



CUSTOMIZABLE DATA PLANS TO SUIT THE CUSTOMERS' NEEDS

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ABSTRACT

With mobile and wireless technology and smart devices being more advanced by the day, it would be hard to imagine a day without the all capable smartphone. With mobile data plans, it allows the use of smart devices to its fullest potential without being anchored by a cable. As mobile data plans become more abundant in the market, it is hard for some people to find a mobile data plan that can satisfy the customers' needs at all times. Customers are also constantly shown new plans that may or may not be better than their existing plan causing customers to switch at a moments notice. Research shows that a customers satisfaction is tied to the services provided by the Internet Service Providers. Therefore, this research proposal is conducted to create a mobile plan that can be tailored to the customers needs at anywhere and anytime. This research will show that this proposed system is feasible and will benefit the customer as well as the provider.

Keywords: customizable mobile data plan, mobile data plan, mobile network, mobile internet, mobile pricing, mobile usage.

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1. INTRODUCTION

The wireless telecommunication technology has had many advancements since its first iteration at 1G. With the increased popularity of smart devices and gadgets as well as the upcoming industry standard of 5G mobile networks becoming the new trend, the mobile wireless network is set to be one of the fastest growing markets in the world. This can be seen as growth of mobile data subscriptions from only 20% in 2003 to 96.2% in 2013, almost five-fold in a span of a decade (Ma, et al., 2017). This has caused a surplus of new mobile data carriers to emerge in the market within the past few years. With the market saturated with new and existing carriers and a limited market, these companies must have an enticing plan and structure to attract business.

Alrashdan (2013) related the network performance to the customer's needs so he proposed the Smart Selection of HMIPv6. Saleh (2020) find out that there is a relationship between the system and the decision making. Ravi (2020) proposed a secured car helpline navigation system to meet the customers expectations. Hajivali (2013) proposed an Access Control Model for Cloud server and Agent-Based User Authentication.

Most modern Internet Service Providers (ISPs) offer some form of limited data plans which supplies the user with a limited monthly quota. Once a user has gone over that quota, the user can either be charged for the overage use of the data or the user can extend the quota limit by purchasing add-ons for the plan. The user can also opt for prepaid plans where the user can pay before using the data but risk getting cut off when the quota is reached or the time of the plan has expired (Zheng, et al., 2018). Zero-rating has also become popular with ISPs recently. Zero-rating allows ISPs to provide access to certain application and functions without incurring charges or without depleting the quota. This approach has been more popular with developing and third world countries (Chen, et al., 2017). This paper will propose a pro-consumer plan to ensure customer satisfaction.

The paper will consist of the research background which will show data usage trends and pricing leading to our problem statement which will show satisfaction of consumers regarding the current system. The aims and objectives will line out the goals of this study followed by the research questions, significance of work and methodology which will show how this study is to be conducted. Then comes the proposed system which will show a proposed design of the system. Lastly, the conclusion will conclude the findings and propose possible improvements.

2. BACKGROUND

This section will show the background based on related work conducted on pricing mechanisms for ISPs that considers pricing and network congestion.

There are two pricing structures for mobile services being two-part and three-part tariffs. Two-part tariff means the consumer is charged a base access fee plus the usage on a per unit price. Three-part tariff on the other hand charges the consumer based on a pre-allocated number of units in a monthly plan and pay extra if they have exceeded the monthly allowance of units. Three-part tariff has been used more compared to two-part tariff as a rational response to consumers' misperceptions on mobile usage. Based on the findings of Ma, Deng, Xue, Shen and Lan (2017), they have found that demand uncertainty is the main driving factor for choices in tariff by the consumer. The users who switched from the limited two-part tariff to the three-part tariff tend to overuse because of the already included monthly allocated quota which the consumers did not have before. The consumers then rapidly learned to avoid overconsuming low volume calls, but learning is incomplete under both tariffs.

They have also identified the factors that cause consumers to switch between carriers to be dissatisfaction to the service provided or the low switching cost associated with the ISP. From this, they have drawn that ISPs need to ensure high customer satisfaction and develop a trust between consumer and provider to increase brand loyalty. This makes factors such as call admission control, call clarity and coverage important to ISPs for improvement.

Lastly, they have identified that ISPs have an incentive to increase bandwidth proportionate to the number of users. That said, this is hard to apply to mobile networks as there only a limited wireless spectrum allocated to wireless communication. A study in UK showed that 45% of complaints were due to network congestion. Therefore, providers are required to create a better mobile plan that can lead to more efficient networks.

3. PROBLEM STATEMENT

The literature review has showed some problems that already exist in the mobile network field that can be addressed through research. The problem we raise is that customers have little to no control over how their pricing schemes work. This can cause some mobile data plans to be overpriced for the service it provides as not all mobile service carriers can provide the same coverage in all areas of a country which can cause consumer dissatisfaction. Therefore, the problem is to introduce a new mobile pricing scheme that benefits the consumers but can also turn a profit for the ISP that is scalable.

