Report of the Bundesnetzagentur of 14 June 2013
concerning the rate changes which Deutsche Telekom AG
implemented for Internet accesses as of 2 May 2013

1. Background
2. Provisions of the rate model (Bundesnetzagentur questions 5-7, 9)
   2.1 Summary of Deutsche Telekom answers dated 15 May 2013
   2.2 Evaluation
   2.3 Conclusion / Further action
3. Transparency questions (Bundesnetzagentur questions 8, 10, 11)
   3.1 Summary of Deutsche Telekom's answer dated 15 May 2013
   3.2 Analysis
   3.3 Conclusion / Further action
4. Net neutrality (Bundesnetzagentur questions 1-4)
   4.1 Summary of Deutsche Telekom's answer dated 15 May 2013
   4.2 Evaluation
     4.2.1 Do volume-based rates and throttling constitute a violation of net
          neutrality?
     4.2.2 Legal implications of violations of net neutrality in the sense of strict
          equal treatment
     4.2.3 Economic effects of unequal treatment
     4.2.4 Excursus regarding the 'Spotify model' in mobile communications
     4.2.5 Extension of the principle of not counting volume towards the data
          volume in the case of managed services
          4.2.5.1 Point of reference for net neutrality - Internet or
          telecommunications network?
          4.2.5.2 Assessment when the Internet is used as the point of reference for
          net neutrality
          4.2.5.3 Need for regulatory action in connection with managed services
   4.3 Conclusion / Further action
5. Open questions / Critical points
5.1 Parameters of the rate model ................................................. 19
5.2 Transparent design of the rate model .................................. 20
5.3 Net neutrality and the potential for discrimination ............... 20
5.4 Brief summary and evaluation of Deutsche Telekom's answers dated 7 July 2013 ................................................................. 21
1. Background

As previously announced on 22 April 2013, Deutsche Telekom changed its price structure for fixed-network Internet accesses with effect from 2 May 2013. A key element in the changes implemented for new contracts is a volume limit. When this limit is exceeded, the bandwidth of the end customer's access is reduced to 384 MBit/s. In a letter to the Bundesnetzagentur dated 7 June 2013, Deutsche Telekom stated that it intended to raise the throttled level starting in 2016 from 384 Kbit/s to 2 MBit/s. Deutsche Telekom publicly announced these plans on 12 June 2013.

Deutsche Telekom's retail rates in the retail markets are not subject to prior approval (ex-ante regulation) through the Bundesnetzagentur. As a consequence, Deutsche Telekom essentially has a free hand with respect to the form and content of its retail rates for broadband and Internet access.

In its letter dated 24 April 2013, the Federal Ministry of Economics and Technology informed Deutsche Telekom that, while fully appreciating the need for investment in broadband development in Germany, the preservation of net neutrality must remain the top priority. The Bundesnetzagentur accordingly addressed a number of questions to Deutsche Telekom on 26 April 2013 as part of its regulatory oversight of the telecommunications markets and requested Deutsche Telekom to provide more information on important aspects and implications of the changes in its prices (Enclosure 1). Deutsche Telekom answered the Bundesnetzagentur's question in a letter dated 15 May 2013 (Enclosure 2).

The Federal Ministry of Economics and Technology requested the Bundesnetzagentur to promptly submit a report concerning the results of this exchange. This report was issued in response to the Ministry's request. The following sections first summarise the answers submitted by Deutsche Telekom and then assess them, taking special account of the requirement that net neutrality in the sense of strict equal treatment be observed. Preliminary conclusions are drawn and further action is outlined. Section 2 addresses the general provisions of the rate model (5-7, 9), Section 3 focuses on transparency questions (8, 10, 11) and Section 4 deals with questions relating to net neutrality in a narrower sense (1-4). Section 5 lists questions that have yet to be answered and critical points regarding these areas. Follow-up questions were meanwhile submitted to Deutsche Telekom with a letter dated 28 May 2013 (Enclosure 3). Deutsche Telekom replied in its letter dated 7 June 2013 (Enclosure 4). The preliminary report to the
2. Provisions of the rate model  
(Bundesnetzagentur questions 5-7, 9)

2.1 Summary of Deutsche Telekom’s answers dated 15 May 2013

The factual questions revolved around the degree to which bandwidth will be throttled when a customer exceeds the volume limit; the number of customers affected by the throttling of bandwidth; and the anticipated share of customers who will be subject to the new provisions starting 2016.

The question of restricting bandwidth once the inclusive volume has been exceeded is "purely about pricing" Deutsche Telekom maintains. According to Deutsche Telekom, this question should not be mixed up with the subject of the minimum level of access which seeks to ensure that individual customers are not excluded from services that are indispensable for people living in Germany.

At present, 3.65% of customers consume more data volume than the amounts laid down in the rates that went into effect on 2 May 2013, Deutsche Telekom reported. It estimates for 2016 that a somewhat larger share of customers will be subject to throttling (when they do not use the option to subscribe to more volume or book an (unlimited) flat rate to avoid throttling).

