CONSULTATION

Dominance in Interconnection Markets

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A Consultation by the Telecommunications Regulatory Authority

15 March 2003

Purpose: Consultation regarding dominance in interconnection markets. The closing date for comments is 14 days from the date of publication of this consultation paper, i.e. 29th March 2003.

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1 Introduction

At the outset of the liberalisation process in the Kingdom of Bahrain, a number of procedures and regulations need to be put in place. These procedures are being created bearing in mind the main objectives of the Telecommunications Regulatory Authority (TRA) under the Telecommunications Law (Legislative Decree No. 48 of 2002 promulgating the Telecommunications Law, Section 3b), namely

"*1) To protect the interests of subscribers and users in respect of:*

- *the tariffs charged for services;*
- *the availability and provision of service;*
- *the quality of services; and*
- *the protection of personal particulars and privacy of the services.*

2) To promote effective and fair competition among new and existing licensed operators.

3) ensure, when assessing applications involving provision of public telecommunications services, that any applicant or any person to whom any such service falls to be provided, shall be able to provide those services."

This document is issued pursuant to sections 3, 57 and 58 of the Telecommunications Law relating to Interconnection and Access, and, Tariffs for Telecommunication services.

According to the Telecommunications Law, the TRA must give interested parties an opportunity to comment on measures that will have a material effect on a particular telecommunications market.

This document represents a consultation on the intention of the TRA to determine that Batelco is in a dominant position in certain relevant markets, as described in more detail in this document.

Before being able to determine that Batelco is dominant, the TRA must define the relevant markets in which any dominance applies. Once a determination is made by the TRA that Batelco is in a dominant position (as defined in the Telecommunications Law) a 3 month period is triggered within which Batelco must develop and publish its Reference Interconnect Offer (RIO). The TRA may require changes to the RIO if it considers that Batelco's offer creates obstacles for new entrants. The RIO will form the basis for any interconnection agreement reached between Batelco and other licensed operators. The RIO defines the physical and commercial arrangements related to interconnection to the Batelco network, including a full list of basic interconnection services, conditions of interconnection and tariffs for each service.

At present there is no market that is operating for interconnection within Bahrain, as Batelco is *de facto* the only operator providing telecommunications services. This situation will change with the licensing of a Second Mobile Operator (SMO), and the establishment of the Bahrain Internet Exchange (BIX). Thus, there will shortly be demand in Bahrain for different interconnection services, and the set of relevant markets the TRA will define should reflect this fact.

2 Relevant interconnection markets

2.1 Voice services

There are a number of types of services that are included under the term "interconnection". For fixed networks these include: call termination, call origination and transport or transit services. On the networks of mobile network operators (MNOs) they include termination and origination and transport as well as mobile roaming, and interconnection of outgoing and incoming international traffic.

In the mobile context there are five basic interconnection scenarios that the TRA considers should be analysed at this time:

- Mobile to fixed termination;
- Mobile to fixed interconnection outgoing international traffic;
- Mobile to mobile termination, and
- Fixed to mobile termination (for domestic originated and terminated calls), and
- Fixed to mobile termination for incoming international calls terminated on the SMO's network.

The first three of these represent two forms of terminating interconnection that will be required by the second mobile operator (SMO): Termination on the fixed public telecommunications network of Batelco, and termination on Batelco's mobile telecommunications network. The fourth represents some combination of origination and transport and 'handling'. It involves domestic callers being able to connect to subscribers of the SMO.

In regard to the second and fifth bullet point, there are potentially several different ways in which these services could be provided, including international leased lines, and international correspondent services for both incoming and outgoing international traffic.[i] For the SMO, in the period prior to full liberalisation in July 2004 these services are potential substitutes enabling it to provide international services to its customers. The leased line alternative might not be considered an interconnection service from Batelco, although the two networks would need to be physically connected. This is because the traffic the SMO sends over this line is not visible to Batelco. It does not require Batelco to switch or meter the traffic.

The TRA notes that while self provision using leased lines may appear to provide a degree of substitutability with international correspondent services, the reason is likely to be because this option enables the provider to avoid some of the per minute prices that are generally accepted as being excessive, which have been agreed internationally for calls that pass through the formal international correspondent system. It is now well known that highly distorted prices can result in services appearing to be in the same market when in fact they are not, and the TRA believes this may be the case with the international correspondent system and the end-to-end leased line alternative.[ii] The TRA, therefore, favours the definition of a separate market for *international correspondent services* including both incoming and outgoing international traffic.

