

Telecoms Infotech Forum

Briefing paper 1

FTNS Interconnect

Response to OFTA's Consultation Paper

11 September 2001

November 2001

www.trp.hku.hk/tif

**SPONSOR
QUARTERLY MEETING
NOVEMBER 13, 2001**



FTNS Interconnect
Comments on the TA's Review of Statements No.4, 5, 6, 7
(Revised) and 8 on Interconnection and Related Competition
Issues - Consultation Paper, 11 September 2001

John Ure
Director of the Telecommunications Research Project
University of Hong Kong

Preamble

This is one of two papers submitted to OFTA as part of the consultation process on interconnection. The other paper looks at PNETS charges and proposes reforms for the way ahead.

A. Introduction

1. There is a strong argument in favour of shifting FTNS interconnect from LRAIC to a LRAIC plus mark-up basis. (See B.5 below). This would be consistent both with the view that interconnect charges should send economically efficient signals to the market, and the presumption that OFTA favours facilities-based competition in the local loop.
2. On the same grounds there is a strong argument in favour of the use of current or forward-looking costs. (See C.7 below).
3. The issue of accelerated depreciation should not be rejected on *a priori* grounds, but needs to be considered on grounds of 'best practice'.
4. The Sender-Keeps-All (SKA) or Bill-and-Keep approach is worthy of more detailed consideration as a future option for the market.
5. There is a need to consider placing FNTS-PMRS interconnect on the same footing as current FTNS, especially with an eye on future fixed-mobile convergence and the possible shift from RPP (Receiving Party Pays) or MPP (Mobile Party Pays) to CPP (Calling Party Pays). This argument is developed more fully in the paper *PNETS – Pretty Nasty Economic Tariffing Scheme? PNETS Charging and Costing Principles - proposals for reform (John Ure)*

B. Type 1 Interconnect

1. The Consultation Paper states clearly that the adoption of LRAIC was all about the 'build-buy' decision.

The LRAIC standard was adopted to provide an economically efficient “build versus buy” pricing signal to the new entrants. (para 9)

Yet when applying this standard to Type 1 interconnection, that is interconnection between core networks, the argument loses force because building a core network is not an optional issue for an FTNS licenced carrier. Without a core network not only would the conditions of the licence not be fulfilled, but the operator would simply have no business. In reality, the use of LRAIC or any of other interconnection charging principle among the core networks is not about ‘build-buy’ core network decisions, but about removing barriers to entry. (*OFTA seems to acknowledge this when discussing Type 2 interconnection, see para C.1 below*). It is common practice in the early years of competition for regulators to make life as easy as possible for new entrants. Making interconnection mandatory for the incumbent, and keeping interconnection charges down are just two ways of doing this.

2. The question therefore arises, when should special assistance to new entrants end? When, for example, should price restraints on the incumbent be eased? And when, as in this case, should interconnection charges be re-examined? For example, should they be related to market share? Or to the volume of interconnection traffic? Or to a timescale?

3. OFTA seems to acknowledge the issue even while arguing against FDC.

At present, it is estimated that the interconnect traffic from the new entrants constitutes about 10% of the total network traffic of PCCW-HTKC. The relatively low interconnect traffic originated from or terminated at the new operators is unlikely to increase the indirect fixed cost at the corporate level of the incumbent to handle the traffic... The FDC approach should be considered only when interconnect traffic accounts for a more significant portion of the incumbent’s total network traffic. (para 11)

4. It is not at all clear what OFTA’s exact argument is here.

- (a) If FTNS interconnect traffic is 10 per cent of the traffic on PCCW/HKTC’s network, is OFTA really saying that this in no way affects indirect fixed costs? (Only if interconnect traffic were a perfect substitute for home network traffic would this likely be true.) Clearly if the interconnect traffic was 90 per cent this would not be true. Is there some magic percentage at which it becomes true? We may note in passing that PMRS/VAS traffic is a further 43 per cent of traffic, so the two add to over 50 per cent.
- (b) Or is OFTA in fact suggesting that at 10 per cent the new entrants still need special assistance? If so, at what percentage should that special assistance be wound down or withdrawn? If this implies a threshold percentage, may this not act as a disincentive to new entrants who would not want to trigger it?

5. There is an answer to this. Allocate 10 per cent of indirect fixed costs as a mark-up over LRIAC, and tie the percentage to the interconnect traffic. (NB. We may note a future issue here. In a PSBN broadband and packet-switched world how will PSTN narrowband and circuit-switched traffic volumes be measured? As they are now? By bandwidth and/or bit rate? How will costs be allocated between the PSTN and the PSBN?).
6. OFTA rejects the use of current cost for Type 1 interconnection where this is greater than historical cost because it would involve 'over-compensation' to PCCW/HKTC.