Deutsche Telekom reported that it is "extremely difficult" to predict the size of the share of customers who will be subject to the planned provisions. It assumes that this will apply to a large share of customers provided that they do not opt for one of the planned flat rates which will probably be 10 to 20 euros more expensive than the rates for limited volumes. However, since it is likely that growing numbers of customers will opt for faster access with larger inclusive volumes, it is to be expected that the number of users who are directly subject to throttling will continue to be just a small share of all users in 2016, Deutsche Telekom stated. It also noted that it had not taken into account possible adjustments which are to be expected as time passes to the inclusive volume to reflect growing average demand. Both the amount of the inclusive volume and the bandwidth once the volume limit has been exceeded should be "regularly reassessed" (dynamic adjustment).
2.2 Evaluation

Volume-based rates as such do not constitute a fundamentally new rate model. In fact, they are typical of data rates in the mobile communications segment. Flat rates have edged out the previously typical volume-based rates in the fixed-line area only in recent years.

Deutsche Telekom is apparently pursuing two primary objectives:

1. Generate additional revenue from end customers who have greater volume requirements and who, when they reach their volume limit, must correspondingly book additional volume or directly subscribe to an (unlimited) flat rate and
2. Generate additional revenue from application or content providers that want to or have to offer their service as a managed service.

One of the arguments Deutsche Telekom puts forward to justify the attendant indirect price increase is the billions of euros in pending or current investments to expand broadband deployment.

In the case of the second objective, Deutsche Telekom stated that it will offer not only its own Entertain service but also additional applications and/or content for a fee in future. This means that the only way that application and content providers can avoid having their customers' bandwidth throttled when they exceed the inclusive volume is to provide their applications and/or content as managed services, irrespective of whether they need this particular quality.

2.3 Conclusion / Further action

Deutsche Telekom plans to wait until 2016 to limit scope of service once the volume limit has been reached. Until that time, changes in rates will have legal force but no direct effect on the end customers concerned. In order for it to be able to evaluate the potential effects that the new rate model will have on the Internet access market, the Bundesnetzagentur considers it necessary that Deutsche Telekom submits to it on a quarterly basis information on how many customers (in per cent / in absolute numbers) exceed the volume limit set forth in their rate and/or how the data volume consumed each month correlates with the connection bandwidth.

In addition, in order to be able to assess the competitive impact of Deutsche Telekom's new rates, the Bundesnetzagentur will need early information regarding the planned wholesale product for managed services and regularly updated information on the number and type of services that will be exempt from the volume restriction.
3. Transparency questions (Bundesnetzagentur questions 8, 10, 11)

3.1 Summary of Deutsche Telekom's answer dated 15 May 2013

The transparency questions focused on the treatment of existing customers, the provision of customer information about the data volume consumed, and the services that are taken into account in the included data volume.

On the one hand, existing customers are not affected by the volume restriction, Deutsche Telekom stated. On the other hand, it pointed out that in legal terms switching to a new rate would mean a new contract. In view of this, Deutsche Telekom made reference to the conversion of the fixed network to IP technology. This transition is to be completed by 2018. Since this will go hand-in-hand with a rate adjustment, it can be assumed, Deutsche Telekom stated, that all customers will have signed a new contract on their own initiative by that date.

With regard to the possibilities available to customers to obtain information regarding the data volume they consume, Deutsche Telekom is still in the planning phase. According to Deutsche Telekom, the greatest possible transparency for the customer is to be ensured. Customers will be able to get information about the exact amount of data they are consuming while they are still using the Internet. The actual data volume that counts toward the volume limit is also to be listed in a way that is transparent for the customer in the customer's bill or itemised bill when this is permissible under data protection regulations. Plans also foresee sending customers a message regarding their current data consumption via e-mail or SMS when a certain threshold value has been reached, Deutsche Telekom stated.

With regard to the question of whether and the extent to which the customer can see which services are included in the data volume and which services are not included in the data volumes because of their status as a managed service, Deutsche Telekom stated that an application is to be made available to customers in the future that will indicate which services do not count against the data volume.
3.2 Analysis

It is to be expected that by the year 2018 at the latest no existing customer will be using the current flat rate model. Instead, existing customers will have concluded a new contract, either on their own initiative before the conversion to IP technology is completed or due to the conversion to IP technology. In this connection, existing customers will also be affected by the volume restriction sooner or later if they want to continue to be Deutsche Telekom subscribers. Deutsche Telekom’s statement that the broadband restriction will not affect any existing customers must correspondingly be examined on a more nuanced, critical basis.

By targeting the greatest possible transparency regarding the data volume that has been consumed, Deutsche Telekom explicitly commits itself to the measures to foster transparency in the retail market which the Bundesnetzagentur specified in the Key Elements (for specific details see the Key Elements 21 ff.). Consequently, the Bundesnetzagentur expects that Deutsche Telekom will agree to these Key Elements in connection with its option to state its position.

With regard to the question of the transparent representation of which individual services come under the respective contractually-agreed data volume and which do not, Deutsche Telekom is currently still in the planning phase. Nonetheless it must be said on a critical note at this time already that this point in particular could cause a lack of transparency which could be very problematical, especially when the customer changes providers. It must be ensured that the specific features of the respective rate are presented transparently.

