



Variable Pricing in a Corporate Environment (Mini-Survey)

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market
managed,
variable
pricing,
multiservice
internet

This report describes the results of a little survey into variable pricing and multiple levels of service for the internet in a corporate environment. Sixty-eight (68) employees of HPLabs have completed a short online questionnaire about attitudes towards multiservice internet and paying for a better quality of service for shared network resources in the workplace.

1 Introduction

M3I, Market Managed Multiservice Internet, is an European project under the Fifth Framework Programme. M3I is looking into variable pricing schemes for multiple levels of service. The basic M3I contribution is the development of pricing mechanisms which will give the right incentives to customers for efficient use of network resources. The goal is to design, implement and trial a next generation system that will enable internet resource management through market forces, specifically by enabling differential charging for multiple levels of service. M3I is working on a system that enables differential pricing for multiple levels of service and (dynamic) usage based charging.

The INDEX report (Altmann et al. 2000) shows that demand is very sensitive towards different pricing structures. The demand for network services is flexible over time. During the INDEX experiments the subjects made use of a wide range of bandwidths. This supports the contention that people want to use higher bandwidth on occasions in which they have the need to do so, even when they have to pay for it.

User Experiments for M3I at the research laboratory of British Telecom (BT) also show that consumers are interested in using variable pricing and that they would be especially prepared to use it for highly valued services (Hands et al. 2001). But what happens when variable pricing and multiple levels of QoS are being used in a corporate environment?

A survey into the attitude of employees towards variable pricing for multiple levels of internet has been conducted within HPLabs (De Bruine, 2001). To complement the results of this study a small survey has been send out via email to HPLabs employees looking into different levels of services and willingness to pay for this in the workplace. The results will be compared to results of the INDEX survey.

2 Methods

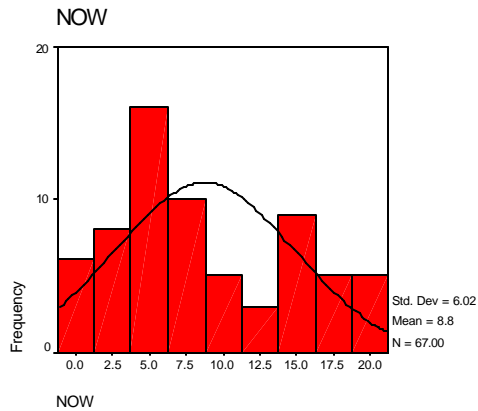
A message has been send out to employees of the Hewlett-Packard Research Laboratory (HPLabs) in Bristol via email to gather information about attitudes towards variable pricing for different levels of service on the internet at work. In the message employees were asked to fill in a short online questionnaire with 8 questions (see appendix A). Sixty-eight (68) people replied and submitted the completed form.

Four of the questions are taken over from the INDEX survey (Altmann et al. 2000), so comparisons can be made between the replies in the INDEX survey and this mini-survey. Four other questions have been added to supplement a survey into sharing limited resources in corporate environments using market mechanisms (De Bruine, 2001).

The results of the survey have been coded so the data could be analysed in SPSS (Statistical Package for the Social Sciences). The data are analysed in a simple descriptive manner, means, histograms etc. The results are presented per question and occasionally comparisons between questions are made.

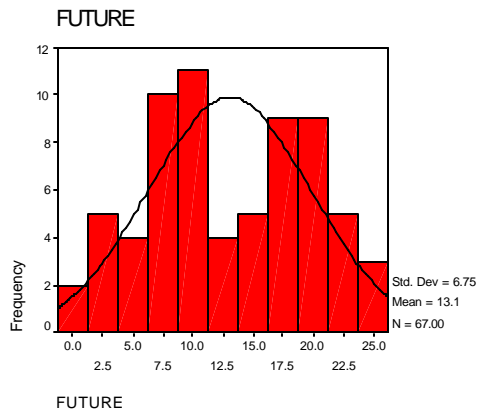
3 Results

(1) There are sufficient network resources *right now* so that the Internet transmission quality is very good



From the histogram we can see that the data is slightly skewed towards the lower end of the scale with a mean of 8.56 and the median and mode both are 8. The highest score is 21. This means that the respondents are not very positive about the current network resources.

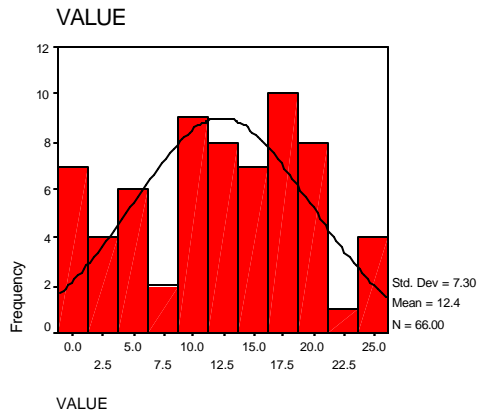
(2) There will be sufficient network resources *in the future* so Internet transmission will be very good



The respondents are more positive about the network resources in the future. The graph is slightly skewed towards the higher end with a mean of 13.06. The median is 12 and 8 is the score which appears most frequently (mode = 8).

