

Telecoms Infotechnology Forum

**Interconnection Revisited: Time for a Change or Not?
and
Telecoms & SARS: Any Lessons?**

Held at:

Bloomberg Auditorium
27/F Cheung Kong Centre
2 Queen's Road, Central
HONG KONG

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Dr Ure: Good afternoon. For those of you who do not know me, my name is John Ure and I am the director of the Telecommunications Research Project at the University of Hong Kong and also of the forum.

I would like to start by thanking again Bloomberg for the use of this fantastic auditorium and also PCCW for agreeing to sponsor this forum. Without sponsorship we are not able to run these events. The ground rules, just quickly: to members of the press, if you wish to quote directly or cite anything that somebody has said can you please ask their permission before you quote them publicly. Usually that is not a problem, but some people might not wish to be quoted directly. If there is somebody from the South China Morning Post, can I make a plea that just for once in the history of the South China Morning Post they might actually mention that the TIF organises these events. Actually, it is not the reporters, it is the editors that are the problem there.

A couple of other quick announcements before we swing into this forum. We will be organising two conferences, one later this year in October, which will be on broadband and how Hong Kong uses broadband. The premise of that conference is that Hong Kong's advantage in having the infrastructure will diminish.

Hong Kong's advantage probably lies in the way that we can make efficient and innovative use of the excellent infrastructure that we have. So that will be the theme of the conference on 14th October. And in February 2004, we are aiming to hold a follow-up conference on wireless, to celebrate the opening of the support centre for SME's content developers for wireless platforms.

For those of you who attended our last conference in November, you will know that we first publicly aired that proposal and the Government adopted that proposal and that centre should be opening, I believe, towards the end of this year. So that can be quite an exciting development.

Today's forum is slightly unusual because we have two themes rather than one. The second theme of course is the role of telecommunications in the fighting of SARS and we have got some good speakers lined up to discuss in very practical ways what Hong Kong did in that area.

Our first discussion follows the publication of OFTA's consultation paper on the controversial issue of unbundling the local loop. Consultation has been in the news quite recently and OFTA perhaps should be congratulated for showing everyone in Hong Kong how a consultation process should be conducted. So perhaps without further ado I would like to invite Mr M.H. Au, the Deputy Director-General of the Office of the Telecommunications Authority to present an outline of the consultation.

Mr Au: Thank you, John. Good afternoon, ladies and gentlemen. I will make my presentation short because I think you are more interested in the discussion part of the forum. It is very rare that we have all the relevant parties present in the forum to take part in the discussion. So what I am presenting will be just to set the scene for the subsequent discussion.

I will briefly outline the background of Type II interconnection as a policy and current achievement of the Type II interconnection policy and then give some introduction on the review that we have launched.

As you know, since 1995 we have been using market liberalisation as one of the main tools to encourage investment in network infrastructure, so our belief is that when we open up the opportunity to potential investors, and if the potential investors identify business opportunity, they will come into the market and invest and through competition there will be development and it will grow out of the network infrastructure.

The market has been progressively opened in stages culminating in the full liberalisation from January 2003. Of course, opening up the market alone is not sufficient to facilitate network rollout and investment, so we have to provide an environment whereby the investors can come in and roll out the network with the minimum interference. So these are some of the measures we have adopted in the past and we are still putting in resources to implement these measures to facilitate network rollout.

For example, for transmission facilities across public streets, and on leased land we have been operating a road opening coordination system so as to minimise the disruption to the environment caused by road opening. Also laying the fibre to the building would not be sufficient: you still need to overcome the problem of the last few hundred metres, that is the wiring inside the building, and for one reason or another network operators over the years have been encountering problems in gaining access to the buildings to install the in-building wiring network. So facilitating access into buildings is also another element of measures to facilitate network rollout.

You may also be aware of the initiatives that we had taken last year to facilitate the establishment and operation of in-building telecom systems by landlords and developers because we believe that telecommunication systems should actually be part of the amenities inside the building to be provided in the construction stage of the buildings like gas, electricity and water supply facilities. Very briefly, these are the measures that we are implementing to facilitate rollout.

We all realise that to build the network the more difficult bit—and the more time consuming bit—is to install the last mile, that is the so-called customer access network. The incumbent operator over the period of the monopoly has built a very extensive customer access network based on copper loops that covers virtually every household and every office. The benefits of competition would be slow to reach the consumers if the new entrants have to duplicate the customer access network before they can provide a service to the customer.

That was the background of the Type II interconnection policy which had in fact been introduced back in 1995 when market liberalisation commenced in local fixed network. Over the years we found that OFTA actually had not just abandoned on opening up the customer access network of the incumbent operator, that is, we did not just rely on Type II interconnection or local loop unbundling as it is called in other jurisdictions. We have also taken steps to facilitate the bypass of the customer access network of the incumbent operator, for example, in the year 2000 we have licensed wireless systems which can actually bypass the local loop system of the incumbent. Also the licensing of the cable modum service operated over the hybrid fibre/coaxial cable network of the cable TV operator, also in the year 2000, is another means to bypass the customer access network of the incumbent operator. So whether or not the customer access network or the local loop system of the ncumbent network is still a bottleneck or an essential facility is a relevant issue to be considered in this policy review.

Of course, we also encourage rollout of separate customer access network in the form of fibres laid to the building, and once the fibre reaches the building it would be interconnected to the last few hundred metres to reach the customers. These are all the technologies that are being deployed to bypass the copper loop network of the incumbent operator.

The Type II interconnection policy was introduced in 1995. Initially, it was intended to foster a faster rollout of the narrowband services. Since March 2001 this policy has been extended to broadband.

Like other jurisdictions for Type II interconnection for broadband, we have two options available. The full spectrum of the loop, the entire loop will be made available to the interconnecting carrier to provide also some services, narrowband plus broadband. Alternatively, we have also the shared spectrum. That is the line sharing option whereby the interconnecting carrier has access to the upper part of the spectrum over the local loop.

Although the charges are yet to be determined, the principle is that it should be based on long run average incremental costs plus the appropriate mark-up. Right now there is actually no concept of essential facility of bottleneck. Essentially, the Type II interconnection option is available to the local fixed network operator. I would say that only to a certain class of local operator.

These are the entrants in 1995. Whether or not you use Type II interconnection is actually a commercial decision. Right now we are using the interconnection charges to give the efficient build-or-buy signal to the carrier planning to provide a service to the customer. So if they feel that the cost of building their own access network is higher than the Type II interconnection charge then probably they will use the Type II interconnection. Conversely, if they feel it is cheaper, more economical for them to build their own access network then they would construct their own customer access network. So that is the present arrangement.

Let us look at the current achievement of the policy. This table is from the consultation paper so many of you probably are quite familiar with the figures. For narrowband services, roughly the new entrants have got 20 per cent of the market. You notice about half of the lines connected by the new ventures are provided through Type II interconnections, to be exact, about 8.6 per cent. That is the significance of Type II interconnection in the context of narrowband service. So about half, about 8.6 per cent of all the lines in Hong Kong, about half of the lines of the new entrants are served by Type II interconnection. The rest is self-built network. Of course the self-built network also includes the copper loop system of the incumbent operator.

Type II interconnection is currently providing coverage to more than 50 per cent of the residential customers in Hong Kong for narrowband telephone service. That is the significance, importance of Type II interconnection or narrowband services.

In terms of broadband services, these are the statistics of the number of broadband connections in Hong Kong. The latest figure indicates that the number of broadband connections in Hong Kong has exceeded 1 million. In terms of penetration, Hong Kong is actually doing very well. We are second in the world just after South Korea. So the green bars represent the PC penetration. Of course, you do not expect a home to have broadband connection unless it is equipped with a PC. So you have noticed that actually over 70 percent of the homes with a PC are already connected by broadband. So the latest figure from OFTA is that the household broadband penetration is nearly 50 per cent. That is actually not a low figure by any standard. We are just second in the world just after South Korea.

So did we achieve this through Type II interconnection? Let us look at the breakdown of the technology used for broadband connections to homes. You find that the incumbent market share of broadband connection is around 55 per cent. That compares with around 80 per cent for narrowband services. So for broadband services you are actually finding that the new entrants are doing better for broadband services. If you look at the technology used for providing these broadband connections, you find that the principal mode of providing the broadband connections by the new entrants is actually the HFC, the cable modem service. So that is the major source of competition. This is followed by fibre to the building and LMDS and leased circuits. Ricky will say more about that.

As regards DSL technology, although we have Type II interconnection policy for broadband available from March 2001, unfortunately, very few lines, very few local loops have actually been unbundled to date. So I would say that nearly all of the DSL lines are operated by the incumbent operator. So you can say that we have not been very successful in implementing Type II interconnection for broadband services. Despite this, there is no lack of competition in the supply of broadband connections. Even though the implementation of broadband Type II interconnection has been relatively unsuccessful, there has been significant competition from the alternative technologies like hybrid fibre/coaxial cable, using the cable modem technology, fibre direct connections to the buildings and also the bypass technology based on LMDS or leased circuits supplied by various fixed carriers. That is the significance of the broadband Type II interconnection policy.

I think this is just a chart to represent the percentage, so you can find that actually the DSL technology is the dominant technology but nearly every one of these DSL lines is operated by the incumbent operator and the competing technology roughly share the rest of the connections. The Type II interconnection policy was formulated back in 1995, eight years have passed, so it is time for us to look at the policy to see whether or not it is still relevant.

When you look at the examples in other jurisdictions, it is very rare that one set of policy will be there forever and will not be subject to review. We understand, for example, the Australian jurisdiction is now mandating a sunset date for any services declared. We also understand that the Singaporean jurisdiction has also set down a period of three years for review of their policy. As you know, the FCC has recently completed a review on the unbundling of network policy. So the policy in Hong Kong has been set for eight years so it is quite important that we make sure that we will review the regulations to ensure that it is still necessary, it is still appropriate, it is still proportionate and we should remove unnecessary or out of date regulation. I am not concluding that this is unnecessary but this is the purpose of the review, to see whether or not policy made eight years ago is still relevant. So what are we going to look at?

The consultation paper has already identified a set of issues. For example, whether or not we should set qualifying conditions. As I mentioned earlier, Type II interconnection is available, the interconnecting carrier is only a commercial decision, whether to use it. We try to use the level of interconnection charge to influence the commercial decision. That is it. There are no so-called qualifying conditions. So should we include qualifying conditions? Should we look at whether or not the local loop is actually a bottleneck or is an essential facility before Type II interconnection is available? For example, the usual meaning of "essential facility" is that a facility cannot be economically or technically provided by new entrants, and the facility is an essential component for the new entrant to construct its service, to provide the service.

So one issue we are examining is whether or not we should set these qualifying conditions before Type II interconnection is available. Another set of issues that we are looking at is, Type II interconnection is now available, as you know, at the famous three points, everyone is quite familiar with that diagram, point A, B and C. It is available at the exchange, also at the building level and somewhere between the building and the exchange. So the relevant question is: if it is a bottleneck in the exchange, is it still a bottleneck in the building? Conversely, if it is a bottleneck in the building, is it a bottleneck in the exchange? The policy may need to be varied depending on the point of interconnection. Right now the Type II interconnection policy is available only for copper based local loops. In the year 2000, during the consultation, the TA said that if Type II interconnection policy is extended to fibre then the incentive for operators to invest in fibres to the building may be diluted because they know that once they have invested in a fibre, the fibre needs to be opened up to competitors at cost based charges. Then they may not have the incentive to invest in a fibre.

But on this occasion in the policy review, because this is supposed to be a comprehensive policy review, we will also be looking at whether or not the Type II interconnection

policy should be extended to fibres. If it is extended to fibres, whether it should be extended to duct fibre or the channels inside the fibres. Also, coaxial cable distribution systems. Coaxial cable is the copper medium. The present policy already applies to coaxial cable distribution systems. That is also a customer access network, it is also copper based. So the present policy already applied to coaxial cable distribution system.

So this review consists of a comprehensive review. We have also gone through different technologies to make sure that the Type II interconnection policy is relevant. We will also be examining whether the Type II interconnection policy should be available only to narrowband services or broadband services or to both. Just now in the figures you might have already gained an appreciation of the significance of Type II interconnection to broadband services and narrowband services. So maybe whether or not the copper loop is a bottleneck or an essential facility may be different in respect of narrowband services or broadband services. It may be a bottleneck for narrowband services but it is not necessarily a bottleneck in broadband services. So the consideration may need to be different.

We would also be looking at whether or not there should be a sunset date, meaning that Type II interconnection policy would not be available beyond a certain date, or Type II interconnection would become more expensive after a certain date. We will be looking at the economics of investment in customer access network to see whether or not the consideration should be different in the Central district, in the urban Kowloon and Hong Kong Island, or would the economics be different for more remote areas? For example, in the New Territories.

We will also be looking at whether or not the policy should be different for residential buildings or business buildings because the economics of investment obviously would be different for residential buildings than business buildings, because the business prospects and the revenue prospects would be quite different. Right now we are using a level of charges to give the pricing signal.

Instead of setting the qualifying conditions saying that Type II interconnection policy should not be available by a certain date or certain classes of buildings, should we simply use the charges as the signal to influence the commercial decision? That is also an option. We are also looking at this.

There are a lot of issues and those issues are quite complicated so we are giving the industry sufficient time to consider the position and give their submissions to the government. We expect the policy review will be concluded in early 2004.

To conclude, the measures we have implemented in the past to facilitate network rollout are market liberalisation, all the measures to facility network rollout that I mentioned and the measures to overcome bottleneck in customer access networks. In the future, the development will be to review the appropriateness and relevance of the policy and the Type II interconnection policy being one of the key policy elements for the roll out of network infrastructure in Hong Kong. So this obviously is the feel of the current review initiated by the government. What we are trying to do is to strike the right balance

between promoting competition and maintaining investment incentives on infrastructure. So that concludes my presentation. I will be pleased to answer any questions in the discussion period. Thank you.