In the context of Deutsche Telekom’s new rate model it is clear that it must not only be possible to compare rates but also ensured that the specific services that do not fall under the data volume limit are indicated in a transparent way. The end customer must be able to recognise which managed services the company / respective volume-based rate model offers so that he can determine how attractive the volume-based rate model is for his needs or whether it would be worth it to switch to a different provider. Here too, a Key Element concerning this problem has already been published.¹

3.3 Conclusion / Further action

It turns out that Deutsche Telekom’s new rate model particularly indicates that measures to ensure transparency in the retail market are indispensable. In this regard, the Bundesnetzagentur welcomes Deutsche Telekom’s fundamentally positive attitude toward the

¹ Key Element No. 24: Information regarding usage details for ensuring change of providers
Key Elements on the subjects of transparency and measurement procedure which the Bundesnetzagentur put out for discussion on 10 May 2013. In this connection, please see also the recent interview that Deutschlandfunk radio conducted with Mr Rohleder, the director general of BITCOM.

The question of whether and the extent to which a compulsory measure could pose a means for achieving the statutory objectives must also be discussed so that, at the end of the discussions to be held regarding transparency measures, it is possible to find an industry-wide solution which covers Deutsche Telekom and its new rate model as well as other providers and their offers.

With regard to volume-based rates, the transparency Key Elements which the Bundesnetzagentur published on 10 May 2013 provide for the end customer being continuously informed regarding the volume of data he has consumed and that the end customer know exactly which services are included in the contractually-agreed data volume and which services are not. Deutsche Telekom and the other market participants have yet to issue detailed statements on this.

4. Net neutrality (Bundesnetzagentur questions 1-4)

4.1 Summary of Deutsche Telekom’s answer dated 15 May 2013

Looking at net neutrality, the Bundesnetzagentur asked Deutsche Telekom which services currently do not fall under the volume restriction and whether this will apply to other services in future (Internet access services / managed services). It also asked how Deutsche Telekom intends to avoid discrimination of outside services in favour of its own services and how it will ensure that managed services do not edge out best-effort Internet.

Only managed services (quality-assured services) are to be exempted from the broadband restriction, Deutsche Telekom stated in its answer. At present, this applies only to Deutsche Telekom’s Voice over IP telephony service and certain parts of its Entertain offerings (linear live TV and access to the TV archive for delayed viewing of content that was produced pursuant to

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2 Interview from 18 May 2013. Can be accessed at: http://www.dradio.de/dlf/sendungen/interview_dlf/2111960/ . In this interview, Mr Rohleder communicated the association members’ (which include Deutsche Telekom) general willingness to accept the Key Elements on fostering transparency and not to reject any of the points raised in the Key Elements per se.
the Interstate Agreement on Broadcasting). According to Deutsche Telekom, it has not yet been decided whether to expand this in the future to include video-on-demand components as well. By contrast, Internet as a best-effort service will be counted towards the data volume.

Deutsche Telekom rationalises the fact that Entertain product components are not counted towards the data volume with the argument that Entertain is a separate television platform that is based on IP Multicast. Programme signals are transported only within the Deutsche Telekom network, Deutsche Telekom explained. Furthermore the transport charge for Entertain is paid as part of the Entertain charge. This volume was not being counted towards the data volume in order to avoid duplicate charges, Deutsche Telekom stated. In addition the platform must reflect the provisions of the Interstate Agreement on Broadcasting (including the preferential treatment of certain content by the must-carry rule).

Referring to the implementation of the bandwidth restriction “in 2016 at the earliest” Deutsche Telekom noted that plans not to count other services toward the data volume are in a "state of flux".

With reference to Internet services, Deutsche Telekom stated that there is no discrimination of external services as compared to its own services. In other words, “all services which are transported over the Internet are subject to the same rules”. The bandwidth restriction applies to all Internet services, without exception.

Deutsche Telekom reports that it plans to introduce a “non-discriminatory wholesale offer for alternative service providers starting in 2016” with which such service providers could provide even managed services (where applicable, not counting them toward volume, such as in the case of Entertain).

In the retail segment Deutsche Telekom likewise sees no discrimination / abuse. It points out that at present, only 3.65% of its customers have bandwidth throttled. Furthermore, customers are to have the option of buying additional volume, upgrading or purchasing an unlimited flat rate in future. This could cost 10 – 20 euros more than the basic rates with volume limits. In addition, Deutsche Telekom stated, there is significant competition in the broadband market.

Steps are being taken, Deutsche Telekom noted, to “ensure that sufficient network capacity is built and network dimensioning continues to be adequate” in the future as well. Managed services are not displacing best-effort Internet because "capacity is being expanded on a parallel basis" for both. Investment in additional “network capacity that is dedicated for
managed services” will lead to new network capacity for both types of service being built - in other words: for best-effort services as well.

4.2 Evaluation

4.2.1 Do volume-based rates and throttling constitute a violation of net neutrality?

Net neutrality in the sense of strict equal treatment is deemed to be given when all traffic in a network is treated equally (neutrally), independent of (i) content, (ii) application, (iii) service, (iv) sender address and (v) receiver address.³

At present, all data are, for the most part, treated equally in the Internet access services offered by Deutsche Telekom and transported according to the best-effort principle. Therefore, net neutrality has largely existed to date without there having been any statutory requirement.

At this time violations of net neutrality are largely covered by the telecommunications providers’ freedom of contract, unless they contravene the provisions of competition and regulatory law. The concrete implications that rate changes actually have in regulatory terms and/or concerning the competition law can however be conclusively determined only after all market-relevant data are available. The Bundesnetzagentur is continuing its dialogue with Deutsche Telekom in this connection, based on the open questions which are listed in Section 5.

