

RESPONSE TO
PUBLIC CONSULTATION ON
UNBUNDLING THE LOCAL LOOP
(Ref: CD 2013-1)

LIME

Landline | Internet | Mobile | Entertainment

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I Introduction

1. Cable and Wireless (Cayman Islands) Limited, trading as LIME (“**LIME**”) is pleased to provide the following response to the Information and Communications Technology Authority (“**ICTA**” or the “**Authority**”) consultation document titled ‘*Unbundling the Local Loop*’ (the “**Consultation Document**”) and dated 27 May 2013.

2. LIME expressly states that failure to address any issue raised in this consultation document does not necessarily signify its agreement in whole or in part with any position taken on the matter by the ICTA or respondents. LIME reserves the right to comment on any issue raised in the Consultation Document at a later date.

II Executive Summary

3. The outcome of the assessment, of whether unbundling of LIME’s fixed wire local loop and the fibre loops of all such providers is *contrary to the public interest*, will fundamentally affect the availability of advanced telecommunication services in the Cayman Islands and consequently the ability of the country to efficiently and effectively support Cayman’s main businesses. LIME posits that an assessment of unbundling and whether it is contrary to the public interest must be made in the context set out by LIME in this response.

4. The key points of LIME’s response are:

- i. The ICTA did not complete its cost/ benefit analysis. The Authority set out the costs and benefits of Local Loop Unbundling but stopped short of completing a cost/benefit analysis, even if only a qualitative analysis, which is necessary to arrive at a conclusion on this matter.
- ii. The “public interest” is best framed as the delivery of broadband services to all residents of the Cayman Islands at affordable prices and promoting an

environment of technological diversity and innovation. LIME believes this objective is best achieved and sustained by policies that are technology-neutral (i.e., provide a level playing field to all operators regardless of the chosen technology platform) and encourage facilities-based competition (as opposed to unbundling or resale-based competition that piggy-backs off of facility-based operators' platforms).

- iii. There is healthy broadband investment in Cayman today. In the Cayman Islands with a population of approximately 55,500 persons there are at least six (6) licensees with the rights, if not obligation, to roll out a Next Generation Access (“NGA”) network, namely LIME, Logic, WestStar, Digicel, Infinity and Datalink. At least four (4) of these operators are actively rolling out modern fibre networks at the present time. Moreover there are also several broadband wireless service providers in the market. Therefore, there is no need to impose unbundling obligations on facility-based operators; the public interest is already well protected by these facility-based investments.
- iv. There is healthy broadband competition in Cayman today. The Authority has concluded that *‘Each type of technology ... can provide a retail customer with voice and high-speed broadband access services, with download data speeds at least capable of providing the services mentioned...’*. The bottom line is there is absolutely no evidence of any market failure. To the contrary, as evidenced by the investments identified above, broadband competition is alive and well in the Cayman Islands.
- v. Local Loop Unbundling would not serve the public interest. To the contrary, the very threat of such a policy is anathema to facility-based competition and undermines the business case of the broadband investments already made and being considered by operators in the Cayman Islands today. Multiple studies document that investment in own infrastructure, necessary for the delivery of telecom services, competitive prices and the creation of a world class network, is harmed by Local Loop Unbundling.

III. Background

5. The Authority states that it has decided to consult on whether or not requiring LIME to unbundle its *fixed wire* local loop at this time is contrary to the public interest, following a dispute lodged by Digicel in response to LIME's position that there is no public policy rationale for LIME to provide unbundled local loops to Digicel given the competitive environment in Cayman, and to extend that consultation to fibre local loops: *'The Authority has decided that the consultation should not only cover the unbundling of fixed wire local loops but also fibre local loops'*¹.

6. The ICTA describes the local loop as follows:

'11.the local loop ("Local Loop") is a reference to the last section of a telecoms network (sometimes also referred to as the "Last Mile"), which is usually the physical connection that runs from the Licensee's network equipment to the network interface device ("NID") where the Licensee's Local Loop connects to the retail customer's premises wiring.

12. Where there is reference to the fixed wire Local Loop, it is normally a reference to the fixed metallic wire (usually copper) connection that goes from the Licensee's local telephone exchange (the local exchange is usually a building that houses the electronic components that route the telephone calls/data) to the NID via a street cabinet.

13. A reference to the fibre Local Loop is normally a reference to the optical fibre that runs from a Licensee's local telephone exchange to the customer's premises optical network terminal ("ONT") (i.e. a NID) via optical network units ("ONU"), or something similar depending on the fibre technology used. This is sometimes referred to as fibre-to-the premises ("FTTP").

14. There is also a fixed wireless Local Loop as operated by both Digicel and WestTel Ltd. (trading as "Logic") details of which are at paragraphs 29 and 30 below. However, the issue of unbundling the fixed wireless Local Loop does not form part of this consultation as access to the retail

¹ Paragraph 10 of the Consultation Document [footnotes deleted]

customer for such a network is not dependent on a physical wire/fibre to the retail customer's premises and such a network is easier to replicate.

15. Thus, from a basic level, each type of Last Mile network described above is similar in design, in that there is a physical link between the Licensee's network equipment to the retail customer's premises that other Licensees may want to access somewhere along that link.

16. Also, a Last Mile network can sometimes use a combination of the technologies; for example, where the fibre runs either to a street cabinet (this is sometimes referred to as fibre-to-the-node ("FTTN") or fibre-to-the-curb ("FTTC")) and the final connection is then made using fixed copper wire.