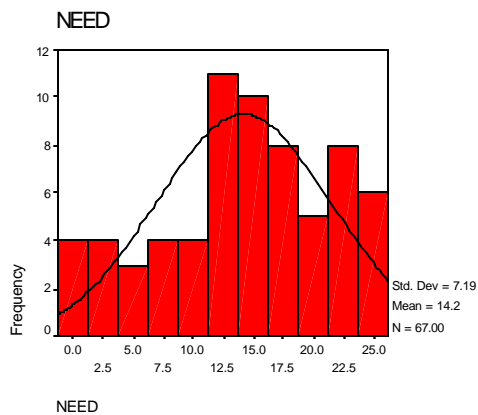
The same trend can be found in the INDEX-survey (Altmann, Rupp & Varaiya, 2000). The subjects in the INDEX survey agree that today's internet doesn't provide sufficient network performance but that the situation will take a turn for the better in the future.

(3) Available network resources should be distributed in such a way that the users **who value them most** should get the best quality while users who value them less should get worse quality



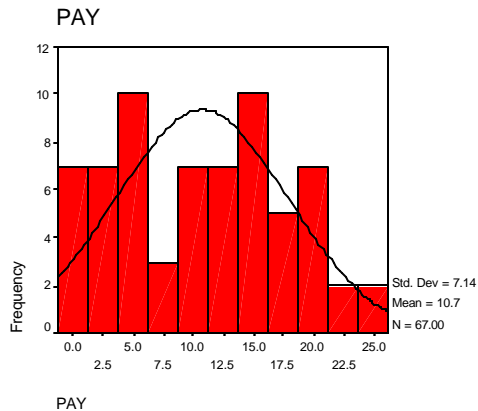
The mean is 12.36 with a slightly skewed distribution towards the higher end. The score of the respondent in the middle is 12 (median = 12) and the mode is 11. These figures show that the respondents agree with the statement but that they are slightly negative about giving higher quality to people who value network resources most.

(4) Available network resources should be distributed in such a way that the users **who need them most for their work** should get the best quality while users who need them less for their work should get worse quality



More positive are the respondents about giving better quality to people who need network resources most. The mean of 14.21 is higher than 12.5 and the median is 15. The mode is 12.

(5) Available network resources should be distributed in such a way that the users **who are willing to pay the most** should get the best quality, while users willing to pay less should get worse quality

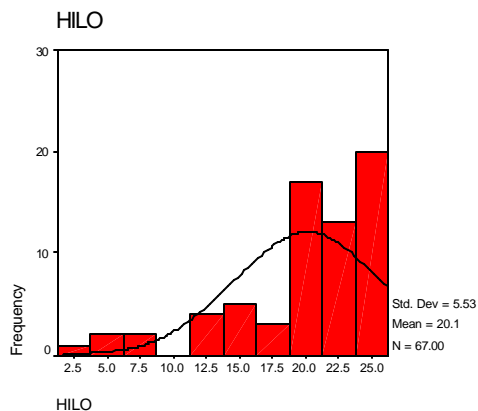


Whether people who are willing to pay more should get better quality is not as agreeable as when people need better quality for their work. The mean is 10.75, the median 11 and the score which has been ticked most often is 0.

There is a significant correlation between giving better quality to people who value network resources more and people who need network resources most and also between value and willingness to pay. There is also a correlation, even though it is less strong, between the need for network resources for work and willingness to pay.

Again the results of this survey can be compared to the results of the INDEX survey. In the INDEX survey there seems to be a slightly more reluctance towards valuation-based network resource allocation when people have to pay for it. This is similar to the results in the mini survey in which the respondents agree with valuation based allocation and are more negative about network resource allocation on a basis of willingness to pay.

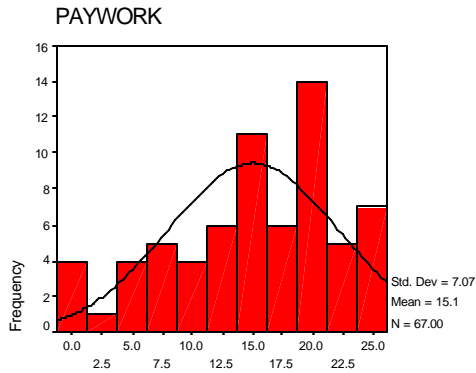
(6) It would be good to be able to **access both high quality and low quality services** depending on application needs and network congestion



The mean of the data is 20.13, which is the highest score in the mini survey. The respondents are very positive about having a choice between high and low quality

services. The histogram is highly skewed towards the higher end and is also highly leptokurtic (-1.565).