4.2.2 Legal implications of violations of net neutrality in the sense of strict equal treatment

Irrespective of this, it must be said that users today cannot directly insist on being offered a range of net-neutral services. They can only sanction companies indirectly through public discussion and by switching to a different provider when alternative options are available. This competition mechanism - which was successful in the case of connection charges during the liberalisation of telecommunications - requires that the provider make available to consumers transparent information about how its telecommunications service is to be evaluated with regard to net neutrality. Sections 43a and 45n of the Telecommunications Act largely ensure the provision of this information.

³ BEREC (BoR (10) 42), Question 1, p. 1, similar to FCC.
For this to be effective, 'net-neutral' offerings must be available in the market. Should other providers follow the Deutsche Telekom concept, transparency deficits which are described under point 3.2 and are already being addressed with the published Key Elements will arise in connection with a change in providers (regardless of the net neutrality issue).

Prohibiting this type of business model would require an unrestricted, symmetrical equal treatment rule (obligation of non-discrimination). **A strict equal treatment rule of this type is presently not reflected in operational, asymmetrically-designed competition and regulatory law.** This is because (1) a dominant market position is a prerequisite for the applicability of competition and regulatory law and (2) the prohibitions on discrimination (such as found in Section 19 of the Law against Restraints of Competition or Sections 19, 28 and 42 of the Telecommunications Act) do not stipulate strict equal treatment but rather permit differences in treatment that are objectively justified. For this reason it is necessary to establish *de lege ferenda* a **symmetrical obligation for strict equal treatment**, when the political will for this develops.

Even when the strict definition is applied, **volume-based rates do not constitute a violation of net neutrality** as long as all traffic is treated the same. In the case of a 'plain' volume-based rate, once the volume limit is reached, it is not possible to use any application or service and in the case of a volume-based rate where bandwidth is throttled once a specified volume has been reached all applications and services would be throttled *to the same degree.*

When it is deemed that action should be taken regarding the **level** to which data traffic is to be **throttled** once the volume limit has been reached, a corresponding arrangement could be implemented under **Section 41a of the Telecommunications Act.**

Deutsche Telekom has however made it clear that it will **not count data traffic from managed services towards the volume limit** and that this traffic will not be throttled even after the volume limit has been reached. Even when Deutsche Telekom asserts that it will not exempt in future any Internet application from the volume calculation or from throttling in the fixed network, this type of rate model for mobile Internet access already exists with the Spotify music service (for more on this, see 4.2.4).
4.2.3 Economic effects of unequal treatment

The potential economic impact and incentive effects of not counting an application towards an inclusive volume range from the creation of obstacles to innovation due to the additional costs for the services provider (market entry barriers) to distortions of competition resulting from pull that favours financially-strong service providers which can 'buy' a privileged position for their services, and the creation of discriminatory unique selling points for services and network operators.

Payments made by application providers to Deutsche Telekom which raise barriers to entry can particularly pose problems for smaller or financially-weaker providers. Furthermore, this type of payment is inconsistent with the principle of ‘innovation without permission’ which is an important cornerstone for the Internet’s success.

The above-mentioned effects/incentives are likely to be even greater the more bandwidth-intensive the respective application is. The more attractive the application is (or the ‘better’ / more extensive the content provider’s offer is), the more incentive an ISP has to enter into cooperation. Theoretically, it is even conceivable that a ‘big’ application or content provider could succeed in getting an ISP to make payments to it, rather than itself make payments to the ISP.

In summary it must be noted that the effects are very complex because some of them show an effect only in the long term (e.g. effects with respect to innovation, market entry or market concentration). Thus, managed services can not only hinder innovation in best-effort Internet but they can also make certain service offerings possible in the first place and, as a result, foster innovation. From the user’s standpoint, a decisive factor in the incentive to use managed services will be how expensive volume-based rates (including managed services) will be in comparison to true flat rates.

4.2.4 Excursus regarding the 'Spotify model' in mobile communications

During the debate over Deutsche Telekom’s rate change, the mobile communications service “Special Complete Mobile Music” was a focus of attention. As part of this rate, data traffic from the Spotify service will not be counted towards the included data volume. Unlike the exceptions

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4 See BoR (12) 132, para. 12, 137
5 Or when bandwidth is throttled so much that an application can no longer be used at all via the Internet.
in the fixed network (such as Entertain), Spotify is not a managed service but rather an Internet application.\(^6\)

Even when other service providers have not lodged any complaints to date, not counting Spotify toward the volume limit constitutes discrimination since a specific application is treated differently than the other applications. Firstly, a differentiation is made in the billing of data packets because all data packets – with the exception of Spotify data packets – are counted towards the volume limit.\(^7\) As long as the included data volume has not been exceeded, all data packets are transported following the best-effort principle, in other words, all data packets including Spotify data packets. Once the data volume limit has been reached, a further differentiation is made in the way the data packets are transported: All data packets above and beyond this limit are throttled – with the exception of Spotify data packets.\(^8\)

In its answer to the Bundesnetzagentur’s questions regarding net neutrality, Deutsche Telekom declared that it means to act on a non-discriminatory basis and therefore intended to exempt only managed services from the volume limits. The Bundesnetzagentur consequently requested Deutsche Telekom in the meantime to inform it if it planned to continue offering the rate in this form.