17. For the purposes of this document, the owner of the Last Mile of any telecoms network will be referred to as the "Local Loop Operator" or "LLO".

18. For fixed wire, LIME is the LLO. For fibre, there are potentially various LLOs. At present, Digicel, Infinity Broadband Ltd. ("Infinity"), LIME, Logic, and WestStar T.V. Ltd ("WestStar"), are each licensed to roll out and operate a fibre network. Some of these have started to build out their networks across Grand Cayman. In addition, DataLink Ltd. ("DataLink") is building a fibre network on which other Licensees can potentially rent capacity.

19. Unbundling the fixed wire and/or fibre Local Loop(s) would mean, in effect, allowing other Licensees to connect their networks to the relevant LLO's network so that those other Licensees would be able to access the retail customers of the LLO and offer such customers competing retail services over that 'local loop'.

7. The ICTA, rightly, in assessing whether unbundling the fixed copper loops and fibre loops would be contrary to the public interest, evaluated the state of the market both current and for the foreseeable future. The ICTA concluded that:

23. Having access to a robust network that allows for the provision of voice and high-speed broadband access services sufficient, at least, to allow retail customers to access and use websites and stream content directly is essential for investment in and the development of information

society services (e.g. any service normally provided for remuneration, at a distance, by electronic means) in the Cayman Islands.....

25. “... there are now a variety of ICT Network technologies in the Cayman Islands:

- a. Fixed wire network;
- b. Fixed wireless network;
- c. Fibre network; and,
- d. Mobile network.

26. Each type of technology referenced above can provide a retail customer with voice and high-speed broadband access services, with download data speeds at least capable of providing the services mentioned in paragraph 23 above.

8. In short, the Authority described a vibrant competitive environment with multiple service providers using multiple technologies.

The Structure of LIME’s Response to the Consultation

9. In the document below, LIME reviews the potential benefits and costs of Local Loop Unbundling as presented by the Authority, and assesses whether they are real and substantial, and whether the benefits outweigh the costs.

10. In addressing whether Local Loop Unbundling is *contrary to the public interest* LIME sets out its view of the ‘public interest’, which must include healthy investment in telecommunications infrastructure and services and healthy competition, and LIME shows both of these are well served under the current regulatory framework.

11. Next, LIME shows that mandated Local Loop Unbundling creates disincentives to network investment, and would undermine the current healthy investment and vibrant competitive environment that currently exists in the Cayman Islands. This would not be in the public interest and LIME concludes that Local Loop Unbundling is *contrary to the public interest*.

12. Finally, LIME responds to the questions asked by the Authority.

IV. Costs vs. Benefits of Local Loop Unbundling

13. In order to help frame the discussion for interested parties, the Authority also enumerated several of the potential costs and benefits associated with Local Loop Unbundling.²

14. Benefits identified by the Authority include:

- i. Removal of the need to duplicate the LLO's Last Mile network.
- i. Lower economic barriers for other Licensees to enter into the provision of voice and high-speed broadband access services to retail customers
- ii. Reduction in operational costs through potential sharing of certain network operational costs between the other Licensees and the LLO, such as the business overhead costs of running and maintaining the local exchange building in which each would be located.
- iii. New or improved services by the LLO and other Licensees as providers compete for retail customers by differentiating their service from their competitor's.
- iv. Lower prices from competitive pressures on the LLO to reduce its retail prices in order to compete with those other Licensees for retail customers.
- v. Earlier consumer benefits from mandating *fixed wire* LLU now rather than waiting for the rollout of *fibre* to provide competition across Grand Cayman and the Sister Islands.
- vi. Minimisation of some of the negative environmental impacts of building a telecommunications network caused by such things as the digging of roads and the building of exchanges to house additional telecoms equipment.
- vii. Potential for light-touch regulation, despite wholesale regulation, along the retail market 'value chain' through to the retail price of the ICT services. This

² Paragraphs 42 -49 of the Consultation

is because, over time as competitive supply expands, retail prices may be subject to sufficient competitive pressures so that no retail price regulation is needed.

15. Costs identified by the Authority include:

- i. Distortion of competition through intrusive regulation, for example, by setting charges for access to the unbundled network at too low or too high a level, or by imposing LLU even though there are sufficient competitive alternatives for the provision of voice and high-speed broadband access services.
- ii. Compromised network efficiency due to lack of infrastructure investment by the LLO in its current/future networks given that it would be required to allow its competitors access to such networks at a cost-based wholesale charge, or due to a decision by an LLO not to update the technology in its network to allow for, for example, more network reliability and faster data speeds.
- iii. Absence of innovation and competition in the provision of voice and high-speed broadband access services, in the longer-term, due to lack of infrastructure investment.
- iv. Stagnation. The Cayman Islands would not keep pace with technological changes.
- v. Effective facilities-based competition stymied in the long term, for example by making the use of the LLO's network so favorable, at least in the short term, that other Licensees may have no incentive to invest in building out their networks.
- vi. Resilience sacrificed. Having alternative networks to use in the event of the failure of the LLO's networks, for whatever reason (such as flooding or human error through the accidental physical cutting of part of the network), would improve the resilience of communications for the Cayman Islands. In such circumstances, customers would be able to use other ways to communicate via their ICT Services until such a failure is resolved.

16. However, while the Authority set out the potential costs and benefits, it did not assess them or compare them. In the paragraphs that follow, LIME will review several key costs and benefits and provide its assessment.