(7) Differential charging for multiple levels of service will increase the value of Internet services to the customers through greater choice over price and quality and reduced congestion. It would be good to be able to *pay more for a higher quality of service in work*

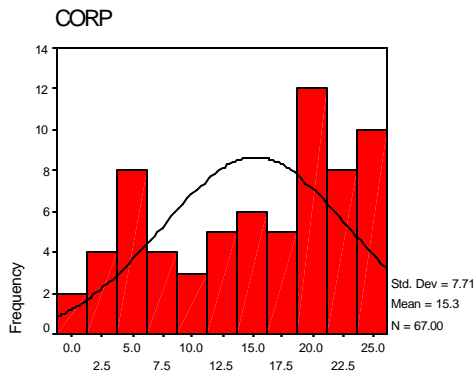


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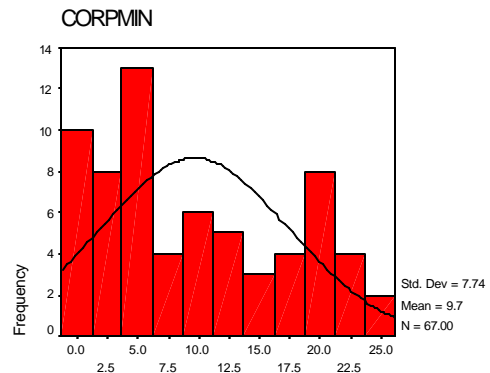
Paying for a higher quality of service in work is something the respondents can agree with with a mean of 15.09. The median is 16 and the mode is 19.

Respondents who think it is a good idea that people who are willing to pay for a better service the most are more likely to agree with the statement that it would be good to be able to pay more for a higher quality service in work. These results have a significant correlation at the 1% level. Respondents who think it would be good to be able to access both high quality and low quality services (hilo) depending on application needs and network congestion are also agreeing with paying for a higher quality of service in work. There is again a significant correlation at the 1% level.

(8) Differential charging for multiple levels of service *will be impossible in a corporate environment* because employees will be using high quality services all the time since they are not spending their own money



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The data of question number 8 have been reversed since the question was asked in a negative way. With a mean of 9.7, a median 8 and a mode of 0 we can conclude that the respondents are not very positive about multiple levels of service in a corporate environment because the employees won't be spending their own money.

This corresponds to the results of a survey into market mechanisms in corporate environments (De Bruine, 2001) in which 27 respondents replied to the question: Do you think variable pricing would work in a corporate environment? The mean is 34.2 on a scale of 100, which is similar to a mean of 8.55 compared to the mini survey with a maximum score of 25. So respondents in both surveys are not very positive about multiple levels of service and variable pricing in corporate environments.

4 Conclusions

Sixty-eight (68) employees of Hewlett-Packard returned a completed questionnaire about variable pricing for different levels of service on the internet at work

The respondents think the current network performance isn't very good but they think it will get better in the future, they are however not very positive about network performance in the future.

The respondents like the ability to choose high quality and low services depending on application needs and network congestions very much. People who need better quality for their work can choose higher quality. The respondents also agree that people who value network resources more should be able to get better service but there is a slightly reluctance towards allocating better quality to people who are willing to pay more.

Like another corporate survey (De Bruine, 2001), people are not very positive about variable pricing in a corporate environment. The attitudes towards different levels of service are very positive, but the attitude towards paying for this in work is not positive at all. This might be because people are not used to pay for their access in work or because people, especially budget holders, like predictable bills. It also might involve a big culture change when employees have to start thinking about money every time they have to send something via the network.

So multiple levels of service seems like a very good idea, but more thought has to be put in pricing mechanisms and how to introduce pricing schemes in the work place for internet access.

References

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Hands, David, Gale, Caroline, France, Emma, Experiment 2: Impact of network performance on user perceptions of QoS as function of price, M3I (www.m3i.org), 2001

Appendix A

(1) There are sufficient network resources *right now* so that the Internet transmission quality is very good

|00000000000000000000000000000000|

Strongly disagree
agree

Strongly

(2) There will be sufficient network resources *in the future* so Internet transmission will be very good

|00000000000000000000000000000000|

Strongly disagree
agree

Strongly

(3) Available network resources should be distributed in such a way that the users *who value them most* should get the best quality while users who value them less should

|00000000000000000000000000000000|

Strongly disagree

Strongly agree

(4) Available network resources should be distributed in such a way that the users *who need them most for their work* should get the best quality while users who need them less for their work should get worse quality

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Strongly disagree

Strongly agree

(5) Available network resources should be distributed in such a way that the users *who are willing to pay the most* should get the best quality, while users willing to pay less should get worse quality

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Strongly disagree

Strongly agree

(6) It would be good to be able to *access both high quality and low quality services* depending on application needs and network congestion

|00000000000000000000000000000000|

Strongly disagree

Strongly agree

(7) Differential charging for multiple levels of service will increase the value of Internet services to the customers through greater choice over price and quality and reduced congestion. It would be good to be able to *pay more for a higher quality of service in work*

|00000000000000000000000000000000|

Strongly disagree

Strongly agree

(8) Differential charging for multiple levels of service *will be impossible in a corporate environment* because employees will be using high quality services all the time since they are not spending their own money

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Strongly disagree

Strongly agree

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