Section 4

Market power in local-tandem conveyance and transit

4.1 In this Section, Ofcom:

- defines the market for ITC and ITT; and
- assesses whether BT has market power in the defined market.

4.2 Paragraphs 4.4 to 4.62 essentially reproduce the analysis in the consultation document. From paragraph 4.63 onwards, Ofcom assesses the consultation responses covering these issues, and then presents its conclusions.

4.3 Annex 2 provides background on the processes that Ofcom follows in reviewing markets, covering market definition and market power assessment, as well as the imposition of remedies to address market power.

Service definitions

4.4 Local-tandem conveyance ("LTC") is the service that an originating or terminating operator provides to convey calls between a local exchange and a tandem exchange. Figures 4.1 and 4.2 describe two different ways in which LTC can be provided on the PSTN.

Figure 4.1 LTC I

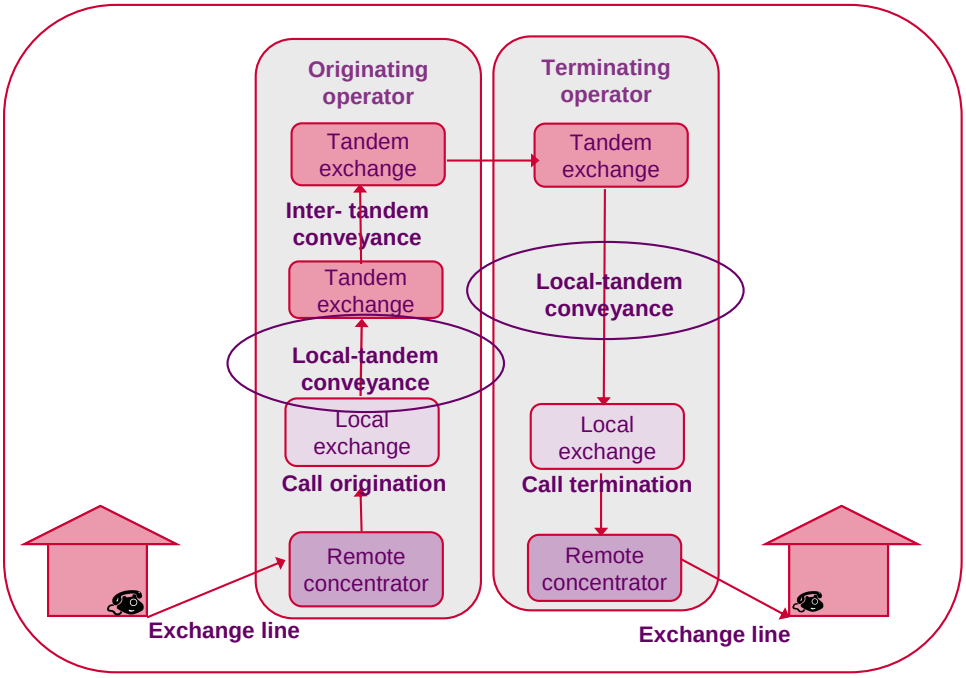
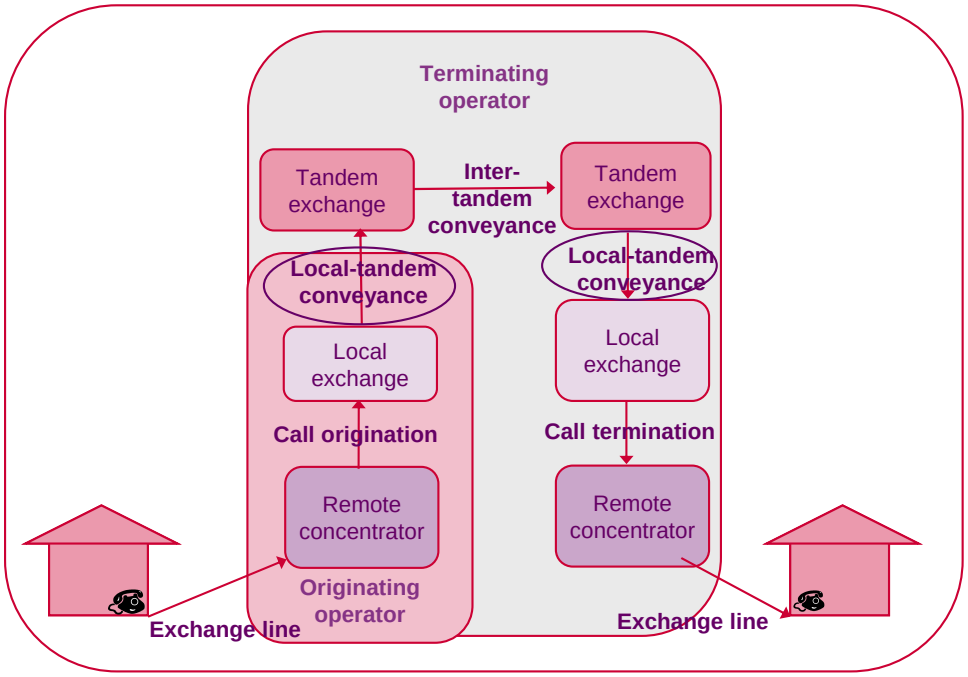
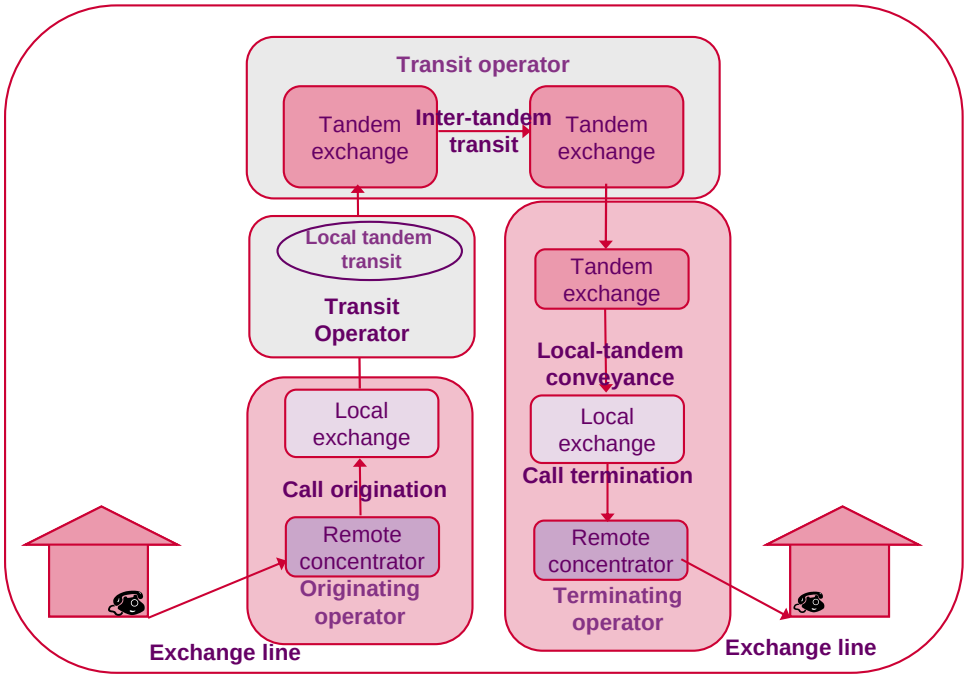


Figure 4.2 LTC II



4.5 Local-tandem transit ("LTT") is a service a transit operator provides to convey calls between a local exchange and a tandem exchange when a call originates and terminates on a network other than its own (see Figure 4.3).

Figure 4.3 LTT



Market definition

4.6 In the light of the above service definition, the purpose of paragraphs 4.7 to 4.36 is to define the relevant wholesale market(s) in which the assessment of market power (i.e. SMP) is to be undertaken. Annex 2 sets out further detail of this first stage of a market review, including details of the two European Commission documents of which Ofcom must take due account, Ofcom's as well as the European Commission's approaches to market definitions, the relationship between the wholesale and retail markets, and current market definitions for fixed narrowband markets identified by Oftel in November 2003.

4.7 As discussed in Annex 2, market boundaries are defined by identifying the constraints on the price setting behaviour of firms arising from demand side and supply side substitution. The concept of the 'hypothetical monopolist test' is a useful tool to identify close demand side and supply side substitutes. A product is considered to constitute a separate market if a hypothetical monopoly supplier could impose a small but significant, non-transitory price increase ("SSNIP") above the competitive level without losing sales to such a degree as to make this unprofitable. If such a price rise would be unprofitable, because consumers would switch to other products, or because suppliers of other products would begin to compete with the monopolist, then the market definition should be expanded to include the substitute products.

4.8 Ofcom's approach to market definition is discussed in Annex 2. Since consideration of the retail levels logically precedes the analysis of markets at the wholesale level, Ofcom has undertaken analysis of the retail level markets, in Annex 5.

The market for local-tandem conveyance (LTC) and local-tandem transit (LTT)

4.9 It is standard practice to start with the narrowest feasible market definition and consider whether it should be broadened to include substitute products. Therefore Ofcom has first considered whether LTC and LTT should be regarded as separate markets or as part of the same market. It has then considered whether some other possible substitute products should be included in the market.

4.10 Ofcom believes that LTC and LTT are part of the same market. This is because it believes them to be sufficiently close substitutes that a price increase in one would be constrained by switching to the other.

4.11 Both LTC and LTT are means of conveying traffic between a local exchange and a tandem exchange. LTT differs from LTC in that the conveyance is provided by a third party, the transit operator, rather than by the originating or terminating operator as with LTC. They are therefore alternative means of providing the same service and therefore likely to be good substitutes provided they can be provided at similar cost.

4.12 Although LTT is likely to involve the costs of additional switching and additional interconnect links necessary for traffic to be conveyed via the transit operator's network, these costs are unlikely to be significant at sufficiently large volumes of traffic. Therefore switching to LTT could constrain the price of LTC.

4.13 Conversely, an operator purchasing LTT from a third party could switch to purchasing LTC from the originating or terminating operator in the event of a rise in the price of LTT services. It could also build its own network out to the local exchange in order to self-provide LTC, if this were justified by the volume of traffic. Therefore switching to LTC could constrain the price of LTT.

4.14 The above discussion concerns demand-side substitution; that is, switching by customers. In addition, supply-side substitution may be possible because an operator providing LTC over its own network could also provide LTT to other operators connected at its local and tandem exchanges. An operator providing LTT services could also provide LTC for calls that originate and terminate on its network.

4.15 Therefore LTC and LTT are, in Ofcom's view, part of the same market.

Impact of 21CN

4.16 As discussed in Section 3, BT intends gradually to replace the PSTN with its 21CN over the period of the next network charge controls, during which time there will be parallel running of both PSTN and 21CN. BT may then be able to provide a service equivalent to LTC or LTT but routed partly over the 21CN. BT could, for example, route the call from the DLE to a metro node (on the 21CN) and then to the tandem switch. In doing so, it would be providing a service similar to local to tandem conveyance. If both services were available and the customer was able to exercise choice, it is clear that it would regard the two services as substitutes. As long as the customer receives the same service at the same price, the customer would be indifferent to the technology by which it is delivered. Note that the customer does not need to make any modifications to its network in order to receive services which are routed over the 21CN but delivered to the same locations and using the same interfaces as the PSTN service.

4.17 Hence, LTC provided on the PSTN only, and conveyance provided partly through 21CN, are the same services and therefore are, in Ofcom's view, in the market for LTC/LTT.

4.18 Ofcom has also considered whether a service provided wholly over the 21CN but performing a broadly similar function to LTC or LTT would be in the same market. The likely configuration of BT's 21CN means that there will be no direct equivalent to LTC because the 21CN will not feature DLEs. The closest substitute appears likely to be a metro node origination service (conveyance from the MSAN to the metro node). The question then is whether there is likely to be substitutability between metro node origination and LTC such that they can be considered as part of the same market.