Removal of Need to Duplicate LLO Last Mile and Earlier Benefit from Mandating Fixed Wire Local Loop Unbundling

17. The first benefit that the Authority cites is that Local Loop Unbundling will eliminate the need to duplicate the Local Loop Operator last mile network. This cannot hold true in the case of the Cayman Islands. Local Loop Unbundling is only relevant where there is difficulty in encouraging infrastructure investment, or there is a monopoly provider, in other words, that is there is some type of market failure. This is not the case in the Cayman Islands. Rather there is vibrant competition for both voice and broadband services.

18. Indeed the Authority states that:

25. "... there are now a variety of ICT Network technologies in the Cayman Islands:

- a. Fixed wire network;*
- b. Fixed wireless network;*
- c. Fibre network; and,*
- d. Mobile network.*

26. Each type of technology referenced above can provide a retail customer with voice and high-speed broadband access services, with download data speeds at least capable of providing the services mentioned in paragraph 23 above.

19. It is clear that the Cayman Islands has something better than Local Loop Unbundling. It has vibrant infrastructure based competition which delivers sustainable benefits though lower prices and innovative services.

21. Further any attempt to unbundle the fixed wired loops will make the market skittish about investing in upgrading or expanding their infrastructure. While today the provision of broadband services via fixed wired loop may be more prevalent, this will not

always be the case. If the Authority were to mandate Local Loop Unbundling in the absence of any market failure, there will always be the concern that Local Loop Unbundling could be extended to upgraded or new networks at some point in the future as those networks become analogous to today's copper network, again in the absence of any market failure, regardless of any regulatory respite given today.

Lowering of Economic Barriers

22. The Authority also notes that Local Loop Unbundling could lower the economic barriers to enter into the market for the provision of voice and broadband services. LIME notes that, while this could be the case in theory, in practice this does not appear to be an issue in this country. The barriers to entry into the market for the provision of voice and broadband services are not so high as to prevent competitive entry in that market, as evidenced by competition for the provision of services across a number of platforms. Any assertion that Local Loop Unbundling lowers entry barrier where competition is already vibrant, as in the Cayman Islands, is misguided as it proposes a "solution" to a problem that does not exist.

New and Improved Services and Lower Prices

23. The Authority proposes that Local Loop Unbundling will facilitate new and improved services and lower prices. Yet innovation and product differentiation are produced by infrastructure investment which creates vibrant competition, not by local loop unbundling. In fact where lower prices are delivered in the short term, it is not so because of local loop unbundling per se, but because of regulatory intervention in setting wholesale rates for unbundled local loops at levels that are unsustainably low.³

³ Paragraph 1.5, Access Regulation and Infrastructure Investment in the Telecommunications Sector: An Empirical Investigation, September 2007, Professor Leonard Waverman, Professor Meloria Meschi, Benoit Reillier, Kalyan Dasgupta

Reduction in Operational Cost

24. The Authority also proposes that operational costs might be reduced as licensees would be sharing the costs of certain network and business overheads. This, however, is not a given, as the development of a new service creates new costs. Further, any such cost savings as proposed by the Authority appears to depend on the availability of physical colocation. However, physical colocation might not be available, and, as the Authority is aware, colocation is not cost-free. Benefits have to be stacked up against costs in order to truly assess the final outcome.

25. Finally, no amount of savings on operational costs, even if they were significant, can offset the harm to the public interest caused by lack of innovation and competitive prices, which are normally driven by inter modal competition as operators invest in their own infrastructure.

Potential Costs

26. The Authority listed several potential costs associated with Local Loop Unbundling. These, however, can be summarized to say that the costs of any mandate to implement Local Loop Unbundling is likely to discourage capital for network investment, which would result in the Cayman Islands becoming a technological backwater due to the lack of innovation and sustainable competition that is supported by each operator investing in its own facilities. LIME does not disagree with this position, as investors are very sensitive to their ability to make a reasonable return on their investment. While it is possible to make a reasonable return in a competitive environment, this is far less likely if regulation is substituted for what is otherwise healthy competition.

Benefits vs. Costs

27. While it was useful for the Authority to state the potential benefits and costs associated with Local Loop Unbundling, it is necessary to take the logical step of

stacking them against each other to arrive at some conclusion as to whether benefits outweigh costs or costs outweigh benefits.

28. The Authority mentions benefits to the Cayman Islands from Local Loop Unbundling of not having to duplicate the last mile and lower economic barriers. In the context of the competitive market that exists in the Cayman Islands where the market is contestable and there are many operators across several platforms, competition has already delivered these benefits. These proposed benefits are therefore not real.

29. New and improved services are in fact the hallmark of competition when operators invest in their own infrastructure, not when Local Loop Unbundling is mandated and operators “compete” using someone else’s infrastructure.

30. That leaves the matter of reduced operational costs, which at this time is unproven, but more importantly cannot compare to the technological and economic stagnation that arises when operators refuse to invest in new networks or upgrade their networks for fear that their investment will be delivered to their competitors.

31. The Authority listed the potential benefits and costs of Local Loop Unbundling but unfortunately did not speak to the benefits of facilities-based competition, which has set the Cayman Islands on the path to being a world class telecoms market. While the Authority did make mention in passing, LIME would emphasize that facilities based investment is in fact direct investment the economy of the Cayman Islands, which creates jobs and has a multiplier effect on the economy. In comparison, Local Loop Unbundling results in very little if any investment in the economy.

