NETWORK STRATEGIES
• Telecommunications Strategy •

Estimating the Cost of Mobile Termination - A Review of the Commerce Commission's Benchmarking Study

P U B L I C

Report for TelstraClear, 18 November 2004

Network Strategies Report Number 24029

Contents

0 Executive summary

This paper contains benchmarking results for the forward looking cost based (FLCB) mobile termination rates (MTRs) levied by mobile network operators (MNOs) in the jurisdictions included in the Commerce Commission's Draft Report on mobile termination[1] ('the Commission Report').

The results of the analysis using ten year average nominal exchange rates are presented in Exhibit 1 below. We obtained an upper quartile NZ benchmark value of 14.11 cents per minute. This is 9% less than the Commission's upper quartile of 15.42 cents per minute and 50% less than the current NZ MTR of 28 cents per minute[2].

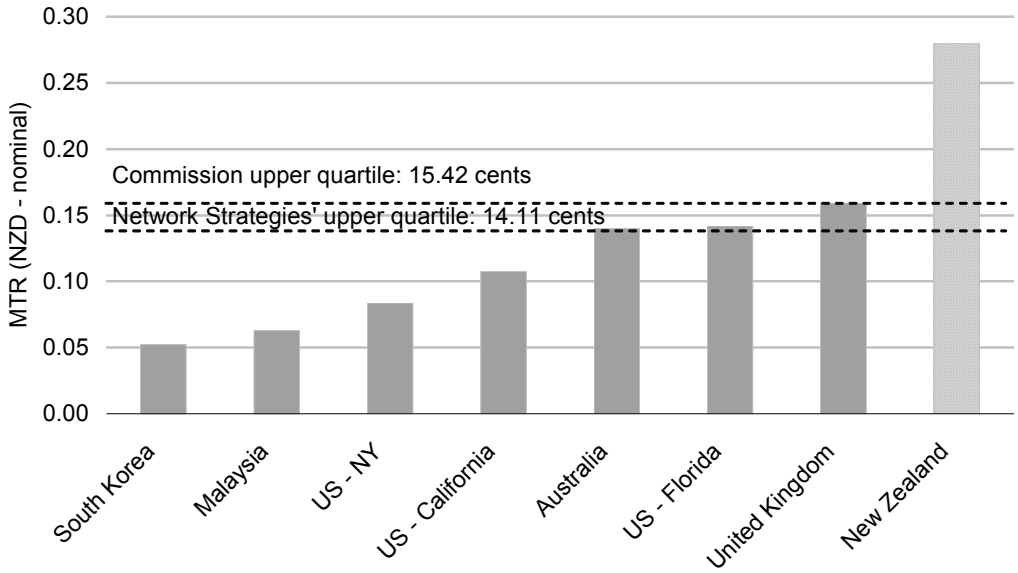

Exhibit 1: *Benchmarking results using 10 year average nominal exchange rates and the Commission's original jurisdictions [Source: Network Strategies]*

1 Commerce Commission (2004). *Schedule 3 investigation into regulation of mobile termination. Draft report*. 18 October 2004.

2 2004 average MTR as presented in the Draft Report.

Network Strategies' lower benchmark MTR was obtained through the use of:

- a Malaysian MTR based on an appropriate weighting of the local and long distance MTRs after the exclusion of termination via submarine cable
- the current South Korean MTR
- the inclusion of all three US MTRs instead of the highest and lowest
- determination of ten year average exchange rates which are based on more recent exchange rate data
- the average US dollar to New Zealand dollar exchange rate prevalent in 1999 (the period for which the US MTRs apply) instead of a 2004 exchange rate as used by the Commission.

1 Introduction

The Commission Report presents an upper quartile benchmark MTR of 15.42 cents per minute for New Zealand. In response to this report TelstraClear has asked Network Strategies to review and update the Commission's benchmarking analysis, using current data and more appropriate assumptions.

In Section 2 below we explain the benchmarking methodology and in Section 3 we present and discuss the results of the analysis. Concluding remarks are made in Section 4.