4.19 Ofcom believes that, for the purposes of this review, metro node origination should not be regarded as a sufficiently good substitute for LTC and LTT to be regarded as part of the same market. This is because:

(a) based on early provisional information on metro node locations, it seems likely that many metro nodes will be in different geographical locations than the existing tandem exchanges and hence building out to the new locations may involve significant cost;

(b) the technical interfaces available at metro nodes are expected to be different to those available at existing switches. In particular, it is currently anticipated that

there would be an IP voice interconnect and C7 (ISUP) interfaces available at metro nodes, but not IUP[13]. To effectively utilise an IP interface an interconnecting operator will need an IP voice network of their own. If the operator does not already have an IP voice network, then implementing this solely to use metro node interconnect is likely to be a very significant cost. Currently a relatively small number of operators have a core IP voice network that could be used for IP voice interconnection. However, this situation seems likely to change over the coming years as more operators implement next generation networks; or

(c) alternatively, interconnecting operators may be able to use a C7 interface at the metro node. However, this is likely only to support the ISUP variant of C7, and several operators currently using IUP may need to incur significant costs to change to ISUP.

4.20 In summary, for many operators, the cost of switching interface may be significant in relation to a small rise in the price of LTC on the PSTN.

4.21 As both PSTN and 21CN are operated by BT, supply-side substitution is not a relevant factor. BT would clearly not wish to undermine its own price increase by such means.

4.22 In principle, operators could avoid the need for LTC (or equivalent) by connecting to the 21CN at the MSAN. Since, given the location of the MSAN, MSAN interconnection would take place much deeper into the network than tandem exchanges, each MSAN interconnection may provide an interconnecting operator with fewer potential end-users than a tandem exchange where the traffic is more concentrated. In order to be able to achieve the same scale of traffic as at tandem exchanges, interconnecting providers would in general have to interconnect at a proportionately larger number of MSANs. This would involve significant cost and hence cannot be regarded as a substitute to purchasing LTC.

4.23 Even if substitution at the wholesale level, between conveyance over the PSTN and 21CN, is not possible, it might still be that both 21CN and PSTN products should be placed in the same market. This would be the case if substitution between customers at the retail level meant that there was a common constraint between the charges for PSTN based services and those for 21CN-based services. However, since both types of services would be offered only by BT, this would not really affect the analysis of market power for which the definition of the relevant market is required. In view of this, Ofcom does not consider them as part of the same market for the purposes of this review. When new interconnection products are introduced, the inclusion of those products within the markets defined in this review will be considered, or new markets will be defined at that point.

13 http://www.btwholesale.com/content/binaries/our_business/media_information/21c/working_groups/legacy_interconnect/21cn_legacyinterconnection_work_group.ppt

Conclusion

4.24 Ofcom's provisional conclusion in the consultation document was that the relevant market is the market for LTC and LTT on fixed public narrowband networks.

4.25 To clarify, the market definition refers to services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN (see also paragraphs 4.16 to 4.17).

Geographic market

4.26 Ofcom's approach to defining geographic markets is set out in Annex 2.

4.27 Strict application of the hypothetical monopolist test could lead to the definition of a proliferation of small local markets because LTC between one pair of exchanges is unlikely to be regarded as a substitute for conveyance between another pair in a different location. Supply-side substitution is also unlikely because of the time and cost needed to expand a network into a different geographic area. This would not be a practicable approach to market definition.

4.28 Ofcom considers that a more useful approach would be to define an area as a local market provided competitive conditions within the area are sufficiently homogeneous and sufficiently distinct from those outside the area. The level of connectivity at certain DLEs may be higher than others (see also paragraph 4.48), thereby suggesting that such areas might be more competitive. However, in the case of LTC, the boundary between areas where there are different competitive pressures may be unstable and change over time, rendering the market definition obsolete. It is not clear that determining ex-ante where the boundary would be is an exercise that can be carried out with any degree of accuracy. Therefore, Ofcom believes that it is reasonable to consider there to be a national market, albeit with possibly differing local conditions.

Conclusion

4.29 Ofcom's provisional conclusion in the consultation document was that the scope of the geographic market for LTC and LTT is the UK (excluding the Hull area).

Provisional conclusions on the relevant market

4.30 For the reasons set out above, Ofcom proposed in the consultation document that the relevant market is local-tandem conveyance and transit (that is to say, LTC and LTT) on fixed public narrowband networks in the UK excluding the Hull area. This is the same definition that was identified by Oftel in November 2003. To clarify, the market definition refers to services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN (see also paragraphs 4.16 to 4.17).

Forward look

4.31 In proposing the above market definition, Ofcom considered that, on the basis of currently available information, it had fully taken into account likely competitive and technical developments that might affect the market definition over the period of the new NCCs. On this basis, any development of services wholly on 21CN did not appear to be part of the above market during the period of the new NCCs. However Ofcom indicated that it will continue to monitor developments in this area.

Relationship between the market definition and the Commission's Recommendation

4.32 When analysing markets, Ofcom must define relevant markets appropriate to national circumstances, provided that it takes due account of the markets listed in the Recommendation (see further in Annex 2).

4.33 The European Commission has, in its Recommendation (point 8 of the Annex to the Recommendation), defined the following as a relevant market in accordance with Article 15(3) of the Framework Directive:

> "Call origination on the public telephone network provided at a fixed location. For the purposes of this Recommendation, call origination is taken to include local call conveyance and delineated in such a way as to be consistent with the delineated boundaries for the markets for call transit and for call termination on the public telephone network provided at a fixed location".

4.34 Ofcom proposed a different market definition and, in doing so, has given careful consideration to the Commission's definition and the three criteria set out in the Explanatory Memorandum to the Recommendation (section 3.2), namely:

- barriers to entry and the development of competition;
- 'dynamic aspects', i.e. whether the market has characteristics that will tend towards effective competition; and
- the relative efficiency of competition law and complementary ex ante regulation.

4.35 Ofcom, in proposing its market definition, gave particular consideration to the first two criteria. While the Commission has identified a single market that includes both call origination and LTT and LTC, Ofcom considered that it was necessary to define separately the call origination market and the LTC and LTT market because of the different competitive conditions that are present in each of the markets in the UK. The local exchange is the closest point to an end-user at which operators can connect to BT's PSTN network. By connecting at the local exchange, operators are able to provide LTC or LTT themselves. Therefore, in the LTC and LTT market, there is more potential for competition from both alternative direct access networks and those operators without an access network but which provide LTC or LTT themselves. The distinction is important because, in the UK, a number of operators have built their networks to BT's local exchanges, making competition possible in the provision of LTC and LTT. As discussed in Annex 5, the only significant competition in call origination is from

alternative direct access networks and competition is therefore much more limited.

4.36 The relative efficiency of competition law and complementary ex ante regulation is discussed in detail in Annex 2.

Assessment of SMP in the market for LTC and LTT in the UK excluding the Hull area

4.37 As explained above, Ofcom considered provisionally in the consultation document that the identified services market should be LTC and LTT on fixed public narrowband networks in the UK excluding the Hull area. Paragraphs 4.38 to 4.78 therefore set out Ofcom's assessment of SMP in that wholesale market. The SMP analysis is based on the evidence currently available to Ofcom. In particular, this analysis will focus on single firm dominance, particularly in the light of the relevant market power determination made in respect of BT in November 2003.

4.38 Annex 2 sets out further detail of this second stage of a market review, including details of the approach used to assess SMP. In Ofcom's view, the main criteria for the assessment of SMP in the above-mentioned market are:

- market shares;
- ease of market entry;
- economies of scale;
- overall size of the undertaking;
- pricing and profitability;
- absence of or low countervailing buyer power;
- easy or privileged access to capital markets/financial resources.

Market shares

4.39 Ofcom has obtained from BT data on LTC volumes on its own network, and LTC (or its equivalent) on other networks has been derived using the following assumptions:

- inclusion of the equivalent of LTC provided over interconnection extension circuits ("IECs");
- inclusion of the equivalent of LTC on other fixed networks; and
- the proportion of call types using LTC on BT's network is the same as that using LTC on other networks.

4.40 From these data, Ofcom estimates BT's market share of LTC minutes currently to be in the region of 63%. Table 4.1 shows BT's market share in LTC over the last 3 years. BT's market share has been declining, although the rate of decline has slowed in 2003/04. One of the main reasons for the decline in 2001/02 and 2002/03 market shares was the take-up of DLE FRIACO to meet the demand for retail narrowband unmetered internet access.

Table 4.1 BT's share of LTC minutes

	2001/02	2001/02	2001/02	2001/02	2002/03	2002/03	2002/03	2002/03
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
LTC/LTT	79.4%	76.2%	73.8%	71.4%	69.2%	68.1%	65.2%	66.6%
	2003/04	2003/04	2003/04	2003/04	2004/05	2004/05		
	Q1	Q2	Q3	Q4	Q1	Q2		
LTC/LTT	65.9%	65.5%	65.1%	64.2%	63.7%	63.4%		

Source: Ofcom estimate using BT data

4.41 It must be noted that although LTT is being offered by some other providers, particularly C&W, the volumes are not high enough to change the market shares significantly.

4.42 Ofcom has considered whether BT's market share is likely to be eroded further. In Ofcom's view, the reduction of BT's market share will depend on three main factors:

- the take-up of FRIACO;
- the ability of competing downstream providers to compete with BT; and
- the ability of other originating providers to increase their share of end-to-end calls.

4.43 Ofcom believes that the retail demand for FRIACO based products has not only stabilised, but has started to decline as consumers move to broadband internet access[14]. Therefore, the prospect of new investment in interconnection at BT's DLEs in order to use FRIACO further reducing BT's market share in LTC/LTT is limited.

4.44 Additionally, with the likely introduction of the 21CN, it appears unlikely that any provider would expand their fixed network further to more DLEs to compete with BT. If any additional investment were to be made, it is more likely to be made to new interconnect locations on the 21CN.

4.45 Another possible manner in which BT's share in LTC might be reduced is by competition from other direct access providers. If such operators increased their market shares of retail customers this would also increase their share of LTC for calls to and from those customers. However, the cable companies, which are the main alternative direct access providers, have not been able to increase their market share at BT's expense (see Annex 5 for BT's market share in call origination) and there is no reason to believe that this situation will change materially for the duration of the new NCCs.

4.46 Ofcom therefore considers that BT's market share indicates that BT has market power in the provision of LTC and LTT services.

Ease of market entry

4.47 There are two ways in which providers can provide LTC or LTT in competition with BT: either using their own direct access network or by connecting to BT's

[14] See Ofcom's publication on "The Communications Market – Quarterly Update October 2004", pages 33-34 (http://www.ofcom.org.uk/research/industry_market_research/m_i_index/cm/qu_10_2004/cm_qu_10_2004.pdf)

local exchanges and providing LTC or LTT for BT-originated calls. However, there are significant sunk costs associated with providing an alternative direct access network.

4.48 While there are a number of providers that connect to BT's local exchanges, the majority of providers do not and therefore are dependent on BT (or possibly on those providers who are interconnected at the DLE) for conveyance to the tandem exchanges where they are located. In the Narrowband Market Reviews, Oftel stated that there were 746 BT local exchanges and only three providers connect to more than 500 local exchanges, while nine providers connected to more than 100 of them. Many of these connections were for data traffic (FRIACO) and therefore the majority of voice traffic, particularly other operator's ingress traffic, used BT-provided LTC. Since the Narrowband Market Reviews, Ofcom is aware of three more voice providers who are connected to a large number of exchanges; however, no provider has been able to enter the market on a scale that compares with BT.

4.49 The capital costs of building out to BT's local exchanges are significant. It is commercially viable to connect to local exchanges where the volume of traffic justifies it, but for many operators the volume of traffic to any one exchange is small. Fewer providers have built out their own networks to BT's local exchanges than connect at the tandem layer therefore, although in some cases local exchanges are co-located with BT's tandem exchanges. Alternatively, entry is possible using IECs to connect to the DLE. However, over long distances and smaller volumes of traffic, the cost of IECs is considerable in relation to the margins providers can expect to make.

4.50 Therefore, although there has been some successful entry in this market, Ofcom considered at the time of the consultation document that entry barriers are still significant.