V. What is in the Public Interest?

32. In order to assess whether unbundling of fixed wire and fibre local loops is contrary to the public interest, it is necessary to frame that ‘public interest’. In the

context of this consultation, LIME believes that the ‘public interest’ should be framed as the delivery of technology neutral broadband services to all residents of the Cayman Islands at affordable prices and in support of an advanced economy, through increasing competition as a result of sustainable investment in infrastructure development across several platforms. Actions and policies undertaken to advance or protect the ‘public interest’ should result in no harm to consumer welfare and on the whole result in a benefit.

33. The context within which the public interest is situated is fundamental to understanding and assessing what that interest is. This is the reason why the Authority has assessed the current market conditions and the foreseeable market conditions - to determine whether the state of the market is such that the public interest as defined is being served.

34. In LIME’s view, policies that encourage investment in NGA infrastructure and the development of innovative services, and that promote healthy competition, are the best way to achieve the delivery of advanced broadband services at affordable prices to all Caymanians, and therefore, best promote the public interest. Conversely, policies that would discourage investment and competition would be contrary to the public interest. Fortunately, the existing regulatory framework appears to have already resulted in healthy levels of investment and competition.

VI. Healthy Investment in Cayman Today

34. The Authority found that licensed service providers in the Cayman Islands are aggressively deploying mobile broadband and fixed-line, fibre optic broadband networks. Indeed, Cayman is one of the leading countries in the Caribbean in terms of broadband, fixed-line, and mobile services adoption.

35. At paragraph 40 of the consultation, the Authority states that:

Therefore, there are various types of networks in Grand Cayman that have been or are in the process of being rolled out which are capable of providing retail customers with voice and high-speed broadband access services.

36. At paragraph 34 of the consultation, the Authority states that:

There are various mobile network technologies that allow for voice and data to be transmitted and received over the airwaves;...

37. And finally the Authority states the following:

32. As previously mentioned, Digicel, Infinity, LIME, Logic and WestStar are all licensed to roll out and operate fibre networks across Grand Cayman. In addition, DataLink is building a fibre network on which other Licensees can potentially rent capacity.

33. Apart from LIME who of its own undertaking is adding to its current fibre network to support or replace parts of its fixed wire network, the Licensees referred to above have committed to set timescales for the roll out of their fibre networks which have been reflected in their Licences. While each of the referenced Licensees have an obligation to roll out their network throughout Grand Cayman (albeit with differing timescales), only Digicel (by 31 December 2016) and Infinity (by 31 July 2017) have a Licence requirement to roll out their fibre network in the Sister Islands, which is within four to five years' time.

38. The Consultation Document clearly presents that there are multiple operators rolling out multiple networks. Operators continue to invest in expanding, upgrading and installing new infrastructure in the next couple of years. This demonstrates that there is healthy investment in Cayman today and the public interest is well protected.

VII. Healthy Competition in Cayman Today

39. The ICTA concludes at paragraph 40 of the consultation that *‘Therefore, there are various types of networks in Grand Cayman that have been or are in the process of being rolled out which are capable of providing retail customers with voice and high-speed broadband access services...’*. This statement supports LIME’s assessment that the existing environment in Cayman and as found by the Authority, is competitive and therefore there is no basis for unbundling any loops whether fixed or fibre in the Cayman Islands.

40. This is the premise on which the Authority reviewed the current market and foreseeable market – to determine whether or not the public interest as defined is being served by the market. The Authority found that the market is competitive, with broadband and voice services available across fixed, wireless and mobile platforms. Therefore there is no market failure that would be remedied by the introduction of Local Loop Unbundling, and there is no improvement in consumer welfare to be gained from the introduction of Local Loop Unbundling. The public interest is well protected by competition.

41. It is well known that competition encourages efficiency and innovation and is intrinsic to the working of the market. This improves consumer welfare by producing lower prices and innovative services.

42. No provider, in the context of a competitive environment, should be obliged to unbundle its local loop. Nor should any provider, such as Digicel, be allowed to frustrate the working of a competitive market. Indeed, Digicel already operates both a mobile and a fixed wireless access network that provides both voice and high speed broadband service to its customers, and will be rolling out its own fibre-based access network in the near future. Infrastructure based competition is working and any intervention in a competitive market is contrary to the public interest.

43. The public interest is well protected by competition. Any attempt by the Authority to interfere with the competitive market for broadband or voice services has to be contrary to the public interest.

VIII. Local Loop Unbundling is Contrary to the Public Interest

44. The Authority has acknowledged that investment in networks both by the LLO and the operator seeking access may be undermined by Local Looping Unbundling. The LLO becomes reluctant to invest because it would be required to allow its competitors to access its network at regulated rates. The access seeker too would have little incentive to invest because the conditions for LLU could be so favourable that there is no reason for the access seeker to build its own network.

45. This would result in technological stagnation, decreased economic activity and a fall in the value of the Cayman Islands as a place to live and do business. Local Loop Unbundling would undo the healthy investment environment and healthy competition that currently exist in the Cayman Islands. This is contrary to the public interest.

Regulatory Intervention Undermines Network Investment

46. The Study on ‘The Long-Run Effects of Copper Unbundling and the Implications for Fiber’ by Robert Crandall *et al.* (the “**Study**”), states:

‘More broadly, it is important to distinguish the potential short-run effects of unbundling on penetration (which may include the effects of reduced retail prices made possible by wholesale price controls) from the long-run effects (which include its deleterious effects on investment). Indeed, a large body of empirical research has demonstrated that mandatory unbundling discourages investment by both incumbents and entrants. This evidence is well summarized in Cambini and Jiang’s authoritative 2009 review of the literature, which examines more than 20 empirical studies and concludes that while additional research could be useful, “most of the evidence shows that local loop unbundling...discourages both ILECs and CLECs from investing in networks.”