Review of the Type II Interconnection Policy

Presented by
M H Au, Deputy Director-General
Office of the Telecommunications Authority
8 July 2003

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Content

- Type II interconnection as an element of the policy to facilitate competition in local fixed network market
- Current status of Type II interconnection and network rollout
- Review of the policy

2

Market Liberalization

- Competition in local fixed network market commenced in July 1995
 - *Incumbent and 3 new entrants licensed*
- Further liberalization of local fixed network market in January 2000
 - *Cable modem service over cable television network and wireless (LMDS) fixed networks licensed*
- Competition in external facilities commenced in January 2000
- Full liberalization of local and external fixed network market from January 2003

3

Facilitating Network Rollout

- Coordination of road-opening work to minimize environmental disruption
 - *Road opening plans circulated to other network operators so that they can join the projects if they have requirements along the same route*
- Statutory right of access into "common parts" of buildings to enable rollout of fixed networks into buildings to serve residents and occupiers
- Class licence for in-building telecom systems operated by landlords to ensure access to other network operators on a non-discriminatory basis

4

Overcoming Bottleneck in Customer Access Networks

- Licensing customer access networks based on alternative technologies
 - *Fibre-to-the-building*
 - *Local Multipoint Distribution Systems (29 GHz and 5 GHz)*
 - *Cable modem service over hybrid fibre/coaxial cable network for cable television*
- Type II interconnection (Local Loop Unbundling)
 - *Interconnection by one network operator to customer access network of another operator so as to reach customers of former operator*

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Type II Interconnection

- Requirement laid down in July 1995, initially for narrowband services
- Extended to broadband services from March 2001
- For broadband, options of full spectrum and shared spectrum over local loops available
- Interconnection charge to be based on Long Run Average Incremental Costs (LRAIC) plus appropriate mark-up
- Interconnection charge to provide efficient "build-or-buy" signals to operators seeking Type II interconnection

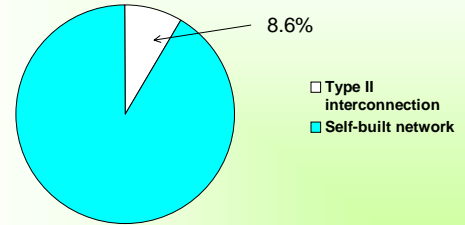
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Narrowband Market (end-2002)

	No. of lines via Type II interconnection	No. of lines via self-built networks	Total number of lines	Market share
New entrants	329,006	375,724	704,730	18.3%
Incumbent	0	3,137,017	3,137,017	81.7%
Total	329,006	3,512,741	3,841,747	100%

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Narrowband Access



Source: OFTA Data, December 2002

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Access to Alternative Suppliers of Wireline Local Fixed Services through Type II Interconnection

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Dr Ure: Thank you very much, MH, for that comprehensive introduction. When is the closing date for submissions, responses?

Mr Au: Some time in August.

Dr Ure: So you have got plenty of time. Our next speaker is Stuart Chiron who is the Director of Regulatory Affairs, PCCW-HKT. Of course, I have no idea what position Stuart is going to take in this debate.

Mr Chiron: Obviously PCCW welcomes this consultation, and thank you John for organising this afternoon's discussion.

I have tried to lay out as neutrally as I can, which is not easy, the pros and cons of unbundling. On the pro side, this is sort of what MH was picking up on, faster rollout perhaps for the new entrants whereas they can get to consumers sooner because they do not have to build, which also means they get to delay their capital spend as well. So it is an alternative to them rolling out their own networks and it also overcomes any structural barriers such as in-building issues or road opening issues. But if you think about it, they are all relatively short-term problems in most markets if everything is working well.

On the other side, the negatives, you have the whole issue of, it is a disincentive for people investing, it shifts investment risk from entrants to incumbents. Not only to incumbents but actually anybody else in the market who is investing. One of the critical things is that this is not an issue about incumbents versus new entrants, it is an issue about investors versus non-investors in the market. If you remember that, you will see that in some of the discussions that follow with other speakers. So it creates free-rider problems, it can undermine property rights.

That is an article 105 and article 6 issue of the basic law. More often than not it requires intrusive regulation, heavy-handed regulation and ultimately, because you are setting up a resale model, you have a negative impact not only on investment but on job growth, GDP, competitiveness and ultimately sustainable competition because you are riding on somebody's copper network instead of putting new investment into the ground, which is what the government really wants.

The government policies are infrastructure competition, investment competition, rather, network competition, light-handed regulation and ultimately greater integration in the Pearl River Delta. None of those things actually are facilitated by unbundled local loop. So I think you should look at unbundled local loop as sort of, at best, an exception to the rule of people should build, invest and compete that way because that maximises consumer benefits.

Let me give you three theories on unbundled local loop. These are the sort of 1, 2 and 3. The first one, unbundled local loop is absolutely critical, cannot live without it and it has to be there forever. You may hear speaker two say something about that. The second one is, it is essential for the early years. That is a possibility, at least in theory. Hard to

tell when the early years are over but at least it is the jump start competition approach. The third is the essential facilities approach. It is a competition law approach that you see clearly now being used in the US and EU as to when you would mandate unbundled local loop. So I will run through, very quickly, those three theories.

Theory number 1, mandated unbundled local loop now and forever, cannot live without it. This is not the approach taken in other countries. It is not consistent with the language sections 36A or 36AA. It is actually quite inconsistent with the government policy of infrastructure investment in network competition. Importantly, under sections 36A and 36AA, the language is permissive. Somebody can always ask for interconnection or sharing of facilities, but whether the regulator requires it is permissive. The language is “may” not “shall”. So we would suggest that theory number 1, not good policy and not required by law.

Theory number 2, in the early years. Sounds good but how do you know when the early years are up? A very difficult swamp to get into, but you see regulators have done this in various markets and then they have to struggle hard to get out because once you implement unbundled local loop, if you do not have a clear road map of how you are getting out it becomes very difficult. Again, this can be inconsistent with the government’s policy on investment and facilities based competition. If you think about in the early years, you are really thinking to overcome two problems. One is network rollout, in a broad sense. The other is specific issues relating to road openings or perhaps in-building wiring or block wiring. So let us look at where those things are today in Hong Kong.

This is some research we have done, we have not listed the operators by name, I am not sure why, but we just decided not to. If you look at the network build-outs, so this is one of the, in the early years things, we want to see how far networks have built. We did some studies on the major estates and then networks that came within 50 metres of the major housing estates. So a swimming pool, if you can swim 50 metres you can put in a wire fibre to the building. If you look at Hong Kong, it is so vertical, so dense it is not surprising that after this many years of operating competition and build-outs that one operator on the residential side, you have got three operators besides PCCW that can reach over 90 per cent of households in our sample. Our sample represented more than half of the households in the 400 largest estates.

On the business side, you see almost as high numbers. Of course, every network is unique so there is obviously overlap. It does not mean that operator 5 with 22 per cent, operator 4 does not have the exact same network, plus 2 per cent I mean. They may be quite different. The point of this is that operators have built, you should not be surprised, a very dense market, economics of density are relatively simple and in fact they have built. So the economics are there to build and the data shows they have built up to a swimming pool’s length away. That is critically important for the analysis of in the early years approach which is theory 2.

The other part of theory 2 is sort of bottlenecks in building or bottlenecks in opening roads. Obviously from the other chart these are not problems otherwise you would not

have had those very big numbers. But here we have done some research and it indicates that over 99 per cent of road opening applications are granted and there are a variety of ways to solve the in-building situation. Primarily, through agreements between and among the carriers but also there is section 14, GC30 and some other things. If there are problems, MH can jump in on an ad hoc basis as he has done before, so that is not a bottleneck at all. So that pretty much puts to rest theory number 2, in the early years. So if you are an advocate of that, that sign, then I think you should recognise that it is time to phase it out into the sunset.

Theory number 3 is a competition law analysis. You can call it bottleneck analysis, essential facilities law, competition law, it is all the same. What this says, picking up on US and particularly EU case law, is that no unbundled loop is required unless it is absolutely essential. If it is absolutely essential to reach the facility, in this case to originate or terminate calls by unbundled local loop.

The proof of whether something is essential or not is you look at the market. Can the competitors live without it? The answer here is clearly “yes” because again economies of scale, economics of density, people have built out. If they have built out, it demonstrates that it is economical, that somebody’s network can be duplicated, that there are alternatives. So in that environment, if you look at particularly the leading EU decision on that, which is Oscar Brunner, you would see that there would be no basis for any unbundling in Hong Kong except perhaps in those very remote, very rural areas. This is an approach that you can use for any length of time because if something is an essential facility today, it may not be tomorrow, but it may be tomorrow. So you may have substantial network competition and no unbundling for 98 per cent of the users but you could have an unbundling requirement for 2 per cent of the users or something relatively small because to reach those people there may be an essential facility. Over time with technology and the clause changing, that may not be the case but at least it is a theory that you can use and other markets are using it. As I said, the EU uses it and the FCC is getting closer to actually using exactly this approach.

This is more on essential facilities. An important thing here is that it is very consistent with the government’s preference for infrastructure investment and network competition. You only have unbundled local loop where it is absolutely essential, where competition would be eliminated but for unbundling. Obviously it is a relatively light-handed approach.

So let us take a market in Hong Kong where there has been no unbundling or, as the consultation paper says, only a trivial amount of unbundling and let us see what has happened. Let us see how badly consumers have fared in the broadband market where no unbundling exists, and we will all get ready to cry for consumers because it is a hugely successful product, broadband in Hong Kong, penetration rates, as MH said, the second highest in the world. This chart is slightly dated, the actual penetration rate is around 50 per cent of businesses and households. Quite outstanding. Not only is penetration high, but prices in Hong Kong for broadband are the lowest in the world.

What we have done is, we have averaged different Hong Kong providers and matched them up against Yahoo and everybody else. So we get the highest penetration, lowest prices and in terms of how much money you get for your bandwidth, you get the most money for your bandwidth, we are second best. A hugely successful market all without unbundling. So show of hands, who wants to have unbundling in the broadband market? Hugely successful, no government intervention, light-handed regulation, investment, network competition, great success. No need for unbundling.

Just recapping; the first theory of unbundling, the legal theory that you must, that does not apply. So we do not have to unbundle because of the statute, either sections 36A or 36AA.

Let me go on and say something about section 36AA. If you look at the language, it is very much an essential facilities test. It talks about bottlenecks and other language. That is for sharing, so think about it. Essential facilities test, sharing. What kind of tests should you have for unbundling which is much more than sharing, you actually transfer the total use of the line. So you have essential facilities for only sharing, what is the standard when you transfer something much more than sharing? What are the least essential facilities? It may be even something higher but it is at least essential facilities. So theory 1 we do not need because it is not legally required.

Theory 2, in the early years, we have already satisfied all those requirements, we have a lot of network build-outs, we do not have a problem with road openings or in-building wiring. So we do not need the second theory. Then we are left with the third theory which actually works because then you can go in and really look at a market and see where the networks have been built or where the networks could be built. The fact that somebody decides not to go into a building, the investing carrier group should not be penalised for that. The essential facilities test actually allows you to take a correct look at the market and see the level of network rollout. Besides why it is essential, where do you really need it? Where do you absolutely need to have intrusive government intervention to have competition work? If you look at Hong Kong with network build-out, very little place for that, which is where the government needs to be and where I think the government wants to be. On top of that you have all the other negatives of unbundling that we had there on the first slide about disincentives to invest, et cetera.

So the conclusions we draw, clearly as it is some time to end unbundling based on an essential facilities approach, you may have some limited areas of unbundling, perhaps rural or remote. Then you figure out how you are going to sunset everybody else and charging principles that could go with that. Thank you.



Type II Interconnection Policy Review Time for a Change?

Stuart Chiron, PCCW

8 July, 2003



Mandatory Unbundled Local Loop - Pros and Cons A Question of Timing ?

PROs

- Brings faster entry and service coverage for new entrants, who resell incumbent's loops
- Acts as interim alternative while networks are built
- Overcomes structural barriers to network build, if any exist

CONs

- Shifts investment risk from entrant to incumbent
- Reduces incumbent's investment value & future investment incentives
- Reduces new entrants' need to invest and creates Free-Rider problems
- Undermines operators' property rights
- Requires permanent heavy-handed regulation
- Invites regulator to direct incumbent's investment or technology decisions
- Reduced investment feeds directly into fewer jobs, less innovation, reduced GDP growth, reduced international competitiveness and no sustainable competition in the telecoms market
- Lack of infrastructure investment and competing networks reduces competitiveness of all industry segments, limits economic growth and harms users



Three Theories on Unbundled Local Loop

- 1) It is critical to ensure competition and should be mandated / required forever
- 2) It is essential in the early years of developing a competitive market and should be mandated / required for a limited period
- 3) It is a solution to competition problems that result from the existence of an "essential facility" or "bottleneck"



Theory Number 1 Mandated ULL, Now and Forever

- Not supported by other countries
 - All major countries using "essential facilities" approach and applying ULL as interim step in competitive development
- Inconsistent with Section 36A (Telecommunications Ordinance)
- Inconsistent with Section 36AA (Telecommunications Ordinance)
- Inconsistent with Hong Kong Government Policy
 - Investment in Facilities and Services
 - Infrastructure-Based Competition
 - Light-Handed Regulation
 - Commercially Derived and Negotiated Solutions



Theory Number 2 Mandated ULL In the Early Years

- How long is "early years"?
- Need an articulated and clear exit / sunset strategy
- How do network buildouts impact this decision ?
- Is "dominance" a relevant factor in this decision ?
- Hong Kong Government Policy
 - Investment in Facilities and Services
 - Infrastructure-Based Competition
 - Light-Handed Regulation
 - Commercially Derived and Negotiated Solutions



Is Unbundling Still Needed While Operators Roll Out Networks ?

Residential Households* Within Reach**

PCCW-HKT	100%
Operator 1	97%
Operator 2	92%
Operator 3	91%
Operator 4	24%
Operator 5	22%

Business Premises Within Reach**

PCCW-HKT	100%
Operator A	93%
Operator B	66%
Operator C	55%
Operator D	52%
Operator E	46%

- Economics of density predicts significant network buildouts
- Substantial self-built access to customers (n/b & b/b) has occurred
- All network rollout obligations now fulfilled

So, unbundling not required to substitute for new networks

* Residential data - sample of 400+ estates, housing 58% of HK population (1.3 million people), used

** "Within Reach" = network ducts within 50m of customer building, or wireless transceiver within 1,500m of building



Is Unbundling Still Needed to Overcome Structural Barriers to Network Build ?

- 1995 fears over inability to build proved to be exaggerated
 - substantial network rollout completed and licence-based obligations agreed-to
- Road-opening has not been an issue
 - GC30 obligations to co-ordinate & >99% successful applications
- Access to in-building wiring has not been a significant issue
 - reciprocal commercial sharing contracts between operators
 - Building Ordinance & Telecommunications Ordinance allow all operators access to install additional wiring - happened widely
 - Ad-hoc operational problems/complaints can be dealt with through OFTA

So, unbundling not required to overcome road opening or blockwiring barriers



Theory Number 3 Essential Facilities

- Threshold for Mandatory Unbundling is the **Essential Facilities Test**
 - used as an unbundling trigger in the UK, EU, US, Canada and Australia
 - uses competition law and associated economics
- Addresses Bottlenecks that Cannot Be Bypassed/Duplicated (no alternatives)
 - requires sharing of facilities when such sharing is **essential to competition** in a given market, they are a **bottleneck**, they have not been and **cannot feasibly be duplicated or bypassed, no alternative facility exists** and **competition would be eliminated** without such sharing
- Essential Facilities Test Already Reflected in Hong Kong Law
 - Matches Facilities-Sharing Trigger in S36AA of Telecoms Ordinance
 - Aligns With Protection of Property Rights In A105 of Basic Law



Theory Number 3 (continued) Essential Facilities

- Forms a Rational Basis for Assessing Whether or Not Invasive Mandatory Unbundling Is **Truly Necessary**
 - unbundling is facilities **transfer**, not just **sharing**, so the threshold must be as strict as 36AA and supported by hard analysis
- Not Time Bound, but Accommodates Changes in Technology and Economics
 - what is **essential** today may not be **essential** tomorrow
- Consistent with Hong Kong Policies on Investment and Infrastructure Competition
 - encourages competing facilities where they are **feasible** and **protects property rights**
- Consistent with Hong Kong Policies on Light-Handed Regulation and Commercial Solutions
 - applies minimum intervention necessary to ensure competition is **possible**



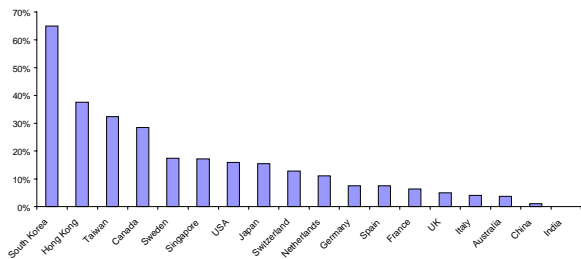
And How Have Hong Kong's Consumers Fared in the Absence of Unbundled Local Loop ?