Although this report was commissioned by TelstraClear Limited, the views expressed in the report are entirely those of Network Strategies.

2 Approach

The main tasks in our benchmarking analysis are:

- collection of the most recent MTR data
- calculation of standardised per-minute MTRs in a common currency
- analysis of results using a simple comparison approach.

These points are described in further detail below.

2.1 Selection of benchmark jurisdictions and operators

We selected the same benchmark jurisdictions as the Commission. MTR data was sourced from operators and regulators.

Exhibit 2 lists the countries which have been included in our study.

Country	*Cost base of MTR in study*[1]	*Date of implementation of costing standard and comments*
Australia[2]	TSLRIC+	January 2007
Malaysia[3]	LRIC	July 2003
South Korea[4]	LRIC	January 2004
United Kingdom[5]	LRIC+	September 2004
United States – California, Florida and New York[6]	LRIC	Although a mobile party pays (MPP) system applies in the US, MTRs were determined through Sprint PCS' LRIC cost modelling for the individual states using 1999[7] data on behalf of WorldCom for its submission to the ACCC's Mobile Services Review of 2003.

1. As stated in source document
2. ACCC (2004). *Mobile Services Review: Mobile Terminating Access Service*. June 2004.
3. MCMC (2003). *Commission Determination on the mandatory standard on access pricing*, 28 June 2003.
4. SK Telecom (2004). Investor Relations New Letter *Interconnection rate for 2004-2005*, 9 July 2004.
5. Ofcom (2004). *Wholesale Mobile Voice Call Termination*, 1 June 2004.
6. WorldCom (2002). *Comments on Report Prepared for PTS by Andersen Management International A/S. Cost Oriented Access and Interconnection in Sweden*, 14 January 2002.
7. Note 2 above specifies that the data is from 1999.

***Exhibit 2**: MTR cost bases used in countries studied [Source: Network Strategies]*

2.2 Standardisation of mobile termination charges

The benchmarking analysis requires that the tariffs be normalised by calculating a standard per minute rate in a common currency. This requires ten year (October 1994 – September

2004) average nominal exchange rates for each currency, as per the Commission's preferred method. The Commission's analysis used ten year averages to the end of June 2004 resulting in marginally different exchange rates to those used by Network Strategies. These exchange rates have been determined using the same source as the Commission[3]. The exchange rates are tabulated in Annex A.

In addition to applying the Commission's currency conversion method we repeated our analysis applying the most recent (2003) World Bank purchasing power parity (PPP) exchange rates to the MTRs. The results of this analysis are presented in Annex B. We consider the use of PPP exchange rates to be more appropriate in benchmarking studies of this type than the use of nominal exchange rates. Network Strategies has previously comprehensively reviewed telecommunications benchmarking studies (including interconnection price comparisons) conducted by regulatory authorities, revealing that the use of PPP is standard practice across the world[4].

Mobile termination tariff structures vary between jurisdictions, and may be simply a per-minute rate, or may also include a call set-up fee. Rates may also be de-averaged by time-of-day. Within the Commission's sample no jurisdiction has mandated a per-call charge and all have specified flat-rate MTRs, though operators are allowed to de-average by time of day in Malaysia and the UK.

In Korea each MNO has a different MTR. In this case we have benchmarked the lowest normalised per minute rate on the basis that the lowest rates normally apply to the largest operators and so most traffic will incur these rates. This appears to be the approach adopted by the Commission, though not explicitly noted in the report. MNOs in the UK also levy different MTRs – we have used Ofcom's MTR for dual 900/1800 MHz operators in our analysis. This is the same approach as the Commission has adopted.

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3 www.oanda.com

4 Network Strategies (2002). *Currency conversion for telecommunications benchmarking. Final Report for TelstraClear*, Report no. 22015, 5 June 2002. The report also contains a thorough discussion of the economic justification for the use of PPP exchange rates.

2.3 Data

The source MTRs presented in the Commission Report together with those used in our analysis and the reasons for any differences are presented below in Exhibit 3.