More recent studies confirm these findings. For example, a 2011 study by Briglauer, Ecker, and Kugler of the relationship between copper unbundling and FTTP deployment in the EU-27 finds that “regulation has negatively affected NGA deployment.” A 2010 study by Bacache, Bourreau and Gaudin finds that European entrants that use unbundled local loops do not ascend the ladder of investment and build their own infrastructure. Such findings confirm the conclusion reached by the primary author of the ladder of investment thesis, Dr. Martin Cave, that it “remains no more than a hypothesis, as scientific testing of an imprecise proposition of this kind remains problematic.” As we explain below, the disincentive effects of unbundling are now being reflected in the paucity of fiber deployment in the European Union.’⁴

and

‘Our findings also suggest that regulators have not succeeded in overcoming the challenges to designing and implementing unbundling regimes we identified in Section II above – that is, the challenges of design, pricing, enforcement and adaptation. For example, the apparent failure of unbundling to enable entrants to climb the “ladder of investment” suggests that regulators have been unable systematically to correctly identify and price the network elements necessary for entry and then adjust prices over time to reflect the (presumably) diminishing need for unbundling as entrants become increasingly capable of building their own infrastructures. Similarly, the perceived need in some countries to adopt vertical separation regimes – despite the widely-agreed-upon costs of such policies in terms of economic efficiency – suggests that the challenge of enforcement has been more daunting than regulators initially anticipated. Indeed, in some countries it appears that aggressive unbundling and separations policies have blunted private investment incentives to the point where governments have been forced to subsidize or, in the extreme case of Australia, to take over entirely the financing the of new infrastructures’.⁵

48. The authors of the Study also identify challenges with respect to unbundling of fibre loops. Specifically, with regards to the technology, a regulator seeking to mandate fibre loop unbundling would in effect also have to mandate the choice of technology to be deployed by operators. In LIME’s view, this would be an egregious and unacceptable

⁴ Robert W. Crandall, Jeffrey A. Eisenach, Allan T. Ingraham, “The Long-Run Effects of Copper Unbundling and the Implications for Fiber”, April 2012, pgs. 29-30 (available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2018929) [footnotes deleted]

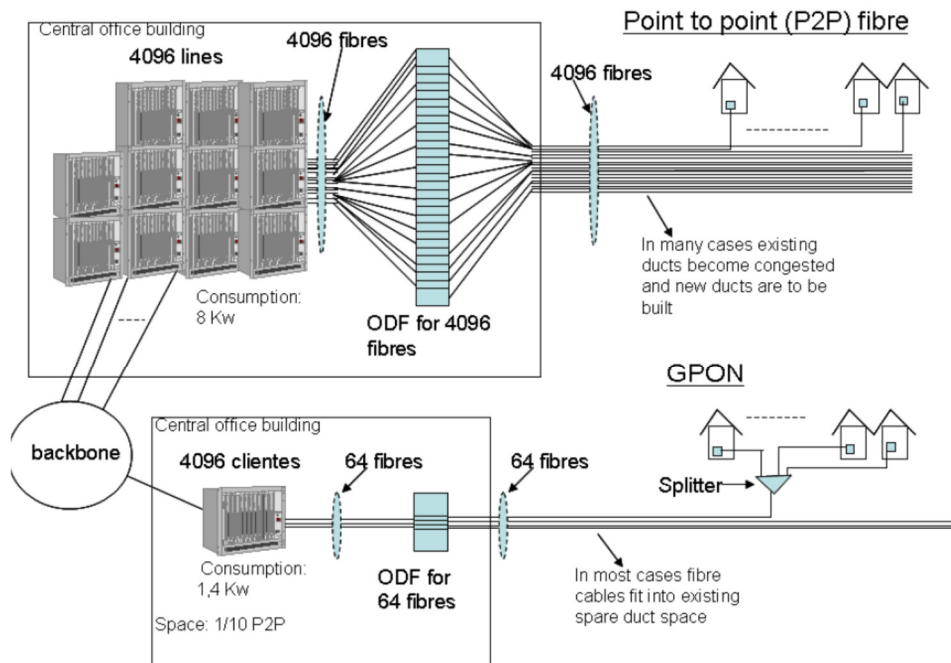
⁵ Crandall et al., pgs. 36 -37

interference with the operation of an already-healthy market in the Cayman Islands (and would be all the more unacceptable given that several operators have already made their choices of technology and are actively deploying fibre networks).

‘... physical unbundling is impractical in the mostly commonly deployed FTTP networks, which rely on a shared access technology such as Gigabit Passive Optical Network (“GPON”); and, the alternative technology, Point-to-Point (“P2P”) is, in most instances, significantly more expensive to construct. Thus, a regulatory decision to require the unbundling of new, as yet un-built fiber networks requires that the regulator intervene directly in the choice of network technology.