However, in the TRA's view, it makes little material difference at this stage of liberalisation, whether leased lines and international correspondent services are in the same market or not as Batelco would be dominant in any case by virtue of being the only licensed provider of international facilities. This market may well change fairly rapidly following liberalisation of the international sector, and the TRA will revisit the issues as and when required. However, this is an area of activity that the TRA would wish ultimately to be largely unregulated.

With regard to calls originated on the fixed network for termination on a mobile network, Batelco's apparent dominance relates to the provision of fixed line access to the fixed public telecommunications network. The exact market definition will depend on what and how the TRA decides to regulate this and related substitute services, e.g. local loop unbundling. However, as the final market definition would not be for an interconnection market this issue is not addressed further here.[iii]

Within each of the forms of interconnection entailed in the bullet points above, there are a number of technological solutions that are used in providing services in addition to voice, including SMS, GPRS, EDGE, and potentially also technologies associated with third generation networks. While several of the services supported by these technologies may involve limited demand substitutability, the economies of scope involved in their provision would appear to make stand-alone provision economical. The types of cost structures associated with these services have resulted in them being referred to as "cluster markets". This describes a situation in which there are several services that need not be strong substitutes for each other, which are placed into the same product market due to the uneconomic nature of stand-alone provision.[iv]

The TRA's analysis has led it to the view that a mobile communications cluster market exists for the retail provision of the following services:

- Basic voice services;
- Supplementary and value-added voice services;
- Emergency services; and
- Basic and value-added SMS.

The TRA therefore considers that all four types of service should be included under interconnection services. In defining relevant markets consisting of interconnection this means that relevant markets will not be fragmented due to the provision of multiple services over mobile telecommunications networks.

Thus, relevant wholesale, or operator-to-operator, 'product markets' for interconnection services would appear to be as follows:

1. Mobile to fixed termination, including transit services;
2. Mobile to mobile termination, and
3. International correspondent services (including fixed to mobile termination for incoming calls, and mobile to fixed interconnection for outgoing international calls).

The geographic scope of these markets appears to be the Kingdom of Bahrain.

Consultation:

The TRA is interested in receiving the views of consumers, businesses, and in general stakeholders, concerning whether they consider that for the Bahrain telecommunications sector, these are the relevant markets for interconnection of voice services.

2.2 Data services

ISP services in Bahrain were also liberalised by the enactment of the Telecommunications Law. In order that the regulatory environment enables entry and competition in the provision of ISP services to end-users, three additional scenarios need to be considered by the TRA for possible attention:

- Fixed-to-fixed call origination for dial-up ISP services;
- Connectivity between ISPs in Bahrain, and
- International Internet connectivity.

Liberalisation at present only allows effective competition on fixed line infrastructure for the provision of ISP services. For these reasons fixed-to-fixed call origination only refers to dial-up ISP traffic. Until full liberalisation occurs, call origination is thus confined to calls initiated by dial-up customers.

It is apparent that Batelco's ADSL service is a substitute for dial-up Internet services. The strength of this substitution will determine whether these different services are in the same product market or not. The TRA considers them to be in the same relevant market, although we note that whether they are in the same market or not will not make a material difference at this stage to the regulation of services in Bahrain.

Where there are no bit-stream services or requirement for local loop unbundling, as is the case at present in Bahrain, the relevant market is restricted to originating interconnection and ADSL services provided by Batelco. This may change in the future after full liberalisation. The TRA considers that the relevant market is therefore most likely to be originating interconnection, at either the level of a tandem or local digital exchange, and ADSL service. While it is possible for end-users to obtain access to ISPs over a mobile telecommunications network, bandwidth is much lower and prices generally much higher than is the case on Batelco's fixed network. The TRA's view is that access to ISPs via mobile telecommunications networks is therefore most unlikely to provide a sufficient degree of substitutability for this service to be in the same market as fixed-to-fixed call originating interconnection for ISPs and ADSL services.

In the case of Internet connectivity involving domestic IP addresses only, the service is potentially competitive. ISPs will take the data to the BIX where it will be handed over to the ISP on which the IP number is registered. The TRA is therefore of the view that for Internet connectivity involving domestic IP addresses only, there is no requirement to define the relevant interconnection market as there is no obvious market power problem and thus no intention at this stage to regulate the market.

