



Nortel response to Ofcom Consultation

Next Generation Networks: Further consultation

Introduction

As a recognised leader in communications, Nortel welcomes this opportunity to respond to Ofcom's further consultation on Next Generation Networks (NGNs). Nortel delivers communications capabilities that enhance the human experience, ignite and empower global commerce, and secure and protect the world's most critical information. Nortel provides high-performance network-infrastructure and technology to service providers (including public carriers, cable operators, wireless operators and IP service providers), and to businesses and institutions of all types and sizes, in more than 150 countries. Nortel is also a leading innovator and has for many years been developing solution sets to enable the implementation of NGNs, based on ground breaking R&D undertaken by the company in the mid 1990s. This has enabled Nortel to be at the forefront of the deployment of NGN technology, with over 50 NGNs based upon Nortel carrier-class softswitches now deployed around the world.

Given that the deployment of NGNs is now underway, it is imperative that agreements are rapidly reached on the resulting new interfaces through which operators will interconnect to enable the delivery of both legacy and new services. This urgency extends to determining those aspects of such interconnections that need to be formally regulated because of the economic bottlenecks or technical barriers to entry that are perpetuated or created by the deployment of NGNs.

From our reading of the Consultation document, we believe that the key issue to be addressed is Ofcom's proposed methodology for managing the regulatory issues surrounding the transition to NGNs, as summarised in Figure 1 on page 6 of the document. We have found it more straightforward to present our views on the viability of this process in the form of a narrative, and then to proceed to answer the detailed questions posed.



The NGN Process Proposal

Our understanding is that the proposed process is aimed at addressing all of the issues arising from the transition to NGNs, not merely those associated with the introduction of BT's 21st Century Network (21CN). We believe that it is essential that the process can indeed address all such issues. Although the BT network will almost certainly be the most significant carrier class NGN deployment in the next few years, other operators have also recognised the potential of NGNs. Most are only at the planning stages of their own networks, but there have already been some significant deployments.

It would appear that the intention in the proposed NGN process is to restrict Consult 21, a body that has already been constituted by BT, to the specification of the requirements of those Significant market Power (SMP) products and other interfaces, the need for which specifically arise from the deployment of BT's 21CN. We would wish to express some concerns about the independence of Consult 21 if it were to be given a more general remit. However, given that the consultation document explicitly states that NGNCo will 'produce a reference interconnection architecture, setting out the manner in which NGNs are expected to interconnect with each other ... and ... provide an industry wide framework for the interconnection of all NGNs', we assume that this more general remit will be the responsibility of NGNCo.

Whether an SMP product is specified by Consult 21, or a more general interface is specified by this body or NGNCo, our understanding from the consultation document is that the intention is for a re-constituted Network Interoperability Consultative Committee (NICC) to define the technical standards required to realise such a product or interface. It is also our understanding that, once such technical standards are defined, it is NGNCo that will have the responsibility of planning and managing the transition to the use of such products and interfaces, and ensuring that consumers are fully aware as to what is happening. However, such responsibility will not extend to the management of the deployment by BT or any other communications provider of its own NGN.

We would have liked to have seen more detail as to the responsibilities of Consult 21, NGNCo and NICC, and the relationships between them, to be confident that the process can address all the regulatory issues that are likely to arise in the transition to the use of NGNs. We trust that the lack of such detail is not indicative of a wish to pass all



responsibility for its definition to ‘Industry’. Although we would agree that Ofcom might be able to adopt a ‘hands off’ approach by giving ‘Industry’ the authority for the day-to-day operation of the proposed process once it has been defined, established and is up-and-running, we would argue that Ofcom must retain direct ‘hands-in’ responsibility during these early phases. Even if a ‘hands-off’ approach can subsequently be adopted, the overall responsibility for the continuing effectiveness of the process must also remain with Ofcom, as it is the means by which a number of the Regulator’s statutory responsibilities will be discharged.

Given that they will be part of a statutory process, it is important that the work of Consult 21, NGNCo and NICC be undertaken in an open and transparent manner, with well defined criteria for membership and clear working procedures covering such matters as Intellectual Property Rights, copyright, and the selection of chairs. Subject to fulfilling appropriate membership criteria, no stakeholder should face barriers to participation, such as a requirement to pay membership fees. Ofcom must therefore ensure that all three bodies have alternative sources of funds to engage appropriate secretariat support and commission external experts to undertake any necessary activities that go beyond what can reasonably be expected of its members. As independent bodies, NICC and NGNCo will almost certainly also need to be provided with some form of indemnity to potential litigation.