For a fiber unbundling mandate to be effective, the entrant must be able to obtain access to the individual fibers that serve individual premises, that is, they must be able to connect to these individual fibers at some location in the incumbent’s network. Such interconnection is very difficult, if not impossible, if the incumbent has deployed a GPON network that transmits optical signals for eight or more subscribers on one fiber from its central office and then splits the signals into individual subscriber branches with a splitter near the subscribers’ premises. As shown in Figure 6, a GPON topology does not permit competitors to obtain access to individual fibers at the wire center (or Optical Distribution Frame (ODF)). Instead, fibers must be run directly from the ODF to the premises, as shown in the top portion of the figure.

**FIGURE 6:
POINT-TO-POINT VS. GPON FIBER NETWORKS**



Source: Telefónica

The cost differences between GPON and P2P technologies vary according to a variety of factors, including the capacity of the ducts required to hold the thicker fiber bundles required by P2P networks. In most Western European urban areas, telecommunications lines must be buried in underground ducts. In some cases, such as in central Paris, these ducts may be very large (because, in the case of Paris, as the ducts are actually large sewers). In most locations, however, duct space is limited. In those cases, P2P networks may require substantial investment in duct upgrades. Mandating such networks under these conditions could make them prohibitively expensive.

The cost differences in deploying and operating the various types of networks are subject to considerable controversy in large part because there have been so few deployments of P2P networks that facilitate unbundling. Most of the large-scale fiber networks in current operation utilize the GPON topology; indeed, we are not aware of any empirical estimates of the cost of deploying P2P networks that are based on actual experience.

The studies that do exist disagree only on the magnitude of the increased costs. For example, a 2011 study by Soria and Hernandez-Gil of

Telefonica, the Spanish incumbent, estimates that the cost of building a P2P network in a typical Western European environment could be as much as 60 percent greater than for a GPON network.¹³⁵ (See Table 7.) This cost differential results from the large increase in the number of individual fibers that must be deployed from the carrier’s central office and buried in ducts, as well as the increase in central office costs to transmit the signals over these fibers. As a result, even if the incumbent did not have to share the P2P network with competitors, it would be unable to operate profitably in areas where there is cable competition because it would have to price its service at a level that most households would find prohibitive.

**TABLE 6:
ESTIMATED COSTS OF DEPLOYING GPON AND P2P NETWORKS**

Scenario	Metro		Urban		Suburban		Rural	
	GPON	P2P	GPON	P2P	GPON	P2P	GPON	P2P
Investment/ customer ⁷ (€)	868	1,239	1,305	1,788	1,301	1,860	2,785	4,221
Capital/ customer ⁶ (€)	612	1,081	1,049	1,630	1,045	1,702	2,528	4,063
Capital efficiency ⁸ (inv./capital)	1.42	1.08	1.24	1.10	1.25	1.09	1.10	1.04

Source: Soria and Hernandez-Gil (2011)

A 2009 study by Analysys Mason for Ofcom, the UK regulator, reached similar conclusions. Its analysis of six alternatives to the standard GPON network (with simple traffic or “bitstream” sharing for competitors) found that these alternatives would increase the cost of building a FTTP network by 23 to 180 percent. They conclude that if regulators forced an incumbent to build and share one of these more expensive P2P networks with rivals, the incumbent would likely find it much less profitable to deploy the network even in suburban areas, significantly increasing the probability that many households would face a cable monopolist for advanced broadband services. Thus, a regulatory mandate for P2P architecture would actually reduce competition in many areas while raising the cost of deploying FTTH substantially in the densest urban areas where it might be deployed.’⁶

⁶ Crandall et al, pgs. 48 -50

47. In conclusion the Study states:

'In the absence of the ability to test directly the impact of fiber unbundling, we rely on the evidence from copper-loop unbundling and some early trends in fiber deployment as the basis for our conclusions about the likely impact of fiber unbundling mandates.

First, it is clear that copper loop unbundling did not accelerate the deployment or increase the penetration of first-generation broadband networks, and that it had a depressing effect on network investment which EU regulators, for example, are now addressing. Indeed, there is increasingly compelling evidence, including our findings, that the long-run effect of copper unbundling has been to reduce broadband penetration. By contrast, it seems clear that platform competition was very important in promoting broadband deployment and uptake in the earlier era of DSL and cable modem competition.

Second, to the extent new fiber networks are being deployed in Europe, they are largely being deployed by unregulated, non-ILEC carriers, not by the regulated incumbent telecom companies, and not by entrants that have relied on copper-loop unbundling. Moreover, in general, next generation fiber networks are being deployed more aggressively in countries with substantial broadband platform competition – that is, in countries with well-developed cable television infrastructure that has been (or is in the process of being) upgraded to the DOCSIS 3.0.

Third, the challenges of designing and implementing fiber unbundling regimes are far more complex than with copper networks, resulting in regulatory delays and a high likelihood of regulatory error. Unbundling is likely impractical with GPON network architectures, and P2P networks are likely to be substantially more expensive, thereby requiring “co-investment” by different types of entities, significant government subsidies, or both (as in both the Netherlands and Sweden, for example). Unless wholesale rates are set very high, mandated unbundling of P2P networks would further reduce the prospects for deployment throughout an incumbent carrier’s franchise area, but high wholesale rates on these new networks would discourage competitors from using these facilities. In general, the setting of wholesale rates for access to unbundled fiber will be much more complicated and controversial than was the case for copper.

Mandating wholesale access to fiber at regulated prices necessarily forces a regulator to consider the effects of such a policy on the structure of all wholesale rates, including those established for existing copper networks.

This is likely to be a difficult task, and a controversial one, because of its effects on existing entrants using the incumbent's copper loops.