Economies of scale

4.51 There are significant economies of scale that characterise fixed communications networks, where total costs are minimised at large levels of volume.

4.52 In order to compete successfully against BT, providers would need to have comparable average traffic flowing per local exchange circuit as BT does in order to be able to achieve similar economies of scale to BT. Building out to a high number of local exchanges in the face of uncertainty regarding capture of some of BT's traffic means that such costs are a considerable barrier to entry in this market.

Overall size of the undertaking

4.53 BT's network is spread over approximately 5,600 local exchange concentrators and 746 local exchange processors. BT's fully meshed national network of 106 tandem exchanges provides national connectivity. It has the majority of exchange lines to retail consumers and 79% of calls originate on its network. A significant number of these calls are BT-to-BT calls where the call does not leave BT's network and BT provides all the wholesale conveyance services necessary to convey the call, including ITC.

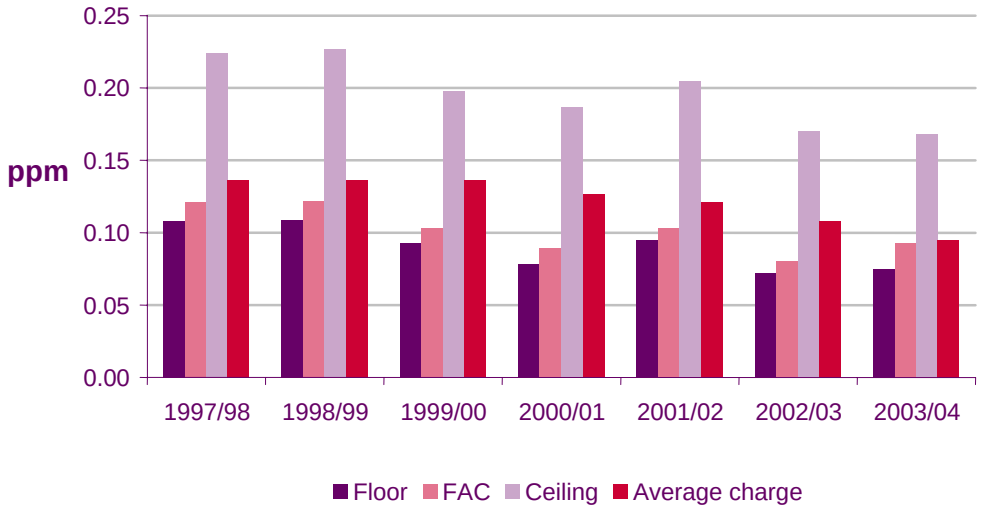
4.54 Ofcom's view is that BT's market size and ubiquity are key factors in BT's continuing level of market power in the LTC and LTT market.

Pricing and profitability

4.55 In the Narrowband Market Reviews, Oftel stated that, although there were sufficient margins between BT's prices for LTC and its cost, in the event that prices fell further, it would consider this issue during the setting of the charge control.

4.56 The following graph illustrates BT's charges for LTC.

Figure 4.4 BT's costs and charges for LTC



Source: BT's Regulatory Financial Statements[15]

4.57 The above figure shows that BT's charges for LTC have been declining during the current NCCs period. Although until 2003/04, prices were well above the fully attributed cost ("FAC"), they have tended to converge towards FAC in 2003/04.

4.58 For the 2001-5 NCCs, BT's LTC service is in a basket along with single transit ("ST"), under an overall basket charge cap of RPI-13%. In complying with the cap, BT has reduced LTC prices, although it has raised the prices of ST. This suggests that BT has responded to competition by reducing the price of the more competitive service and hence this is an indication of competitive pressure on LTC service prices. However, since the current cap of 13% on the basket is binding, and since BT faces little competition in single transit, it cannot be concluded that LTC is effectively competitive.

Absence of or low countervailing buyer power

4.59 BT's retail activities continue to be the largest purchaser of LTC services and therefore BT is the only provider that theoretically would be able to exert

[15] BT defines the Floor as a Distributed Long-Run Incremental Cost (LRIC) – i.e., the Floor is the LRIC + intra-core common costs. BT defines the Ceiling as the distributed Stand Alone Cost (SAC)

countervailing buyer power. However, it clearly would not do so in practice. Hence BT's LTC prices are not likely to be constrained by countervailing buyer power.

Easy or privileged access to capital markets/financial resources

4.60 BT is a large and well-established company with a long track record and a relatively diversified business and is perceived to have stable cash flows. It has a good credit rating and investors are likely to view the company as a less risky proposition than many relatively newer entrants. It is therefore likely that BT would face lower borrowing premiums than its competitors. Ofcom is of the view that BT continues to be seen as a more stable organisation than its competitors.

Forward look

4.61 Ofcom has considered developments in this market since November 2003 and, in particular, the provision of LTT service by operators who have connected to BT's local exchanges. The growth of CPS traffic will provide more scope for operators to offer LTT services (because CPS providers who connect at BT's DLEs provide LTT over their own networks for traffic originating on BT and terminating on other networks). However, although volumes of CPS have increased, the impact on BT Retail's market share[16] has been relatively small. This suggests that the impact on BT's share of LTC/LTT is likely to be similarly limited. With the likelihood of 21CN interconnection products being available during the period of the new NCCs, Ofcom believes that further increases in competitive pressure on LTC/LTT prices may also be limited, because providers may be unlikely to invest in new fixed narrowband PSTN connections. However, increased take-up of LLU services could potentially mean more competition to BT in call origination and LTC.

Provisional consultation document conclusions on SMP

4.62 For all the reasons set out in this Section, Ofcom proposed in the consultation document that BT continues to have SMP in the market for local-tandem conveyance and local-tandem transit in the UK excluding the Hull area.

Consultation comments and Ofcom's conclusions

4.63 Paragraphs 4.64 to 4.76 below set out consultation respondents' views, and Ofcom's response, to two specific questions asked in Section 3 of the consultation document.

Question 2: Do you agree that the relevant market for consideration is the national market for local-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area?

4.64 The two main areas of comment in consultation responses concerned the geographic scope of Ofcom's market definition, and the exclusion of 21CN interconnect products from the market definition proposed by Ofcom.

4.65 In its consultation response, BT stated that the boundaries between LTC and ST are artificial and regulatory constructs, but accepted that it is pragmatic to use

[16] between 2002 and 2004, BT's share relative to IA/CPS providers changed from 79% to 74%, based on Ofcom's market intelligence

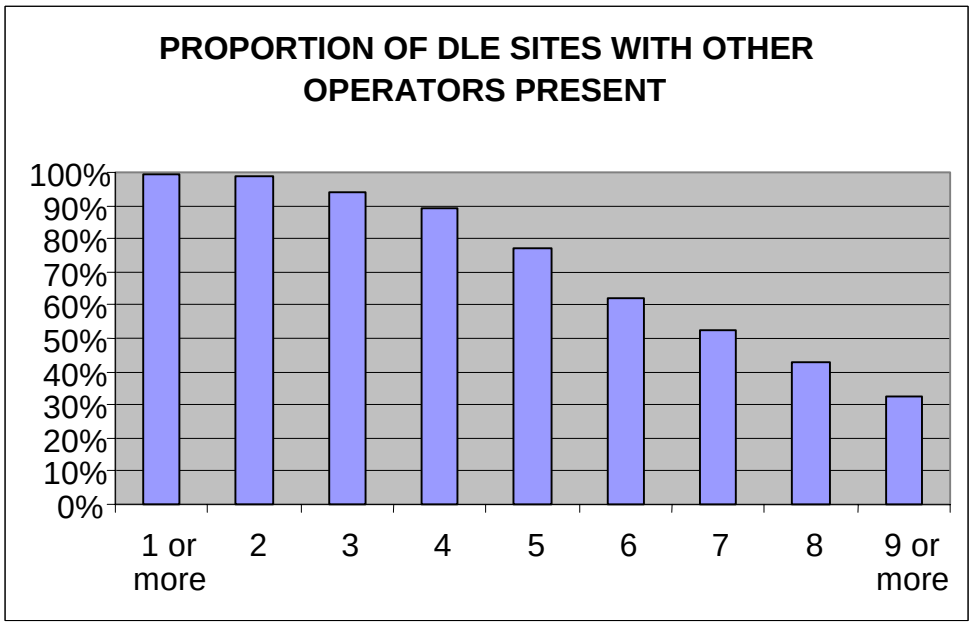
such market definitions. BT did not agree that the market for LTC is national, based on the argument that there is no strong demand or supply side substitutability between regions. BT also stated that there are therefore differing degrees of competition in different areas. BT stated that competitive conditions develop on an area-by-area basis and that, by defining the market as national, Ofcom does not allow for the SMP designation to be removed in some areas and retained in other areas. BT argued that this creates a risk of over-regulation in some areas if SMP is retained, and under-regulation in some areas if the SMP designation is removed.

4.66 Ofcom accepted in its consultation document that the level of connectivity at certain DLEs may be higher than others, thereby suggesting that such areas might be more competitive. In principle it might be possible to define local markets provided competitive conditions within them are sufficiently homogeneous and sufficiently distinct from the surrounding area. On the other hand, Ofcom pointed out that there may be areas with more uniform competitive conditions, but that it may not be possible to define a suitable aggregator for such areas. Since assessing the boundaries of the markets is an exercise that could not be carried out with any reasonable degree of accuracy, Ofcom proposed that the market be defined as national (i.e. the UK excluding the Hull area).

4.67 Ofcom's view was further supported by information provided by BT during the consultation period, on the degree of connectivity at local switches. Of the 259 sites with local exchanges, operators have built out physical connections to half of them. All of the remaining DLE sites are served by interconnection via an Interconnection Extension Circuit (IEC) leased from BT.

4.68 That information suggests that 94% of BT's DLE sites have three or more operators other than BT present (including those reached through IECs), and more than 75% have five or more operators present as illustrated by figure 4.5 below.

Figure 4.5 Connections at Digital Local Exchange (DLE) sites



Source: BT data

4.69 This level of connectivity has allowed operators to increasingly self-provide LTC for their own purposes. CPS providers have increasingly connected to BT's network at the DLE, substituting use of their own networks for LTC over BT. The increase in the share of LTC traffic accounted for by operators who have either built out or leased connections to DLE has resulted in BT's market share falling from 73.8% at the beginning of the current charge control period to 63.1% in the third quarter of 2004/05. This most recent market share figure (an Ofcom estimate, using BT data) shows a continuation of the same trend (see Table 4.1). It is possible that BT's market share has fallen by a greater percentage at DLEs where there are more than five operators present than in areas where there are three operators connected. However, it is not sufficiently clear that the level of competition is significantly higher in the former than the latter, such that the pattern of competition would justify defining geographically separate markets. Indeed, given BT's overall share of traffic of 63%, it seems likely that BT's share of traffic on those routes with more than five interconnected operators is over 50%, given the number of such routes.

4.70 Ofcom is of the view that, since throughout BT's network the level of competition to provide LTC is likely to be similar, defining a national market with sufficiently homogenous competitive conditions is a reasonable decision to make. While it may be the case that competition develops over time on an area by area basis, the fact that clear boundaries between areas cannot be defined means that it may not be practical or useful to define sub-national markets. In addition, BT has provided no additional evidence to show that there are areas where its market share can be more easily competed away than the others.

4.71 In the light of the above, Ofcom concludes that the geographic market is a national market for LTC in the UK excluding Hull.

4.72 Turning to the issue of 21CN interconnect products in the market definition, Energis commented that metro node origination is merely another form of technology which delivers the same service as LTC/LTT. Since BT would not be investing in 21CN unless the price of delivering calls over the new network were significantly lower, Ofcom should assume that metro node origination and LTC/LTT services will be substitutable. Ofcom should therefore either reopen the controls when costs are known, or ensure that each service is priced on the same basis, and furthermore Ofcom should confirm that this will happen. In the case of genuinely new services, a full market review should be launched.