The network with the customer directly connected is essentially a "bottleneck" facility. As such, a charging principle which is fair and compensatory will be more relevant to Type 1 interconnection charges and the historical cost approach should be adopted. (para 17)

This issue is addressed below (see C.6) and will not be rehearsed here.

7. OFTA also rejects the use of current cost in the context of accelerated depreciation requested by PCCW/HKTC on its fixed assets, such as switches, due to technological obsolescence.

Interconnection charges are components of costs to new entrants in the operation of retail services in competition with the incumbent. Development of competition would be hindered if the interconnection charges based on the current or forward looking costs were higher than the retail prices based on historical costs. (para 38)

There are problems with this statement:

- (a) The idea that the 'development of competition would be hindered' if interconnection charges were higher totally voids the argument that interconnection prices should be cost-based to be 'efficient'. On the contrary, it reflects an argument that says new entrants should enjoy special assistance.
- (b) It is only consistent with the historical cost argument if it assumes that the use of prices based on historical costs is in some sense more 'efficient' than the use of current or replacement costs. Yet elsewhere OFTA seems to agree that current cost prices send the 'correct' signals, see B.9 below. If current cost prices are 'correct' then retail prices based upon historical costs are 'incorrect' from an overall economic efficiency point of view. Of course, these 'incorrect' prices can be maintained if new entrants accept lower profit margins, presumably to win market share. It should be noted that point remains true irrespective of whether or not accelerated depreciation is justified
- (c) Accelerated depreciation should not be confused with the historical versus current cost argument. It can be applied to both. It may be that accelerated depreciation, perhaps front-loaded, on newly acquired switching equipment

(say, over 8 years instead of 15 years) results in a higher annualised cost than accelerated depreciation on assets purchased say 10 years ago, even though the purchase price is much lower. For that reason the following statement is misleading, especially when it refers to 'on a rising trend'. No such trend is involved.

It seems odd to arrive at the conclusion that the current cost of conveying traffic through a circuit switched network is on a rising trend, because of accelerated obsolescence of new equipment to be acquired, when the historical cost of conveying traffic is on the decline due to improvement in efficiency of operating the PSTN. (para 37)

- (d) It is a state-of-the-art matter of judgement as to what is an appropriate depreciation adjustment, but obvious guidelines would be the practice adopted by (i) new entrants, and (ii) benchmarked practice from similar jurisdictions.

Note: While Hong Kong's taxation laws are fairly strict on what can and cannot be included in the inland revenue returns, the correspondence of treatment of items in taxation and financial statements seems less clear-cut. Best accountancy practice and local rules of disclosure will normally govern the latter, but what relationship do these have to requirements of OFTA for regulatory purposes?

8. The issue raised in 7 (c) takes one more form in the Consultation Paper, as quoted below:

The TA considers that interconnection charges, being a form of wholesale charges, should allow sufficient margin for operators to operate their retail services, otherwise the operation of retail services might be suffocated. However, retail services of the incumbent operators might be based on historical FDC while interconnection charges might be based on LRAIC. (para. 73)

The point raised in the first sentence of this paragraph has been answered in 7 (b) above, but the second point, raised in the second sentence, has not. It is conceptually possible that the incumbent enjoys a lower cost base than new entrants, in which case new entry will be socially inefficient, at least in a static sense. But this is (a) unlikely, especially in the provision of all kinds of service, and (b) any cost advantages are likely to erode over time as new technologies, for example broadband technologies, replace older generations, bringing new less-land intensive network architectures with them.

9. The Consultation Paper also makes reference to a Bill & Keep or Sender-Keeps-All (SKA) proposal from New T&T (para.8). As OFTA points out (para.12) such an arrangement probably makes commercial sense to both parties only where flows of interconnect traffic are in balance between networks. But there are certain advantages to an SKA arrangement that OFTA could well study now for consideration in the future. In December 2000 a Working Paper of the FCC's Office of Plans & Policy (OPP) aired the issue. See Patrick DeGraba *Bill and Keep at the Central Office as the*

Efficient Interconnection Regime, OPP Working Paper No. 33, http://www.fcc.gov/Bureaus/OPP/News_Releases/2000/nrop0003.html. The key advantage is that operators charge their customers directly according to their own cost structure rather than passing on intervening wholesale prices which may reflect inefficiencies in other networks.