Ofcom has indicated in the consultation document that its desire to re-constitute NICC as an independent body does not mean that it will withdraw from its current engagement with that body. Ofcom has also stated that it expects to be part of NGNCo. The work of both of these bodies should therefore reflect a close collaboration between the Regulator, communications providers, equipment manufacturers and solution providers. Consult 21 is currently only the domain of BT and its wholesale customers. If, as suggested, it becomes part of the proposed NGN process, the plan is for its work to be backed-up by an Ofcom dispute resolution process. Provided the operation of Consult 21 is sufficiently transparent, the lack of representation by equipment manufacturers and solution providers may not prove to be an issue. Nevertheless, we feel that a widening of the criteria for membership of Consult 21 is worthy of debate, particularly as some smaller communications providers may wish to have their interests on this body represented by their solution provider partners. The involvement of solution providers would also help to ensure that the requirements generated by Consult 21 are capable of cost effective implementations on the requisite timescales. It would also be prudent to have a more



general debate on the membership criteria for all three bodies, to ensure that they have the necessary representation to address issues of international interconnection and collaboration in service delivery, and that they can also adequately reflect the interest of consumers.

Finally, we consider the elements of the proposed process intended to address disputes that will inevitably arise. Whilst we concur that the appointment of an adjudicator may well provide a preferable alternative to Ofcom's formal powers in resolving those disputes that relate to the interpretation of the positions reached by the three bodies driving the NGN process, we believe that Ofcom itself must retain responsibility for resolving those disputes that relate to the working methods of these bodies and the details of their interactions in arriving at such positions. The rationale for this, as argued above, is that the overall responsibility for the proposed NGN process must remain with Ofcom, as it is the means by which a number of the Regulator's statutory responsibilities will be discharged. Ofcom must also be the arbiter in those disputes that arise in relation to whether or not there is an SMP requirement for a particular product and whether the final technical specification of such a product is fit for purpose.

Responses to the Consultation Questions

- 1. Do you agree with Ofcom's proposed approach for the charges of narrowband voice SMP products provided over next generation interconnects?*

We believe that considerations relating to the charges for SMP products are a matter for the service providers who will be directly impacted by them.

- 2. Do you agree with the overall approach that there needs to be continuity for existing SMP products, but that it would not (be) appropriate to continue them indefinitely?*

We agree. The continued imposition of such legacy requirements on a NGN operator might entail costly emulations. Too long a period of such imposition would compromise the operator's ability to realise an adequate return on the investment in the NGN network, and would likely slow down the introduction of such networks to the economic and social disadvantage of the UK. However, to drop such requirements too soon would be unfair



to those operators that have made significant investments on the assumption of a continuation in the deployment of today's network technologies and architectures.

3. *Do you agree with the general criteria Ofcom has proposed for the withdrawal of legacy SMP products after an interim period?*

We agree.

4. *Which network intelligence capabilities are likely to be associated with the underlying network where BT has SMP and cannot be independently provided by alternative providers, and why?*

We believe that the deployment of NGNs provides an excellent opportunity to agree improved interfaces to enable operators to interconnect and co-operate in the delivery of services. In particular, such deployment opens up the possibility of defining a much reduced set of generic data interfaces which, when coupled with access to inter-module and signalling protocols, and to appropriate Application Programming Interfaces (APIs) to control the intelligence of NGNs, will enable a service independent approach to regulation to be developed. Such an approach is a necessity, since the architecture of NGNs not only allows the provision of today's voice and data services and their obvious multimedia generalisations, but also an unlimited range of new services. A service specific approach to the regulation of such networks will therefore eventually become unwieldy.

We believe that agreement on some form of generic IP access, ideally with third-party control over a range of QoS parameters, including the additional aspects of timing and synchronisation, will be a central requirement. Access to other forms of intelligence, such as those providing the 'location', 'presence status' and 'connection characteristics' of end users, and others as outlined in Appendix G to the consultation document, will also increasingly become central to service provision. Whether or not one operator should have regulated access to another's intelligence in these areas will, of course, be down to whether or not there is an economic bottleneck or technical barrier to entry.

