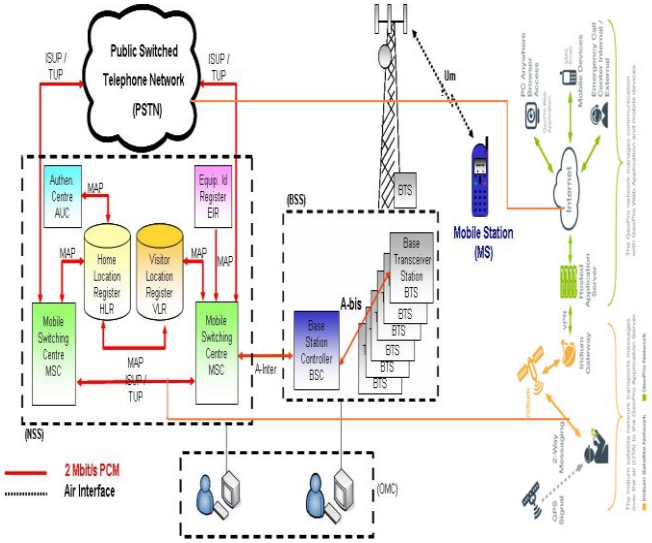

Fig. 3.1. Architecture Diagram of the Transport Protocol Mobile Network

In such networks traffic is mainly routed by the WMN wireless backbone between the mesh clients and the wired Internet and goes through the gateway nodes. One of the major problem facing wireless networks is the capacity reduction due to interference among multiple simultaneous transmissions. In wireless mesh networks providing mesh routers with multiple-radios can greatly alleviate this problem. With multiple-radios, nodes can transmit and receive simultaneously or can transmit on multiple channels simultaneously. However, due to the limited number of channels available the interference cannot be completely eliminated and in addition careful channel assignment must be done to mitigate the effects of interference. Several companies such as Mesh Dynamics have recently announced the availability of multi-radio mesh network technology. To make use of commodity 802.11 radios, a channel is assigned to a radio interface for an extended period of time as long as traffic demand or topology does not change. MAC protocols where each radio interface can use different channels on a fast time scale such as on a per-packet basis are not supported in current 802.11 MAC. As observed in assigning the first channel to the first radio, the second channel to the second radio and so on can be far from the optimal achievable performance. In addition channel assignment and routing are inter-dependent. This is because channel assignments have an impact on link bandwidths and the extent to which link transmissions interfere. This clearly impacts the routing used to satisfy traffic demands. In the same way traffic routing determines for each link which certainly affects channel assignments. Channel assignments need to be done in a way such that the communication requirements for the links can be met. Channel switching has been extensively studied in Transport Protocol networks, particularly in cases where users have no prior knowledge and channel availabilities change stochastically. The problems in those scenarios turn out to be quite complex and often do not have closed-form solutions. In this paper, we consider the scenario where users have prior knowledge about the availabilities of multiple channels, over the next T time slots.

IV. EVALUATION AND ANALYSIS

The number of wireless devices has grown very fast in the past decade, which results in unabated growth of wireless bandwidth demand. To allocate resources, we usually resort to auction theory, which could distribute resources fairly and efficiently. Spectrum usage and availability used to be regulated by government in a static manner.

Big spectrum users, like mobile service carrier, own large trunks of spectrum on a long term lease and they take up most of the spectrum available, while emerging users have limited access to the remaining spectrum, which is being exhausted. We refer to the big spectrum users as primary users, who compete in a primary market, and the latecomers as secondary users, who don't have much access to the spectrum. Static and fixed allocation of spectrum proves to be inefficient in recent studies, because the demand of primary users vary dramatically with location and time. As a result,

spectrum subleasing is widely acknowledged as a potential way to share the spectrum. In a secondary market, primary users periodically hold auctions to lease idle portions of their spectrum to unlicensed secondary users. In order to use the spectrum, secondary users pay primary users a certain price in order to access the channel.

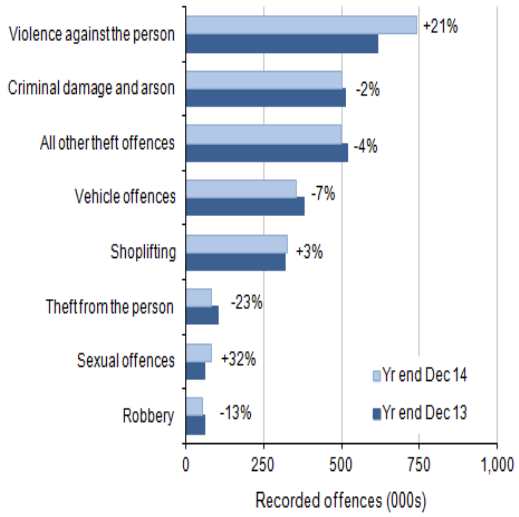

Fig.4.1 Statistical Records of the Unseen Due the GPS

V. CONCLUSION

Primary users wish to achieve as much profit as possible. Such problems can be discussed within the range of a double auction design. We would like to design mechanism to achieve several properties. First of all, truthfulness is one of the most important properties to implement an auction in order to achieve efficiency. When a mechanism is truthful, each secondary will maximize his profit by telling the truth. This property is extremely important because if a certain user can increase his utility by misreporting his value, the auction will be vulnerable to market manipulation. It will harm both the primary users and the other secondary users' profits. Efficiency is also one of the desirable properties. We can usually achieve that by maximizing social welfare, which can be defined as the sum of each user's utility. If we maximize social welfare each round, we are guaranteed to have an efficient mechanism, and yet it may lead to unfairness.

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