(the Broadband Example)



World-Leading Service Penetration

2002 Broadband Subscriptions as %age of Households

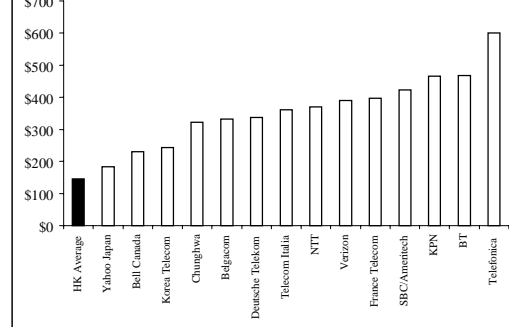


Source: eMarketer Inc., March 2003

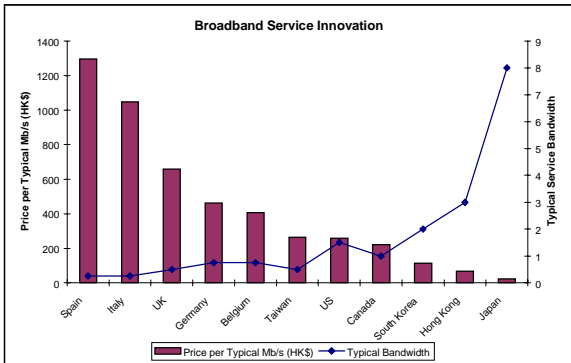


World-Beating Retail Pricing

International Retail Broadband Prices (HK\$)



Source: Ovum, Asia-Pacific Overview, Broadband DSL World Forum (2002)



Source: PointTopic, October 2002

- The historic "in the early years" reasons for unbundling are no longer valid
- The competition law reasons for unbundling no longer apply
- Worldwide, consumer benefits accrue more from competing network infrastructure than from unbundling
 - in no country has unbundling outstripped services provided on competing networks
 - service innovation and price competition have been spurred by competing network technologies, with different cost structures
- Unbundling causes direct economic harm, with its associated long-term consumer harm
 - reduced investment, employment and growth; genuine competition comes from network alternatives, not from sharing or transferring network assets
 - raises property rights issues (Article 105)

It is time to end this intrusive an unnecessary regulation

Dr Ure: Thank you, Stuart. Now what I suspect might be a slightly different point of view from Agnes Tan, Director of Legal, Regulatory and Carrier Affairs, Wharf T&T.

Ms Tan: Good afternoon, ladies and gentlemen. It is my honour to be here today to present our humble analysis on this topic and amongst such distinguished speakers and audience.

The topic today is whether it is time to change Type II interconnection policy in Hong Kong. Is it time for a change? We agree that it is time for a change, but our pledge is not to walk away from the policy, rather, we will be seeking greater improvements in the implementation of Type II interconnection in Hong Kong.

I would like to refer to an extract from a recent report released by OFTA on the Effectiveness of Competition in Hong Kong's Telecommunications Market: An International Comparison which was prepared by Spectrum Strategy Consultants for OFTA where they put it very succinctly:

“It is important to recognise that competition is neither created nor fostered simply by the process of licensing new operators but by the ability of new entrants to access end-users and the extent to which the incumbent is able to constrain the development of competition. Competition in Hong Kong has been very effective and consumers have derived substantial benefits as operators compete to acquire and retain users. In particular, take-up and usage of services has increased as prices have declined ... Hong Kong consumers are considered to have benefited more from competition than consumers in any other review market.”

Type II interconnection, more commonly known as local loop unbundling in other jurisdictions, has been implemented in a number of countries as part of the telecommunication deregulation process. Principally because it takes time and requires very significant technical investment for new entrants to roll out their network comparable in scale to that of the incumbents. It was introduced also due to physical constraints and economics efficiency. The success in each jurisdiction varies.

Again, I refer you to an extract from Spectrum's report. For Hong Kong, a recent Spectrum study concluded that Hong Kong has the highest percentage of unbundled lines as percentage of all local access lines used for broadband or narrowband services compared to other markets used in the study. Other markets used in the study are US, Sweden, Australia, UK, Singapore. Spectrum concluded that the local loop unbundling process in Hong Kong is significantly more advanced than in any other markets. This has facilitated the market entry and has helped to increase the level of competition in the local fixed line services in Hong Kong. You are familiar with this table because I think MH showed this table earlier on.

This table shows the market share of narrowband services. From the statistics provided you can see that nearly half, to be precise, 46 per cent of the narrowband services were connected by Type II interconnection. The consultation paper of 23rd May this year also

recognised that competition in the local fixed lines market is not only achieved through self-built or end-to-end networks, in fact, a substantial part of the 50 per cent coverage of residential customers by the new entrants representing the availability of alternative choice to residential customers in the narrowband services is also achieved through Type II interconnection. So we truly believe that deployment of Type II interconnection in Hong Kong has accelerated the development of competition that we see today.

The same conclusion was drawn by OFTA's own study conducted by Spectrum. This has brought about very significant benefits to customers in terms of choice, prices, range and quality of services. If Type II interconnection has been the key to the state of competition in Hong Kong's telecommunications market that we see today, we were promised it would be around without any sunset date. We were persuaded to commit heavily into implementing Type II interconnection so that the government could extend choice to many consumers in Hong Kong, so where is the justification to withdraw Type II interconnection?

Let us remind ourselves that in Hong Kong we still have an incumbent holding a dominant position, with a staggering 81.7 per cent in the narrowband services and 55.3 per cent in broadband services. In the case of narrowband services, the remaining 18.3 per cent is shared between four players. And for the broadband services, shared by many operators. There are at least ten of them which share the remaining 44.7 per cent. This information is extracted from the OFTA consultation paper of 23rd May.

So is the government collapsing in the face of the incumbent's bitter challenge due to the erosion of its market share and revenue? Is it not the result of competition? Were we not all be waiting for this to happen? Now that competition is finally happening and is bringing benefits to Hong Kong, why are we retracting from the policy which helped us to get to where we are today?

The incumbent says that we should build our own end-to-end network to serve our customers. Indeed, we have built and we will continue to build our own network. We have in fact invested more than \$4 billion. But at the same time we also lease the incumbent's local loop. We all know Hong Kong is a very crowded and congested place, inside the building and on the street. So how many sets of networks do we really need to roll out in Hong Kong, a very small place? How many pairs of cable do we need to terminate at customers' premises? Surely consumers do not need to have multiple sets of cables terminating at their homes. Duplication of network, particularly the last mile, is a wastage of resources.

The investment, we think, would be better spent where it is really needed, it is called smart investment. Indeed the outgoing Director-General of Telecommunications, Mr Tony Wong, has only just recently warned of over investment in Hong Kong's telecommunications network. Ladies and gentlemen, it is not the time for the government to retract from Type II interconnection, rather, it is time for us to ponder upon what greater improvements we can make to implement Type II interconnection in order to further accelerate the pace of competition to bring about more benefits to the consumers, to our very much battered economy.

So what greater improvements are we looking for in implementing Type II interconnections? I have listed out a few of them. Obviously the list can go on. I will just identify a few.

First, we need to correct the excessive anti-competitive charges and we need to fix the lead time for provisioning of local access links. It is not acceptable to have your broadband local access link cut over at the rate of 2 LALs per day per exchange. We need to fix the service restoration for LALs. We need to have adequate capacity for subscriber tie cables. We need to reduce the rejection of LALs and we need to reduce the rejection of number porting requests.

Just to illustrate our point, let me show you why the charges must be corrected. This table shows the narrowband LAL charges imposed by the incumbent in contrast to what it charges to its retail customers. You can see that for an urban LAL it charges other operators a one-off installation at \$475 per LAL and a monthly rental of \$42 per LAL. This is no volume discount at wholesale. For its retail customers, the incumbent charges \$475 per direct exchange line for installation and \$110 for single DEL, direct exchange line. It also provides volume discount, with the second direct exchange line installation discounted and \$55 per month for the second direct exchange line for residential customers. The contrast is even more extreme when you look at the rural LAL charges, at \$680 per LAL for installation and \$111 per LAL per month. Even the incumbent does not charge its residential customers in the rural area these sort of charges.

For the broadband LAL charges we see the very same story. For full bandwidth broadband LAL the incumbent charges \$1,491 per LAL for installation and \$198 per LAL per month. For its retail customers it waives installation charges for business customers and only charges \$530 for residential customers.

The above illustrates the classic case of vertical price squeezing. The excessive charges imposed by the incumbent allow it to squeeze the profit margin for new entrants thereby making it difficult for sustainable comparative entry. The Audit Commission in fact also identified this very issue in March 2002 when it reviewed the liberalisation of the local fixed telecommunications market.

I will show you next the number of port rejections for fixed line customers. I want to mention this because this is an issue that we have been dealing with for over a year now and no resolution is in sight.

You are familiar with the portability of numbers across networks. For a customer to switch to my network and retain the same telephone numbers, I have to request his existing service provider to so call release and to port that number over to my network. So I submit the request with the relevant customer's details. Sadly, nearly 20 out of the 100 requests that I made were rejected for various reasons. Mostly because the customers' names and ID numbers provided did not match with the records of the incumbent, even if the customers' names and ID numbers are exactly as appear on their Hong Kong ID card. High rejection of number porting requests means frustration as customers are not able to switch to their chosen service providers on the day that they

wanted. The recipient network operators, such as us, have to expend significant efforts to re-process the number port requests including checking with the customers to verify their details and to re-submit them to their existing service providers.

The rejection rate (looking at the statistics for number port between the dominant operator and us) is consistently above 10 per cent and on average at about 15 per cent, and is approaching 20 per cent. If you look at the statistics of the mobile number portings with an average success rate of 95.8 per cent as of May 2003, which equates to an unsuccessful rate of only 4.8 per cent, contrast that with the fixed line customers, it is scandalous.

I feel I should mention a few words on “change in practice” because this is the topic actually given to me today by the organiser. But I must admit I am not sure what was intended. I guess the issue is, if the regulator were to remove the mandatory requirement on access to copper local loop of the incumbent, how then do we transition ourselves? Obviously, I do not believe that we would have to go down that path at all. If we had to go down that path, in the unfortunate event, I imagine that we would have to identify the co-location buildings, identify customers in the co-location buildings, identify and study the economics and feasibility of serving these co-location customers via our end-to-end network. If not economical or feasible, is there any alternative?

If it is economical or feasible, then we need to build to reach them. Then we need to arrange with the customers for the switch over and actually carry out the switch over. I must caution that these are just very high level steps involved. In practice, I cannot imagine it being done at all. It would present enormous inconvenience to consumers.

Finally, please do not forget that competition, the notion that competitive markets create the best economic outcomes for consumers and society, is a policy choice that has been triumphant worldwide since the collapse of the Soviet Union in the 80s. If Type II interconnection promotes competition so to speak, and if the calculus of efficiency shall guide us, you would agree with me that change is unnecessary. Instead, we should be looking for greater improvements in implementation to protect us further. Thank you.

8 July 2003

Telecoms InfoTechnology Forum

**Interconnection Revisited:
Time for a Change or Not?**

**From the Perspective of
Wharf T&T Limited**

**By Agnes Tan
Director
Legal, Regulatory & Carrier Affairs**

1



**Time for a change
Not to walk away
but to seek
greater improvements**

2

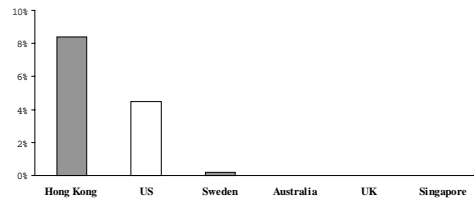
“It is important to recognise that competition is neither created nor fostered simply by the process of licensing new operators but by the ability of new entrants to access end-users and the extent to which the incumbent is able to constrain the development of competition.”

“Competition in Hong Kong has been very effective and consumers have derived substantial benefits as operators compete to acquire and retain users. In particular, take-up and usage of services has increased as prices have declined. Hong Kong consumers are considered to have benefitted more from competition than consumers in any other review market.”

Source : Spectrum Strategy
Consultants June 2003

3

Exhibit 3: Unbundled lines as a percentage of all local access lines (used for broadband or narrowband services)



Note : In Hong Kong, includes Type II interconnection
Does not include lines provided on a wholesale /resale basis
Data for year end 2002
There are an estimated 100 unbundled lines in Australia. In April 2002, there were 250 unbundled lines in the UK. Accurate information on the number LLU lines in Japan and South Korea is not available at time of publication. No significant number of unbundled lines in Singapore

Source: Spectrum Strategy
Consultants June 2003

4

Market Share

**Narrowband Market
(as at end of December 2002)**

	No. of lines Connected via Type II interconnection	No. of lines Connected via self-built network	Total number of lines	Market share
HGC				
HKBN	329 006	375 724	704 730	18.3%
NWT				
Wharf T&T				
PCCW-HKTC	0	3 137 017	3 137 017	81.7%
Total	329 006	3 512 741	3 841 747	100%

Source: OFTA – 23/5/03
Consultation Paper

5

In Hong Kong Type II Interconnection has accelerated the development of competition

- **Benefits to consumers in terms of choice, prices, range and quality of services**



6

Market Share

	Narrowband Services	Broadband Services
Incumbent/ dominant Operator	81.7%	55.3%
Others	18.3% (amongst 4 players)	44.7% (amongst at least 10 players)

7

Picture withheld

8

Improvements Needed

- Correct the excessive/anti-competitive charges - installation and recurrent charges for LALs; installation of capacity; implementation of sites and so forth;
- Lead-time for provisioning of local access links (LALs);
- Service restoration for LALs;
- Adequate capacity for subscriber tie cables;
- Reduce rejection of LALs; and
- Reduce rejection of number porting requests.

