Vodafone Group Comments on ERG (06) 42 – Draft Consultation Document on IP interconnection

Vodafone welcomes the publication of this consultation, however, key parts of approach advocated are inadequately reasoned and/or not substantiated by evidence.

Ex ante consideration of access to networks

A substantial omission from this consultation is any inclusion of any detailed discussion of the economic context where the types of *ex ante* approaches detailed in the document may be justified. The paper appears to ignore the operation of competitive markets as now exist in much of the European communications sector, in particular, in mobile markets.

Vodafone would urge that the ERG/IRG consider further the economic context in which new *ex ante* approaches to access to networks may be justified. The absence of a more mature discussion of economic considerations means that this document can provide only a partial template for the development of policy.

From Vodafone's perspective the key economic justification to investigate *ex ante* access systematically in advance of market developments is where there is a clear risk of market foreclosure. For Vodafone three criteria must apply before this can be demonstrated:

1/ there is a finding of Significant Market Power in a market or markets supported by existing technology (otherwise there is no economic justification for intervention);

2/ a finding of Significant Market Power has resulted in the imposition of remedies by national regulators. These have been used by alternative operators to offer competing retail services (otherwise there is no practical justification for systematic contemplation of intervention); and

3/ delivery of these services through existing technology has the potential to be very substantially disrupted by a generational change in technology.

The ERG/IRG should apply these tests to its work programme, including on questions relating to Next Generation Networks and new forms of interconnection.

Ex ante consideration of interconnection

More generally, there is a concern that the ERG/IRG may believe that it is appropriate to develop detailed positions on IP interconnection substantially in advance of market participants and without regard for market dynamics.

Vodafone rejects this approach. We would expect that network operators and service providers should develop their service offerings and billing methods in both retail and wholesale markets free from the chilling effect of the imposition of specific models at national or European level.

At a wholesale level there will inevitably be debate between interconnection partners and it is most probable that, with new services, a variety of different interconnection regimes will emerge and contend among each other.

As noted by the ERG/IRG this contention may include elements of arbitrage, however, the simple fact of different approaches does not justify detailed intervention. In particular, the choice of approaches by individual players should not be distorted by the creation of target *ex ante* interconnection or interworking regimes by regulators.

Network modernization – *"Next Generation Networks"*

From Vodafone's perspective there does not seem be any justification for broad regulatory concern regarding the adoption of IP or Next Generation Network technologies by any market participant in core networks including higher network switching layers or by most network operators throughout their entire core and access networks.

The ERG/IRG must be aware that modernization of core transmission and higher network switch layers by the majority of European operators has been ongoing for some time with little in the way of direct commercial or regulatory contention. This includes IP-based modernization programmes by:

- fixed incumbents,
- by alternative fixed operators, and
- by mobile operators.

which have been justified on a number of basis, notably to facilitate new service roll out and to reduce operating costs. These effects emerge into the market as part of a continual process of competitive renewal.

Indeed, for relatively new entrants the types of IP-based technological approach described in the ERG/IRG paper may simply be their technology of choice in core transmission and in higher network switch layers - given their time of entry into the European communications market.

Even where modernization extends from the core network to the access network this has not been, and should not be, of general concern to European regulators. For example, European mobile operators have been deploying 3G / UMTS technology widely and will move forward to deploy Next Generation Mobile Networks (NGMNs) during this decade.

We also expect to see other forms of radio-based access competition such as Wi-Max being deployed in European markets. In these types of competitive markets we expect that technology change will not justify additional regulatory concern.

However, Vodafone acknowledges that there may be a greater justification for *ex ante* consideration in certain limited circumstances. In particular where:

1/ an entity has been found to have Significant Market Power in access and origination markets following a market review;

2/ this finding has resulted in the imposition of remedies by national regulators on which alternative operators have offered competing retail services; and

3/ delivery of these services through existing technology has the potential to be substantially disrupted by a generational change in technology *by the entity with Significant Market Power*.

So we recognize that, where there is a generational change in technology which will affect – potentially multiple – access and origination markets then *ex ante* consideration may be appropriate. However, even in these cases it is not clear that the most effective *ex ante* approach will be micro-regulation as appears is envisaged in this paper.

All European operators should be encouraged to invest and this should include entities with Significant Market Power in access and origination. The fact of a move towards Next Generation or IP Networks by SMP operators in access and origination markets should not result in a flurry of regulatory activity which might discourage this investment.

Vodafone believes regulators' key role should be facilitate an industry-based discussion of the adoption of next generation networks by entities with Significant Market Power in access and origination within a framework of regulatory expectation associated with the adoption of their Next Generation Networks.