**4.2.5 Extension of the principle of not counting volume towards the data volume in the case of managed services**

Deutsche Telekom does not plan to apply services it offers in addition to Internet access as managed services (such as telephony and certain parts of Entertain) for the same broadband access towards the included data volume of the respective Internet access or to throttle these services. According to Deutsche Telekom, it has not yet been decided whether the Videoload video-on-demand option that is part of its Entertain product will also be included in this in future and no longer be applied toward the data volume. The future development in this connection should be carefully monitored and reviewed from a critical standpoint.

\(^6\) According to information from Deutsche Telekom dated 24 May 2013.
\(^7\) In The Netherlands, a differentiation at billing level would already be considered a violation of net neutrality under the country's net neutrality law. Nonetheless it would be possible in The Netherlands not to count a particular application towards the data volume, when the application is separately available. In addition, it is also possible to offer managed services in The Netherlands.
\(^8\) Verbal information provided by Deutsche Telekom during a discussion with the Bundesnetzagentur on 24 May 2013. See also [http://feedback.telekom-hilft.de/questions/gilt-eine-bandbreitenbeschränkung-auch-für-spotify](http://feedback.telekom-hilft.de/questions/gilt-eine-bandbreitenbeschränkung-auch-für-spotify).
Deutsche Telekom is additionally planning to make a wholesale product available which will allow competitors to offer content as managed services in connection with Deutsche Telekom's wholesale broadband access. These services would, where applicable, not be counted towards the included volume either (see questions regarding the wholesale regime at point 5.3).

The following properties are typical of this type of managed services:

1. Traffic is conducted in a separate, closed network and not via the Internet.
2. The transport and application are provided as a bundle by a vertically-integrated provider (which is not necessarily the network operator).

The question of whether this type of approach violates net neutrality depends largely upon the area which the principle of net neutrality is applied to.

4.2.5.1 Point of reference for net neutrality - Internet or telecommunications network?

When the principle of net neutrality is applied only to Internet access - as is widely the case in the discussion on net neutrality - the question of a possible violation depends on whether, for example, different applications that are realised within the Internet access are treated differently (in other words, non-neutrally). This limited understanding of net neutrality would result in a situation in which (1) the unequal treatment of managed services and (2) applications that are realised via the Internet access do not pose a violation of net neutrality because managed services by definition are not realised via an Internet access but rather via an entirely separate transport platform.

On the other hand, an understanding of net neutrality that includes the equal treatment of all services that are provided via a broadband access line is also possible. Only when this understanding of net neutrality is applied could managed services - as part of these services - directly violate net neutrality. In this case, managed services would violate strict equal treatment per se because these managed services - in contrast to other services that are offered via an Internet access - reach the customer via a quality-assured connection (network capacity) and do not have to share generally-available best-effort network transport capacity with other services. For this reason the German legislature stressed in Section 41a of the Telecommunications Act
the non-discriminatory transfer of data and non-discriminatory access to content and applications rather than strict equal treatment.

In the event that legal intervention were therefore to be taken into consideration, the private autonomy and the telecommunications providers' freedom of trade would have to be duly taken into account and it would also have to be explained why intervention of this type is necessary.

4.2.5.2 Assessment when the Internet is used as the point of reference for net neutrality

When net neutrality applies only to the Internet access, providers could follow an alternative strategy because, in this case, applications can be sold outside the Internet as managed services (irrespective of whether the quality is better as a result) and this difference in treatment as compared to Internet applications would, by definition, no longer constitute a violation of net neutrality. Since managed services compete with the best-effort Internet access service for the network resources that are jointly used on an end-to-end basis, they would even ultimately be able to displace them.

This problem is not an immediate question of net neutrality in regard to the Internet access because it does not involve unequal treatment within the best-effort Internet but rather pertains to the negative influence of managed services. It is closely linked to net neutrality as understood in this way because the starting point for this type of net neutrality is, of necessity, a functioning best-effort Internet that is equipped with sufficient capacity. Protecting net neutrality in the Internet requires steps to ensure that external influences such as capacity consumption through managed services do not impact the Internet's best-effort data traffic. This should be taken into consideration should regulation be undertaken.

One possible option for ensuring this would be - in addition to the above-mentioned technical requirements - to require an objective reason that substantively justifies the provision of the service as a managed service. In the case of Entertain, this could be, for instance, obligations under the Interstate Agreement on Broadcasting or, in the case of VoIP, the availability of an emergency call function. This would ensure that the justification for the particular managed service is not that end customers want to avoid having the relevant data traffic counted towards the data volume or having their bandwidth throttled.

The question arises in this connection whether and to what extent the stipulation of minimum quality of service requirements as provided for in Section 41a, Para. 2 of the
Telecommunications Act offers an instrument for preventing a deterioration of the best-effort Internet and for ensuring that sufficiently-dimensioned Internet access is made available.

Prescribing a minimum quality of service is not suitable for ensuring the quality of the best-effort Internet since it offers only a basic safeguard. Until now, best-effort Internet has been based on the principle of the best possible service.