4. AIMS AND OBJECTIVES

4.1. Aims

The aims of this research proposal is: to develop a new pricing scheme for mobile networks that can be controlled by consumers, be transparent on how much is charged for the consumers choice and also be competitive in pricing with current existing mobile plans.

4.2. Objectives

To achieve the first objective, we need to conduct case studies on existing mobile service carriers that provide a similar service to consumers.

To achieve the second aim, we can survey consumers on current mobile data plans and their satisfaction towards it.

To achieve the last aim, we will conduct a case study on current market prices for local existing carriers which can help us reach a competitive price.

5. SIGNIFICANCE OF WORK

The research proposal is to provide a new pricing scheme for mobile data plans. This can allow ISPs to track how much users are willing to spend on different parts of the mobile data plan such as call time, mobile data internet, messaging, and roaming data. The providers can then tweak their existing plans to give better value to customers while increasing possible profit margins.

This can also help consumers who do not have a fixed data usage schedule. For example, a user can scale the amount of data they need depending how often they use it without incurring overage fees charged by existing mobile data plans.

6. METHODOLOGY

For this research proposal, we will be using both quantitative and qualitative research methods. To achieve the first and third objective as well our overall aim, we will conduct two case studies for different purposes. To achieve the second objective, we will conduct a survey on the general public to see what parts of a mobile data plan do consumers value.

To achieve the first objective, a case study will be carried out on two known mobile service carriers that have a consumer controlled mobile data plan. The two companies are Ting Mobile based in United States of America and Yoodo Mobile based in Malaysia. For this case study, we will first look into the history of each company to see how each were created. Then we will investigate the goals and objectives these companies were trying to achieve when they started. We will also investigate the business models of each company and identify the factors that caused its success or failure. Knowing this information can help us develop a proper plan to implement this system.

To achieve the second objective, a survey will be conducted with the public. The target demographic will be people aged from 15 years old to 50 years old. The survey will consist of 20 questions with a five-point Likert scale with one representing least satisfying and five representing most satisfying. The survey will be conducted via online webform where we can send the link to the form via email or social media networks. The survey period will be within four weeks. The response will be recorded and will be analysed to ensure that the data collected is accurate. From there we can draw a conclusion of the survey.

Lastly, a case study will be conducted on the market price of mobile data plans and the contents of the plans itself. A comparison will be conducted on the four major mobile service carriers in Malaysia which are Digi, Maxis, Celcom and TMnet. We will look at the most expensive and the most budget offerings from each provider and tabulate the findings to compare. We can then find the most suitable prices consumers are willing to pay for a mobile data plan.

With these methodologies, we can gain the information we need for this research to come to a conclusion. Though the methodologies are planned, there will be limitations to them. For case studies, the information is only as accurate at the time the study was carried out. Another limitation of case studies could be bias as researchers could lean towards more favourable results. For surveys, there can be uncomplete surveys causing less response than expected which causes a smaller sample size.

7. OVERVIEW OF PROPOSED SYSTEM

The proposed system is a customizable mobile data plan designed for consumers to control how much data they need to use and how much to pay without committing to a fixed monthly plan. This allows customers to be in control of their data usage which can either help consumers avoid penalties when they overuse the allocated quota or being unable to finish the allocated quota thus wasting money on the excess quota.

The system will need potential customers to sign up an account with the provider to include important details such as name and ID while giving an option to keep their existing numbers. After the initial sign up, the customer will then be mailed a sim card or be given an eSim which is a virtual sim card. The user is then asked to download an app to be used alongside the sim card or eSim which the user can log in using the account created with the company to adjust the plan as the customer sees fit. The app will show a price to the customer based on the amount of the plan and can be scaled up or down based on customer usage. At the end of the month the user will be charged based on the final usage at the end of the billing cycle. The user will not be tied down by a contract and will be able to opt out of the service at any time.

The proposed system will be able to solve the problem of customers having no control over their mobile data plans. This will give customers much needed flexibility as they do not need to commit to the service. The customer is free to customize the plan according to their needs which can be scaled up or down at any time before the billing cycle. This can either help light users to save cost if they only need minimal amount of data or it can help power users to get more data without the hassle of subscribing to larger more expensive data plans.

For example, if a user already has Wi-Fi at their home, they do not need to use mobile data at home. This can cause waste of data when the data cannot be finished. This can also apply when travelling as the user can increase his data cap

8. CONCLUSION

In conclusion, with the world of mobile technology advancing faster than anyone could have predicted, we need to strive to find new ways to provide better and more efficient services to the customers to ensure maximum satisfaction and loyalty. The proposed system within this

proposal is sure to add a new perspective to mobile networks as an alternative pricing scheme that could be improved on in the future. It also highlights a future where users can use the mobile wireless networks more freely than ever before.

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