9

Narrowband LAL Charges : Wholesale vs Retail

	Narrowband LAL Charges	PCCW-HKT's Retail/ Residential DEL
One-off installation (Urban)	\$475 per LAL	One DEL: \$475 Two DEL: \$475* (average cost \$237.5 per DEL) Existing RDEL user add DEL: \$380* per DEL
Monthly Rental (Urban)	\$42 per LAL	\$110 for single DEL \$55* for second DEL in same installation address
One-off installation (Rural)	\$680	One DEL: \$475 Two DEL: \$475* (average cost \$237.5 per DEL) Existing RDEL user add DEL: \$380* per DEL
Monthly Rental (Rural)	\$111	\$110 for single DEL \$55* for second DEL in same installation address

* Special offers valid till 2 July 2003, installation charge will be rebated in 12 monthly credits.

10

Broadband LAL Charges: Wholesale vs Retail

	Broadband LAL Charges (BCLL Tariff)	Netnavigator's Tariffs
Installation	Full bandwidth - \$1,491 per LAL Partial bandwidth - \$2,576 Per LAL	Business - Waived (Original \$1,200) Residential - \$530
Monthly Rental	Full bandwidth - \$198 per LAL Partial bandwidth - \$182 per LAL	Business - \$330 (150 hrs); 3 months for free with 13-month contract; effective charge \$260 Residential - \$198 (20 hrs)

11

Number Port Rejection for Fixed Line Customers

- Exceeds 10%
- Average 15%
- Approaching 20%



12

Statistics of Mobile Number Portings

Month	Number of Booked Tickets	Number of Submitted	Number of Successful Portings	Average Success Rate
May 2003	117,512	115,449	110,586	95.8%
April 2003	122,109	117,537	112,680	95.9%
March 2003	124,916	121,166	115,727	95.5%
February 2003	78,320	74,950	71,578	95.5%
January 2003	89,237	84,659	80,714	95.3%
December 2002	67,733	64,344	60,978	94.8%
November 2002	59,937	56,623	53,568	94.6%
October 2002	63,525	61,201	58,339	95.3%
September 2002	65,862	62,466	59,428	95.1%
August 2002	63,784	61,888	58,771	95.0%

Source : OFTA

13

Change In Practice

- Identify co-location buildings
- Identify customers in co-location buildings
- Identify/study the economics and feasibility of serving these co-location customers via our end-to-end network
- If not economical or feasible - any alternatives?
- If economical and feasible - building to reach them?
- Arrange with customers for the switch over
- Perform the switch over

14



THANK YOU

15

Dr Ure: Thank you very much, Agnes. Actually, in suggesting the subtitle for your talk, I had in mind your contribution earlier where you were talking about what you would perceive as being the inadequacies of the present situation, so you have given us an extra insight by your final slide. Thank you very much for that. Our next speaker is Ricky Wong, Chairman of Hong Kong Broadband Network, and Ricky is going to talk under the title that I gave him of “An alternative network approach?”

Mr Wong: Good afternoon, ladies and gentlemen. I think probably MH, Agnes and Stuart have already given you a very detailed analysis of Type II, whether we should have Type II or not have Type II. I think this afternoon I just want to give a five minute presentation using Hong Kong Broadband as an example of how we view our network.

Hong Kong Broadband was given the network licence in February 2003. We have limitations that we cannot use Type II interconnections. So we have no choice, we are not so lucky as the other three new entrants who can rely on the incumbent’s network, we cannot. So we use three years times spending HK\$1.2 billion, we lay down around more than one million metres of optical fibre in the ground now. We are the only operator now in Hong Kong not using Type II interconnections, not even one. However, we already have 280,000 families in Hong Kong using our services, either the broadband or narrowband services.

We are cash flow positive, we are competitive, that may explain why the US investor last night on the Nasdaq have record high transactions, our share price was up 20 per cent last night. That may explain why. This afternoon I just want to give you a presentation about our experience.

From our experience in the last three years there are no bottlenecks in the buildings. In the year 1995, June 3rd, there is a interconnection configuration and basic underlying principles issued by OFTA. They were saying that many buildings have bottlenecks and it may in fact be impractical to install a second local loop. I want to show you the picture of our network.

On the right-hand side, that one is what we call the FDF box. I do not know what the “FDF” stands for, but it is a big box with all the fibre and copper wire installed. We have these kind of boxes in close to 4,000 buildings in Hong Kong now. On the left of the building you see we are still in the meter room of each floor of those 4,000 buildings. Then you will see that there are two kinds of wire. The yellow one is the PCCW wire, they are either cat 4, cat 3, and in some cases they do have cat 5 wires. The grey one is ours. So now we are in the meter room. So in the meter room we have the boxes where we lay our own fibre in the conduit. Then on the right-hand side is the ceiling, that box is on the ceiling. So the picture that I show you is, we can lay the fibre from the meter room on each floor to the end of each corridor. Then this is conduit for the drop-in cables. What I want to show you, it has already got two cat 5 cables.

Each of these cables is four pair, so we have got 8 wires in each. So we are wiring two cables each with 4 pair cat 5 cable drop-in to that apartment. I put two ball-point pens in

here in order to show you that there is still a lot of room that we can put the third and even the fourth wire into the same apartment.

That is what I want to say today. Show me where is the bottleneck. I really want to see the bottleneck. From our past experience we never saw any bottleneck in any of the buildings in Hong Kong.

The last three years, according to Cisco Systems, the viewing network in Hong Kong is the largest metro ethernet IP network in the world. It covers 1.2 million households, around 60 per cent of the aggregate Hong Kong total population. 3,500 residential buildings and another 500 commercial buildings. From the same IP network we deliver broadband internet access, narrowband, telephone services and we are going to have the pay TV services in a few weeks.

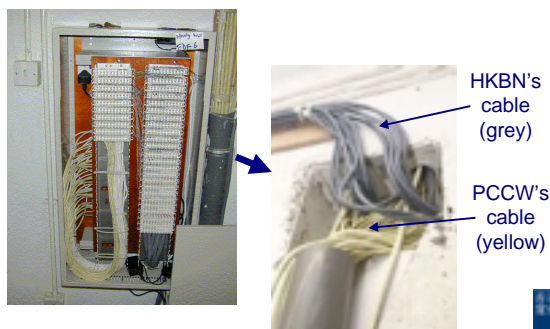
The answer, from our point of view, is very simple; if anybody wants Type II interconnection I think you have to prove where is the bottleneck? I read the newspaper about one month ago, I think it is the Ming Pao, it said that OFTA—the broadband interconnection is \$95. I wish MH to allow us to use that broadband Type II arrangement so that we can stop all our investments just using that broadband Type II, I would love to see that. Also, I think my share price would go another 20 per cent if OFTA allowed us to use the broadband. The investor is very concerned, we continue to invest in Hong Kong, with that. Please consider to let Hong Kong Broadband to use the broadband interconnections. Thank you.

HKBN's view on Type II Interconnection

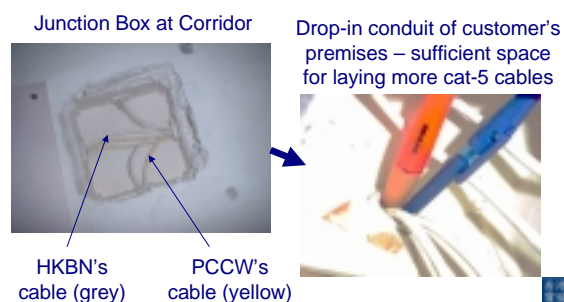
Why we need Type II Interconnection?

- "Interconnection Configurations and Basic Underlying Principles" - Interconnection and Related Competition Issues, Statement No. 6 issued by the OFTA on 3 June 1995 :
 - "Many buildings have bottlenecks and it may, in fact, be impractical to install a second local loop."

HKBN's Blockwiring Network



HKBN's Blockwiring Network



What we achieved?

- The entire network was self-built at the scale :
 - Being the largest Metro Ethernet IP network in the world
 - Covers 1.2 million homepass all over Hong Kong, representing 60% of the aggregate
 - Extended to 3,500 residential and commercial buildings
- With this network, we deliver :
 - Broadband Internet access service
 - Local telephony service
 - Fully-digitalized pay-TV service

HKBN's view

- *Do we really need Type II Interconnection?*
 - The answer is SIMPLE
 - We need to prove the existence of in-building "bottleneck" hindering the installation of a second local loop

Dr Ure: Thank you, Ricky. The next speaker will be Dumas Chow, who is General Counsel, New World Telecom.

Mr Chow: Thank you, Ricky, for sharing your building rollout assessment with us today. If we had the meeting yesterday some of us would have bought your shares in the US overnight.

Today, as one of the smart investors—to use Agnes’s terminology—I want to share with you the reason why New World Telecom uses a mixed strategy of self-built lines and Type II interconnection to serve our customers. I am also going to comment briefly on the existing Type II interconnection in Hong Kong, in particular, the availability of broadband Type II interconnection in Hong Kong. Finally, I am going to touch on the pricing issue. How should we price the Type II interconnection services provided by the incumbent?

Local loop unbundling is always a major battlefield between the incumbent and the new entrants. For New World we drew the battlelines back in 1998 when we requested TA to make a determination on narrowband Type II interconnection. We are still fighting that battle today, although this time on the broadband Type II interconnection.

Why is it an uphill battle for the new entrants to fight the incumbent on local loop unbundling? I think the answer is simple. Because the incumbent would not like to open its network to competitors who will take away business from them. The new entrants, on the other hand, need to have access to the incumbent’s local loop in order to provide service to customers before they have rolled out their own customer access network.

Sometimes it is not possible for the new entrants to self-build their access network to certain customers, either because of the physical constraints or because it is simply not economically efficient to do so. So the basic objective behind the local loop unbundling policy really is to facilitate the availability of early completion to the incumbent and allow the end customers connected to the incumbent’s network to have a choice of alternative service providers. We think local loop unbundling is an access issue more than anything else. As I said in the presentation, I will explain why New World Telecom uses a mixture of self-built lines and Type II interconnection to serve our customers.

Contrary to some of the critics who said that the new entrants are not aggressively building their networks, New World Telecom has in fact invested substantially in our network infrastructure, so I am going to briefly describe that infrastructure in a moment. Finally, I will comment on the broadband Type II interconnection in Hong Kong, as I said, and touch on the pricing issue. First, why does New World Telecom use a mixed strategy?

The answer is very simple. Because we realise that our business is not just about investing in infrastructure but providing services to customers. Type II interconnection enables us to access to customers quickly and efficiently and it provides us with the flexibility to upgrade the Type II customers to self-built lines when economically justified. So far our strategy has been successful. So instead of duplicating the

incumbent's customer access network, we have built our fibre transmission backbone and invested in local and international switching facilities. For customer access, we have invested in our self-built fibre access links and connected customers to our network through the Type II interconnection arrangement. To date about half of our local access lines are self-built and half of them are provided under the Type II interconnection arrangement.

I am glad to say that as a result of the mixed strategy New World Telecom is able to achieve a reasonable return on our capital investment for our shareholders. I think, to use Agnes's terminology again, we are one of the smart investors in the Hong Kong Telecom industry. So what have we built so far?

Like all first wave new entrants who entered the fixed line market in 1995, we have committed with the government to invest in our self-built telecom network infrastructure and we have exceeded all these commitments.

We have spent over \$2.5 billion in our transmission backbone so far, switching facilities and self-built customer access network. We now have a fibre transmission backbone of 200 kilometres covering 90 per cent of the population of Hong Kong living within the vicinity, with additional sections of 100 kilometres being constructed. We have also invested in over 20 highly sophisticated local switches, international gateway platform, IN platform and data network platforms. We have built a high speed access network to access buildings from our transmission backbone.

At New World Telecom we are committed to develop innovative value-added service for the benefit of our customers. For example, we have recently launched our broadband service over our NGN or next generation network platform, using soft switch technology. Our NGN network inter-operates with broadband, cable and wireless and allows customers to access converged voice, video and data enhanced communication services any time, anywhere. So it goes back to the point that I mentioned earlier. Our business is not just about investing in infrastructure but providing quality and innovative services to our customers. Through a mixed strategy we are able to invest efficiently and provide innovative services to meet our customers' needs.

Mr Anthony Wong, has recently said in public that Hong Kong has over invested in telecommunication infrastructure and the operators should find ways to better utilise the existing telecommunications structure and provide innovative services to customers. We agree. We believe that Type II interconnection is the ideal answer to a better utilisation of telecom infrastructure in Hong Kong. It prevents over investment and allows new entrants to build a customer base while competing with the incumbent in the market. We think Type II interconnection is at the heart of the telecommunications competition policy in Hong Kong. It provides an environment whereby new entrants can compete with the incumbent on a level playing field. It also encourages investment in new enabling technology and platforms. We believe that Type II interconnections strikes at the core of the incumbent's dominant power and no telecommunications competition policy can be effective without it.

So I hope I have explained where we come from. Now I would like to say something about the present Type II interconnection policy. First, I think the present policy review is not warranted at this stage and I will explain why.

Last year, the TA initiated a determination proceedings under section 36A of the Telecommunications Ordinance to determine the terms and conditions of broadband Type II interconnection between PCCW and New World Telecom. As some of you may know, the present commercial agreement on Type II between the incumbent and operators only applied to the copper network and it is restricted to voice grade services only. Broadband Type II is not widely available, mainly because we cannot agree on the commercial terms with the incumbent. We therefore need to seek regulatory intervention.

The determination proceedings had reached an advanced stage when the policy review was announced in May this year. As a result, the determination proceedings have been put on hold. For those of you who followed the developments in Hong Kong, the TA had actually consulted the industry back in 1999 about Type II interconnection in Hong Kong. Following that consultation, the TA issued a statement on broadband Type II interconnection in November 2000. In that statement the TA clearly indicated that broadband Type II interconnection should be mandated and should be made available for all local loops of all local line based fixed networks. Yet three years after the statement was issued and four years after the first consultation was conducted, broadband Type II interconnection is still not widely available in Hong Kong.

We think it is unlikely that broadband Type II will take off at all in Hong Kong in the absence of regulatory intervention. We think the present policy review has further delayed the process and is therefore not warranted at this stage.

A relevant question can be asked, whether or not there is a need to mandate broadband Type II interconnection in Hong Kong now. I think the answer is, yes. When originally introduced in the United States and Hong Kong local loop unbundling was only intended to support PSTN services. The main focus in the United States, Hong Kong and elsewhere is high speed data services using xDSL, or digital subscriber line technology.

Compared to jurisdictions that started local loop unbundling after Hong Kong, Hong Kong is well behind when it comes to the deployment of DSL technology, mainly because of the lack of competition. If the Type II interconnection policy is not mandated for both narrowband and broadband services then we believe this will significantly impact on the future development of Hong Kong's telecommunications environment and the competitive environment for the consumers.