*Overall, we conclude that the likely benefits of fiber unbundling are small, and that the costs are potentially quite large – including the potential for delaying the deployment of all types of NGAs for an extended period of time, as regulators wrestle with intractable issues **and investors sit on the sidelines awaiting the regulatory certainty required to justify the large sunk cost investments necessary to deploy advanced broadband infrastructures.**'(emphasis added)⁷*

Summary of the Effects of Copper Loop Unbundling and the Implications for Fibre

49. In summary, the Study concludes that:

- Copper loop unbundling did not increase the deployment of or increase the penetration of broadband services.
- Mandatory unbundling discourages investment by both the incumbent and entrants.
- Disincentive effects have resulted in a paucity of fibre investment in Europe.
- Regulators have not been successful in managing Local Loop Unbundling resulting in technological stagnation.
- Unbundling is likely impractical with GPON network architectures, and P2P networks are likely to be substantially more expensive, thereby requiring “co-investment” by different types of entities, significant government subsidies, or both.
- Overall, the likely benefits of fiber unbundling are small, and the costs are potentially quite large – including the potential for delaying the deployment of all types of NGAs for an extended period of time.

50. The Study is clear that Local Loop Unbundling creates far more harm than any good it is purported to deliver. Accordingly the public interest is harmed. Local Loop Unbundling is contrary to the public interest.

⁷ Crandall et al., pgs. 54 -55

Regulatory Intervention Harms Investment by Datalinks

51. It is also contrary to the public interest to mandate unbundling when ‘...*DataLink Ltd. ("DataLink") is building a fibre network on which other Licensees can potentially rent capacity*’.⁸ It is LIME’s understanding that Datalink is building a network with the intention of unbundling that network, which is a crucial plank of its business case. This contemplation of Local Loop Unbundling is certain to impact Datalink’s business case and how much that company will be willing to invest in the economy. If the Authority were to mandate Local Loop Unbundling, it would clearly be substituting regulation for competition, to the financial detriment of a competitor (and, by discouraging the investment that would otherwise have been made, to the long term detriment of society).

Regulatory Intervention in a Competitive Market Will Cause Harm and Market Distortion

52. The conditions required for pursuing Local Loop Unbundling are addressed in The Conference Paper titled ‘*An empirical study of unbundling regulation on broadband adoption in OECD countries: What can we learn for future regulation?*’.⁹ The authors of this paper state:

The empirical results of this study show that LLU regulation is one of the strategies to increase broadband adoption, particularly in the countries that have difficulty encouraging infrastructure competition. Nevertheless, several studies suggest that unbundling regulation reduces the incumbent’s incentive to invest. With the dramatic growth in technologies, the main policy to increase broadband penetration should be competition between them, while unbundling regulation can be implemented carefully and differently in each country that has inefficiency that is harmful to consumers in its market from a monopoly incumbent. The decision to apply access regulation from DSL to fibre technology is therefore crucial to whether the regulator regulates the NGN market from

⁸ Paragraph 18 of the Consultation

⁹ Pg. 1, Kongaut, Chatchai; Bohlin, Erik (2012) : An empirical study of unbundling regulation on broadband adoption in OECD countries: What can we learn for future regulation?, 19th ITS Biennial Conference 2012, Bangkok, Thailand, 18 - 21 November 2012: Moving Forward with Future Technologies: Opening a Platform for All

*the early stage of investment or waits for the NGN market to become more mature. Alternatively, the regulator can opt not to intervene in the market for a certain period of time, as **access regulation can delay the growth in infrastructure investment.** (emphasis added)*

53. As identified by the Conference Paper, the questions can be asked:
- i. Does the Cayman Islands have difficulty encouraging infrastructure competition?
 - ii. Is the market suffering from a monopoly incumbent?

54. In both cases, the answer for the Cayman Islands clearly has to be “No”. In the Consultation Document, the ICTA states:

‘.. there are now a variety of ICT Network technologies in the Cayman Islands:

- a. Fixed wire network;*
- b. Fixed wireless network;*
- c. Fibre network; and,*
- d. Mobile network.*

Each type of technology referenced above can provide a retail customer with voice and high-speed broadband access services, with download data speeds at least capable of providing the services mentioned in paragraph 23 above.’

55. Local Loop Unbundling would then surely be an inappropriate policy for the competitive market that exists in the Cayman Islands where there are a variety of ICT networks and no monopoly provider. Yet there is the real risk that implementing an inappropriate policy like Local Loop Unbundling could delay investment in infrastructure development which would reduce the competitiveness of the Cayman Islands and negatively impact the Caymanian economy. This would be all “downside” with no “upside” and would certainly be contrary to the public interest.

56. Notably the ICTA acknowledges the risk of market distortion caused by inappropriate regulatory intervention and that local loop unbundling jeopardises facilities based competition which delivers lower prices and innovative services.

57. LIME is encouraged that the Authority has accepted that:

‘... it may not be necessary to impose LLU in the Cayman Islands as there may be other comparable network alternatives available to Licensees to access retail customers which provide those customers with sufficient competitive alternatives for the provision of voice and high-speed broadband access services.’¹⁰

Public Interest Harmed by Mandated Local Loop Unbundling

58. In view of the evidence provided by the Authority and the supporting global experiences presented in the referenced studies and ultimately in support of the public interest as defined, LIME’s agrees that:

*Overall, we conclude that the likely benefits of fiber unbundling are small, and that the costs are potentially quite large – including the potential for delaying the deployment of all types of NGAs for an extended period of time, as regulators wrestle with intractable issues **and investors sit on the sidelines awaiting the regulatory certainty required to justify the large sunk cost investments necessary to deploy advanced broadband infrastructures.**’(emphasis added)¹¹.*

LIME concludes, therefore, that mandating Local Loop Unbundling would be contrary to the public interest.