In addition to a generic IP interface with API control of intelligence, the need for Layer 2 data link services and even Layer 1 transmission services will, however, persist with



NGNs. An operator seeking to exploit another's NGN network may find its ability to offer services compromised by the latter's IP architecture. Stringent delay requirements, for example, could dictate data link or transmission layer connectivity. Even when mature QoS controlled IP connectivity becomes available, with tightly controlled delay and loss characteristics, data link layer connectivity will remain as a pre-requisite for the most secure of services.

5. *What are your views of the practical implications of applying Equivalence of Input to NGNs (eg in relation to MSAN interconnection, end-to-end quality of service, and depth of network hooks)?*

True equivalence will almost certainly dictate that hooks to intelligence should be as deep as the deepest available API that does not compromise fundamental aspects of the network being accessed, such as that of security. Any less depth would compromise the ability of the service provider accessing a customer through another's network to provide equivalent services, without additional complexity and consequential cost.

6. *Do you agree with the issues Ofcom has identified that need to be addressed by all communication providers as they move to NGNs and what others are there?*

We agree with the issues that Ofcom has identified, but note that the majority are expressed in terms of 'voice calls'.

Because the architecture of an NGN is fundamentally different from that of any of today's networks, the issue of economic bottlenecks must be reconsidered from first principles. It will not be sufficient simply to seek to ascertain whether or not the bottlenecks consequential on today's architectures will endure or disappear.

NGNs are the enablers of convergence, in that they provide services and content via computing servers linked to common cores independent of the access method that is used. Whether such access be fixed, mobile or via hot-spots, it is simply the means by which end users connect to core networks and thereby access such servers and communicate with each other. The development of NGNs may therefore fundamentally change the market segmentation appropriate to the determination of SMP.



If an NGN is being deployed as a replacement for an existing network, issues will arise with respect to changes in the location and topology of interconnection points, not least because NGNs have far less geographic dependence than legacy networks.

We note that, in order to protect the integrity of the networks on either side of a QoS controlled IP interface of the type discussed in our response to Question 4, some form of Border Gateway functionality will be needed which incorporates appropriate 'firewall' functionality.

In order to maximise cost effective interoperability, it will be important that the proposed NGN process endeavours to ensure that protocols defined by recognised standards bodies are specified for all new interfaces and that agreement is reached on their availability in suitably 'unbundled' forms. The development of appropriate transitions plans will be a key consideration for NGNs deployed ahead of the publication of such standards.

A final factor that must be addressed in developing regulatory policy in respect of NGNs is that such networks enable end users to connect to servers located geographically anywhere. Such servers can also be in portions of a network owned by either a carrier or an enterprise. Indeed, the distinction between carrier and enterprise solutions will become less of an issue of role, and more a question of who owns what network component and where it is located. Regardless of who provides a service, the server hosting it can be located in the same or another country. It is imperative that any new regulatory policies fully recognise such freedoms in 'who does what' and 'where' inherent in NGN architectures.

7. Do you agree with the policy principles Ofcom has identified for consumer protection during the move to NGNs?

We broadly agree.

8. Do you agree with the overall processes for developing 21CN obligatory products?

We agree, subject to the reservations expressed in our above narrative on the NGN process proposal.



9. Do you believe that there is a need to co-ordinate and steer cross industry NGN issues which is not met by existing bodies and process?

There are currently two bodies addressing NGN issues, the NICC and Consult 21. The NICC works as an industry consensus group addressing specifications and technical issues associated with network competition, and providing advice in respect of the harmonisation of interconnection arrangements. Consult 21 is a BT initiative established to facilitate consultations with its wholesale customers on the implications of the introduction of its 21CN, and consequently with membership restricted to those customers. Although these bodies could be exploited within a process for managing the issues surrounding the transition to NGNs, they currently do not perform all of the functions required by such a process.

10. Do you agree that there is a need to co-ordinate the planning and implementation of NGNs on an industry wide basis?

We agree that there is such a need.

11. Is there a need for a process to address the wider consumer protection issues arising from the move to NGNs?

We believe that there is such a need. A defining characteristic of NGNs is that they are based around cores that carry Internet Protocol (IP) packets and provide connectivity independent of service. A key consumer issue surrounding the deployment of NGNs is that, although the major service providers will deploy their own distinct cores with carrier class capabilities, others will exploit the Internet itself to provide core functionality. As a result, similar services will be provided by NGNs with wildly differing qualities, grades of service and security attributes. It is therefore important that processes are in place to ensure that consumers fully appreciate the characteristics of the numerous offerings that will become available to them. Only then will they be able to make informed trade-offs between the costs of particular services and their capabilities.