The government says Hong Kong had a 44.7 per cent broadband penetration rate at the end of last year. However, as far as the broadband conveying service is concerned, half of these lines are owned by Hong Kong Cable who is providing their broadband services over the hybrid fibre coaxial network. The majority of the remaining lines are owned by PCCW. Both of these networks are not widely open for Type II interconnection at the moment. The government's statistics also show that we have a 9 per cent penetration for voice service using Type II interconnection. While it is a good start compared to some

other countries—and I reckon that OFTA has probably spent half of the time in dealing with Type II related matters to get us here—we believe that Hong Kong is still lagging behind other countries in terms of mandating the unbundling of the broadband loops. We think the local loop unbundling process in Hong Kong has just started and we cannot stop at the starting line.

Let us turn to one of the more controversial issues of local loop unbundling. At what price should the incumbent provide the local loop to its competitors? I am not an economist and I am sure that there are people in this forum who would be able to give us a lecture on this issue. There may well be conflicting views. However, if we look at countries around the world which have mandated local loop unbundling, they all use a cost or rental methodology to calculate the price of the local loop service.

New World Telecom supports the use of cost based pricing. This is applied to local loop unbundling in Australia, the United States, the EU and also the United Kingdom and is currently applied in Hong Kong. The problem we have in Hong Kong, as I see it, is that it is often very difficult to ascertain the true cost components of the incumbent's service. It is partly because there is no structural separation of the incumbent's wholesale and retail operations in Hong Kong.

One way of assessing the true cost components of the incumbent's service of course is to separate the incumbent's wholesale and retail operations and require the wholesale part of the incumbent to sell to all competitors on an equal footing. The economists and other commentators on local loop unbundling policies world-wide said that many of the difficulties in implementing local loop unbundling can be resolved more quickly and have suggested it is beneficial if incumbents can be encouraged and have the opportunity to develop a stronger wholesale mentality. An alternative to the structural separation is to adopt an accounting mechanism that allows third parties to accurately ascertain the costs associated with the incumbent's wholesale and retail operations. It is currently being implemented in Australia.

Last month the ACCC, the equivalent of OFTA in Australia, issued three record keeping rules for Telstra as part of the Australian Government's new accounting separation regime. This regime was put in place as a first step to address the anti-competition and discriminatory concerns arising from Telstra market power at a level of vertical integration between Telstra wholesale and retail operations. The ACCC has just issued a further discussion paper on additional record keeping rules to implement a longer term accounting separation regime for Telstra. At the moment, Telstra is required to provide detailed information on the current cost of providing its services in addition to the provision of historical cost information. It is also required to provide key performance indicators, or the KBI measures as they call it. In practice, this requires Telstra to prepare reports comparing the key non-price terms and conditions of supplying core telecommunication services to itself and other SS seekers. Telstra is also required to perform quarterly imputation analysis of core telecommunication services. The objective here is to assist the ACCC in detecting anti-competitive price squeeze in the retail market. So I think all these issues are worth considering in the upcoming policy review of Type II interconnection in Hong Kong.

In conclusion, we believe that Type II is at the heart of the telecommunications competition policy in Hong Kong, it provides an environment where new entrants can compete with the incumbent on a level playing field. We have achieved some success in the narrowband unbundling but the process has just started. We would like it to be mandated at the broadband level and Hong Kong certainly cannot abandon Type II at this stage. New World Telecom supports the use of cost based pricing, but believe that in order to make it meaningful we must be able to ascertain the true cost components of the incumbent's service. That is the end of my presentation, thank you.




Teleocms Info Technology Forum

Dumas Chow General Counsel

Date: 8 July 2003

Your communication is our focus



A Mixed Strategy

- ◆ Why NWT uses both Self-built lines and Type II Interconnection
- ◆ NWT 's self-built infrastructure
- ◆ Broadband Type II
- ◆ Pricing

Your communication is our focus




Access Strategy: Build and Buy

Our business is not just about investing in infrastructure but providing services to customers

Type II enables us to access customers quickly and efficiently

Return on capital investment

Your communication is our focus




What have we built

NWT exceeded all network rollout commitments

Over 2 billions investment in fibre transmission backbone, switching platforms and customer access network

Your communication is our focus




Type II Interconnection Policy

Broadband Type II not available in a significant scale

LLU process just started; HK cannot stop at the start line

Your communication is our focus



What Price

Difficult to ascertain the true cost components

Structural/ accounting separation of incumbent 's wholesale and retail operation

Your communication is our focus



In conclusion

Type II at the heart of the telecom
competition policy in Hong Kong

Important to ascertain the true cost
components of the incumbent's service

Your communication is our focus

Dr Ure: Thank you very much indeed, Dumas. Our last speaker for the session is York Mok from Hong Kong Net and who is Chairman of the Hong Kong Internet Service Providers Association, so this is a different perspective of a service provider who very much relies upon the networks of the companies we have just heard from.

Mr Mok: Thank you. Good afternoon, ladies and gentlemen. Maybe you are surprised at why I am here. Actually, when Ricky came here I asked him to ask questions to me, why you were here. You are just an ISP, you do not have the network.

Mr Wong: I did not say that. I asked you to ask me.

Mr Mok: People are surprised, what is the role of ISP in this debatable issue, so I am going to tell you why I am here, not only the reason why I am the chairman of Hong Kong ISPA but I am also myself an ISP operator. Most of the speakers have already presented this idea but I will just translate it into a picture.

This is a reverse pyramid, everyone has to serve their customers and we believe in Hong Kong we shall segregate the telecom operators into two layers, service company and also the network company. As Dumas said, we should have a structural separation and an accounting separation between network providers and service providers. So what are the values of ISP in the value chain?

Unfortunately, in Hong Kong most of the ISPs are playing a very simple role. Some of them are just working as a sales channel, some high end ISP just working as a simple reseller, assets based ISP. Some come with a strong financial background, some are R&D and develop some more value added services to become a value added reseller.

For those companies with a content background, application background, they may become content and application providers. Some of them evolve to become a total service solution provider. Unfortunately, as I said, most of the ISPs in Hong Kong are just simply playing the first two roles. Most of them are trying to move up on to the value chain but it is very difficult.

I think MH is very proud to show you that the Hong Kong broadband price is very competitive, I think probably the lowest in the region, but the ISP is the one to suffer. I do not mean that the ISP should not pass the price benefits to the customers but the problem is most of the small ISPs in Hong Kong, they cannot enjoy the economy of scale. I will show you some of the information later. So there are different kinds of ISP in Hong Kong, some with strong financial background, like my own company.

Our company is the largest Telecom operator in the world, NTT. Some ISP with content background, the purpose to launch ISP is not to sell assets but to sell their contents, on-line games, boxes, play stations. Some ISP with regional and global presence and for business synergy to sell to their global customers. My company is also one of them. Most of the ISPs in Hong Kong, or I can say most of the permanent ISPs in Hong Kong are the retail arms of network providers. Unfortunately, they are playing the network provider role and also the service provider as well. Some ISPs with a property developer background, they have the buildings, they have the tunnels, so they think that they can

base upon their own assets to turn ISP to become a profitable business. And some ISPs with a captive customer base from other unrelated businesses. Some small ISPs are still struggling in Hong Kong trying to serve niche markets, to serve some retail chains, to serve some accounting firms, legal firms, making minimal profits, trying to survive in this competitive environment.

So as I said before, ISP is trying to climb up the value chain but it is very difficult for them at the moment in time under the current environment. Some ISPs have a financial background, they do not want to move up the value chain because they do not see the value at all, why they need to invest, why they invest heavier in the infrastructure or in the services. They cannot make any money out of the competitive environment. In fact, ISPs have very limited choice, so do the customers. Therefore, like home broadband services, as was said before, most of the ISPs now rely on the PCCW wholesale network. Frankly speaking, they have very small logistics to serve ISPs so we can check the coverage easily through the web, it is very convenient.

What about other network providers: how about HGC? How about Wharf T&T, New World Telephone, CTI? I think iCable is also another incumbent provider because they own a cable network which can provide very extensive coverage. I do not know, to my knowledge none of the ISPs in Hong Kong can be their reseller. Do we have any plan to wholesale the network to the ISPs? I think it is a question for MH to consider.

For the corporate broadband, PCCW wholesale again. It is the one who supports wholesale very much and most of the ISPs in Hong Kong rely on the PCCW network.

How about the Metro-IP network? Although it is available, all the time we have to talk with them case by case begging for the support of the service. How about the other network providers, HGC, Wharf T&T and New World? All of them do not have any wholesale model for the ISPs.

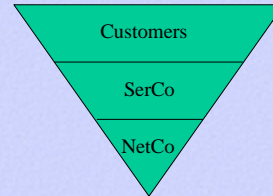
Actually, the problem for the ISP, we are just the meat inside the hamburger. I cannot draw a very good picture otherwise you will see that it is a hamburger. We are subject to the pressure from the wholesale side and also the pressure from the retail side. Most of the time retail and wholesale are under the same company. From time to time or occasionally sometimes the retail price is even more cheaper than the wholesale price. It makes the ISP very difficult to compete with the incumbent operators. What I mean by "incumbent operators", including PCCW and also second network operators.

Under the circumstances, ISP may be delayed. The only ISP or only service providers, value added service providers, total solution providers will only be equivalent to network providers. My presentation is very short. I just want to make some recommendation to OFTA and the industry to strike a balance between the benefit between the customers and the service providers. Of course, the long-term benefit will be to the customers and also strike a balance between the benefits of the incumbent and the new entrants. I think we have one major player in the industry who can facilitate how to strike a balance amongst all parties, it is ISP. I would suggest the industry and OFTA try to make full use of ISP

to facilitate the deployment of the telecom and internet networks and eventually pass the benefits to the consumers in the long run. Thank you.

York Mok
Chairman, HKISPA
york@hkispa.org.hk

Reverse Pyramid



What are the values of ISP in the value chain?

- Sales Channel
- Simple Reseller (Access-based ISP)
- Value-added Reseller
- Content & Application Provider
- Total Service/Solution Provider

Concern : Most ISPs are sales channels and/or simple resellers

Different kinds of ISP in HK

- ISP with strong financial background
- ISP with content background
- ISP with regional/global presence and synergy
- ISP as the retail arm of a network provider
- ISP with property developer background
- ISP with captive customer base from other business
- ISP for niche market (a local small ISP)

Concern : ISPs hardly move up on the value chain

ISP/Customers have limited choices

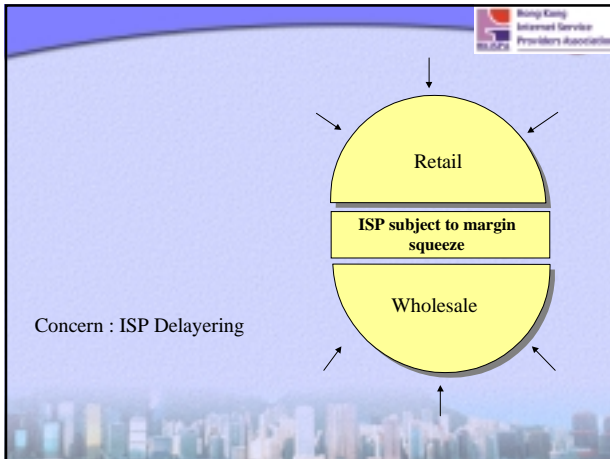
Residential BB

- PCCW Wholesale
- HGC ?
- WT&T ?
- NWT ?
- CTI ?
- iCable?

ISP/Customers have limited choices (Cont'd)

Corporate BB

- PCCW Wholesale
- PCCW Metro-IP ?
- HGC ?
- WT&T ?
- NWT ?



Conclusion

OFTA and The Industry

Balance the benefit between customers and service providers

- Balance the benefit between incumbent and new entrants
- Make full use of ISP

Long time benefit : Customers

Thank you!

Dr Ure: Thank you, York. I never thought of you as a hamburger before. We are running a bit short on time. What I propose is to take some questions and/or comments, maybe three or four from the audience and then give the panellists a minute each to respond to any of the points raised.

Participant: I just want to make a few points of clarification. Under this Type II policy there are only three operators, the new operators, namely Wharf T&T, Hutchison Global Communications and New World Telecom who could use the Type II interconnection to provide service to their customers. The latecomers like Hong Kong Broadband, they are not allowed to use Type II. Perhaps the fact that Hong Kong Broadband is not able to use Type II interconnect has prompted Mr Ricky Wong to ignore the fact that bottleneck does exist. If there were no bottleneck I do not think the governments, the regulators in the US, in Europe, in a lot of the other liberalised countries or places like Hong Kong would allow Type II interconnection. This is very essential to promote competition as early as possible. Maybe Mr Wong is too busy to look around Hong Kong. I can tell you, there are so many buildings which have a lack of access, a lack of space in the lead in, a lack of space for the block wiring, lack of space in the MDF. I could volunteer to bring some of you, including the press, for a site inspection tour if you like, I can show you if you like 10, 100, 1,000 buildings which have not got any space, which is what we call bottleneck. The other point, I heard from Stuart Chiron from PCCW talking about investors against non-investors. I am sure you know those using Type II interconnection are investors in fact like Wharf T&T who put in \$4.2 billion as an investment. We did not just resell the lines as described by Stuart. As a matter of fact, we are putting the investment which is enough to build at least two GSM networks in Hong Kong covering most of Hong Kong. Where do we put the money? We invest the money wisely rather than rebuilding of—operating the network into the homes or the business premises of customers. We are doing it partly through direct access, partly through Type II interconnection so as to maximise the use of the capital to ensure that consumers would have choices. So I think it is important to understand the meaning of Type II interconnection. We do not resell it like a trader, we do not lease the line from end to end from PCCW and resell it. We are basically leasing a small part of the network connected to our core line network in order that we can provide a service. This is a very important distinction between reselling and the fact that we are making use of that small section of network to add value and to provide a service. Imagine, do we take away the Type II interconnection? If there were no Type II interconnection in Hong Kong, today there would be more than 300,000 customers not having a choice. You have seen from the graphs of the presenters more than 300,000 lines are in fact being provided. These services are being provided through Type II interconnection. We know that. I am sure Hong Kong would be going backwards in terms of the liberalisation of the market rather than going forward. I do not think MH would like to see us going back. Otherwise, OFTA would not be able to get the Regulator of the Year Award any more in the future. Thank you.

Dr Ure: Thank you.

Sin Chung Kai. Question: A naive and shallow question. What is the appropriate price for Type II interconnections? Is \$42 to be revised upwards or downwards? What is the appropriate price for broadband interconnections?

Dr Ure: Typical Hong Kong question, always asking about price.

Question: Hong Kong is the first place in the world to install Type II interconnection and I think so far with a very good result. It is eight years ago we proposed the Type II interconnection. It is definitely timely to review this policy to see if there is any improvement. During the review I think we need to clarify some standing points. For telecom policy we have two objectives, one is the economic objective which is to promote an efficient and competitive market. We also have a social objective, that is to offer a universal service or affordable service to the public. For the economic objective I think OFTA has done a very good job in the past ten years so it is definitely strong competition. I wish Mr Wong not to give a wrong signal because I read an article in The Economist that lay the blame on the current Hong Kong Government. They said they are changing their policy from pro market into pro business. So I wish in this round of review we will have a consistent policy of pro competition instead of pro investment because once you are pro investment you place yourself in the middle of controversy. In Hong Kong we blame OFTA for insufficient investment, but in US the investors lay blame on the FCC for over investment. I think it is very controversial. I think it should be consist to have a pro competition policy.