Jurisdiction	*Commission MTR*	*Network Strategies MTR*	*Comments*
Australia	AUD 0.12	AUD 0.12	This FLCB MTR is to be implemented in 2007
Malaysia	MYR 0.1608	MYR 0.119	Exclusion of submarine cable termination; appropriate weighting of local and long distance termination
South Korea	KRW 40[1,2]	KRW 31.8	The regulator published LRIC MTRs in July 2004, reducing SK Telecom's MTR from KRW 41.to KRW 31.8, to apply retroactively from January 2004
United Kingdom	GBP 0.0563	GBP 0.0563	This rate was implemented in September 2004
United States[3]	USD 0.053 – USD 0.091	USD 0.047 – USD 0.080	The Commission's MTR is based on a 2004 exchange rate. As the source MTRs are based on 1999 cost data we have used a 1999 exchange rate

1. Inferred from Table 8 of the Commission Report.
2. SK Telecom's published 2003 pre-LRIC MTR is KRW 41.
3 The USD figures for the United States were obtained in an email from Anthony Morris (Commerce Commission) dated 26 October 2004.

Exhibit 3: *Differences between Commission and Network Strategies benchmarking input data – local currencies [Source: Network Strategies, Commerce Commission]*

The source MTRs expressed in NZ cents are presented in Exhibit 4 below.

	Source MTRs (NZ cents) used by:	
Jurisdiction	*Commission*	*Network Strategies*
Australia	14.06	14.03
Malaysia	8.60	6.29
South Korea	6.62	5.21
United Kingdom	15.87	15.91
United States	9.45, 16.19	8.37, 10.75, 14.19

Exhibit 4: *Differences between Commission and Network Strategies benchmarking input data – NZ cents [Source: Network Strategies, Commerce Commission]*

Malaysia

We consider that an adjustment is necessary to the Malaysian MTR used in the Commission Report. Malaysia has specified three different types of termination – local, long distance and long distance with submarine cable. The Commission's benchmarking study takes a simple average of the three rates. We consider this approach to be flawed as:

- there are two[5] submarine cables that join Peninsular Malaysia to the island of Borneo[6], spanning a distance of several thousand kilometers
- as such, the cost of terminating calls using submarine cables in Malaysia is not likely to be representative of terminating mobile calls in New Zealand
- most operators prefer to lease satellite transponder capacity[7] instead of incurring charges for use of the submarine cables and the only traffic terminated using submarine cables is the incumbent's on-net traffic
- the distribution of mobile terminating traffic in Peninsular Malaysia and Eastern Malaysia is approximately 80% local, 20% long distance[8].

5 Fujitsu (2001). *Submarine Networks as of March 31*, 2001. 13 March 2002. Referred to as Northern link and Southern link. http://www.fujitsu.com/downloads/TEL/fnc/datasheets/subNetworks.pdf

6 Borneo consists of Brunei, Eastern Malaysia and Indonesia.

7 Ure, John (2000). *Interconnection of Mobile to Fixed: The Case of Malaysia*, University of Hong Kong, November 2000.

8 Source: Telekom Malaysia, 2002.

We have therefore determined a weighted average MTR for Malaysia based on the above proportions.

South Korea

Network Strategies has used the most up-to-date LRIC MTR (published in July 2004) of KRW 31.8. The Commission's analysis, though conducted during September and October[9], uses the 2003 pre-LRIC MTR of KRW 40 stated in the aforementioned July 2004 ACCC report. The MTR stated in the ACCC report is marginally less than the pre-LRIC MTR of KRW 41 published by SK Telecom.

United States

We have included the three US MTRs as separate data points, in line with the approach adopted in the Commission's Final Determination on PSTN interconnection. Inexplicably, the Commission's analysis does not include all three US data points, only the highest and lowest MTRs[10].