The introduction of a minimum quality of service could even lead to a situation in which the quality of the best-effort Internet is geared only to a minimum level and network dimensioning focuses only on ensuring this minimum. In addition, competition over the progressive development of the best-effort Internet could be undermined if regulation were to have the effect of an informal marketing agreement. By simply ensuring the minimum, the introduction of a minimum level of service quality would not help secure the best-effort Internet but rather prompt the opposite effect. Only when managed services threaten to crowd the latter out can a stipulated minimum level of service quality help protect best-effort Internet access.

In addition, setting a minimum quality level raises a number of conceptual questions. The Bundesnetzagentur laid the foundation for this with its study on service quality. Since minimum quality levels can be laid down only for services, typical usage scenarios including a specific portfolio of services would have to be assumed and the requisite network capacity determined on this basis. Furthermore, it would have to be decided which services are to be included in the minimum service portfolio and which are not to be included. Moreover, a link to the advertised connection speed would have to be established. This speed can however vary considerably from customer to customer. This process is complex and requires extensive market and demand analyses. The question of whether and in which form a minimum service quality level would be necessary must be decided in the course of formal Ruling Chamber proceedings.

4.2.5.3 Need for regulatory action in connection with managed services

Even if one assumes, as in this case, that managed services do not constitute a violation of net neutrality per se, the question still arises whether it is possible to avoid effects on the net neutrality of the Internet when designing products.

Net neutrality within the meaning of the initial definition fundamentally means uniform data transmission. Net neutrality is supposed to ensure, firstly, that content providers can develop
and offer their services to users under comparable conditions. Secondly, net neutrality should also ensure that users can inform themselves through information sources of their choice without (de facto) hurdles being purposefully set up by way of poorer availability. Net neutrality in this sense satisfies a general equal-treatment requirement which is **not reflected in the current asymmetrically structured competition law which builds on competitive distortions**. For this reason, a **symmetrical obligation to provide equal treatment** must be established *de lege ferenda*, provided that a corresponding political will develops. An **ordinance having the force of law pursuant to Section 41a (1) of the Telecommunications Act** could provide a possible basis for this (see also point 4.2.2).

Based on an ordinance of this type it would probably not however be possible to prevent the separate billing and handling of managed services when net neutrality is applied only to the Internet access, as outlined above. The reason: An ordinance pursuant to Section 41a (1) of the Telecommunications Act is supposed to counter only the "arbitrary deterioration of services". This provides at best for competence to regulate the question of how many managed services with how much capacity can be offered on an access so that the Internet access service can still be offered with an adequate level of service quality. Should the legislator limit itself to net neutrality in the Internet, a separate arrangement would be necessary when the above-outlined strict equal treatment of all services on an access is to be achieved. The same applies for content providers provided that they are not subject to the Telecommunications Act.

When the assessment is restricted to the **current Telecommunications Act**, discrimination regularly takes the form of exploiting one's own market position with the aim of weakening the competitive position of alternative telecommunications providers. This type of discrimination is particularly deemed to occur when alternative telecommunications providers do not have effective access to the wholesale products that they need in order to offer equivalent services. In the case of Deutsche Telekom's new rate model, this would mean that providers would not be able to offer their service to Deutsche Telekom customers as a managed service. If Deutsche Telekom were to demand more wholesale charges than accrue to it in the structuring and production of its own managed service, this would likewise have a discriminatory effect. The question of whether Deutsche Telekom's rate and wholesale structures will have a discriminatory effect as described here cannot at the present time be determined based on Deutsche Telekom's answers which are vague in this regard.

When net neutrality is violated, current telecommunications law does not offer any means to symmetrically enjoin all network operators to offer in their networks managed services from other providers at the same conditions as their own managed services.
Section 42 of the Telecommunications Act could provide a possible starting point for this. Under this provision, a company could be obligated to offer other companies managed services at the same conditions as those it grants itself, its subsidiaries or partner companies. However, Section 42 of the Telecommunications Act applies only to providers of telecommunications services which have significant market power in a relevant market. Under Section 18 of the Telecommunications Act as well, network operators - but not service providers - are given entitlement to symmetrical access to end-users de lege lata.

4.3 Conclusion / Further action

Important information regarding the actual design of these products is lacking for a final assessment of Deutsche Telekom's concrete rate measures. However conducting an abstract assessment of potential violations of net neutrality is likewise not at all easy. This is particularly the case, as explained above, when assessing the reciprocal effects of best-effort Internet and managed services.

Ensuring net neutrality in the sense of strict equal treatment would necessitate laying down a symmetrical obligation - above and beyond existing regulations - to provide equal treatment (regardless of the existence of a dominant market position). This applies irrespective of the question of the point of reference for net neutrality (see 4.2.5.1).

The Bundesnetzagentur had already announced in its last annual report that it would issue and submit for public consultation Key Elements on net neutrality yet this year. These Key Elements are to supplement the Key Elements on transparency that are currently the subject of consultations.

The findings from the current measurement study being conducted by the Bundesnetzagentur on issues of net neutrality also play a role in this connection. Here the issue is whether IP packets of various applications are transported at a lower data transfer rate than http downloads are. In the case of BitTorrent, which serves as an example of a peer-to-peer application, these measurements can be conducted by end customers via www.initiative-netzqualitaet.de until the end of June.