Dr Ure: Thank you. Maybe one or two more questions.

Question: I am trying to look at the Type II interconnection issue from another perspective, that is from a competition law perspective. Now we have the whole arguments for and against changing the existing framework. Perhaps we could look at the existing competition law already in place in the Telecom Ordinance where you can, for certain situations, for example, bottleneck situations, where customers may not have alternative supplier, you assess on that basis whether that is in compliance with the competition provisions. The second issue I want to raise about currently under the current regulation, the regulator has power whether to determine certain interconnection but he does not have the obligation to do that. Also, he does not need to consider certain objective factors where he should or should not to make a determination. Perhaps we should consider whether in the telecom law we should have those factors set out in the ordinance so that we know that for certain circumstances the regulator will or will not have an obligation to make a determination. Finally, about charges, since someone raised that. I have got a feeling, should the interconnect charges be the same for all types of telecommunication signals which may include TV signal?

Dr Ure: Thank you. Simon, Hong Kong Telecom users group.

Question: Thank you, John. Sin Chung Kai just asked a question whether to revise up or down. From a user perspective there is no point to raise up, right? Everyone should agree. If there is any reason to change, you should consider turning it down, otherwise you are not going to stimulate consumers jumping in and there is no market.

Dr Ure: Thank you, Simon. Maybe I will go in reverse order so York would you like to comment on how low you would like to see the charges?

Mr Mok: You mean the broadband Type II or whatever Type II? I definitely will not ask for free of charge. But what I mean is, in the business model, we should take into consideration ISP. As I said, ISP is a sales channel, to start with, at the lower end but will be the total solutions provider, available services provider, when they climb up the value chain. All in all, my suggestion is to have a structural and accounting separation for the telecom operators so they should try to build a good infrastructure through Type I, Type II, Type III interconnects and provide very high quality infrastructure and provide infrastructure to the service providers. Let them add value on the top. As John said in the paper, how about contents? In Hong Kong the contents are left behind. We do not have too many contents, we do not have too many applications to serve the customers. As a matter of fact, most of the customers in Hong Kong just use the internet for surfing on an access basis, they access overseas web sites, overseas applications instead of Hong Kong local applications and contents. I would suggest OFTA and the industry take a close look at the role of ISP and how can they become a facilitator. Win, win, win, win—a four win situation for the whole community.

Dr Ure: Thank you.

Mr Chow: As I said, interconnect pricing is a critical issue of local loop unbundling and to send the right pricing signal to the market is important in terms of helping the operators and investors to make a buy or build decision. Having said that, we think the price of the new Type II interconnection at the moment probably has some room for a reduction based on our costing analysis but of course we are not able to say at what levels the price should be set because we do not have access to the incumbent's cost components in providing that service.

Dr Ure: Ricky, are you a Type II prohibited operator?

Mr Wong: Yes. That is why for those who have already got Type II are always looking for a lower price but those who cannot have Type II—you know. I am willing to pay \$60 for narrowband. I think some operators in today's presentation, I do not know whether it is intent or callously they omit some information. They just compare the tariff of the narrowband voice services. They did not tell you that in narrowband voice services they have some other extra revenues coming. LEC, the interconnection charge for the mobile, there is a lot of money. It is still in our model, we just have a telephone service over one year, we are already making a few millions a month. So I can tell you, it is a very good business, look at the telecom stock. The broadband. 150. If PCCW offer Type II broadband, if they charge \$150 I would love to see that because the broadband line is not just for the broadband services. If you can have a broadband line you can run a 10 megabyte, you can put three services on the same line, you can put pay TV, telephone services, you can put the broadband internet services. The total revenue of that is talking about 400 to 500 per line now, so 150 is only about 30 per cent of the cost. I would like to say something about what Tony just said. Over 95 per cent of all those corporate or the private estates in Hong Kong, for those with a household of over 500 plus household, we are already in. That means 95 per cent of public or private estate, we already prove there is no bottleneck except one developer. Even like Cheung Kong or Sun Hung Kai, about 95 per cent of the Sun Hung Kai buildings we are already in, there are no problems,

whether corporate or private. Even like South Horizons, the developer Cheung Kong, we are already there. Sincere Gardens, we are already there. To be very frank, I would love to see if there is any bottleneck. Of course the cost is very expensive because we need to drill a hole in each floor, in each meter room and put in our own fireproof trunking in each of the buildings. The cost is very high. But we should not, just because we want competition and on expense of our lovely encumbants operators. Their stock price is very you know, I think it is not fair. Lastly, MH, do not worry, for those 370,000-something Type II, 70 per cent of those buildings we are serving, so even though there is no Type II, do not worry, they can switch to us. Thank you.

Ms Tan: I agree that there is no point revising the charges upwards, it would be going backward. Yes, we had done our own calculations based on the relevant charging principle as stipulated in the relevant TA statements. We had in fact estimated a very, very low price for the local access link, be it narrowband or broadband. If you look at everything else in Hong Kong the price is going down, there is no reason why the local access link remain as it was since 1996 at least. Also, we think that in terms of narrowband local access links the charges should be the same as the broadband local access link, after all, we are talking about the same physical piece of wire, there is really nothing magical to it.

Dr Ure: I think we should let PCCW have a right of reply.

Mr Chiron: I will take this for about 20 minutes. I will start with price, but it is certainly not where I want to end. Whoever is buying always wants it cheaper. That is a universal rule, so you should not be surprised by that. The facts are pretty straightforward. The narrowband unbundled rate, when you look at other markets that have unbundling and the rates there, is probably half to a third of what it is in other major markets, which tells you it is amazingly cheap now. One of the reasons for that historically is that there was a point in time several years ago before tariffs were rebalanced, for those of you who can recall, the local loop price retail that you pay for in your home was \$69 and the unbundled local loop price which had been agreed upon in a contract with an inflation clause et cetera had reached \$60. The two ends not surprisingly ran to the regulator and whined, as you heard a bit today, and were able to initiate a determination which never finished, but because of political pressure HKTC at that point agreed to roll back the LAL to \$42. So it is just a political number. But remember that that price is really the lowest in the world. If Agnes is correct, that there really is no difference between the narrowband and the broadband LAL price, then she should be pleased to pay the \$95 rate which has been proposed by OFTA. So we will be sending you over a contract to implement that perhaps as early as tomorrow. But I do not think this really is about price. It is really about where shall we be with unbundled local loop. There was a gentleman on this side that raised the issue of what do you do under competition law? That, I think, was my entire presentation, that this is a bottleneck issue. It is unbundled local loop, it is a competition law issue. Is there an essential facility? Is there a bottleneck? Clearly when you look at the economics of density and then look at how that theory actually works with all the network build-outs, you can see that the PCCW local loop is not an essential facility and therefore needs not to be mandated. If you do not mandate it, what happens? There will be commercial negotiations and there

will be a market price. That actually should be the price. I do not know whether it is an unbundled local loop price or resale price. I do not know whether it is \$42, \$60, \$70, but that would be negotiated because it is not an essential facility. What happens then to these 300,000 users that now use Type II interconnection? Certainly they will all be not so silly as to switch over to HKBN, although Ricky has invited them to do so. What actually happens is, you will have some realistic phase out where no consumer likely, unless it is a very unusual case, will see their choices diminished. In other words, no-one has suggested so far that PCCW just clip the wires and grab the customer back. We will be looking at a reasonable phase out. I think if you look at the consultation paper one of the things suggested is that there be a freeze or a cap on new LALs, new unbundled local loops and there will be some sort of phase out or sunseting of existing customers. If the carriers are then pushed to build, I bet they will build because there is no economic reason why they will not. They may have to do some of the things that Agnes identified in her last or second to last diagram. Gee, they may have to actually think about what buildings to build to, or how to terminate their network in more than just one or two buildings in a block, they may have to go to more. But that is what investment is all about. There is no reason why PCCW should be the ultimate risk taker for the market and then be paid something as low as one of the lowest unbundled local loop rates in the world. That is just free riding where all the investment risk shifts from new entrants to us. It is also been suggested that there might be some linkage between a Type II requirement and market dominance. They are two totally different things. Market dominance really has to do with the traditional definition about the ability to raise rates and you are better off if you can do that. If people do not leave you then you are probably dominant in the market. Unbundling has to do with what are the realities of other networks? Are there alternatives? Does somebody else have it in the network? Can it be economically done? Can it be duplicated? Are there alternatives? Where are the bottlenecks? Nothing to do with dominance. On day 1 here in 1995, if the networks had already been built out to the extent they are now, where you have three networks besides ours reaching over 90 per cent of all residential users, do you think there would have been unbundling? No, there would be no need to, so you would not have had it. So it is not a question of dominance, it is a question of competition law and are there any essential facilities. Divestiture, silly, I will not address it. That is about it.

Dr Ure: MH, your turn, to conclude.

Mr Au: Thank you. I would like to respond to the remarks made by Xu Yan about whether or not this review actually signals a changed direction OFTA from a pro market stance to a pro business stance. I would not agree that that is an accurate description of the intent of the policy at all. I think basically the review is to enable the government to answer one very simple question, although the consultation paper is some 30 or 40 pages long. Basically, we are trying to answer one very basic, simple question, whether consumers are better off with or without the Type II interconnection policy. So what I meant by “whether consumers are better off”, the consumers are not just looking for the lowest price, the consumers, whether or not they are better off in terms of price, in terms of choice, in terms of quality, in terms of innovation and in terms of value for money. So in getting the input from the industry we are trying to provide an answer to this question. So in the concluding slide I said the review is trying to strike a balance between open

competition and incentive to invest in infrastructure. But we must distinguish between the ends and the means. So there is no policy to encourage investment, to put fibres in the ground, also there is no policy to encourage a service based competition. I think there is a policy to enable Hong Kong consumers to obtain the widest choice of telecommunication services at the lowest price, or maybe we should modify that, for the best value for money. We have to answer this question: would consumers enjoy more choice, a better quality of service, better innovation with or without Type II interconnection? We can look at the past, although it is quite difficult, suppose we ask you a hypothetical question. Suppose there were no Type II interconnection policy in the past eight years; would competition be at the same status, be better or higher, more intense or less intense? Or are consumers getting a better deal today? The past may be a useful reference but we are also trying to predict the future. Will the consumer get better choice or better value for money, more innovative service? Suppose we go ahead and continue with the Type II interconnection policy or stop the Type II interconnection policy or modify the policy. Tony has made a very impassioned statement on the need to maintain Type II interconnection policy and Ricky has demonstrated quite convincingly that you can actually put in the third and the fourth leading wire to the residential household. But perhaps Tony and Ricky are referring to two different things. I do not know whether or not Ricky's photographs were taken in a new building?

Mr Wong: No.

Mr Au: So I think it is very difficult to generalise a statement. That is why in the policy paper we have proposed to look at the need for Type II interconnection from different aspects, many different aspects, types of buildings, the district, the services and the technology. So perhaps the answer may well be different for different situations. So the common answer, common objective of the review is to enhance consumer benefits.

Mr Wong: One point I would like to make. Our building is like 20 years old. I think the oldest one is around 22 years. So no matter whether it is new buildings or old buildings, again, I emphasise the cost is high, it is very expensive and also it is very troublesome. For every estate we need a structural engineer to certify every hole, everything we put in we need a structural engineer to certificate that it is safe for the building. For every building we have one box of documentation, so it is time consuming and expensive but it can be done.

Dr Ure: I am going to have to wrap this session up here, we have gone quite a way over time. So I am going to ask to maybe keep the coffee break down to about 15 minutes. But it is quite clear that the controversial nature of this particular issue, it is probably the most controversial issue in the whole of the telecommunications business and I think we have to thank our speakers for clarifying very, very well the issues and the differences and I hope it will also encourage everybody in the room to respond with their own views to the consultation paper. I am sure MH would welcome that. Could I thank Dumas, Stuart, Agnes, MH and Ricky for their presentations, thank you.

Dr Ure: If you could take your seats and I am going to hand the microphone over to Sin Chung Kai who will chair this session.

Mr Sin: Hello, ladies and gentlemen. This session is about “Any lessons from SARS? Did telecoms and IT help? Can it do more?” Before I hand over to our speakers I would like to give you two or three statistics.

The broadband usage had a surge in use in March by about 30 per cent, and in April, another 30 per cent. So it is really a burden to our telecom service provider. Even the dial up services which have been decreasing in terms of numbers of users and usage it has been decreasing until March. Comparing March and February, there was an increase of 16.7 per cent. In April the demand was even greater, another 23 per cent increase. For other services, for example, on-line banking experienced more than a 15 per cent increase in February and April so you can understand from these figures that people are going to the internet during the SARS period. Probably one of the reasons is the schools, they closed the schools and all the students, they hooked up to the internet.

We have a very good team this afternoon and I would like to introduce you to them one by one. The first speaker is Raymond Cheung, he is the Senior Systems Manager, Information Technology Department, HA. He will speak about the role of telecom and IT in the Hospital Authority. Raymond, thank you.

Mr Cheung: I would like to talk briefly on how IT and telecom was used in fighting SARS in HA. To set the stage I would like to talk a little bit about IT infrastructure first.

In HA we have a corporate network infrastructure based on TCP/IP connecting all HA institutions to the corporate computing resources. The network now connects 66 different locations. We have more than 30,000 data ports, over 100 WAN lines, over 2,000 pieces of layer 2, layer 3 network switches and over 500 units and servers.

During the SARS outbreak IT provided support to the following entities, namely, patients, front line health care workers, health care administration, head office and the Department of Health through clinical, non-clinical and technical infrastructure.

On support to patients, we have set up video conferencing facilities in six major hospitals to allow isolated patients and their visitors to communicate without the risk of infection and to support tele-consultation, leveraging on our broad coverage of existing HA network infrastructure. I believe you may have seen a few touching moments on television already.

On the support to front line health workers. The same video conferencing infrastructure was also used to facilitate communications between front line workers who were in quarantine or they did not want to go home to their families.

Corporate email, internet, intranet, remote access, they were used extensively to disseminate information. We have set up a HA television channel to broadcast corporate messages on video and text formats to hospitals on SARS. As a result, our internet and intranet infrastructure was upgraded to cater for the additional workload. On support to

health care administration. We have upgraded our inventory control system to provide real time reporting on the inventory, particularly the PPE, the personal protection equipment, such as masks, protection gowns, at hospital, cluster and corporate levels. We had to modify our staff rostering system to cater for specific SARS needs such as leaves and rotation to and from SARS wards. On the support to head office, we enhanced our existing corporate systems to support specific SARS requirements.