4.73 Ofcom does not agree with Energis' argument that simply because BT is moving to a new network, the service on that network must be substitutable. In order to be part of a single market, purchasers must be able easily and at low cost to switch between the two services in response to a small price increase. If metro node origination does replace DLE origination, then it is possible that a service similar to LTC on the PSTN would be part of metro node origination. However, as discussed at paragraph 4.30, it would not be appropriate to conclude that metro node origination is a sufficiently close substitute for LTC to be part of the same market for the purposes of this review. As explained in the consultation document, however, without more knowledge of metro node origination, for example the costs, prices and interfaces, it would be premature to define a market for metro node origination. Given this Ofcom considers that it would be incorrect to make any statements to indicate that both services will be priced on the same basis, or that it will reopen the controls when the costs of metro node origination are known.

4.74 Ofcom's position on this is supported by UKCTA, whose response recognised that 21CN cost and product information may be needed for further work on market definitions. UKCTA did however urge Ofcom to conduct further market assessment as soon as the data is available. SSE took a similar view, suggesting that market analyses should take place once the 21CN products are introduced. C&W also agreed with Ofcom's current market definition, although it appears to be more of the view that services provided via 21CN interfaces will not form part of the same market in the near future.

4.75 When a new service such as metro node origination is introduced, Ofcom may conduct an analysis of the relevant market to which it might belong. In the light of a decision on whether or not 21CN services are part of the same market as PSTN services, Ofcom will decide whether regulation should be applied (and, if so, what regulation), to each of the services.

Question 3: Do you agree with Ofcom's provisional conclusion that BT has SMP in the national market for local-tandem conveyance and transit on fixed public narrowband networks?

4.76 UKCTA, C&W, Energis and the SSE commented specifically on this issue, all agreeing with Ofcom's proposed SMP finding. BT's argument that there are national sub-markets and that therefore there would be SMP only in some of those markets is effectively addressed by Ofcom's conclusion that it is appropriate to consider there to be a single national market for LTC/LTT services. As a result of that conclusion, the issue of differential SMP is not relevant. Ofcom continues to conclude that BT has SMP in this national market.

Ofcom's conclusion on SMP in the market for LTC and LTT

4.77 Having considered consultation responses, Ofcom maintains its consultation document proposals on the market definition:

- there is a single market for ITC and ITT on fixed public narrowband networks;
- the geographic market is the UK excluding the Hull area;
- the market definition covers services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN; and
- 21CN interconnection products (such as 'metro node origination') are not in the market as defined.

4.78 Ofcom is of the view that BT still retains SMP in the market for LTC and LTT, as evidenced by a BT market share that is still well over 50%, and continuing entry barriers associated with the cost of building to local exchanges. There is also some evidence of increasing competitive pressure, as evidenced by BT's LTC prices converging towards cost (FAC). However, Ofcom's forward look at competition in this market suggests that BT is likely to retain SMP for the duration of the next NCCs.

Section 5

Market power in inter-tandem conveyance and transit

5.1 In this Section, Ofcom:

- defines the market for ITC and ITT; and
- assesses whether BT has market power in the defined market.

5.2 Paragraphs 5.4 to 5.62 essentially reproduce the analysis in the consultation document. From paragraph 5.63 onwards, Ofcom assesses the consultation responses covering these issues, and then presents its conclusions.

5.3 Annex 2 provides background on the processes that Ofcom follows in reviewing markets, covering market definition and market power assessment, as well as the imposition of remedies to address market power.

Service definitions

Inter-tandem conveyance

5.4 Inter-tandem conveyance ("ITC") is the service an originating or terminating operator provides to convey calls between tandem exchanges. It also includes the conveyance of calls between a tandem exchange and a specific type of tandem exchange called an International Switching Centre ("ISC") for international calls.

Figure 5.1 ITC provided by an originating operator

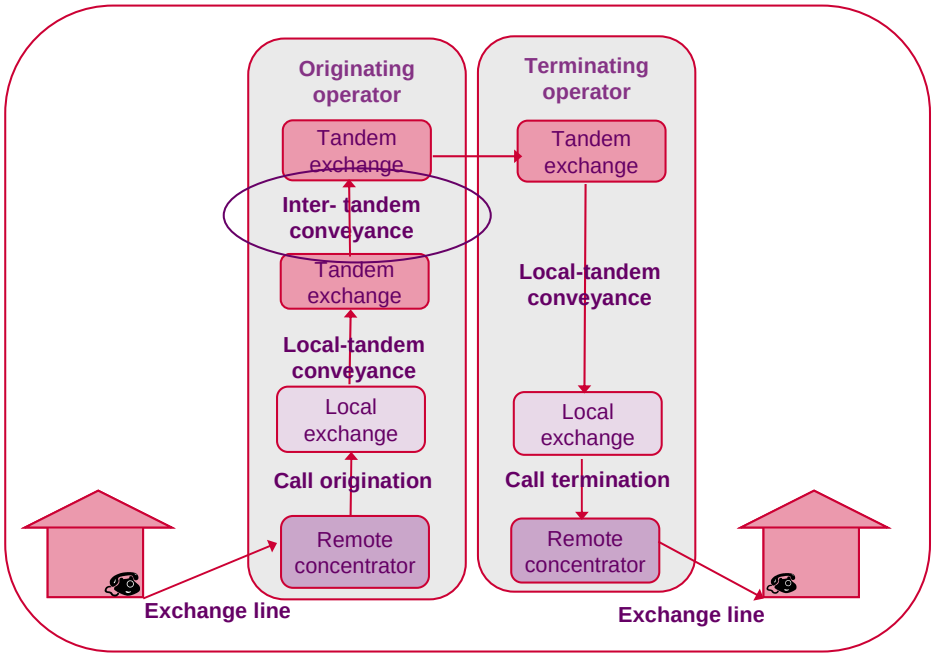
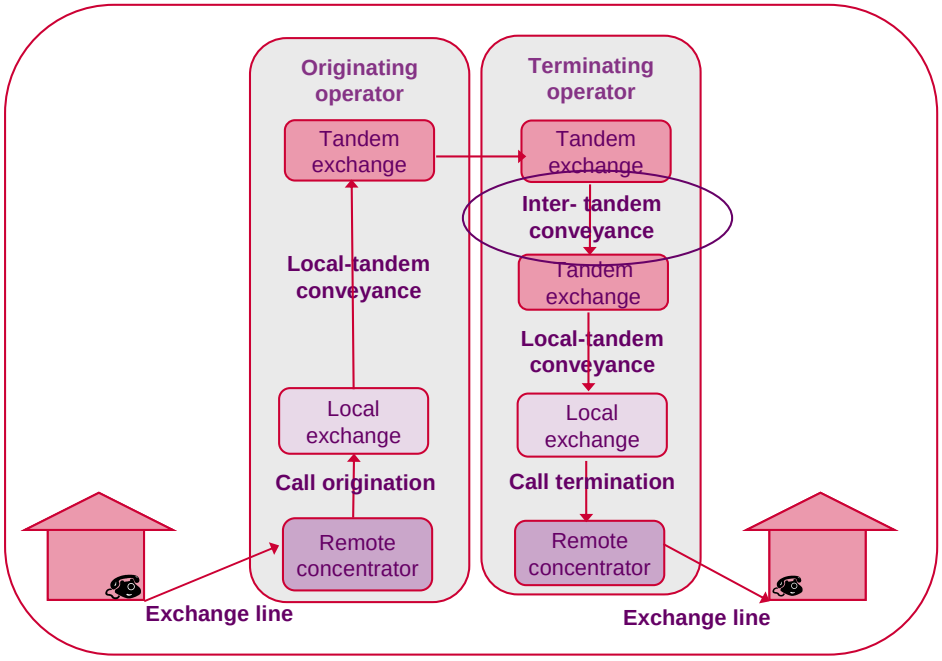


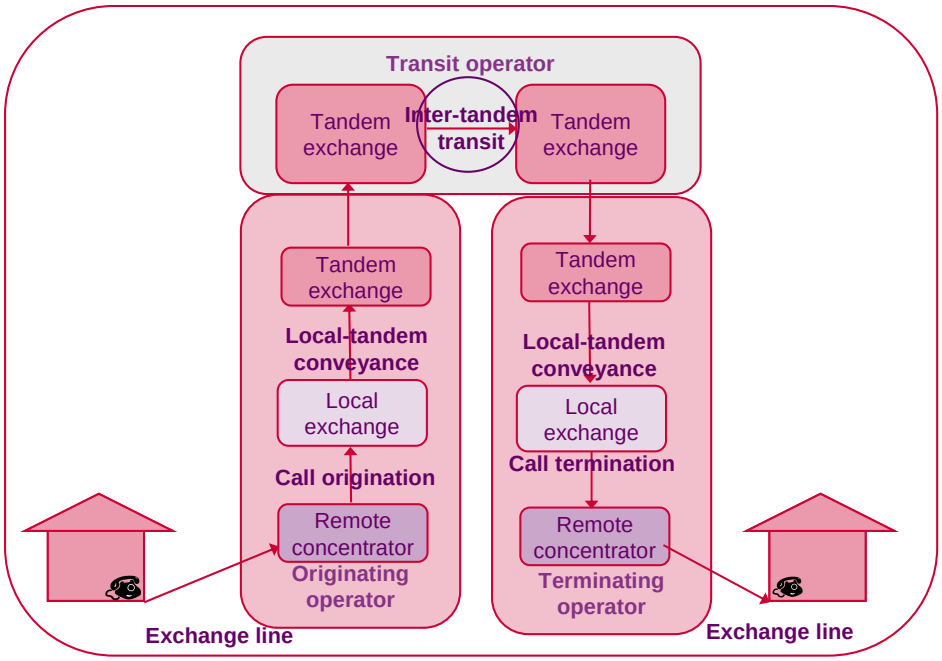
Figure 5.2 ITC provided by terminating operator



Inter-tandem transit

5.5 Inter-tandem transit ("ITT") is the service an operator provides to convey calls between its tandem exchanges when a call originates and terminates on networks other than its own.

Figure 5.3 Inter-tandem transit



Market definition

5.6 In the light of the above service definition, the purpose of paragraphs 5.7 to 5.35 below is to define the relevant wholesale market(s) in which the assessment of market power (i.e. SMP) is to be undertaken. Again, as mentioned above, it is to be noted that Annex 2 sets out further detail of this first stage of a market review.

The market for inter-tandem conveyance (ITC) and inter-tandem transit (ITT)

5.7 As with LTC and LTT, Ofcom has first considered whether ITC and ITT should be regarded as separate markets or as part of the same market. It has then considered whether other possible substitute products should be included in the market.

5.8 Ofcom believes that ITC and ITT are part of the same market. This is because it believes them to be sufficiently close substitutes that a price increase in one would be constrained by switching to the other.

5.9 Ofcom has considered whether operators using ITT could switch to ITC in response to a small price increase and vice versa. Ofcom believes that, if a monopolist supplier of ITT increased its price, a terminating (or originating) operator initially purchasing ITT would be able to switch to purchasing ITC. If there is an existing connection between the terminating and originating operators the terminating (or originating) operator could easily purchase ITC from the other operator or provide ITC itself. If there is no such connection, which may be why an ITT supplier was initially chosen, substitution depends on the economic viability of building interconnect links between the two providers. This is dependent on the volume of traffic that is expected to flow between them. At large volumes of traffic, this cost is justified and ITC could therefore act as a constraint on the pricing of ITT services. As ITC involves one less switching stage, it is likely to be cheaper than ITT over the same distance and traffic volumes. Therefore, switching to ITC could constrain the price of ITT.