It must also be borne in mind that the Federal Cartel Office and the state media authorities

9 In this respect, the measurement study does not focus on differences in applying the individual services to the data volumes.
examine, from their own individual perspective, questions raised by Deutsche Telekom’s rate model. The Bundesnetzagentur is in contact with the relevant institutions in this connection.

Lastly, the discussion must take the European (and international) context into account. The Bundesnetzagentur has been participating intensively in the debate on net neutrality for some time already within the framework of BEREC, the association of European regulatory authorities. Besides, the European Commission has announced that it will develop a recommendation regarding net neutrality.

5. Open questions / Critical points

A number of follow-up questions arise from the statement submitted by Deutsche Telekom. These concern the parameters of the rate model, the rate model’s transparency, net neutrality and potential for discrimination. These questions are in particular:

5.1 Parameters of the rate model

- Considering the aims of the German government’s National Broadband Strategy, does Deutsche Telekom consider there to be a possibility to adjust the level to which bandwidth is to be throttled?

- Deutsche Telekom is holding out the prospect of a dynamic increase in the inclusive volume and the bandwidth limit, depending on how the market develops.
  
  o Can abstract parameters be cited that are to trigger an increase (such as a dynamic structure that ensures that never more than x% of the end customers are subject to throttling)?

  o At what intervals and to what extent would an increase in the inclusive volume and the bandwidth limit be conceivable?
5.2 Transparent design of the rate model

- How is information regarding the question of which services are included in the data volume presented so that it is transparent, easily accessible and understandable? This question arises not only with regard to advertising and contracts but also in connection with later use.

- How can transparency regarding volume rates be established throughout the industry? This will have to be discussed as part of the discussion about the Key Elements of transparency which the Bundesnetzagentur published on 10 May 2013.

5.3 Net neutrality and the potential for discrimination

- To what extent should the best-effort Internet be able to access 'dedicated', expanded capacity in the future as well? A clarification of how the best-effort Internet is to be developed on a dynamic basis, irrespective of managed services, would be desirable here.

- A prerequisite for rapid growth is the continual adjustment of network capacity to the best-effort traffic which end customers generate. Is a fixed ratio between the managed service capacity and the best-effort Internet used when dimensioning the network? Is account also being taken of the fact that the average capacity demanded in the best-effort Internet will increase more than the average capacity demanded in the area of managed services?

- What thoughts does Deutsche Telekom have with regard to the concrete form of a non-discriminatory wholesale regime?

- Does Deutsche Telekom see a conflict of objectives between non-discriminatory access to wholesale products for managed services and ensuring dynamic capacity for the best-effort Internet when only a limited number of managed services can be provided on one access? How could such a conflict be solved?

- Under what conditions can Internet applications become a managed service? The traffic from these Internet applications would, by definition, have to be managed separately in managed service traffic categories of their own. Content that is made available through the application would likewise have to be held available in the managed service
infrastructure. In light of this, does Deutsche Telekom intend to continue, for example, the Spotify service in its present form?

5.4 Brief summary and evaluation of Deutsche Telekom's answers dated 7 July 2013

The following section provides a brief summary and subsequent evaluation of the essential statements provided by Deutsche Telekom in response to the questions listed in sections 5.1 through 5.3:

Parameters for the rate model (see 5.1)

- Deutsche Telekom stated that it would raise the bandwidth limit that applies once the inclusive volume is consumed from 384 Kbit/s to 2 Mbit/s as the minimum bandwidth in all rate groups.
- Deutsche Telekom intends to review its fixed network rates six months prior to the actual implementation of the bandwidth limit in 2016. In this context, the inclusive volume shall be reviewed as well. This review and adjustment are to be conducted on a regular basis thereafter if need be.
- On the other hand, Deutsche Telekom does not consider it constructive or necessary to establish set parameters which automatically trigger a raising of the bandwidth limit or an increase in the inclusive volume.

Transparent design of the rate model (see 5.2)

- Customer-specific transparency is to be achieved via the online customer centre.
- Exemptions to the volume rate are to be pointed out in advertising regarding the rates.
- The website is to point out the services that are not counted towards the volume.
- Deutsche Telekom welcomes the Bundesnetzagentur's transparency campaign and wants to introduce it into the work of the industry associations. It is therefore confident that there will be a market-led solution which will eliminate the need for the authorities to lay down transparency rules for the market.
Net neutrality and the potential for discrimination (see 5.3)

- The best-effort Internet is being developed and expanded *independently* of the development of traffic in the managed services field. Capacity for managed services has been expanded *in addition to* best-effort capacity, Deutsche Telekom stated.

- Deutsche Telekom stated that the end customer is restricted only in terms of the bandwidth that is available to him on the end customer access since the higher network levels are sufficiently developed. It noted that it is the customer who decides whether this bandwidth is to be used for best-effort Internet or for managed services.

- Rules for accessing different managed services must be developed, Deutsche Telekom reported. These rules, it added, can build on existing rules for concurrent accessing of Entertain.

- Wholesale offers should make it possible for alternative service providers to offer even managed services via Deutsche Telekom's network at reasonable cost. Deutsche Telekom intends to set up different quality classes for the individual services, based on technical parameters. It plans to detail the wholesale products on a demand-oriented, non-discriminatory basis in good time before the volume limit is implemented.