This may include five specific themes which regulators should explore:

1/ whether changes in access technology will have an impact on forms of network access offered by an entity with Significant Market Power;

In principle, access may be provided at a number of network levels. Where these differ in practice by generation of technology an entity with Significant Market Power should be free to offer new forms of access subject to i/ the effect of these not foreclosing competition in the relevant markets; and ii/ transition arrangements being offered where alternative operators have invested in current access arrangements which will become obsolete.

2/ whether changes in access technology have an impact on the lowest practical value added network access offered;

Access may be provided at a number of network levels and, in most cases, this should be a matter for market players. However, in terms of maximum effectiveness Vodafone believes that regulators should focus intervention at the level of access which has the *"lowest practical value add".*

That is national regulators - if they believe intervention can be justified at all - should intervene to ensure that there is effective supply of regulated outputs which allow competing alternative operators to self-provide the maximum amount of their own value. This would, for example, prefer regulation to secure local loop unbundling, where economically viable, to securing managed DSL provision. It would prefer distant and virtual collocation to full collocation.

3/ whether changes in access and/or local switching by an entity with Significant Market Power will have an impact on points where interconnection is offered;

Again, in principle, interconnection may be provided at a number of network levels determined by generation of technology. Where these differ in practice by technology an entity with Significant Market Power should be free to offer new forms and points of interconnection subject to i/ the effect of this not foreclosing competition in the relevant markets and ii/ transition arrangements being offered where alternative operators have invested in current interconnection arrangements which will become obsolete.

4/ whether changes in access technology and/or local switching have an impact on the lowest practical value added interconnection services offered;

Interconnection may be provided at a number of network levels and, in most cases, this should be a matter for market players. However, in terms of effectiveness of any intervention Vodafone believes that regulators should focus at the level of the *"lowest practical value add".* That is typically on the equivalent of local service delivery in an Next Generation Network, rather than national or international.

5/ whether any generational change renders obsolete specific approaches to mandated services which regulators have required in the past.

A number of specific interventions in European communications markets attempt to mimic the effect of service-based competition by requiring entities with Significant Market Power to create complex wholesale services for alternative operators. Examples, from the voice market would include indirect access and carrier pre-selection. Such attempts to create competitive voice services by specific micro-regulation and appear obsolete when confronted by Voice over IP using broadband connections which (in turn) depends on lower value added intervention (in LLU and/or DSL).

Entities with Significant Market Power should be progressively able to migrate more complex wholesale services which contain higher elements of value added to commercial rather terms. Remaining regulation should focus on facilitating the lowest practical level of value which can be offered.

Impact on national interconnection arrangements

The current paper does not provide any evidence of foreclosure associated with a generational change of technology where used nationally by competing operators for interconnection. Vodafone is sceptical that there is such evidence of foreclosure. If anything it seems more likely that the adoption of IP technologies may offer additional commercial opportunities for communications to be exchanged between providers and this will, over time, increase the variety of services and reduce costs and prices as evidenced by the growth of competitive services using broadband bearers.

Again the growth of voice over IP using broadband connections would seem to be an example of a technology change, combined with regulatory intervention which is reducing market power in interconnection. By this Vodafone means that traditional analysis of market power in the area of interconnection has depended on the finding of a monopoly condition enjoyed by every operator (no matter how small) over its own customers for voice termination services. However, mandated wholesale interventions in broadband would seem to open the way for delivery of telephony calls using competitive broadband connections and so act as a form of bypass. In the mobile market Vodafone expects that new data services will give rise to similar effects.

The paper is silent on the specifics of generational technology change and the associated economic factors at work in different sectors of the European communications market. In the case of mobile the move from 2G / GSM to 3G / UMTS technology, which is a generational change of technology comparable with moves to IP in mobile core networks, is ongoing without an *ex ante* decision by regulators on specific models for interconnection of 3G-based services. There is no greater reason to suppose market failure or foreclosure will occur in the general interconnection markets supported by IP technology than has been the case in interconnection markets moving from 2G / GSM to 3G / UMTS.

Vodafone acknowledges that, in the specific case of voice call termination, European regulators have concluded that there is justification for intervention on interconnection prices and these are now typically required to reflect costs. Other than this progressive effect regulators should allow the interconnection market to decide on a commercial basis how interworking will develop.

European regulators should firmly draw back from regulation in advance of service deployment and the fruits of investment reaching markets. In particular, the regulation of forms of interconnection – if required at all – should follow the development of services rather than precede it. Vodafone believes that it will be in the mutual interests of all market players to ensure effective interconnection in order to offer a superior service to customers.