The original Sprint MTRs are stated in euros. These were converted to Australian dollars by the ACCC using an average exchange rate for the first ten days of March 2004. The Commission converted the ACCC's Australian dollar amounts back to US dollar amounts using an average exchange rate for the same period. The source MTRs are based on 1999 data and as such we believe that their conversion to New Zealand dollar amounts using 2004 exchange rates by the Commission is inappropriate. Network Strategies' US dollar amounts have been determined by converting the original Sprint values (in euros) to US dollar amounts using an average EUR:USD rate for 1999.

9 Confirmed in a telephone call to Stephen Hudson, Commerce Commission, 9 November 2004.

10 Confirmed in a telephone call to Stephen Hudson, Commerce Commission, 9 November 2004.

3 Benchmarking results

We obtained an upper quartile NZ benchmark value of 14.11 cents per minute when performing our analysis on the Commission's original sample (Exhibit 5). This is 9% less than the Commission benchmark of 15.42 cents per minute and 50% less than the current NZ MTR of 28 cents per minute[11].

It should be noted that we have selected upper quartile benchmark values in line with the Commission's methodology. The Commission selects the upper quartile 'in light of the risks attached to using a small number of available benchmarks' (footnote 104). We consider that this is an overly cautious approach and in our view it would be more appropriate to use the median.

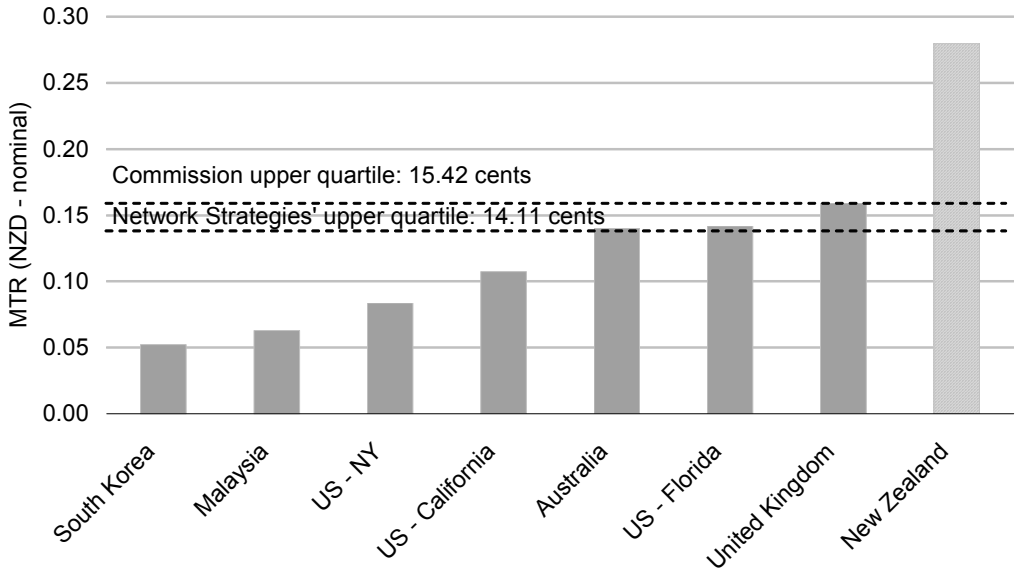

Exhibit 5: *Benchmarking results using 10 year average nominal exchange rates and the Commission's original jurisdictions [Source: Network Strategies]*

11 2004 average MTR as presented in the Draft Report.

4 Concluding remarks

Network Strategies has shown that the Commission's benchmark MTR of 15.42 cents per minute decreases to 14.11 cents per minute if the analysis is corrected for the following differences in the data and methodology:

- for Malaysia, exclusion of termination via the submarine cable and use of an appropriate local to long distance termination ratio
- for South Korea, inclusion of the current LRIC MTR. This MTR was published in July 2004 to apply retroactively from January 2004 and is 21% lower than the MTR used by the Commission
- for the United States, inclusion of all three MTRs instead of the highest and lowest
- for the United States, use of an average 1999 exchange rate to convert the original 1999-based source data from euro to US dollar values. The Commission's US value dollar value is based on March 2004 exchange rate data, at which time the New Zealand dollar was stronger against the US dollar.