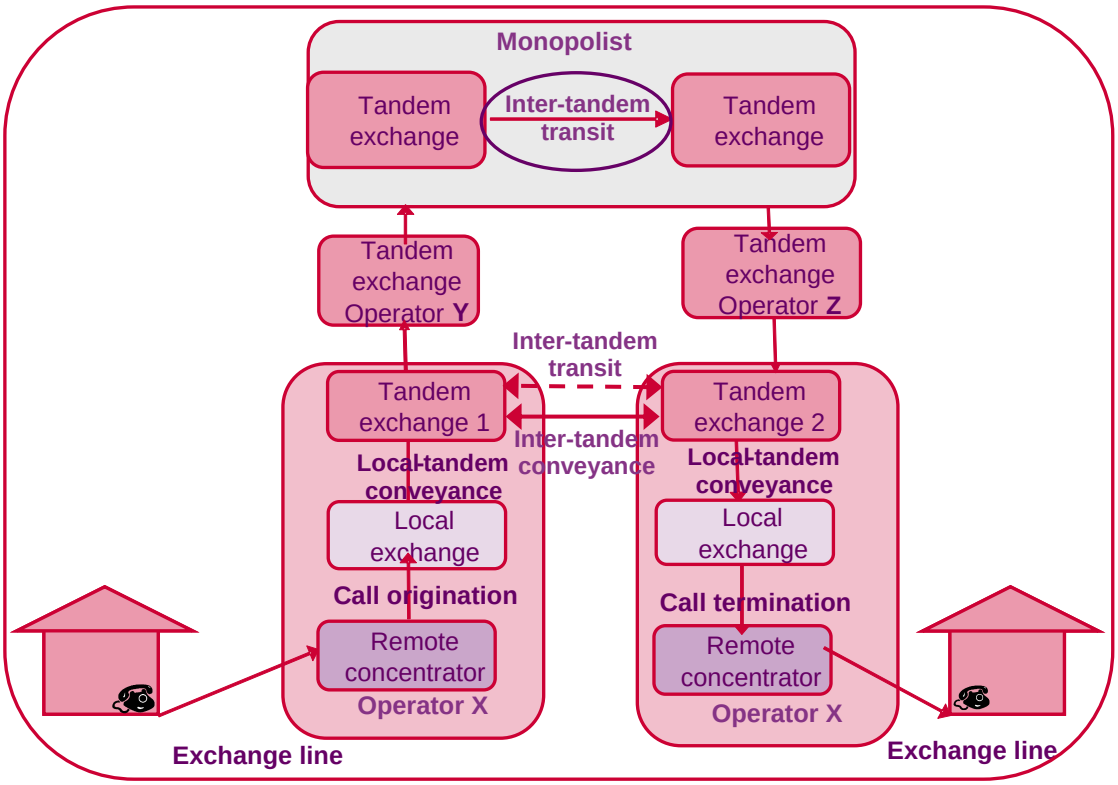
5.10 If a monopolist supplier of ITC (e.g. the terminating operator) increased its price, an originating operator could switch to purchasing ITT if a transit operator was directly connected to both itself and the terminating operator. As ITT involves an additional switching stage, ITT involves higher costs for the same distance and traffic volumes. However, these costs are unlikely to be significant over larger volumes and longer distances. Therefore, switching to ITT could constrain the price of ITC.

5.11 The above discussion concerns demand-side substitution; that is, switching by customers. In addition, supply-side substitution may be possible because an operator providing ITC over its own network could also provide ITT to other operators connected at its tandem exchanges. An operator providing ITT services could also provide ITC for calls that originate and terminate on its network.

5.12 In the following example (see Figure 5.4), a monopolist is assumed to be providing ITT for the transmission of traffic between providers Y and Z. However, the price which it could charge for ITT is constrained by the ability of originating operator X to provide a competing service by supply-side substitution. Operator X is initially providing ITC for traffic originating or terminating on its network to providers Y and Z at different tandem exchanges. However, it would also be in a

position to provide ITT between those tandem exchanges for traffic between Y and Z.

Figure 5.4 Supply-side substitution from ITT to ITC



5.13 Similarly, an operator offering ITT would easily be able to provide ITC for calls originating and terminating on its own network. Alternatively, in response to a rise in price of ITT, the originating operator purchasing ITT could decide to provide ITC itself, if the cost of building a direct connection with the terminating operator was justified by the volume of traffic.

5.14 Therefore, Ofcom is of the view that ITT and ITC services can be regarded as part of the same market.

Impact of 21CN on the market definition of ITC/ITT

5.15 As discussed in Section 3, BT intends gradually to replace the PSTN with its 21CN over the period of the next network charge controls, during which time there will be parallel running of both PSTN and 21CN. BT may then be able to provide a service equivalent to ITC or ITT but routed partly over the 21CN. BT could, for example, route the call from a tandem switch on the PSTN to a metro node (on the 21CN) and then to another PSTN tandem switch. In doing so, it would be providing a service similar to inter-tandem conveyance. If both services were available and the customer was able to exercise choice, it is clear that it would regard the two services as substitutes. As long as the customer receives the same service at the same price, the customer would be indifferent to the technology by which it is delivered. Note that the customer does not need to make any modifications to its network in order to receive services which are

routed over the 21CN but delivered to the same locations and using the same interfaces as the PSTN service.

5.16 Hence, ITC provided on the PSTN only, and conveyance between tandem exchanges provided partly through 21CN, are the same services and therefore are, in Ofcom's view, in the market for ITC/ITT.

5.17 Ofcom has also considered whether a service provided wholly over the 21CN but performing a broadly similar function to ITC or ITT would be in the same market. The closest substitute appears likely to be an inter-metro node conveyance (or transit) service. The question then is whether there is likely to be substitutability between inter-metro node conveyance and ITC such that they can be considered as part of the same market.

5.18 Whether this is the case is likely to depend on whether metro nodes are co-located with existing tandem exchanges and on the interfaces used to interconnect at the metro nodes. Ofcom believes that, for the purposes of this review, inter-metro node conveyance (or transit) should not be regarded as a sufficiently good substitute for ITC and ITT to be regarded as part of the same market. As with metro-node origination and LTC/LTT, this is because:

(a) based on early provisional information on metro node locations, it seems likely that many metro nodes will be in different geographical locations than the existing tandem exchanges and hence building out to the new locations may involve significant cost;

(b) the technical interfaces available at metro nodes are expected to be different to those available at existing switches. In particular, it is currently anticipated that there would be an IP voice interconnect and C7 (ISUP) interfaces available at metro nodes, but not IUP[17]. To effectively utilise an IP interface an interconnecting operator will need an IP voice network of their own. If the operator does not already have an IP voice network, then implementing this solely to use metro node interconnect is likely to be a very significant cost. Currently a relatively small number of operators have a core IP voice network that could be used for IP voice interconnection. However, this situation seems likely to change over the coming years as more operators implement next generation networks; or

(c) alternatively, interconnecting operators may be able to use a C7 interface at the metro node. However, this is likely only to support the ISUP variant of C7, and several operators currently using IUP may need to incur significant costs to change to ISUP.

5.19 In summary, for many operators, the cost of switching interface may be significant in relation to a small rise in the price of ITC on the PSTN.

5.20 As both PSTN and 21CN are operated by BT, supply-side substitution is not a relevant factor. BT would clearly not wish to undermine its own price increase by such means.

17 http://www.btwholesale.com/content/binaries/our_business/media_information/21c/working_groups/legacy_interconnect/21cn_legacyinterconnection_work_group.ppt

5.21 Even if substitution at the wholesale level, between conveyance over the PSTN and 21CN, is not possible, it might still be that both 21CN and PSTN products should be placed in the same market. This would be the case if substitution between customers at the retail level meant that there was a common constraint between the charges for PSTN based services and those for 21CN-based services. However, since both types of services would be offered only by BT, this would not really affect the analysis of market power for which the definition of the relevant market is required. In view of this, Ofcom does not consider them as part of the same market for the purposes of this review. When new interconnection products are introduced, the inclusion of those products within the markets defined in this review will be considered, or new markets will be defined at that point.

5.22 Therefore, on the basis of the current information available to Ofcom about the likely nature of metro node interconnection, Ofcom has concluded for the purposes of this review that ITC and ITT are in a separate market to inter-metro node conveyance.

Conclusion

5.23 Ofcom's provisional conclusion in the consultation document was that the relevant market is inter-tandem conveyance and inter-tandem transit on fixed public narrowband networks. To clarify, the market definition refers to services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN (see also paragraphs 5.15 to 5.16).

Mobile substitution

5.24 The Narrowband Market Reviews discussed that, although mobile providers are now increasingly building direct interconnections instead of purchasing traffic from BT, there was no evidence that this would constrain the prices of fixed transit by a hypothetical monopolist on fixed networks. BT has recently reiterated that it believes mobile-to-mobile traffic should be considered as part of the market since mobile providers were switching from fixed transit to direct interconnections.

5.25 Ofcom believes that the most appropriate treatment of mobile to mobile traffic which has switched to direct interconnections, for the purposes of assessing competitive conditions for those still purchasing ITC or ITT, is that it is not included in the market. On the demand side, it seems likely that any effect on prices arising from the possibility of such switching away by some large mobile providers will already have been visible in prices and BT has not provided evidence of any additional effect. On the supply side, a mobile communications provider can only enter the market for fixed transit at some cost, which includes the cost of the network (especially configuring the switches to carry fixed traffic), and systems for dealing with wholesale customers, including billing and management. Additionally, a mobile provider may need to have sufficient spare capacity on its own network in order to be able to provide third party transit; even if it were so, there may simply not be sufficient traffic that may make returns on the investment worthwhile. Finally, given the differential between the current charges for carrying fixed traffic and the charges for mobile traffic, it is unlikely that mobile operators will have a commercial incentive to start supplying fixed transit.

5.26 Ofcom retains the view held in the Narrowband Market Reviews that there is not sufficient demand or supply side substitution from mobile to fixed conveyance and transit to constrain the price of a hypothetical monopolist in ITC/ITT or single transit.

Geographic markets

5.27 The Narrowband Market Reviews defined a national market for ITC/ITT based on the argument that it was difficult to establish the boundary of areas with different competitive pressures and that BT's uniform pricing of ITC/ITT was a reasonable argument for defining a national market. BT responded to this by saying that it believed that competition varied widely among different geographical areas within the UK and it was therefore essential to take into account the geographic dimension in analysing UK markets.

5.28 Ofcom has analysed the competitive conditions between different areas based on the connectivity of different providers to BT's tandem exchanges and has found that, for a majority of inter-tandem routes, there were more than five different communication providers connected and there are almost no routes where fewer than three communications providers were connected. Ofcom therefore concluded provisionally in the consultation document that the competitive conditions are fairly homogenous among different geographic areas within the UK.

5.29 Ofcom is of the view that this homogeneity across regions provides a reasonable case for considering that there are similar competitive conditions across regions which means that all the regions can be considered to be part of the same market. Ofcom believes that the market for ITC/ITT is a national market and the relevant market is ITC/ITT in the UK excluding the Hull area.

Provisional conclusions on the relevant market

5.30 For the reasons set out above, Ofcom considered in the consultation document that the relevant market is inter-tandem conveyance and inter-tandem transit on fixed public narrowband networks in the UK excluding the Hull area. This is the same definition that was identified by Oftel in November 2003.

5.31 To clarify, the market definition refers to services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN (see also paragraphs 5.15 to 5.16).

Forward look

5.32 In proposing the above market definition, Ofcom considered that, on the basis of currently available information, it had fully taken into account likely competitive and technical developments that might affect the market definition over the period of the new NCCs. On this basis, any development of services wholly on 21CN did not appear to be part of the above market during the period of the new NCCs; however Ofcom indicated that it will continue to monitor developments in this area.

Relationship between this market definition and the Commission's Recommendation

5.33 The European Commission has, in its Recommendation (point 10 of the Annex), defined the following as a relevant market in accordance with Article 15(3) of the Framework Directive:

> "Transit services in the fixed public telephone network. For the purposes of this Recommendation, transit services are taken as being delineated in such a way as to be consistent with the delineated boundaries for the markets for call origination and for call termination on the public telephone network provided at a fixed location"

5.34 Ofcom has proposed two different market definitions for transit services and in doing so has given careful consideration to the Commission's definition and the three criteria set out in the Explanatory Memorandum to the Recommendation (section 3.2), namely:

- barriers to entry and the development of competition;
- 'dynamic aspects', ie whether the market has characteristics that will tend towards effective competition; and
- the relative efficiency of competition law and complementary ex ante regulation.