¹⁰ Paragraph 46, the Consultation Document

¹¹ Robert W. Crandall, Jeffrey A. Eisenach, Allan T. Ingraham, “The Long-Run Effects of Copper Unbundling and the Implications for Fiber”, April 2012, pg. 55. (available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2018929) [footnotes deleted]

IX. LIME's Response to ICTA Questions

59. LIME's responses to the questions posed by the Authority in its Consultation Document are as follows:

a. **What is your demand for *fixed wire* and/or *fibre* LLU? (When commenting on this question, please provide among other things your demand forecast particulars for the next five years, broken down by technology type, District and residential/business retail customers.)**

60. LIME has built and continues to invest in its network to provide services to customers in the Cayman Islands. Accordingly LIME's business plans do not depend on the availability of fixed wire or fibre LLU.

b. **Are the networks described at paragraphs 23 to 40 above sufficiently similar to be considered capable of providing voice and high-speed broadband access services to retail customers that are a real competitive alternative to each other?**

61. The networks offering broadband service do not need to be similar. It is the service that the customer receives that needs to be comparable, not the networks themselves. In that regard LIME does agree with the Authority that:

'.. there are now a variety of ICT Network technologies in the Cayman Islands:

- a. Fixed wire network;*
- b. Fixed wireless network;*
- c. Fibre network; and,*
- d. Mobile network.*

Each type of technology referenced above can provide a retail customer with voice and high-speed broadband access services, with download data speeds at least capable of providing the services mentioned in paragraph 23 above.'

62. However, because '*[e]ach type of technology referenced above can provide a retail customer with voice and high-speed broadband access services...*', LIME disagrees with the Authority's conclusion that "***the issue of unbundling the fixed wireless Local***

*Loop does not form part of this consultation as access to the retail customer for such a network is not dependent on a physical wire/fibre to the retail customer's premises and such a network is easier to replicate*¹² (emphasis added).

63. The network used to provide a service is irrelevant once the service provided is comparable. This approach is one of technology neutrality, which the Authority has endorsed in the past. All services determined to be in the same market, irrespective of the technology used to provide the service, are comparable and in this regard it is necessary for the ICTA to include broadband services provided over the fixed wireless network as part of this consultation. This is necessary procedurally.

c. Do you agree with the benefits of mandating *fixed wire* and/or *fibre* LLU in the Cayman Islands as outlined at paragraphs 42 to 45 above? Can you quantify any of the benefits referred to? Are there any other benefits?

64. On the weight of the ICTA's evidence and supporting global evidence, the costs of Local Loop Unbundling outweighs the benefits.

d. Do you agree with the costs of mandating *fixed wire* and/or *fibre* LLU in the Cayman Islands as outlined at paragraphs 46 to 49 above? Can you quantify any of the costs referred to? Are there any other costs?

65. Local Loop Unbundling is contrary to the public interest because the costs outweigh the benefits. It diverts operators away from investing in the Cayman economy and in advanced technologies, and encourages them instead to use the existing facilities of other providers. In addition, it creates a disincentive for any Operator to build or upgrade their network, because the risk of investment is unlikely to be covered by an adequate return if the benefits of that investment are required to be delivered to competitors. In this case the entire economy is harmed and the Cayman Islands will not be considered a preferred place to do business for industries that rely on cutting edge ICT services.

¹² Paragraph 14 of the Consultation Document

66. For the avoidance of doubt, LIME distinguishes between loop unbundling mandated by regulatory fiat, and the provision of network elements on a commercial basis, as contemplated by Datalink. The former would discourage investment and harm competition, as described above in this submission, while the latter is the natural outcome of a healthy and competitive market. LIME does not support the former while LIME fully endorses the latter.

e. Is mandating the provision of access to the *fixed wire* and/or *fibre* Local Loop in Grand Cayman and/or the Sister Islands contrary to the public interest?

67. The public interest is best served by healthy investment and healthy competition in the Cayman Islands. Policies like Local Loop Unbundling harm investment and competition and are contrary to the public interest.

f. Does any Licensee see any demand for *fixed wire* and/or *fibre* LLU in the Sister Islands if the Authority determines that *fixed wire* and/or *fibre* LLU should be mandated there but not in Grand Cayman?

68. LIME's business plans are not predicated on Local Loop Unbundling, whether fixed wire, fixed fibre or fixed wireless. However, LIME does not endorse policies that would discourage investment in NGA in the Sister Islands. LIME notes that the Authority's existing policies will result in the roll out of an NGA in the Sister Islands in relatively short order, and LIME encourages the Authority not to make changes to the regulatory framework which might jeopardize that.

g. Are there any other issues that the Authority should take into account as part of this consultation?

69. LIME has raised the other issues that the Authority should take into consideration as part of the consultation, in the course of its response since the issues are more coherent presented in that manner. In particular, LIME raised the matter of framing the public interest, the need for the completion of the cost/benefit analysis and that investment and competition are healthy in the Cayman Islands today. Local Loop

Unbundling would undo the favourable environment that now exists in the Cayman Islands and is contrary to the public interest.

VII. Closing Remarks

70. Kindly send any communication in relation to this consultation to:

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