Annex A: Exchange rates

Country	*Nominal exchange rate (NZD)*	*PPP rate (NZD)*
Australia	0.856	0.891
Malaysia	1.893	1.055
New Zealand	1.000	1.000
South Korea	610.648	543.257
United Kingdom	0.354	0.442
United States	0.565	0.647

Exhibit A.1: *Nominal and PPP exchange rates, (NZD) [Source: World Bank, OANDA]*

Annex B: Benchmarking results using PPP exchange rates

Exhibit B.1 shows that when using PPP exchange rates New Zealand has a higher MTR than any jurisdiction in the Commission's sample. The current New Zealand MTR of 28 cents per minute is 123% and 148% higher than the upper quartile and median respectively. The upper quartile Commission benchmark MTR of 15.42 cents per minute is 23% higher than the PPP upper quartile benchmark.

Although the Commission did not undertake a PPP analysis, we have calculated an upper quartile value of 13.92 cents per minute using PPP exchanges rates for the Commission's data.

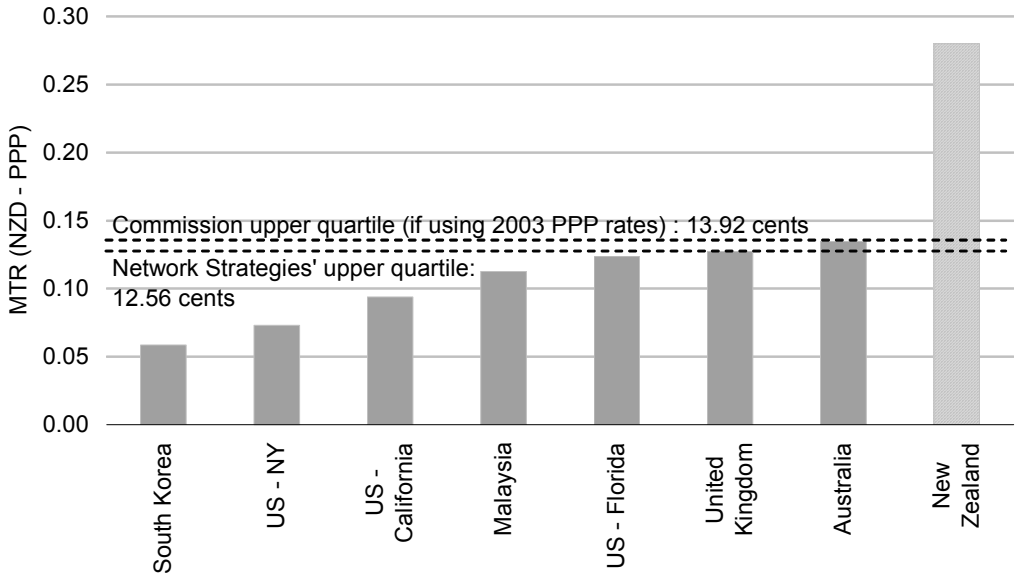

Exhibit B.1: *Benchmarking results using PPP exchange rates [Source: Network Strategies]*

The source MTRs used by the Commission and in our analysis, expressed in NZ cents PPP using 2003 World Bank PPP rates, are presented in Exhibit B.2 below.

	Source MTRs (NZ cents PPP) used by:	
Jurisdiction	*Commission*	*Network Strategies*
Australia	13.47	13.47
Malaysia	15.25	11.29
South Korea	7.36	5.86
United Kingdom	12.73	12.73
United States	8.19, 14.07	7.31, 9.38, 12.39

Exhibit B.2: *Differences between Commission and Network Strategies benchmarking input data [Source: Network Strategies, Commerce Commission]*

In summary, the benchmark values obtained for the Commission's sample using PPP (and nominal) exchange rates are:

- 75th percentile: 12.56 cents (14.11 cents with nominal exchange rates)
- median: 11.29 cents (10.75 cents with nominal exchange rates)
- 25th percentile: 8.35 cents (7.33 cents with nominal exchange rates).