5.35 In proposing market definitions, Ofcom gave particular consideration to the first two criteria. While the Commission has identified a single market that includes all transit services, Ofcom considered it necessary to define separately the ITC/ITT market and the single transit market, because it was of the view that different competitive conditions are present in the supply of these services in the UK. Competitive conditions differ in these two markets because entry barriers are much higher in the single transit market due to the high level of connectivity necessary to supply single transit services. This also means that it is less likely to have 'dynamic aspects' and tend towards competition. The relative efficiency of competition law and complementary ex-ante regulation is discussed in Annex 2.

Assessment of SMP in the market for ITC/ITT

5.36 As explained above, Ofcom proposed in the consultation document that the identified services market should be inter-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area. Paragraphs 5.37 to 5.104 therefore set out Ofcom's assessment of SMP in that wholesale market. The SMP analysis is based on the evidence currently available to Ofcom. In particular, this analysis will focus on single firm dominance, particularly in the light of the current relevant market power determination made in respect of BT in November 2003.

5.37 Again, it is to be noted that Annex 2 sets out further detail of this second stage of a market review, including details of the approach used to assess SMP. In Ofcom's view, the main criteria for the assessment of SMP in the above-mentioned market are:

- market shares;
- ease of market entry;
- economies of scale;

- pricing and profitability;
- overall size of the undertaking;
- absence of or low countervailing buyer power;
- easy or privileged access to capital markets/financial resources; and
- switching costs.

Market shares

5.38 Ofcom has been provided market share information by BT, and used that to calculate the following market shares.

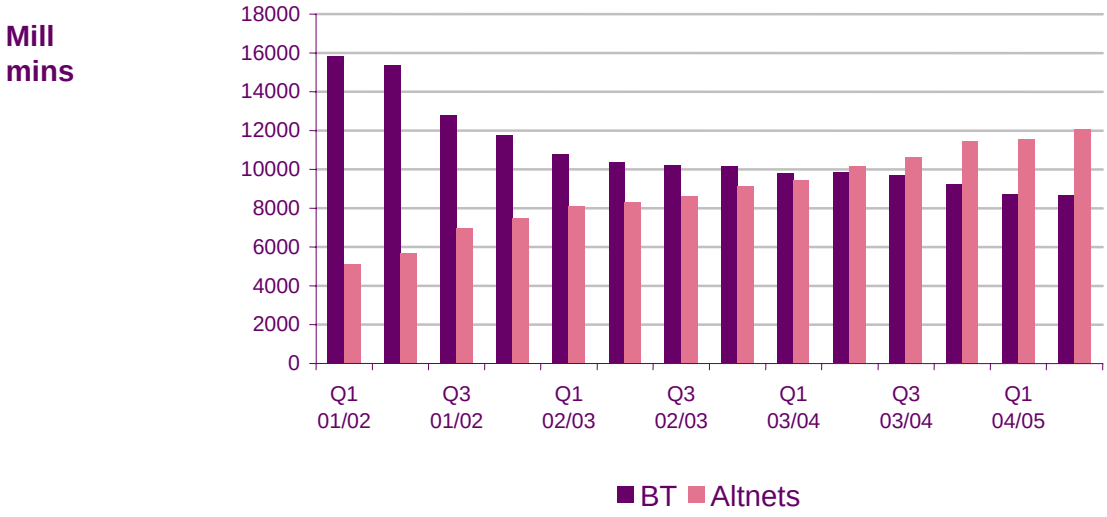
Table 5.1 BT's market share of ITC and ITT minutes

	2001/02	2001/02	2001/02	2001/02	2002/03	2002/03	2002/03	2002/03
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
ITC/ITT	75.5%	73.0%	64.8%	61.3%	57.1%	55.5%	54.2%	52.7%
	2003/04	2003/04	2003/04	2003/04	2004/05	2004/05		
	Q1	Q2	Q3	Q4	Q1	Q2		
ITC/ITT	51.0%	49.2%	47.7%	44.6%	42.9%	41.8%		

Source: Ofcom estimate using BT's data

5.39 Over time, many providers have built out to BT's tandem exchanges and are providing ITC themselves or providing ITT to third parties. As can be observed in Figure 5.5 below, BT's share of ITC/ITT has been falling since the beginning of the current charge control period. In addition, the size of the transit market has reduced considerably, as providers have built out connections to BT's tandem exchanges and therefore need to rely less on transit from BT of third party providers' traffic.

Figure 5.5: Wholesale volumes of ITC and ITT



Source: Ofcom estimate based on BT data

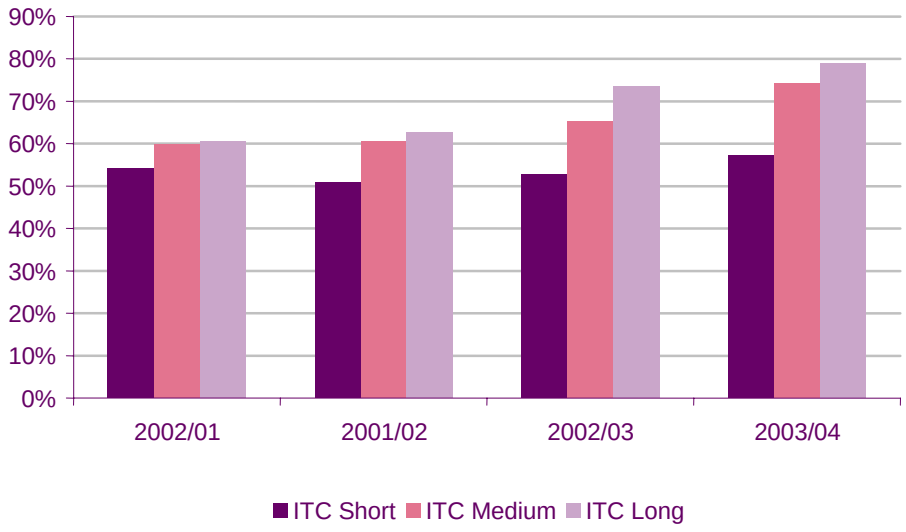
5.40 According to BT the increase in ITT volumes in the first two quarters of 2004/05 is due to two developments:

(a) Mobile operator Hutchison 3G (UK) Limited ("H3G") is currently using BT for transit. The existing mobile operators have fully interconnected networks, so have less need for BT-provided transit. However, as H3G is relatively new, the same level of interconnection is not available. In conjunction with H3G's recent marketing campaigns, which have caused an increase in take-up, this has led to higher transit volumes. It seems unlikely that this will continue into the future as H3G will probably increase its direct interconnection over time.

(b) One particular provider is offering an international service to a large number of countries, based on number translation services ("NTS"). A customer from a fixed line or a mobile will dial the NTS number, then dial the international number to be connected worldwide. This new service, which started almost a year ago, has led to an increase in transit traffic. Based on past experience with other such providers, once providers achieve a certain scale, they are likely to replace transit with conveyance over their own network.

5.41 Ofcom is of the view that the above points made by BT carry some merit and that it is reasonable to assume that the growth in BT's ITT volumes is unlikely to persist. In addition, the size of the market has fallen because providers of non-fixed networks, particularly mobile networks have now chosen to establish direct interconnections rather than purchase transit through fixed networks. This is the case with the larger mobile providers who have achieved a scale of traffic that has made possible the establishing of direct interconnections among themselves. This can be observed from the following figure, which shows that the largest user of ITC provided by BT's wholesale division is BT's retail division. This figure shows that, not only has BT's share of the ITC/ITT market fallen, but much of the remaining ITC sold by BT is to itself (or BT Wholesale to BT Retail), particularly for long distances.

Figure 5.6 BT's Retail's share of ITC sold by BT Wholesale



Source: BT

5.42 Ofcom's view is that the information on market shares suggests that BT's market power has been reducing in this market. This suggests that competition has been increasingly effective in this market.

Ease of market entry

5.43 Ofcom believes that there are fewer entry barriers in the market for ITC/ITT than in the LTC/LTT market, because there are fewer tandem exchanges than local exchanges (106 tandem exchanges versus 746 local exchanges) to which providers have to connect. In addition, the greater aggregation of traffic generally possible on inter-tandem routes tends to make it more economic for smaller operators to interconnect at the tandem level rather than the DLE.

5.44 There are a number of providers with a high level of connectivity to BT's tandem exchanges. As discussed in 5.28 above, there are hardly any routes where fewer than three communication providers are present. These providers have typically built out to those tandem exchanges for the transmission of their own traffic in order to self-provide ITC rather than purchasing it from BT.

5.45 The Narrowband Market Reviews discussed that establishing direct connections with other providers involves significant investment and is only justified where there is sufficient flow of traffic between the two providers, and that achieving sufficiently high volumes is in practice inhibited by the fact that BT originates and terminates the largest volume of calls. Therefore, most traffic will flow to and from BT's network and not between other providers' networks.

5.46 However, a number of providers have built out connections to BT, even if they have not built out connections to other providers. This means that they are able to replace purchasing conveyance from BT with their own conveyance as long as the traffic flows between their networks and BT's network. However, where traffic originates and terminates on networks other than BT, there is lack of sufficient interconnection between such networks and providers have to purchase transit from BT. Ofcom believes that such transit is purchased from BT, but this is now single transit and not ITT. That is, where most providers are connected to BT at the same tandem exchange but not to each other, providers will need to purchase single transit to connect with each other. Therefore, some part of ITT has been replaced by single transit (see Annex 5).

Economies of scale

5.47 There are significant economies of scale that characterise fixed communications networks, where total costs are minimised at large levels of volume. In particular, for providers to exploit economies of scale, they must be able to achieve a high utilisation of their interconnect links which is only possible with large volumes of traffic.

5.48 Apart from a few large providers, most providers that are present at the tandem exchanges are of smaller size and carry smaller volumes of traffic. Therefore, they cannot benefit from the same economies of scale as BT. However, despite this fact, providers have built out to the tandem exchanges for purposes of carrying traffic originated or terminated from BT and some other large providers.

Pricing and profitability

5.49 The ITC/ITT market was subject to a safeguard cap of RPI+0% in the first NCCs (1997-2001) and this regulation was continued for the current NCCs (2001-2005). As discussed above, the level of connectivity that different providers have achieved with respect to BT's network has been substantial. It is therefore useful to consider if the participation of other providers in downstream services has constrained BT's prices to competitive levels.

5.50 This can be examined by considering if the RPI+0% cap on BT is binding. BT offers ITC and ITT services at prices differentiated by distance. Therefore, both ITC and ITT are sold by short distance (less than 100 km), medium distance (100-200 km) and long distance (200 km and above). BT is required to comply with a safeguard cap of RPI+0% for each of the services within ITC and ITT. As can be observed from the following tables for 2002/03, 2003/04 and 2004/05, the cap on BT's charges for both ITC and ITT was binding in 2003/04, but was not binding for ITT in 2002/03 or for ITC in 2004/05 (in both cases, the increase compared with the previous year was less than the increase in the RPI). BT's prices show that at some point in the charge control, it has reduced prices well below the cap and met with the cap for the other periods. In general, it appears as if BT has responded to competition by lowering prices.

Table 5.2 BT Price changes in ITC and ITT

ITC - Price changes 2001/02 - 2002/03 (RPI = 1.04%)			
	Daytime	Evening	Weekend
Short	1.04%	1.00%	1.04%
Medium	1.03%	1.02%	1.09%
Long	1.03%	1.03%	1.04%

ITT - Price changes 2001/02 - 2002/03 (RPI = 1.04%)			
	Daytime	Evening	Weekend
Short	-7.69%	-7.76%	-7.71%
Medium	0.00%	0.00%	0.00%
Long	0.00%	0.00%	0.00%

ITC - Price changes 2002/03 - 2003/04 (RPI = 2.9%)			
	Daytime	Evening	Weekend
Short	2.88%	2.88%	2.85%
Medium	2.91%	2.92%	2.83%
Long	2.90%	2.88%	2.84%

ITT - Price changes 2002/03 - 2003/04 (RPI = 2.9%)			
	Daytime	Evening	Weekend
Short	2.88%	2.93%	2.88%
Medium	2.90%	2.90%	2.86%
Long	2.89%	2.87%	2.89%

ITC - Price changes 2003/04 - 2004/05 (RPI = 3%)			
	Daytime	Evening	Weekend
Short	0.04%	-0.09%	0.00%
Medium	0.00%	-0.05%	0.00%
Long	0.02%	-0.03%	0.04%

ITT - Price changes 2003/04 - 2004/05 (RPI = 3%)			
	Daytime	Evening	Weekend
Short	3.03%	2.99%	2.98%
Medium	3.03%	3.02%	3.05%
Long	3.04%	3.05%	3.02%

Source: Ofcom

5.51 While BT's profits have been higher than the regulated return on capital in this market, Ofcom is of the view that, given the relative ease of entry into ITC/ITT, this can encourage entrants to compete away these profits.