Because carriers will view traffic-sensitive interconnection charges as raising their marginal costs, they will tend to raise their traffic-sensitive retail prices, even though the underlying cost structure of the networks may be non-traffic sensitive. (para.19, fn.33)

10. Other perceived advantages of SKA include placing fixed and wireless charging practices on the same footing – this can be thought of as eliminating a regulatory arbitrage opportunity which distorts the choice of substituting fixed for mobile calls - and eliminating the ‘terminating access monopoly’ problem. This arises by definition when a user subscribes to just one network. The problem is associated in Europe with the use of calling party pays (CPP) on mobile networks. Under this system, fixed networks recoup the mobile termination fees through the prices they charge their customers calling a mobile user. Through high terminating charges, the mobile networks gouge the fixed-mobile call market. An SKA arrangement applied to mobile as well as fixed would eliminate this problem, and it is highly possible that right now FTNS-PMRS interconnect traffic is more or less in balance. (See also my paper *PNETS Charging and Costing Principles – Proposals for Reform* that accompanies this response to the Consultation Paper.)

Note: The gouging problem also arises with mobile roaming charges, although here it is collusion between mobile operators at the direct expense of the international user. Within the EU there is an over-arching Commission that can investigate this practice, but there is no equivalent pan-Asian body, although OFTA and the ITBB could place the issue on the APEC agenda.

C. Type 2 Interconnect (or Unbundled Local Loop)

1. The Consultation Paper acknowledges that the cost of interconnection in the local loop is the key issue in the ‘build-buy’ decision of new entrants. From an engineering/technical point of view this makes sense because the key features that distinguish a network by the services it can offer are located in the core network or around the core network (such as remote switches and servers) and not in the local access network. On the other hand, from a commercial point of view networks like to have direct access to customers for billing and information purposes, and this may be easier to achieve by having a local access network. For example, when a potential customer newly moves into a building and has to decide which operator to request service from they may easily choose the operator that installs the line, or additional lines or upgrades the line to broadband. So the interconnection or unbundled line charge may not always be the factor that decides the ‘build-buy’ decision.

2. OFTA's view on Type 2 interconnect seems uncertain. On the one hand, OFTA sees the merits in charging LRAIC at current cost. On the other hand it sees special reasons to use historical cost, but the argument for the latter is rather weak. First, OFTA's argument in favour of current cost:

Without doubt, the "build versus buy" decision is crucial in the context of Type 2 interconnection... As such, it is preferable to use current or replacement cost approach which mirrors the investment choice of operators today using the most efficient network design, technology choices and capacity planning. (para 20)

3. Then OFTA warns that current cost would be a disincentive to HKTC:

Many of PCCW-HKTC's exchange buildings were built on the land granted by the Government some years ago through private treaty grants. These sites were sold at a discount to the market value and are restricted to the use of telephone exchanges only. To revalue the PCCW-HKTC's exchange buildings to the current market value would lead to an over-compensation of the operator. This "windfall profit" would diminish its incentive in efficiency improvement. (para. 21)

4. But OFTA adds that current costs would help the efficiency of new entrants by encouraging them:

to optimise their network configuration, particularly smaller exchange building space requirement, or smaller number of exchanges, when constructing their networks. If the new entrants were to provide the customer access networks themselves, they would not duplicate the copper loops that the incumbent is now operating. The new entrants would build fibre to the building and then deliver the services through the in-building blockwiring systems. Therefore, current cost based on the most efficient network configuration would be significantly lower than that based on replicating PCCW-HKTC's existing network. Thus any interconnection charges for Type 2 interconnection to provide the economically efficient pricing signal should be based on the current cost of constructing and operating the fibre/in-building blockwiring systems by the new entrants. (para 22)

5. Finally, there is a twist in the argument:

However, in the determination of the interconnection charges for Type 2 interconnection, the cost data from the incumbent would be based on the construction and operating costs of the incumbent's customer access network. As such, the use of historical costs to assess the costs of the incumbent's exchange buildings (assuming that these buildings would remain unchanged in locations and numbers) would serve as a close substitute for the current cost approach, assuming that the configuration (in terms of number and locations of exchanges) would be fundamentally changed to the most efficient one likely to be adopted by the new entrants. (para 23)

In other words, on the one hand current cost sends economically efficient price signals. On the other hand, a modern network uses fewer, and possibly smaller, exchange buildings. This means that the difference between the historical cost of PCCW/HKTC's network (constructed with highly favourable Government land grants) and the current cost of a new network (when land prices and construction costs are much higher in real terms than PCCW/HKTC's original costs) is not so great, in fact is a 'close substitute'. If this is true, then the argument cuts both ways. In other words, it supports the use of current cost as much as it does historical cost.

6. The key argument of OFTA against the use of current costs when historical costs are lower is one of over-compensation of the incumbent

The use of the forward looking incremental costs would encourage efficient infrastructure investment although it might mean that the incumbent might be over-compensated or under-compensated for its costs based on a historical cost standard. (para 19)

This is followed by the point made in para 21 (see B.3 above), namely 'To revalue the PCCW-HKTC's exchange buildings to the current market value would lead to an over-compensation of the operator. This "windfall profit" would diminish its incentive in efficiency improvement.'