The most important thing is that we have developed an e-Sars system by utilising the features of the existing clinical systems for front line staff to capture SARS communicator and real time and web based reports to the control centre. On the support to the Department of Health, we have developed a SARS contact tracking system for the use of DH to perform contact tracing and surveillance. The initial data was fed from e-Sars and the computing facilities from the Police Department were used for further contact investigation. To conclude, during the SARS crisis we made use of IT and application infrastructure to provide timely information and support to different parties. The experience and requirements gained related to SARS will be incorporated into our future IT strategy. Thank you.

The Use of IT in fighting SARS

Raymond Cheung
Senior Systems Manager

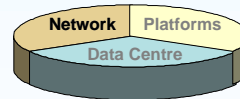
ITD, Hospital Authority

8 July 2003



HA Network Infrastructure

- Connectivity
- Communication
- Security
- Network Management



- 66 Hospital / Institutions
- 149 Hospital Buildings
- 200+ LANs / 132 WAN data lines
- 2000+ Network Equipment
- 30000+ Data Ports

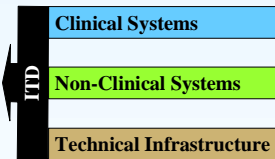


Hospital Authority Wide Area Network Connection



IT Support for SARS

- Patients
- Front Line Workers
- Healthcare Administration
- HA Head Office
- HWFB/DH

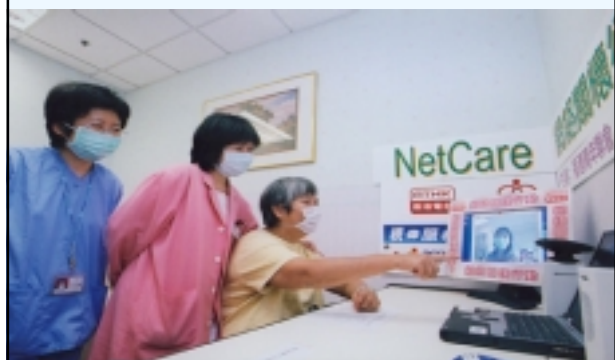


Support to Patients

- Video conferencing facility was setup in 6 major hospitals to allow isolated patients and their visitors to communicate without the risk of infection and to support tele-consultation
- Leveraging the existing HA network infrastructure



Tele-visit



Support To Front Line Health Workers

- The same video conferencing infrastructure was also used to facilitate communications between isolated front line workers and their families
- Corporate e-mail system, intranet and Internet Infrastructure were extensively used to disseminate information to front line
- A HA Television Channel was setup to broadcast corporate messages on SARS to hospitals
- Internet and Intranet infrastructure was upgraded to cater for additional user demand



Support to Healthcare Administration

- Inventory Control System upgraded to provide reporting and real time data on inventory and stock-on-hand information of PPE (Personal Protection Equipment) at hospital, cluster and corporate levels
- Staff Rostering System modified to handle special SARS leaves and nurse rotation from/to SARS wards



Support to HA Head Office

- Existing corporate systems enhanced to support SRAS specific requirements
- e-SARS System developed for front line to enter SARS data and provide web based reporting to Control Centre



Support to HWFB/DH

- SARS Contact Tracking System developed for the use of DH to perform contact tracing and surveillance
- Use computing support from Police Department for further contact investigation



Conclusion

- Utilizing existing robust and flexible IT application and technical infrastructure
- Provided timely and accurate information
- Provided support to patients, front line healthcare workers, administration and management
- Experience gained and requirements related to SARS will be incorporated in the future IT Strategy



Mr Sin: Thank you, Raymond. Our second speaker is Lawrence Ma who will speak on the topic of “Role of teleworking.” Lawrence is the Senior Manager of Operations, HP Services.

Mr Ma: Thank you, Mr Sin. Good afternoon, ladies and gentlemen. Thank you, Dr Ure, for inviting us to share with you how HP practised the teleworking model during the SARS period.

When you are talking about the teleworking, we are actually referring to the IT infrastructure, the associated processes and the office decentralisation. How the infrastructure like the telecommunication technology helped the people to work remotely without any interruption and enabled them to communicate at any time, anywhere without any interruption in a safe manner. Before I share with you how HP relied on teleworking to minimise our impact during the SARS period, I would like to give you some background on our daily work practice before the SARS outbreak.

HP had been practising the mobile office model—internally, we call them the Next Generation Office—for quite some years. In Hong Kong, our sales office occupied two separate buildings in City Plaza, Taikoo Shing. The two offices are fully installed with both wireless and fixed network and other facilities to cater for meetings, teleconferences, presentations, group discussions and the mixed requirements by the local and regional staff. Most of our engineers, consultants and the sales people are working in the mobile area without a designated desk. They are classified as “mobile professionals.”

One of the reasons we deploy the mobile office model is that the mobile professional spends most of the time away from the office while meeting with the customer or working at home. They are fully equipped with the mobile tools like mobile phone, notebook computers, network cards, plus security token cards that allow them to log in remotely from home or the customer site through the VPN, Virtual Private Network, to the HP network. That is how our internal teleworking model works.

Besides the readiness of the telecommunication infrastructure, we have been putting a lot of focus on the standardisation of hardware and software platform as well as a tight control on the applications version for the whole company. By doing that our IT department can minimise the support effort and can also respond quickly to the critical situation like the SARS outbreak. That is one of the key success factors for a service company, like HP, to provide a timely response to our customers. With the well-established infrastructure and the streamlined workflow mentioned before, HP was able to meet the challenge during the SARS crisis.

As some of you may be aware, in late March, HP had one suspected case on SARS and finally confirmed in early April. We had been notified just before the lunchtime on 28th March about the case. Within one hour we decided to evacuate one of the two offices, which occupies six floors in one of the buildings in City Plaza. Also, we identified a group of 20 people who worked closely with the suspected employee to be home-quarantined for ten days. In addition, we arranged another 300 employees to work remotely from home for seven days. During that time the offices were cleaned up, work

procedure amended to cater for the SARS impact and orders for additional protective gear so that it would be safe for the people to return back to the office in about a week's time. So all this effort had to be well coordinated to cater for the sudden change.

Our IT department had expanded our capability like the network bandwidth, to cater for the additional remote users who worked from home or remote sites. Increased the network bandwidth between the sales offices in two locations to cater for the surge of the remote connection. To improve on the resilience, we also separated the teams in different locations in order to minimise the chance of cross infection.

In addition, we had to take care of the people factor too. Because employees who worked from home or remote sites could be very concerned about what is happening within the office and the productivity could drop if they focussed their attention on rumours instead of work. So we subscribed additional teleconferencing service from the service provider for serving regular updates to employees who worked from home or in a separate building or even within the same building but on a different floor. Furthermore, we used the system broadcasting messages for emergency communication, voice mail, email for regular updates to ensure that the employees were well informed of the situation and the company instructions. By doing so, we left no room for the rumours to take off. Since we were using the mobile office model, we did not face too much hurdle in extending the teleworking model to include additional groups of users. Even with such change we find that there was only a little impact to our daily operation.

As I mentioned earlier, because we have to respond to our customers in a timely manner, our readiness to change from "work in office" to "work away from office" is very important in the case of emergency. The platform standardisation, process readiness and well-established IT infrastructure helped HP to ensure the continuity of service for both internal and external customers.

In conclusion, I would like to summarise my experience with the following key learning points: the first one, regular review on the Business Continuity Plan is a must. This is for the business survival through the disaster situation like SARS. Secondly, a scalable and adaptive infrastructure that can expand in a timely manner is also critical. Thirdly, communication with the people is very important too so that we can stop the rumours before they spread. Finally, get ready before it is too late. Thank you.

Mr Sin: Thank you, Lawrence. Thank you for sharing your HP experience for combating the crisis. During the SARS period schools were closed but I think it is well for us to understand how some institutes can continue to provide e-learning services. Our next speaker is Dr Nancy Law, Director of the Centre for Information Technology in Education, Faculty of Education, Hong Kong University.

Dr Law: Good afternoon, ladies and gentlemen. It is my pleasure to share with you some of the experiences that I and many others in the education sector have faced during the SARS period.

First of all, I think probably I am the odd person out in this assembly here as I am not an IT professional and I am not a business person. So I am probably what you might call one of your clients or consumers, so we are consumers of services and equipment. So during this period, how did we make use of your services and your equipment? And can we fare well, can we do more?

What I am going to focus on—the previous two speakers talked about how HP and the Hospital Authority had been able to make use of the technology to, as far as possible, carry on business as usual and probably more than usual. In my case, I am going to share again the experience that we have in education but not that much looking at the technology side but more on the people side, the human and the social aspects of the challenge because we find that that is very much a core to whether we can or cannot make use of the technology effectively.

Basically, I would like to share with you three observations. One is on the conditions necessary for people in education, educational institutions and teachers and students to be able to take advantage of IT. The second observation is about a paradigm shift that appears to be necessary if we were to be really thinking about e-learning. The third is my observation that there is a need for technology invasion such that we need very much e-learning platforms that will support collaborative inquiry.

What happened? Yes, classes were suspended and for those of us like me working in the university, we probably were affected—you might say less. First of all, class suspension went on for a shorter period of time and also we have probably a much longer history of using technology, so I am looking to link on to the web pages and if you are interested you can go further on to them later on.

Essentially, all the normal e-learning facilities were available so there are actually many of us who were conducting “classes”, in quotes, in various formats; many were actually posting materials to students. Some were using e-learning platforms like web CT and others and also using chat rooms or on-line tutorials. There were also schools doing this and many of you here might have heard that some schools are actually operating exactly as in the school timetable. So students and teachers are supposed to be logging in to the school on-line learning platform and then they would be meeting in chat rooms or discussion spaces, down loading the power points or whatever and then using the technology to work as according to the timetable. I do know that some of these schools

are not having to extend their schooling period or, in other words, shortening their summer vacation.

So does this not paint a very rosy picture of our schools? We might explore that. Also, we find that there is within the education community, support provided from the universities and other places for schools to support their various activities in this regard. What were being used?

Media conferencing, I do not think that it is really that much. If you think about it, the students are not going to be in a video conferencing room so that is probably less. Web cast, in probably a few instances that was done. Chat rooms, web forums, discussions. In fact, what was the most popular? We found that the most popular were in fact using technology to be an electronic repository of notes, resources, power points for students to pick up and for the teachers to deliver instructions on homework and for posting of assignments by students. So in looking at this, how many of the schools and teachers are doing this? I would say that in fact, I would still see it as probably a minority rather than the majority.

Even in the case of say the university—am looking around at my colleagues within the university—for those of us who have always been comfortable with the technology and been using it, then I find that those people are in fact increasing their use of the technology, so some of them have never actually conducted on-line tutorials or whatever, have started using it and actually say within the centre that I work with, some of the teachers believe so much in group work. Now they do not have any group discussions. What they actually push the technical people to do is in fact to create a set of chat rooms instead of just one chat room for a course. So we normally have one chat room for a course, so they wanted parallel chat rooms and they wanted chat logs and all those various things. That happened. That is in the minority. For those who are not comfortable with it, who have not been using it, well, they have a good time effectively. There is nothing else they could do, they say, so life went on as normal.

But still in universities, basically, we cannot live without emails and things like that. The university only used email and electronic means to communicate with staff and students, and that has proved to be a very effective means. Although there were also challenges; what about examinations? Do we require students to then come to the same examination hall to take an exam and so on? So there were challenges. Of course in schools, again, I think only the schools that were already very much far ahead in terms of use of technology were actually using the technology that extensively.

So one key observation that I have is that IT readiness is one key condition for the technology to be used. So only teachers and students who had experience of e-learning before, the communication platforms and the mode of learning and teaching used must have been already set up and used before. In those cases, the SARS promoted more extensive use of IT. In this case I would say that IT can increase the momentum. But I do not think it has created the momentum. It needs to have already got some momentum before it can be increased or promoted.

The other observation I have is that the concession of e-learning is very much built on the conception of learning that the teachers and students have originally and probably because generally there still tends to be a very traditional view of what learning and teaching is, which is, a teacher standing in front of a group of people delivering messages, showing information and then testing children. So then we look at the e-learning platforms. Basically, most of them are created with that view in mind. So in this case, on the one hand I am quite happy that e-learning is taking place but at the same time it actually highlighted that in fact the e-learning that we have, I do not think in the main, is actually helping students to prepare them for life long learning.

In a sense I can say that IT can only be a lever for improvement and invasion and not a catalyst. This statement is in fact not created by me, it is actually taken from a report published by the OECD last year in a report where they were looking at IT and education innovations. The conclusion of the report was, after doing the study in a number of OECD countries, they were saying that innovations were not catalysed by IT because if we say that IT is a catalyst for change, that means if you put it there long enough then it will change and also the changed direction is set by the catalyst but what they found was, just like what we observed during the SARS period, it is only a lever. If you look at a lever, the change can be much easier with the lever but there still needs to be some commitment, some initiative and a direction for the change which is set outside of the lever.

My view is there needs to be a paradigm shift in e-learning. Look at what the children said. Many of the children were saying initially they were happy they had extra, extra holidays. Then they get so bored and they say, “We have got too many assignments, it is even worse than normal school. I miss my classmates” and so on.

So can technology contribute to learning differently? Well, it could if it has already been in it. For example, what you are seeing on this page is in fact a project that we were party to and it is using a technology platform that was developed at the Ontario Institute of Studies for Education at the University of Toronto. It is called “The Knowledge Forum”.

Basically, it is not just a chat room or discussion forum, it is very much what they call a collaborative knowledge building platform. People can change their messages. So some people were very surprised initially—how come you can change what you said before? Well, it is just like conversation, then if I promise you something, I cannot change what I promise, or I should not be able to. But then if I am actually discussing ideas with you then I should be able to revise my views. So it is a very different way of conceptualising learning and using technology.

So, for example, the page that you see is in fact— you are just one small group, it is one portion of a small group of children within one class of a school which is participating in what they call the peer tutoring project where the children are in fact not taught that much but they were given the opportunity to explore and find for themselves.

Just looking at the design, it is very different in terms of platform. For this kind of school, what did they do during the SARS period? They started working with a school,

one of the schools worked with a school in Toronto. Unfortunately, Toronto was also infected by SARS so they started discussing various issues including the outbreak of SARS and its impact on families and society. Then later on the teachers were also thinking, what can we do in terms of encouraging the students to learn during this period?

They started a project which they called “The Assessment For Better Learning”. They asked students instead of actually doing set tasks according to the end of chapter exercises, they were asked to revise at home and to design the most innovative ways of assessing e-learning. They were saying, okay, I am going to choose the most innovative questions to be inserted into the final examination paper. Again, it is the idea which is important.

So here I am actually calling on our technology developers. Should we not be developing a sound e-learning platform which supports collaborative learning, problem solving and inquiry? That is all that I want to share with you today, thank you.

Telecom InfoTechnology Forum Telecom & SARS: any lessons?