Where packet delivery or retrieval involves IP addresses outside of Bahrain, as will be the case for a majority of packets, ISPs, either individually or through BIX, will need to hand this traffic to Batelco and to receive the return packets from Batelco.[v] This service requires a form of interconnection. The option of being able to lease international leased lines and to buy Internet transit services and obtain any peering arrangements they can negotiate at a point outside of Bahrain, is not an option as the BIX will not be able to obtain an International Services License until July 2004.[vi]

To the extent that entities hold foreign Internet content in Bahrain for ease of end-user access, they are reducing the demand for international connectivity from Batelco.[vii] These services are thus likely to be in the market for international Internet connectivity.

Clearly, if these services are provided in Bahrain at present, they are being provided by Batelco.

Thus, the TRA considers there to be two further relevant wholesale 'product markets' for interconnection services. These are:

4. Internet access via fixed-to-fixed call origination or ADSL service, and
5. International Internet connectivity.

The geographic scope of these markets would be the Kingdom of Bahrain.

Consultation:

The TRA would like to receive the comments from interested parties, regarding their views about the relevant markets for packet or datagram related interconnection which are relevant to the provision of Internet or packet or datagram based networks providing services in Bahrain. Are the candidate markets identified above the relevant markets for interconnection for data networks providing services in Bahrain?

3 Dominance of Batelco

3.1 Voice services

It is self evident that at the time of licensing the SMO, Batelco will be dominant in each of the voice services interconnection markets. Often the option to regulate a market in which an organisation is dominant, is not taken if it appears that in the medium to long term market forces will remove that dominance. For the TRA, as for other telecommunications regulatory authorities, it is enduring market dominance and SMP that are of primary concern. The regulation of markets where dominance is of a transitory nature is known to run a greater risk of foreclosing on competitive entry, i.e. transforming transitory dominance into enduring dominance. This is not a situation the TRA would want to precipitate.

While theory and international experience suggests that dominance will be enduring for mobile to fixed termination, and probably also mobile to mobile termination, in the case of interconnection for the purposes of having outgoing international calls delivered to terminating operators, and incoming international calls handed over for termination, the provision of these services has in the medium to long term, become competitive in other jurisdictions. However, the TRA rejects the notion that this market should not be regulated at this time because of this. Failure to provide this form of interconnection to the SMO at the time of licensing would substantially undermine the SMO's ability to acquire new customers, delay its start of operations, substantially raise its entry costs, the risks borne by investors, and quite possibly turn the project into one that is not viable. The explanation for this is mainly centred on the importance of *network effects* in the competition between networks.[viii] Thus, while international services are potentially competitive in the medium to long term, the strategic importance of this (and other) forms of interconnection is such as to make its availability essential to the SMO.[ix]

- The TRA therefore proposes to declare Batelco, licensed as a provider of national fixed services, international facilities and international services, to be dominant in each of the three markets for voice interconnection.

3.2 Data services

It is evident that at the time of licensing the BIX, Batelco will be dominant in the market for international Internet connectivity. This dominance arises for the same reasons as expressed in section 3.1 above, and the discussion above relating to the duration of dominance in international services is equally applicable to data as to voice services.

Internet traffic exchange within Bahrain must be achieved by the BIX for an initial period. ISPs will take the data to the BIX where it is handed over to the ISP on which the IP number is registered. All ISPs will be able to connect at the BIX, with customers able to switch between ISP. Research evidence and experience in other jurisdictions suggesting that these arrangements are generally not in need to close regulation.[x]

- The TRA therefore proposes to declare Batelco, licensed as a provider of national fixed services, international facilities and international services:
- To be dominant in the market for international Internet connectivity;

- To be dominant in the market for Internet access via fixed-to-fixed call origination or ADSL services.[xi]

4 Review

In a national telecommunications market, such as Bahrain, that is expected to be subject to considerable development and change over the short to medium term, it is appropriate to review market analyses and the determination of market power on a regular basis. This will help to determine how competition is developing and the extent to which it is meeting the overall objectives of choice, quality and value in telecommunications services for end-users in Bahrain.

It is proposed that the determination of market power is reviewed no later than 2 years from the date of this determination. If market circumstances, in the TRA's opinion, suggest that an earlier review of the determination would be appropriate, or if a market player or other such interested party should present a compelling case for an earlier review, then the TRA will be prepared to consider undertaking it.

5 Consultation

The TRA welcomes comments on the relevant interconnection markets identified and the proposed determination of dominance for Batelco.

Views submitted will be considered by the TRA in drawing up its final Determination of Dominance in interconnection markets at the end of this consultation.