Overall size of the undertaking

5.52 BT's network is spread over approximately 5,600 local exchange concentrators and 746 local exchange processors. BT's fully meshed national network of 106 tandem exchanges provides national connectivity. It has the majority of exchange lines to retail consumers in the UK and 79% of calls originate on its network. A significant number of these calls are BT-to-BT calls where the call does not leave BT's network and BT provides all the wholesale conveyance services necessary to convey the call, such as LTC and ITC.

5.53 However, BT's ubiquity has not prevented it from losing market share in the ITC/ITT market and the increased connectivity of other providers will limit BT's ability to raise prices significantly above the competitive level.

Absence of or low countervailing buyer power

5.54 BT's retail activities continue to be the largest purchaser of ITC services and therefore BT is the only provider that theoretically would be able to exert countervailing buyer power in areas such as ITC long.

5.55 However, for ITC short and medium and ITT, the fact that many operators are already using their own connections rather than purchasing from BT shows that their decisions can exert some constraining influence in BT's ability to set excessive charges. Therefore, there may be some buyer power.

Easy or privileged access to capital markets/financial resources

5.56 BT is a large and well-established company with a long track record and a relatively diversified business and is perceived to have stable cash flows. It has a good credit rating and investors are likely to view the company as a less risky proposition than many relatively newer entrants. It is therefore likely that BT would face lower borrowing premiums than its competitors. Ofcom is of the view that BT continues to be seen as a more stable organisation than its competitors.

Switching costs

5.57 Switching costs (i.e. costs of changing to another operator) are particularly relevant to ITT. Since most operators are already connected at BT's switches at the tandem level, connecting to other operators who are also present at the same tandem exchange is not a high cost for a reasonably large scale of traffic. However, since the majority of traffic either originates or terminates on BT's network, no two operators (other than BT) are likely to have a large scale of traffic between themselves. Therefore, anybody wishing to switch from ITC to ITT would need to purchase single transit in order to be able to connect to the third operators' switches. This might impose some costs on switching providers. In addition, there may be smaller providers who either are connected only in remote areas where there is little alternative connection, or for whom building a link to other operator is not effective.

Forward look on the SMP assessment in the ITC/ITT market

5.58 The Narrowband Market Reviews stated the view that BT continued to have SMP in the market for ITC/ITT. Therefore, it was considered that a safeguard cap was an appropriate regulatory measure to prevent BT from exercising its market power.

5.59 However, Ofcom is of the view that not only has BT's market share in ITC/ITT reduced, but that volumes have been significantly reduced as communications providers build out direct interconnections rather than purchasing conveyance/transit from third party providers (as discussed in 5.39). Further into the period of the new NCCs, the volume of ITC/ITT is only likely to reduce as providers may reduce their dependence on BT. Ofcom is of the view that by the end of the new NCCs period, the size of the ITC/ITT market will be relatively small. Additionally, the safeguard cap has not been binding in some years, and prices have been well under the cap.

5.60 Given this, Ofcom is of the view that BT's ability to raise prices will be reduced further as BT loses market share in a dwindling market. Continuing moves to self-provision can act as a constraining influence on BT's ability to raise prices profitably. Ofcom therefore believes that on a forward look basis, BT is unlikely to have SMP in the market for ITC/ITT.

Consultation document provisional conclusions on SMP

5.61 As shown from the above, in the consultation document Ofcom analysed SMP in the ITC/ITT market under the criteria set out in the Commission's Recommendation. Ofcom believed that there were few entry barriers in this market and that several providers have achieved significant connectivity at BT's tandem exchanges. For this reason, BT's market share has been falling and then stood at around 41%. Ofcom was of the view that BT has in the past responded to competition in this market by lowering prices of ITT and ITC (short), and will continue to do as providers choose to self-provide after achieving a required level of scale. Based on its analysis, Ofcom was of the view that BT no longer has SMP in the market for ITC/ITT.

5.62 As a result, Ofcom proposed to make a market power determination to the effect that BT no longer has SMP in this market.

Consultation comments and Ofcom's conclusions

5.63 Paragraphs 5.64 to 5.102 below set out consultation respondents' views, and Ocom's response, to two specific questions asked in Section 3 of the consultation document.

Question 4: Do you agree that the relevant market for consideration is the national market for inter-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area?

5.64 The main issues raised in consultation again concerned the position of 21CN interconnect services and the geographic definition of the market.

5.65 Energis reiterated its view that 21CN interconnect services should be considered as substitutes to PSTN presented services. C&W however agreed with Ofcom's proposed market definition and, as for LTC, stated that services provided via 21CN interfaces will not form part of the same market in the near future. UKCTA also agreed with Ofcom's proposed market definition, while wanting Ofcom to continue to assess market definitions as further information becomes available.

5.66 In response to Energis' point, Ofcom has explained when discussing the LTT/C market, that without knowledge of the costs and prices of services on the 21CN, Ofcom's view is that 21CN services should not be regarded as part of the relevant market for the purposes of this review.

5.67 O_2 disagrees with Ofcom's reasoning that the market for ITC/ITT is national. O_2's view is that BT faces significantly less competition in rural areas, where traffic levels are lower and the business case for establishing an interconnection is weaker. O_2 believes that a properly conducted SSNIP test is likely to demonstrate that there are in fact, a series of smaller geographical markets.

5.68 On O_2's point, Ofcom noted in its consultation document that in order to substitute ITC with ITT, an originating operator must be directly connected to both the originating and the terminating operator. Therefore, a transit operator must be present at both the originating end and the terminating end of the route. Since all operators purchasing ITC or ITT from BT are likely to be interconnected to BT's tandem exchanges, the connectivity at those tandem exchanges is relevant for the purposes of market definition.

5.69 Ofcom stated in the consultation document that it had undertaken an analysis of the competitive conditions at different tandem exchanges, based on the connectivity of different operators at those exchanges. Ofcom found that for a majority of inter-tandem routes there were five providers other than BT, and that almost no routes had less than three providers. During the consultation BT provided further information to Ofcom of the extent of connectivity, which is discussed below. This analysis, showing the connectivity between different pairs of cities, is provided in a separate annex. The connectivity is based on the aggregation of DMSU and NGS switches within each city[18].

[18] see the analysis at http://www.ofcom.org.uk/consult/condocs/charge/statement/ncc.pdf. Even if operators are not based in cities, they would have a connecting switch to a city node.

5.70 BT has in excess of 100 tandem switches, located at 66 different sites, as many of the sites have multiple tandem switches present. This gives almost two thousand different routes between pairs of sites. Other operators have built their networks to all these sites, as illustrated by table 5.3 below (provided by BT).

Table 5.3 Competing operator connections at BT sites

No. of alternative operators	Number of sites	Percentage of sites	Cumulative percentage of sites
0	0	0	
1	1	2%	100%
2	4	6%	98%
3	3	5%	92%
4	10	15%	87%
5	6	9%	72%
6	8	12%	63%
7	2	3%	51%
8 or more	32	48%	48%

Source: BT data

5.71 As can be seen from Table 5.3, 90% of tandem switch sites have three or more operators that have a network presence at that site. Not merely are many operators connected at each tandem switch, but at least one operator other than BT is present at each end of an inter-tandem route in most cases. Three fixed operators are connected by means of in-span interconnect at each end of more than 60% of these routes. If connection via customer-sited interconnect and interconnect extension circuits is included, then six operators would be connected at each end of more than 60% of routes and nine at more than 50%. At least one operator is connected at each end of 97% of routes. This supports BT's consultation response observation that switch-build suggests fairly homogenous competitive conditions.

5.72 Given the number of routes it has not been practicable to analyse market shares by route. However, 95% of traffic is carried on routes where there are three operators other than BT connected at each end. This suggests that the great majority of traffic is carried on routes where there is a significant degree of competition. While, therefore, it is possible that that there is some variation in competitive conditions within the national market, the available evidence does not support the definition of separate geographic markets. Ofcom has however taken account of possible variations in competitive conditions in considering BT's proposals for the future of its ITC and ITT services, as discussed further below.

5.73 In addition, Ofcom believes that operators do not need to be connected to each other at every BT tandem exchange in order to be able to provide a competing service at every tandem exchange. Alternative network operators can route a call indirectly rather than directly, although this might increase the cost due to a longer routing. However, in the event of a hypothetical monopolist raising prices for ITT between exchanges A and B, a potential supply side substitute for an operator not connected to the A and B route at point A may be able to route the call from B to another point, C, and from there to A. Whether this might be feasible can only be judged by the length of the indirect routing; however Ofcom believes that some operators may find this a reasonable option.

5.74 On the demand side, any operator faced with high ITT charges but not connected to an alternative transit operator can still purchase single transit from BT in order to connect to the alternative operator. Single transit has been a regulated service; and indeed Ofcom is concluding that it should continue to be regulated. The cost of single transit and the extra switching cost might yet be lower than the 10% increase in the price of ITT associated with an SSNIP test.

5.75 Ofcom is of the view that, as far as the product market definition is concerned, the terms of competition between ITC and ITT are similar and hence the two services are part of the same product market. As far as the scope of the geographic market is concerned, ITC provided by BT between any two tandem exchanges is constrained all over its network by the self-provision of other providers. To a significantly large extent, the same holds true for ITT as well.

5.76 On balance, Ofcom believes that there are reasonable grounds for concluding that the relevant geographic market for ITC/ITT is national.

5.77 However, Ofcom will continue to monitor developments and prices to observe if geographic price differentials emerge and therefore warrant revisiting the analysis.

Question 5: Do you agree with Ofcom's provisional conclusion that BT does not have SMP in the national market for inter-tandem conveyance and transit on fixed public narrowband networks?

5.78 BT agrees with Ofcom's view that BT does not have SMP, and has provided information to Ofcom on tandem exchange connections and services being offered by other providers in transit and conveyance. This has already been discussed above, in the context of geographic market definition. Widespread connectivity and an overall BT share of 40% do not suggest that BT has SMP. Moreover, of the 40%, about 60% is BT-BT traffic, suggesting that most other operators' traffic must already be using alternative networks to a significant extent.

5.79 Cable and Wireless ("C&W") has responded that although several operators are interconnected to BT's tandem exchanges, they do not have sufficient spare capacity to accommodate all traffic from BT's conveyance and transit services. It stated that the move to 21CN and BT's scale and ubiquity means that alternative operators would not find it commercially feasible to expand capacity where the transit volumes are low. This means that some terminating operators will have to transit BT at some point and using an alternative operator would be uneconomic. It is suggested that BT's ubiquity in upstream interconnection can be leveraged into the ITT market (unlike ITC), thus rendering some routes uncompetitive. C&W believes that BT's SMP should be retained and that, as a minimum, price publication and non-discrimination obligations should remain.

5.80 Further, Energis and Thus make the point that purchasing ITC/ITT from (multiple) non-BT sources is not economic because of extra interconnection costs to set up the service and billing and administrative costs, all of which are not justified at lower volumes. They are concerned that, with no regulation, BT's wholesale division could discriminate against similar operators or simply refuse to supply. They also make the point that low entry barriers are irrelevant, as BT's 21CN changes mean that alternative operators would not risk building more connections.