Clearly, if there are disputes between parties then these can be taken to national regulators as envisaged under the EU New Regulatory Framework and should be resolved on the facts of individual cases. This should be managed, as at present, on an *ex post* basis.

Separation of functional levels

Vodafone expects that all IP networks will have implications for the development of the functions which are accessible to other operators and to service providers which wish to operate services across one or many networks.

What this actually implies for interconnection policy is less clear. There is already substantial deployment of IP in European communications providers' core networks – without any negative effect apparent on interconnection. This market development should be allowed to continue.

The ERG/IRG draft has a focus is on interoperability and quality of service. These concerns should primarily be resolved by IP network providers seeking appropriate commercial and technical solutions to reflect market demand.

If there are concerns for European and national regulators these may lie in the overall effect of uneven network modernizations on aggregate call quality. In other words while for each individual operator, modernization may act to reduce its costs and/or improve its ability to offer services, these effects may not be evident where there are multiple operators using different generations of technology handling the same call. Regulators may wish to ensure that they have a good understanding of the timing of migration plans of principal national operators.

Structural implications for the interconnection regime

All operators, including operators with Significant Market Power in access and origination, must have the opportunity to move towards more efficient, lower cost networks which will, in turn, facilitate cheaper services for customers.

This should include an ability to rearrange network hierarchies and to the reduce the number of nodes in their network. As the ERG/IRG paper implies this may lead to geographic rearrangement and also to an overall reduction in the number of interconnection points offered by dominant incumbents.

Whether or not this has the effect of stranding investment by alternative operators is unclear at this time.

Vodafone believes that the correct current approach for regulators to adopt is not one of detailed intervention at a technical level, but rather to consider in a technologically neutral way certain broad principles which might apply to a move from one generation of technology to another. These are the principles articulated above:

1/ whether changes in access technology will have an impact on forms of network access offered by an entity with Significant Market Power;

2/ whether changes in access technology have an impact on the lowest practical value added network access offered;

3/ whether changes in access and/or local switching by an entity with Significant Market Power will have an impact on points where interconnection is offered;

4/ whether changes in access technology and/or local switching have an impact on the lowest practical value added interconnection services offered;

5/ whether any generational change renders obsolete specific approaches to mandated services which regulators have required in the past.

Overall Vodafone believes that except where providers have Significant Market Power in multiple access and origination markets (and this has given rise to specific regulatory responses on which other operators have constructed business and serve customers) there should be no requirement for any regulatory involvement in operators' network modernization;

Where providers do have Significant Market Power in access and origination then network modernization which amounts to a generational technology change should be associated with an effective industry-led consultation process.

Access network modernization should take place within a defined window including allowing for the rearrangement of current access arrangements and the development of necessary interfaces and commercial terms;

This should either continue to support legacy services and/or enable migration from regulated to commercial terms if regulators conclude there no longer an economic justification for intervention.

Charging principles

In competitive markets Vodafone would expect retail pricing principles will not normally be a consideration for regulators. Rather that retail principles should be a matter for the providers of services. If there are concerns regarding levels or evidence of abuse then regulators will inevitably become involved. Price transparency may also be a concern for regulators to address and this issue may be independent of the level of competition in a market. However, it is not clear that addressing retail or wholesale charging principles on an *ex ante* basis is appropriate, rather than allowing contending market outcomes to develop.

Specifically in terms of interconnection for existing services a variety of principles are adopted by commercial providers although these are not as simple as the black and white descriptions provided in the ERG/IRG paper.

Commonly mobile and other operators use Calling (or Initiating) Party Pays approaches for voice, SMS and other forms of mobile messaging. This is also the historic pattern within the fixed telephony environment. However, data, e-mail and messaging services use a variety of models in both fixed and mobile and Vodafone would expect these to continue to evolve.

In contrast to the model suggested in the paper national and international internet connectivity does not simply use bill and keep, but is subject to self-selecting tiered approaches reflecting internet provider size. Within the internet environment payment directions typically reflect the relative size of different parties interconnecting: top-tier companies will require lower-tier companies to pay them for interconnection. This reverses the international flow of revenues of telephony and has potentially challenging implications for less wealthy countries, regions and individuals.

Even where connectivity is in place between providers within the same tier the underlying billing mechanism is settlement-based rather than bill and keep and requires traffic to be in balance (that is within agreed bands).