- A final decision regarding the future commercial positioning of Deutsche Telekom's Spotify mobile communication service has yet to be taken, it reports.

- It also reports that it will additionally offer in future a pure double-play product (Internet and telephone) where the full bandwidth of the customer's access is made available for best-effort Internet services.

**Evaluation of the Bundesnetzagentur**

Deutsche Telekom's response dated 7 June 2013 to the Bundesnetzagentur's questions shows firstly that steps have been taken in the right direction in terms of the company's rate plans. Of positive note are the plans to increase the minimum data transfer rate to 2 MBit/s. In principle, it indicates a willingness to present its rates in a transparent way and to take part in the discussion that the Key Elements on transparency initiated. The avowed commitment to developing the best-effort Internet on a demand-oriented basis is also to be welcomed.

At the same time however, other concrete specifications (such as inclusive volume) have yet to be decided. This is to be done just shortly before the rate model's technical implementation in 2016. Consequently a final assessment is not possible at this point in time.
With regard to the transparent presentation of the services that count towards the data volume, Deutsche Telekom did not provide any specific information concerning the marketing, the conclusion of contracts or the later use of these services. Consequently, Deutsche Telekom’s statement that it is planned to provide information regarding this on its website or its online customer centre must be reviewed once again in detail sufficiently in advance of the rate model’s introduction. The Bundesnetzagentur assumes that there will be in the foreseeable future either a market solution for transparency for end customers or a decision by the Bundesnetzagentur regarding this issue (see the Key Elements regarding transparency and the measurement procedure). Deutsche Telekom will have to be guided by this.

Should, for example, there be a broad range of managed services on offer, the end customer would have to compare different bundles of Internet access and various managed services with one another. As a result, comparing Deutsche Telekom products with the products of other network operators which possibly also offer managed services will be far more difficult for end customers than making comparisons on the basis of transfer rate and price is today. In light of this, the measures proposed by the Bundesnetzagentur on 10 May 2013 to foster transparency in the retail market and for the measurement procedure become significantly more important (see Key Element No. 25: Information from Internet comparison portals).

Particularly when Deutsche Telekom aims to offer a large number of managed services, it must also be clarified how a later discontinuation of individual managed services at wholesale level will be transparently indicated and processed in the contractual relationship between Deutsche Telekom and end customers for the access. This is because, in the event that the provider of a managed service - as a wholesale provider - no longer uses Deutsche Telekom but rather chooses another network provider exclusively, a (major) part of the service is omitted that was the reason why the end customer originally decided to sign an access contract with Deutsche Telekom.

Essential questions are still open regarding the effects that the rate model will have on network neutrality and ensuring non-discrimination:

Looking at the planned development of network capacity for best-effort Internet and managed services, it must be possible to ascertain and check that best-effort Internet is not edged out in actual practice. It is still unclear how this prerequisite can be fulfilled. The importance of the possibly restricted bandwidth at the end user access has not yet been taken sufficiently into account.
An assessment of the planned wholesale products will be possible only when they have been laid out in sufficiently concrete terms. As outlined in section 4.5.2, a hallmark of a managed service from the Bundesnetzagentur's standpoint is that it is provided on a vertically-integrated basis via a closed network and not via the Internet. Deutsche Telekom has not addressed this aspect to date in its statements which focus on the range of different quality categories offered. It points out the need for rules for accessing the various managed services and existing rules for the product Entertain. It did not however make any specific comments on this subject. As a result, practically all the questions regarding the design of a non-discriminatory wholesale regime remain unanswered. In light of the lead time involved when developing and implementing wholesale products, the vague statement that this will be done "on a timely basis before implementation of the volume limitation" is insufficient.

As a rule, managed services should not hinder the innovative capacity of the best-effort Internet and it must be possible for small and medium-sized enterprises as well to realise managed services using wholesale services.

Since not counting Spotify in the mobile communications area constitutes discrimination (see 4.2.4), the Bundesnetzagentur asked Deutsche Telekom whether it intends to continue this offer in this form. Although Deutsche Telekom stressed in its letter dated 15 May that, in the case of Internet services, outside services will not be discriminated against in favour of its own services, it remains open even following Deutsche Telekom's last letter from 7 June whether it will eliminate the discrimination involving Spotify.

Summary

In light of this, it remains to be said that Deutsche Telekom must provide more concrete information and specifications particularly regarding the design of the wholesale regime and non-discrimination of future internet access products and that important questions are still open. As a result, the Bundesnetzagentur is presently unable to issue a conclusive assessment of the planned rate changes and their implications for network neutrality.

Account must also be taken of the fact that the Federal Cartel Office and the state media authorities also deal from their own respective perspective with questions that Deutsche Telekom's rate model raises. The Bundesnetzagentur is in contact with the respective bodies in this connection.
Finally, the discussion must take the European (and international) context into account. The Bundesnetzagentur has participated intensively in the debate over network neutrality for some time now in connection with BEREC, the association of European regulatory authorities. Besides, the European Commission has also announced that it will develop a recommendation on network neutrality.

This report will stimulate a discussion on the need for further measures to ensure network neutrality. The Key Elements on net neutrality which the Bundesnetzagentur will issue this year could also make a contribution to this.