5.81 O_2's view is that with a market share still in excess of 40%, BT should be presumed to have SMP. O_2 adds that BT's prices have for the most part been pegged by the price cap and BT's pricing behaviour displays an ability to set prices independently of other competitors and customers. Additionally, O_2 states that other operators do not price according to their costs.

5.82 UKCTA also disagrees with the analysis on SMP in ITC/ITT, stating that market shares are not enough to conclude that the market is competitive, and that it cannot be assumed that the decline in market share will continue because of the uncertainty regarding 21CN. SSE similarly believed that the advent of 21CN should mean that SMP should be retained as a precautionary step. UKCTA was concerned that there is an opportunity for BT Wholesale to discriminate in favour of BT Retail, because it is vertically integrated. UKCTA believes that this would have a negative influence on BT's equivalence of inputs in downstream markets. It considers that the issue of deregulation should be assessed through an RIA. It also believes that SMP should be retained but only transparency and price discrimination remedies should apply.

5.83 Vodafone says that its reading of BT's pricing shows that BT has in most years felt able to increase its prices, particularly for the longer inter-tandem routes and Vodafone cannot see how this pattern can be construed to be unambiguous evidence of price competition. Vodafone considers that in regions where there is little self-provision by alternative operators, the ability of smaller operators to switch from BT is limited. Vodafone is of the view that BT has SMP in ITT and ITC in some parts of the UK and, unless restricted through some form of price control, BT could raise prices without losing significant volumes. Vodafone indeed believes that an RPI-RPI control is more appropriate, along with a longer notification period for price changes. Ofcom considers that it has effectively covered the point on geographic differences in SMP within its final conclusions on the ITT/C market definition.

5.84 The responses above indicate that the industry is of the view that although BT's ITC can be constrained by the self-provision of other providers, not all providers can self-provide from every tandem exchange. Some operators with a relatively small scale of traffic may find it necessary to connect to others using transit from BT because this may be cheaper than building out to other operators. For such operators, ITT provided by BT may not be constrained by the self provided ITC for the above-mentioned reason. The only other constraint can be in the form of ITT provided by other providers.

5.85 According to many in the industry[19], there are two reasons why a competing service to BT may not be possible at all tandem exchanges:

(a) Alternative operators do not have direct connections with other operators and building capacity is uneconomic because of the limited scale of such ITT traffic; and
(b) Operators who have the interconnection may not be able to provide ITT because they have built capacity for their own needs and lack spare capacity.

[19] Energis, Tiscali, C&W and Thus have made these points in response to Ofcom's queries subsequent to the consultation.

5.86 Regarding the issue raised in 5.85(a) above, Ofcom notes that BT's market share of ITT was only 37% in the third quarter of 2004/05 and has shown a declining trend (except for the last three quarters, which, as discussed in the consultation document, is the result of 'H3G' purchasing ITT before it builds out more connections and an NTS operator offering international services that is purchasing ITT before self-providing).

Table 5.4
BT's market share in ITT

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
	2002/03	2002/03	2002/03	2002/03	2003/04	2003/04	2003/04	2003/04	2004/05	2004/05	2004/05
ITT	41.2%	39.0%	37.0%	36.0%	36.0%	37.5%	35.3%	32.9%	34.6%	35.7%	37.0%

Source: Ofcom calculation from BT data

5.87 Ofcom is of the view that over the years, alternative providers have increased their aggregate sales of ITT and hence, in general, the argument that ITT by other providers not being able to constrain BT's ITT prices is not convincing. However some respondents have argued that there may be some local individual tandem exchanges where alternative providers may not be able to provide ITT to others because of the need to build new connections, which, at low traffic volumes, may not be economic. If this were the case, they argue that it would not be appropriate to lift SMP at these tandem switch exchanges.

5.88 The concern that the lack of effective constraints on BT's ITT at particular tandem exchanges can be explained in terms of supply and price:

(a) BT could refuse to supply the product to providers who can only depend on BT for transit; and
(b) BT might raise the price of ITT for such providers, with little risk of the customer switching to other providers.

5.89 Both of these issues are concerns regarding possible anti-competitive behaviour by BT. Such behaviour would indeed be a concern if BT had SMP. However, as argued in the consultation document, Ofcom believes that the falling market shares in ITC/ITT and the connectivity of other operators implies that BT has no SMP. While BT's market share is still over 40%, it has shrunk considerably and remains on a downward trend. Ofcom has to take into account market dynamics rather than just taking a snapshot of the market, so – in conjunction with other factors – a current market share over 40% should not necessarily imply a finding of SMP. Moreover, as noted above, most of BT's inter-tandem traffic is originated by BT Retail.

5.90 Ofcom therefore believes that such behaviour is unlikely, but that if it did occur, in most instances it should be possible for operators to use a competitive alternative in the event of a price rise or refusal to supply by BT. However, it has explored further with other operators the reason for their concerns. In particular it has sought more details of alleged capacity constraints and their effect on competitive supply of ITT.

5.91 One of the arguments advanced is that the transit charge is too low to make competitive entry to supply transit worthwhile. This argument seems to relate to the installation of new capacity specifically to meet demands for transit. However, it is clear from the reduction in transit volumes that there has been significant investment in capacity for the purposes of self-supply. This is clearly economic at

larger traffic volumes and the possibility that customers will switch to self-supply may have a constraining effect on prices. One operator argued that, while investment might well be viable when there was a clear customer in prospect, more speculative investment in order to carry transit traffic was likely to be uneconomic. However, use of existing capacity is much more likely to be economic, even to supply smaller operators.

5.92 In this context, Ofcom again notes that BT's market share of ITT was only 37% in the third quarter of 2004/5. This in itself suggests that alternative providers have the capacity to offer transit[20]. Ofcom has asked UKCTA members to supply information giving specific examples of routes or exchanges where they lack spare capacity, but has not received sufficient evidence to change Ofcom's SMP analysis. Indeed, with the total reduction in fixed volumes projected over the duration of the NCC, it is quite possible that some existing capacity would be freed up from the conveyance of providers' own traffic to use in providing ITT services to third parties. Given that Ofcom has received no clear supporting evidence for the claim that operators may lack sufficient spare capacity, Ofcom does not view this as a strong argument for an SMP finding. One respondent said that it would consider re-assigning capacity in pursuit of better margins and this is consistent with the existence of a competitive market. However Ofcom will monitor developments in the market and in particular any effect on smaller operators. One operator drew attention to the implications of the charging arrangements for NTS calls and again, it may be appropriate to monitor developments in this area.

5.93 On the point that purchasing ITT/C services from multiple non-BT sources is not viable at lower volumes, no evidence is advanced that any such cost impact would be substantial enough to make other providers uncompetitive. Specifically, and given BT's relatively limited share of transit traffic, there is no obvious reason to think that such costs would be sufficient to outweigh a 10% rise in BT's prices, as considered in a SSNIP test.

5.94 A number of other comments were also made by respondents on market shares and market size. Ofcom does not accept the suggestion (from UKCTA and Energis) that market shares should be given low weight as they are based on BT data, as a reasonable methodology was used. The trend in the figures is, anyhow, quite clear. One respondent suggested that market shares should exclude BT Retail. However, the relevant BT market shares for these wholesale markets relate to sales by BT Wholesale, not to who is purchasing their services. The data suggest that BT's share of non-BT originated traffic is lower that its share of all inter-tandem traffic. It was also suggested that limits on 21CN interconnection points may increase the proportion of traffic using ITC/ITT services; Ofcom considers this point to be speculative.

5.95 Providers have raised the issue of whether BT might have SMP at particular tandem exchanges; again, as discussed above, competitive conditions across the different tandem exchanges are not significantly different. Ofcom does not believe that the possible lower level of competitiveness at particular tandem exchanges provides proportionate justification for an SMP finding throughout BT's network. As discussed earlier, Ofcom believes that it is appropriate to define a national market. However, as also noted above, it will continue to monitor the market.

[20] For instance, some of the transit may be from IA providers who provide ITT for a call originating on BT and terminating on BT.

5.96 Regarding the concern of high prices for ITT, some non-BT respondents commented on the need to have price publication and transparency, but not a charge control or a safeguard cap. This suggests that high prices are less of a concern to some than the possibility of anti-competitive behaviour by BT. It was however remarked by one respondent that ITC/ITT prices were important as they would provide a benchmark for pricing of IP services. However, Ofcom's decision on SMP must be made on the basis of the SMP criteria, not the implications for future prices of services that may not even prove to be in the same market.

5.97 Ofcom stresses that, even in the absence of an SMP designation in this market, providers will still be able to bring evidence of such behaviour to Ofcom's notice for it to consider an investigation under its competition law powers. Indeed, were BT to raise prices in some exchanges, Ofcom can use this as evidence that BT can act independently of its competitors at those tandem exchanges. But Ofcom is of the view that currently, due to BT's decision to price uniformly throughout the country, there is no evidence that BT can act independently at some exchanges and not at others.

5.98 On the point made by UKCTA that BT Wholesale could discriminate in favour of BT Retail, thus having a negative influence on BT's input equivalence, it is important to recognise that Ofcom's conclusions on BT's SMP status in ITC/ITT must rest solely on Ofcom's analysis of that market. The issue of ensuring input equivalence, which Ofcom is looking at in relation to certain parts of BT's business, is not therefore directly relevant to Ofcom's decision on SMP in this market. It would only be appropriate to require BT to provide equivalent ITC/ITT if it had entrenched SMP in that market.

5.99 Energis argued that entry barriers are irrelevant since operators would not risk investing in PSTN given the move to 21CN. Vodafone has also argued that the uncertainty of 21CN hampers the competitive response of alternative providers, and SSE think that SMP should be retained given the pending change to 21CN. Ofcom accepts that 21CN creates some general uncertainty, and associated issues are being considered as part of a related Ofcom project[21] although this does not mean that investment by competing operators will necessarily cease. Ofcom believes that the existing level of competition means that a finding of SMP is not justified.

5.100 O_2 also made the point that other operators cannot necessarily provide a substitute service because they do not price according to costs. Although Ofcom has no knowledge of the pricing policy of other operators, it is of the view that the analysis of market shares shows that a significant number of other operators are providing transit already, thereby proving that they are providing a substitute service.

5.101 Vodafone, O_2 and C&W made comments on past BT price changes in this market to support a proposal that BT still has SMP. For example, Vodafone stated that BT has increased its prices in ITT up to the safeguard cap and that this cannot be construed as a reason that BT has no SMP. Ofcom notes that even though BT might have priced up to the caps in some years, its market share has been falling, which suggests that there has been some competitive response.

[21] www.ofcom.org.uk/consult/condocs/nxgnfc/

5.102 UKCTA raised the point that the decision to deregulate should be assessed through a Regulatory Impact Assessment. However, this misinterprets the role of such an assessment, now called Impact Assessments, or “IAs”, under recently published Ofcom guidelines. An IA is a tool for assessing the appropriate level of regulation, by considering, where possible, the likely costs and benefits of regulatory options. However, in the case of an SMP decision the IA process is only relevant once a decision about SMP designations has been made. If there is no SMP, there is a legal requirement not to have any SMP-related obligations to further promote competition. Only if SMP is confirmed would an IA be relevant in order to assess what specific regulation was appropriate.

Ofcom’s conclusion on market definition and SMP for ITC and ITT

5.103 Having considered consultation responses, Ofcom maintains its consultation document proposals on the market definition:

- there is a single market for ITC and ITT on fixed public narrowband networks;
- the geographic market is the UK excluding the Hull area;
- the market definition covers services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN; and
- 21CN interconnection products are not in the market as defined.

5.104 On balance, Ofcom is of the view that the market for ITC/ITT is competitive, as evidenced by the connectivity and increase in the share of ITC and ITT by alternative providers. While it acknowledges that there may be some variations in competitive conditions within the market, it believes that, in particular bearing in mind the need to operate with a bias against intervention, an SMP finding would not be a proportionate response. It will however monitor the market and could if appropriate use its powers under competition law. BT has also indicated its current thinking on the future of inter-tandem services, should SMP be removed (see paragraphs 6.42 to 6.44).