Responses may be sent in writing by post or e-mail to:

The Telecommunications Regulatory Authority

PO Box 10353

Manama

Bahrain

Email: consult@tra.org.bh

Submissions and comments may be published by the TRA on its web site, unless the respondent provides a justified request for confidentiality.

The Telecommunications Law requires a public telecommunications operator to provide a reference interconnection offer (RIO) within three months of it being formally found to be in a dominant position.[xii] Because of the requirement to start this process as soon as possible, the consultation period that begins with this document, needs to be no longer than is necessary, and the TRA has therefore deemed that the consultation period will be **14 days**.

The closing date for comments is 14 days from the date of publication of this consultation paper, i.e. 29th March 2003.

Endnotes:

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[i] While the TRA may regulate the amount that Batelco can keep for calls originated on its fixed telecommunications network and terminated on a mobile telecommunications network, the TRA has no plans at this stage to regulate the retail price charged for calls that terminate on either mobile network, unless there is evidence of anticompetitive behaviour. The mobile networks will receive the collection rate minus the amount the TRA determines that Batelco can keep for call origination. While there is a risk that the SMO could be subject to a price squeeze by Batelco reducing its retail call price for calls terminated on one of the mobile networks, the TRA has no intention at this stage to directly regulate the retail price charged for calls that terminate on either mobile network.

[ii] In cases where prices are significantly above those that would prevail if the market was effectively competitive, there is a risk that market definition would be incorrect due to the Cellophane Fallacy. The name comes from a now infamous case in which the US Supreme Court (*United States v. E.I. du Port de Nemours & Co*., 351 U.S. 377 (1956); considered market definition in a case involving cellophane, and considered that a significant price rise would bring cellophane into competition with other products. This led the Supreme Court to conclude that other products served as sufficiently good substitutes to cellophane, so that cellophane could not be considered as being in a separate market. It was later pointed out in the economic literature that the Court had erred in judging the elasticity of substitution by considering this in relation to the then current prices, which were already far above the price that would prevail if the market was competitive. Support for this in the present case is provided by evidence from abroad which shows that international services based on lease lines (sometimes described as international simple resale services (ISR) is a business model that is difficult to sustain in fully liberalised markets where other prices are significantly lower (i.e. are approaching prices that would prevail when markets are effectively competitive).

[iii] It is apparent, however, that Batelco would be dominant in this market whatever its final definition. Thus a refusal by Batelco to offer its fixed line subscribers the facility to of being able to make calls that required termination on the SMO's network, would be an abuse of Batelco's dominance.

[iv] The Australian Competition and Consumer Commission (ACCC) defined a cluster market as follows, "*…a bundle of related services, in cases where the costs of unbundling mean that suppliers of component services are unable to defeat a small but non-transitory price increase by a hypothetical monopolist supplying the whole bundle of services. These unbundling costs could be costs incurred directly by the purchaser (e.g. additional transactions costs) or additional costs incurred by suppliers of single services (e.g. economies of scope) which are then reflected in the relative prices of the bundled and unbundled services.*" ACCC Declaration of local telecommunications services – A report on the declaration of an unconditional local loop service, local PSTN originating and termination services, and local carriage service under Part XIC of the Trade Practices Act 1974, July 1999, p40.

[v] The BIX cannot obtain and International Services License (ISL) until July 2004 and so can not use leased lines and contract for Internet transit services and any peering arrangements it can negotiate at a point outside of Bahrain.

[vi] The TRA will address the issue of future market definitions and dominance in the international section at a later date. The issue of domestic and international leased lines will also be covered by a separate consultation document to be released by the TRA shortly.

[vii] The services covered by this description include: caching, content delivery networks (CDN) and mirror sites.

[viii] For information about network effects see: Economides, N. (1996), "The economics of networks", *International Journal of Industrial Organisation*, 14 (6), 673-699; Malueg, D. A.

and M. Schwartz (2001), "Interconnection incentives in a large network", Working Paper, Georgetown University, http://econ.georgetown.edu/workingpapers

[ix] There is a range of internationally accepted criteria that the TRA will employ in order to assess the degree of market power that any licensee has in a relevant market. These can be reviewed in the consultation document "Consultation: Methodology for determining Market Power" published in February 2003.

[x] Indeed, Internet traffic is normally charged for on a return traffic basis in part because the proportion of origination packets to termination packets is a small fraction of one.

[xi] The TRA believes from its study of originating interconnection in other jurisdictions, that most ISPs will seek originating interconnect at the tandem exchange level in Bahrain.

[xii] Section 57(b)