7. There is an answer to this. Pay the difference between current and historical cost into a separate fund. This fund could be used for a variety of purposes, such as contributing to the universal service obligation. PCCW/HKTC would face no disincentive to improve efficiency, and the price signal to new entrants would be more realistic.

8. OFTA states in para 22 (see C.4 above):

Thus any interconnection charges for Type 2 interconnection to provide the economically efficient pricing signal should be based on the current cost of constructing and operating the fibre/in-building blockwiring systems by the new entrants.

The question this begs is: if LRAIC leaves the new entrant indifferent between 'build' and 'buy' is the regulator also indifferent? (NB. As stated earlier, the assumption is that the price of interconnection is the determining factor, although this may not be true. See B.1 above). Is OFTA's position that interconnection policy should be absolutely market neutral? And is the only exception to that principle that special assistance may be given to new entrants for an initial period?

9. On interconnection principles, OFTA states that:

The interconnection-charging approach should be set out in a way conducive to dissemination of correct signals to new entrants in their "build versus buy"

decisions. Meanwhile, it should also fairly compensate the incumbent for the provision of access services. As such, the TA has to consider economic efficiency and fair compensation in parallel when setting the interconnection charge. (para 16)

Two obvious questions arise.

- (a) First, what are ‘correct’ price signals? How can we know whether they are ‘correct’? Prices that by OFTA’s own admission ‘should’ be based on current costs but which are diluted to accommodate the ‘fair compensation’ principle are no longer ‘correct’ by definition. So the choice is between second-best prices or ‘correct’ prices and an alternative mechanism for ensuring ‘fair compensation’. See B.6 above.
- (b) Second, is there no other consideration to take into account besides ‘economic efficiency’ and ‘fair compensation’? What about policy aims? To repeat a previous question: is OFTA indifferent to facilities versus services based competition? If there is a predisposition to encourage facilities-based competition (presumably on the grounds that it is more assured and thoroughgoing) then it makes sense to have objectives which support that aim. In this case, the minimum objective would be the ‘correct’ price signals using current costs. A more radical move would be to shift towards FDC.

10. OFTA is cautious about New T&T’s suggestion that a more “heavy-handed” (para. 83) approach should be taken towards the regulation of interconnection issues. The two areas where interconnect issues seem to be most urgent are Type 2 interconnect and building access. The former is a straightforward telecommunications enforcement issue, and one that is notoriously difficult to police anywhere in the world because an incumbent has a self-interest to make life difficult for new entrants. OFTA could well have a task force to focus on this issue, the urgency of which should last only several months. The latter is the more difficult nut to crack because it involves powerful and entrenched interests that go beyond the telecommunications and cable and satellite TV sectors. It is important that OFTA establishes well-understood and well-publicised procedures for dealing with this issue effectively.

D. Broadband

1. The advent of broadband opens up a whole new era in telecommunications, not least because of (a) the commercial or business model is likely to be very different, and (b) of the possibilities of convergence.
2. A business model is a smart phase for how to make money from the production, distribution and/or sale of a good or service. One essential commercial difference between narrowband (PSTN) and broadband (PSBN) is that for the most part the demand for narrowband service is derived from the network itself, that is the connectivity that it provides to other users of the same network or of closely related

local networks, plus services that use the intelligence built into the network. The demand for broadband, by contrast, derives largely from the access it provides to the Internet and the World Wide Web, and to the rich media and bandwidth-dependent applications that can be supplied by service providers who have no commercial interest in the network itself. For this reason, some broadband network operators believe that it is important to invest in the content and applications side of the business as well, although network operators have no traditional expertise in these areas.

3. In a broadband world, interconnection is no longer simply ‘horizontal’ interconnection between networks, but also ‘vertical’ interconnection between the access network and the Internet, the WWW and content and applications service providers. The issue of ‘conditional access’ in the cable TV world thus enters the picture, including issues such as the ‘inter-operability’ of set-top boxes, cross-ownership regulations, and so on.
4. So technological ‘synergies’ that allow the common delivery of different services (telephony, Internet access, cable TV, etc) to end users and the ‘convergence’ of business stratagems go hand-in-hand. This poses additional challenges to policy makers and regulators that are not discussed here. The salient point is that as these trends are irreversible, and because they offer opportunities as well as threats to the industry, regulation needs to clear away obstacles to the transition from a narrowband to a broadband world.
5. One such convergence may well be fixed and mobile, especially as third generation broadband wireless technologies become available. For this reason, it makes sense to place FTNS interconnection and FTNS/PMRS interconnection on the same footing. One of the consequences of this could be a move from receiving party pays (RPP) – or more accurately mobile party pays (MPP) – to calling party pays (CPP). This point is discussed in more detail in my paper *PNETS Charging and Costing Principles – Proposals for Reform*.

LRIC and its variations to FDC
(Telecommunications Regulation Handbook, World Bank, 2000)