E-learning & SARS

Nancy Law

Centre for Information Technology in Education
University of Hong Kong

nlaw@hku.hk
<http://www.cite.hku.hk>



Centre for Information Technology in School and Teacher Education



E-learning & SARS

Three Observations:

- Conditions necessary for taking advantage of IT:
 - * readiness
 - * conception of e-learning
- 2. A paradigm shift in e-learning is necessary
- 3. A need for technology-innovation:
e-learning platforms that would support collaborative inquiry



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E-learning & SARS – what happened?

Class suspension & IT

Universities:

HKU

- <http://www.hku.hk/sars/index.shtml>
- http://www.hku.hk/cgi-bin/sars/message_announcement.pl

And similarly for other universities

Schools:

- <http://ihouse.hkedcity.net/~sp1400/elearn.htm>



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E-learning & SARS – what happened?

Support from within the education community for the community

- HKU: "Inter-disciplinary Self-Learning Platform"
<http://www.hku.hk/gened/withu/>
- CUHK: "Web-based Support for Primary and Secondary Students"
<http://www.fed.cuhk.edu.hk/prisecstudent/html>
- Hong Kong EdCity I-classroom "Learning and Teaching Strategies and Resources on 'Atypical Pneumonia'"
http://www.hkedcity.net/project/cdi/index_eng.html



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E-learning & SARS – what kinds of learning & teaching took place?

- Video conferencing?
- Webcast/chat room?
- Web forum/discussion?

Most popular:

- Repository of notes & ppt
- Delivery of instructions on homework
- Posting of assignments by students



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Using E-learning during SARS: Observation 1

IT readiness

- Both teachers & students involvement must have used e-learning before
- Communication platforms & mode of learning & teaching used must have been already set up and used before
- SARS has promoted more extensive uses of IT where it has already taken root
- *IT can increase momentum, not create it!*



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Using E-learning during SARS: Observation 2

Conception of e-learning

- The usage is generally very traditional
- IT platforms as communal space for disseminating what is most important in teaching and learning
- Common use of IT tools: listen to teacher explanation, download course materials and submit assignment

Do such uses of IT in learning Help to prepare students for lifelong learning?



Conditions necessary to take advantage of IT during SARS:

- Readiness
- Conception of learning & teaching - & elearning

IT can only be a lever for improvement and innovation, not a catalyst!



A Paradigm shift in e-learning?

- Some students' general opinions on the replacement of face-to-face classroom interaction by learning through IT during the outbreak of SARS:

"Too many assignments!"

"I miss my fellow classmates!"

→ Can technology contribute to learning differently?



Collaborative inquiry-based learning using Knowledge Forum

Knowledge Forum is a computer-supported communal database that furnishes knowledge building and management tools for collaborative inquiry

Pre-SARS:

Project-based learning (Peer Tutoring Project in July-October 2002)

Post-SARS:

- International interchange (Hong Kong Toronto Collaboration in March 2003- present): discussion on relationship with parents, cultural similarities and differences for teenagers and the outbreak of SARS
- Assessment for better learning: students to revise at home and to design the most innovative ways of assessing deep learning

Much needed technology innovation: pedagogically sound e-Learning platforms

- Existing e-learning platform mostly traditional: teacher-centered and learning-resource centered, focusing on delivery, drill & assessment
- Current eLearning platforms are suited for instruction centered and knowledge centred education
- Education Reform emphasizes on 'Life-long Learning'
- Life-long learning requires *collaborative learning skills, problem-solving techniques and inquiry skills*
- Current e-learning platforms cannot support this change effectively – we need innovation in e-learning platforms!



E-learning – a lever for education innovations

To summarize:

- Conditions necessary for taking advantage of IT:
 - * readiness
 - * conception of e-learning
- 2. A paradigm shift in e-learning is necessary
- 3. A need for technology-innovation: e-learning platforms that would support collaborative inquiry



Mr Sin: Thank you, Doctor Nancy Law, a different perspective from our experience. The next speaker is Henry Wong who will speak on the “Role of Mobile Information Communications” from Sunday Communications.

Mr Wong: Thank you, Mr Sin. Good afternoon, ladies and gentlemen. Sunday is a mobile operator. When SARS came, not many people really understood the impact of SARS. How did SARS affect the people? So society really needed to know the real time information about the latest development about SARS.

That is really something where society’s behaviour is changing. People would stay at home. If people went to the office, they were not going out for meetings. How does the mobile operator help to communicate between each other away from their traditional communication method like meetings? A meeting becomes a video conference or an email communication. How does it move on to the mobile? How to communicate on the mobile, like messaging on the mobile?

So during this SARS incident, Sunday basically has launched three initiatives. The first one is real time information, which is at the beginning of the SARS, which is in March. Whoever would like to receive this information, they got the real time information. Anywhere at any time they can receive this. The second initiative is, in April the SARS became more serious. Society really cared about their personal safety. Being a mobile operator, how can we make use of the mobile technology to help the people to have peace of mind?

So we launched a service where people could inquire of nearby SARS buildings. When a person called up, they could inquire within a one kilometre area whether there are any SARS buildings. I think this is very effective, making use of technology to really care about society. Also, during this outbreak we donated handsets and SIM cards to the hospital so that people could send any messages or photos from the patient to the family. Because mobile is really a means, it helped with personal communication.

In May we launched the third initiative which is really a continued service of the location base service, which is really called “Family Watch”. It really is saying that you really want to care about your loved one, where they have gone to. For example, your child goes to school, you want to see whether there is any nearby SARS building around that area and that can give comfort to the parents. This is really caring to society. All these three services are primarily about the consumer.

On the corporate side, the previous speaker was saying that the company really will make use of the email, VPN to work at home, to connect back to the company. Actually, during this period a lot of companies also asked for a similar solution. Instead of using a computer they really wanted to have their mobile being connected with the company. They wanted to connect SMS with the email. So the user at the email terminal can send an SMS like you are sending an email to connect it to the company. All these services are really to help communication between persons through the company.

So in conclusion, because of the society change, because of the working behaviour change, we would like to have the mobile technology to help the people to care about the society and we will continue to do so. Thank you.

Mr Sin: Thank you, Henry. We have the experience from HA, from the universities, mobile service company and an IT company sharing their experience to combat SARS during the crisis period. I would like to invite any questions or even if you can actually add some of your experiences together with the SARS.

Question: This is the second time that I have attended such a forum, because last Friday I attended another forum organised by you. I really appreciate that. When we are talking about IT we are always talking about the internet or networks. This time in SARS I think the octopus card played a very important role. In China, all the banks spent millions of dollars to clean the cash every day because they were worried the cash might carry the SARS virus and the people have to pay by cash. During the transaction they also deliver or exchange the virus as well. In Hong Kong, with the help of octopus, we used electronic payment, so it played a very important role to reduce the risk. Also, the credit card played an important role. When we think about the IT implications maybe we need to see the internet or sometimes we need to pay attention to the very basic or very popular application of IT as well. That is my comment.

Mr Sin: I share the point. In the beginning, I said during the SARS period in on-line banking or internet banking increased by more than 50 per cent, including HSBC, Hang Seng Bank and other banks. So people actually did not go to the branches and just went to the net and did all the necessary transactions.

Question: During the SARS, although many industries and many companies suffered from dropping revenues, some industries such as video conferencing industry has benefited from SARS, so before and after SARS their sales went up 15 per cent to 25 per cent and they were actually up-front leading, supporting Hong Kong education and supporting the nurses to be able to speak to their parents in Beijing et cetera and helping the doctors to instruct people inside the hospital to share their expertise et cetera. I just wanted to share that. Mr Sin: Robert Clark from Telecom Asia.

Question: Just looking forward. We saw a lot of behaviour change in enterprises and in educational institutions and in general. Going forward, how much of that behaviour do you think is going to become entrenched? Do you think more people doing teleworking, more enterprises taking advantage of video conferencing? Perhaps the gentleman from HP might be able to give us some insight into that.

Mr Ma: I think during the SARS period we did have a lot of inquiries asking about how to help the company to set up the remote site. Actually, there are two reasons. First of all, they are looking for some outside facility to serve in case there is anything wrong with the company. The second one is, a lot of people asking for VPN. VPN can be scaled down, you can have a PC, install two network cards, then subscribe a software. Then you can have a facility similar to the corporate company, they are using the VPN. With that I think the trend is there. Again, as I mentioned before, in HP we are using the mobile office, we call it the next generation office. So I would see more or less in the future there will be a mix. You will have the traditional or working model plus the teleworking model coexist together.

Question: It is unfortunate that it usually takes a calamity or a crisis to push technology. We saw this with 911 in the States where conferencing went up by 35 per cent and now SARS has actually done it here as well. We are getting a lot of enquiries about web conferencing and e-learning solutions and we expect it to continue in this region. My question for Nancy is, we have talked to most of the universities here and when you talk about readiness, the universities we do the demonstrations, they like it, it actually does show video to the desk top without having to put a TV in every video conferencing room, it works quite well with one of our universities here. When you talk about readiness, what are these steps to becoming university ready for e-learning platform? What does it take for us to help them become ready? Because they are all familiar with web CT, I think that is a static system, it is basically a repository for storing information and students can log onto it and download information from it. I think most of the universities here have that. These repositories are a form of e-learning, are a form of business learning or independent learning, but there is also e-learning which is more interactive and engaging, so I am just trying to get your feedback on what you think we need to do to help the universities to become more ready.

Dr Law: When we talk about readiness, I think first of all there is the readiness in terms of the basic technical or technological competence of the teachers and the students. So that is one aspect, because even though most I would say, most people now have some level of competence, but how can we make the hurdle, especially with the new technology, to be more accessible, that is one aspect of the readiness. But there is another aspect, which is, how people look at change. I think in one sense business has very little choice, people in business have very little choice but to actually follow. With each new wave of change then if that is proved to be—well, more welcomed by your clients or if the productivity is increased and so on, then you have no choice in a sense, the company has to move ahead, otherwise it would be wiped away. In education, it is less easily so. So educational change is probably more complex. It is in changing people's conceptions. The third area I am saying is, if you look at how technology has made an impact on business, in fact, it is not just in helping business to go on as it was before. People talk about the engineering, reinventing the whole business and preinventing the whole profession. I think that is the true power of such a significant technology as information technology. So when we look at legal conferencing or web based communication platforms and so on, then obviously we can use it to replace at some level the kind of face-to-face kind of communication or whatever. But it in fact allows you to do, potentially, much more than what one could do face-to-face. A lot of people now would say, well, the video conferencing or the web base discussion or whatever is not as good as seeing people face-to-face or whatever. That is one aspect. If you are looking at replacing it with the conventional means of communication or teaching and learning, we will not find it to be useful. Just like if you are looking at banking, you are not really replacing the teller or whatever, you are in fact doing much, much more. So I think in education the challenge to us is in fact whether we could reinvent schooling, reinvent teaching and learning, with the power of technology. So I was actually showing you one of the platforms I like a bit more in terms of supporting web based inquiry. But it is not able to replace—in business you talk about total solution, you do not want to be doing different things with different software. As far as possible, you want it to be one integrated system. But in education, if I were to be doing the very things I wanted to do,

first of all, I do not have good solutions for all the things I wanted to do, there is no integrated solution in the way that it exists in much of the other professions and businesses.

Mr Sin: Before we close, we will take two questions or comments.

Question: Edward Leung from China Wireless Communication. I have a question for HA because there is news that a new facility is to be developed later in preparation for a possible comeback of SARS, maybe in autumn or some time and new facilities are to be developed. So any measures you have just taken in the past, will some of them become permanent or will some of them be incorporated in your regular IT infrastructure?

Mr Cheung: What we learnt from the SARS exercise, I think one thing that is very important is knowledge management. Right now we are feeding SARS clinical data into our data warehouse facility to support further research and investigation. We are going to put that into a long term for future consideration as well.

Question: I would like to share one thing and then make a comment on another. During the SARS period I did teach on the internet. I teach at the Baptist University School of Communication. I did teach two sections of communication research on the internet. I found two interesting things. Those students who were very actively participating in class discussion seemed to be different people from those people who asked questions face-to-face. Some people who never approached me to ask questions became very active on the internet. That is a very interesting observation. The second thing is, it is not an easy job for the teacher. Say when seven or eight people are asking me questions at the same time, my fingers are very, very busy. Sometimes I felt I could not handle all these questions. But on a face-to-face situation they have to queue up, they have to ask questions one by one. But on-line all of a sudden eight people can come up at the same time, that is a very interesting experience. That is my experience. Another thing I would like to say is about information sharing during SARS. In general, when there is a high level of uncertainty in the society, then the demand for information tends to be come very high. That means during the SARS period, the information we supply should change, that means we should supply more information to meet the demand of the public. The worse scenario is if the demand for information is high and yet the government supply of information becomes low, then you create a warm bed for rumours. That is what happened at the beginning of February in Guangdong Province in China. That is exact because several media interviewed me about this topic. I think what one gentleman from Sunday service provider said was a very good example. I think the government should also do the same thing in the future. In other words, communication between the government and the public is dynamic. In other words, during normal times you can provide this amount of information, that seems to be enough. However, under very special circumstances you have to provide more information in order to meet the demand of the public. Thank you, that is my comment.

Mr Sin: John, do you want to add something?

Dr Ure: Just a plug for Norman here because I use web-based teaching from time to time and web based training. It is because I have somebody like Norman, I can just throw it all over to Norman, he sticks it up there and makes it perfect. It is a division of labour. I think the human organisation, for example, universities, it is very often not the case, so if the teacher is actually given that backup, has that immediate access to somebody who is completely familiar with the stuff. It is probably also true in most business and commercial organisations. So it is a point I think that Nancy was getting at and I entirely agree with her.

Mr Sin: Any more questions?

Question: I just wanted to say, that post-SARS companies are more aware of disaster prevention and also business continuity, they are really looking forward to having a backup system, that when the system is down in Hong Kong, in all China, they want to make sure that they can operate that remotely in London, for example. Mr Sin: One of my colleagues, legislators, actually does two things at a time. One is having a tutorial—this is not to be disclosed—for the classes and also attending the Legco meeting, because in the Legco chamber we have internet access, so they can open up the chat room for tutorials so on the one hand they can continue to answer the questions by the students, on the other hand they can also listen to the debates. Multi-tasking. Sometimes the Legco sittings are really boring so we can choose to listen or not to listen. Thank you for coming. That concludes our discussion this afternoon. What is the next topic?

Dr Ure: Firstly, before I say the next topic, may I thank very much Sin Chung Kai for chairing this meeting, Nancy, Raymond, Henry and Lawrence for their presentations. Thank you very much for coming.

The next topic will actually be a conference that we are running on 14th October which will be at the Mandarin Hotel. The Mandarin Hotel has actually agreed to be one of the sponsors and have offered us the venue free of charge. The focus of that is really part of getting Hong Kong back on its feet and restoring some sense of morale in the industry. We want to showcase just what is being done in Hong Kong with the use of broadband. How Hong Kong actually can do innovative things with broadband, so we will be putting up more information about that in about a month's time. Thank you all again very much for attending and thank you to the panel.