12. Has Ofcom identified all the correct industry processes that will be needed to deal with move to NGNs?

We believe that Ofcom has identified the key issues that must be addressed by the proposed NGN process.

13. Do you agree that it appropriate for Consult 21 to continue to take responsibility for developing detail of SMP product migration and (the) development of new products?

We agree that, subject to the caveats in our above narrative on the NGN process proposal, Consult 21 is the right body to drive the migration of existing SMP products to NGN implementations. We also have no issue with Consult 21 being responsible for the specification of the requirements of new SMP products and interfaces, provided the need for these specifically arises from the deployment of BT's 21CN. We would have some concerns about the independence of Consult 21 if were to be given a more general remit, but this would appear to lie with NGNCo in the current proposal.

14. Do you agree that Consult 21 combined with bi-lateral commercial negotiation and backed-up by Ofcom dispute resolution is the best approach to the agreeing the commercial aspects of new and migrated products?

Such an approach would appear to be reasonable.

15. Do (you) agree that NICC should continue to be responsible for standardisation of NGN interconnect, but needs to be re-constituted as an independent industry owned body?

We agree that the NICC should continue to be responsible for the standardisation of NGN interconnect. However, there are a number of issues that must be addressed if it is to be re-constituted as an independent body. Given that it will be part of a process for discharging Ofcom's statutory responsibilities, its work must be undertaken in an open and transparent manner, with well defined criteria for membership and clear working procedures covering such matters as Intellectual Property Rights, copyright, and the



selection of its chair. We strongly believe that, subject to fulfilling such membership criteria, no stakeholder should face barriers to participation in the work of the NICC, such as a requirement to pay a membership fee. Ofcom must therefore ensure that the NICC is adequately funded by other means to engage appropriate secretariat support and commission external experts to undertake any necessary activities that go beyond what can reasonably be expected of its members. As an independent body it will almost certainly also need to be provided with some form of indemnity to potential litigation.

16. What are your views on the establishment of a new multi-lateral industry group to address NGN issues, its terms of reference and governance arrangements?

We would have liked to have seen more detail as to the responsibilities of NGNCo, and feel that its exact role as outlined in the consultation document is unclear beyond the explicit statement that it will ‘produce a reference interconnection architecture, setting out the manner in which NGNs are expected to interconnect with each other ... and ... provide an industry wide framework for the interconnection of all NGNs.’ We assume that its remit includes the specification of the requirements for the types of interfaces discussed in answer to Question 4 and that such specifications would then be passed to the NICC to agree on the appropriate technical standards through which they should be realised. If this interpretation is correct, some of these interfaces will almost certainly be the means of implementing the SMP products to be specified by Consult 21. Greater clarity is therefore required as to the division of such responsibilities between NGNCo and Consult 21.

17. What are your views on the establishment of a NGN operational dispute adjudicator, its terms of reference and governance arrangements?

Whilst we concur that the appointment of an adjudicator may well provide a preferable alternative to Ofcom’s formal powers in resolving those disputes that relate to the interpretation of the positions reached by the three bodies driving the NGN process, we believe that that Ofcom itself must retain responsibility for resolving those disputes that relate to the working methods of these bodies and the details of their interactions in arriving at such positions. Ofcom must also be the arbiter in those disputes that arise in



relation to whether or not there is an SMP requirement for a particular product and whether the final technical specification of such a product is fit for purpose.

18. Would your organisation be prepared to sign-up to such an adjudication scheme and abide by the adjudicator's decisions?

This is a matter for the service providers that would be asked to participate in such a scheme.

Conclusion

We believe that the deployment of Next Generation Networks (NGNs) represents a tipping point in the way communications services are delivered. NGNs offer the potential of substantial cost savings to operators. They enable the delivery of innovative new services, with the potential for far greater control and personalisation by end users. The deployment of NGNs also provides an excellent opportunity to agree improved interfaces through which operators interconnect with each other. The imperative is that such agreements are reached with the utmost urgency, as NGNs are otherwise unlikely to be built with ready access to the interfaces necessary for effective regulation, potentially leading to significant problems down stream. This further consultation on Next Generation Networks is therefore very timely. Nortel has been pleased to be able to exploit its extensive knowledge of such networks, gained from pioneering R&D undertaking in the 1990s and the subsequent development and deployment of solution sets, in compiling this response.

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11 August 2005