Options for wholesale billing regimes

The paper posits that different interconnection billing regimes may lead to arbitrage problems. Vodafone agrees that markets can be turbulent irrespective of interconnection billing regime. However, it is a substantial regulatory misunderstanding to go from a rather academic concern about arbitrage to define a series of interconnection *"options for the billing regime in future all-IP networks"* – substantially in advance of their deployment in the market. In many cases economic regulators may equally see arbitrage and contending between different service offerings as part of a competitive process where prices are ultimately brought more into line with costs.

Principles for communications services have evolved on a market basis. Reflecting a technology neutral approach to regulation Vodafone would not expect these principles to alter radically as new technology is adopted. Instead evolutionary pressures which inevitably exist in the market should be allowed to play out including as retail services based on different wholesale approaches become available to customers.

There is speculation in the paper with respect to causalities between interconnection and retail billing and there clearly is an interrelationship. However, the analysis of this issue in the paper is partial and backward looking. It mentions the *"termination monopoly"* but not the negative effects of unsolicited communications.

The paper also speculates that *"Bill and Keep might even further stimulate the trend towards end-user flat rate schemes".* However, this does not properly reflect the complexity of offers that arise in different parts of the communications markets and which meet the specific needs of parts of the market. An example would be the development of pre-pay services with no-periodic charge – which now dominates the consumer experience in mobile and which is conceptually quite distinct to a flat-rate approach.

More generally there is no discussion of a key aspect of an interconnection regime – that where there are two parties involved they may place substantially different values on a particular communication.

Nor does the paper discuss social aspects of favouring one particular regime, for example, effects on universal service of moving from a regime where business and other large users' traffic contributes to the cost of lower users' (usually residential) services.

Specific questions in the Consultation

In the consultation document the ERG/IRG raises a number of specific questions:

How should the transition from the PSTN number of interconnection points to the probably reduced number of interconnection points in NGNs look like? What are the implications for the price structure and price level of interconnection rates?

All operators, including fixed operators with Significant Market Power in access and origination, must have the opportunity to move towards more efficient, lower cost networks which will, in turn, facilitate cheaper services for customers.

This should include an ability to rearrange network hierarchies and to the reduce the number of nodes in their network. This <u>may</u> lead to geographic rearrangement and also to an overall reduction in the number of interconnection points offered by incumbents.

If the basis of adoption of a new generation of IP technology in an access network is to reduce costs then Vodafone would expect that these, lower costs should also be available to competitive access providers using fixed incumbents' networks. Where interconnection prices are subject to regulation then price structures and levels will come to reflect new, presumably lower costs as current regulatory approaches are brought to bear.

What is equivalent to "local" interconnection in NGNs?

The interconnection structure offered by a fixed operators with Significant Market Power in access and origination using IP in its core and access network should reflect the underlying costs of provision.

Local interconnection in an NGN environment should reflect the lowest practical value added interconnection service offered.

Reflecting the transition towards NGNs what are the implications for existing SMP products and bottlenecks? Does this technological change remove existing SMP positions or bottlenecks or could new ones emerge in NGNs?

While Vodafone is not principally active in the fixed services market it would appear that the effect of the widespread development of IP-based access due to a combination of competition and regulation may be rendering past interventions obsolete.

As argued above, it is hard to justify a continued wholesale requirement to support complex interventions in the wholesale market such as indirect access or carrier pre-selection where there is widespread commercial availability of voice over broadband access to the home and office.

How do you evaluate the advantages and disadvantages of different charging principles discussed in this paper?

There is not enough economic analysis in the consultation to answer this question.

Vodafone would expect that network operators and service providers should be able to decide independently on the design of their service offerings and billing methods in both retail and wholesale markets.

At a wholesale level then there will inevitably be debate between interconnection partners and it is most probable that, with new services, a variety of different interconnection regimes will emerge and contend among each other.

This contention should not be distorted by an artificial regulatory target regime decided on an *ex ante* basis. Among other flaws in this approach is the key one that it is not technology neutral.

Conclusions

Moves to all IP networks may reflect a *"generational change"* in technology used by communications providers.

However, this need not lead inevitably lead to any regulatory change. Indeed given the adoption of a technologically neutral regulatory framework EU regulators first response to a new technology should be an assumption of consistency and that current regulatory approaches:

- market reviews,
- the determination of Significant Market Power; and
- application of proportionate remedies where SMP exists

will remain valid. Certainly there is no need to for European regulators to rush into the *ex ante* development of a hybrid form of interconnection not applied anywhere else in the world.

Vodafone's message is unambiguous: the ERG/IRG should reaffirm that forms of interconnection should generally be driven commercially by market parties with the primary role of NRAs being to respond to specific disputes rather than embark on the creation of new, technology-specific *ex ante* approaches separately from the market.