Google

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CMA CLOUD SERVICES MARKET INVESTIGATION

Google Cloud's response to the CMA's Egress Fees working paper dated 23 May 2024

I. Introduction and Executive Summary

1. Google Cloud welcomes the opportunity to comment on the CMA's working paper on egress fees (the **Egress Working Paper**).

2. The CMA is investigating whether data transfer fees charged to customers when they move data out of a provider's cloud network (which the CMA refers to as "egress fees"[1]) act as a barrier to switching and/or multi-cloud such that they may give rise to an adverse effect on competition (**AEC**), including by enabling the two market leaders to entrench their market position further. Google Cloud considers that data transfer fees are a normal feature of the cloud market and that any market-wide intervention could have significant ramifications for our ability to continue to invest, innovate and compete effectively with the two market leaders, AWS and Microsoft.

3. As explained further below:

   a. **The existence and prevalence of data transfer fees does not give rise to competition concerns on a standalone basis (Section II A-B)**. Volume/usage based pricing for ordinary course use of services is commonplace across many well-functioning competitive markets, including the cloud market, and different pricing models reflect the fact that providers compete on a spectrum of networking services across parameters including range, quality, innovation, and price.

   b. **Prices for standard internet egress are consistently trending down and make up only a *de minimis* portion of customers' total cloud spend (Section II C)**. The fact that prices for the most commonly used methods of data transfer are trending down, and are an immaterial part of overall cloud spend, is evidence that competition is working well and that egress fees are unlikely to give rise to an AEC.

   c. **Google Cloud's ability to charge fair and reasonable data transfer fees is fundamental to maintaining a high-quality offering that is capable of challenging providers with significant market power (Section III)**. Our networking products are not commodities – quite the opposite, we offer a range of innovative services that meet different customer demands and needs around service level and quality assurance, low latency (including specifically in a multi-cloud context), resilience, etc. – and provide customers a genuine alternative to the two leading providers. Our prices therefore reflect the quality and innovation of our networking products, as well as our cost and ongoing investment. However, these [✂️] and – unlike those providers which the CMA has recognised have significant market power – we do not have a large established, captive customer base from which to recover our investments through other means in the event of a market-wide removal or cap on egress fees. Intervention in egress fees would therefore have a disproportionate, negative impact on our business.

[1] Given the specific meaning traditionally attached to the word 'egress' in the cloud industry, Google Cloud considers the use of the term 'egress fees' in the context of this investigation to be a potentially misleading misnomer and considers that it is more accurate to refer to data transfer fees. However, Google Cloud understands that in the CMA's Egress Working Paper, the term 'egress fee' is used to refer to external data transfers, including ordinary course serving, switching and multi-cloud transfers (but not ingress or internal data transfers). Any references to 'egress fees' in this response therefore adopt the CMA's definition for consistency. For completeness, 'data transfer fees' is used in instances where Google Cloud is describing data transfer fees more generally (*i.e.*, both internal and external data transfer fees).

d. **The only reasonable conclusion to draw from the quantitative and qualitative evidence in the Egress Working Paper is that egress fees are not a meaningful barrier to switching (Section IV) and/or multi-cloud (Section V).** The CMA's evidence shows that switching-related egress fees account for only a *de minimis* portion of a customer's total cloud spend (consistent with Google Cloud's own modelling), and that customers do not consider egress fees to be a meaningful factor when contemplating whether to move to another CSP. Rather, technical and licensing barriers are consistently cited by customers as being far more significant. [✂].

4. Google Cloud remains of the view that the evidence does not support market-wide intervention in respect of egress fees. If the CMA nevertheless considers that price control remedies are appropriate and necessary, the CMA's Guidelines,[2] evidence in the Egress Working Paper, and precedents are clear that such remedies should only apply to cloud providers with significant market power.

II. Data transfer fees are commonplace across technological industries and consistent with a well-functioning competitive cloud market. Those fees are also trending downwards.

A. Data transfer fees are not a unique feature of the cloud market

5. We remain of the view that the CMA's theory of harm around egress fees suffers from a number of misconceptions around the nature of different data transfers and the legitimate commercial rationale for charging data transfer fees (including for doing so at the point data exits a provider's network[3]). Not only are volume/usage based fees for ordinary course use of services a normal feature of many well-functioning competitive markets, but more importantly, it would not make commercial sense for Google Cloud, as a challenger (with a 5-10% market share), to charge egress fees if they genuinely were a barrier to switching and multi-cloud given that we compete hard to both win business away from the two leading providers and encourage multi-cloud.

6. Moreover, charging for ordinary course network usage is not a unique or novel feature of the cloud market – this is a common pricing structure across technological industries and many other well-functioning markets (*e.g.*, mobile telephony). Indeed, the data transfer fees incurred by cloud customers are similar to the type of usage fees customers would have previously incurred in on-premises legacy data centres (including *e.g.*, wide area network (**WAN**) costs). If anything, data transfer charges are an improvement compared to legacy on-premise data centre costs given that customers can more easily manage those costs depending on their actual usage and business needs while avoiding significant fixed overheads and costs associated with spare capacity.

7. Customer attitudes towards data transfer fees underscore that they are generally viewed as fair and reasonable. The Jigsaw Report notes that while a substantial amount of time was spent discussing the financial arrangements customers have in place with their cloud provider(s), most customers did not bring up egress fees and had to be actively probed on the topic.[4] For many

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2 See CC3 (Revised), Guidelines for market investigations: Their role, procedures, assessment and remedies.

3 To avoid double-charging customers, cloud providers have to decide whether to meter at the point of ingress or egress (*i.e.*, when data leaves our network infrastructure). The industry standard is to charge at the point of exit from the network (similar to utilities) to avoid double-charging customers. This does not mean that cloud service providers (**CSPs**) have decided to 'waive' ingress fees – it simply reflects the fact that the industry only charges a customer once for any particular data transfer (alternatively, there could be a scenario where one provider charges at the point of exit and another provider charges the customer again for that same one-directional data transfer at the point of entry into its network). Another reason why we do not charge for ingress is because ingress is hard to associate with individual customers, projects and products until it is fully ingressed and landed on our equipment. It would take a significant engineering effort to address this challenge while, in contrast, we have sufficient information about egress to meter more accurately.

4 Jigsaw Report, para. 5.1.1.

participants, egress fees were not a major cause of concern, not a meaningful factor in their initial choice of cloud provider or subsequent decisions to switch or multi-cloud, and generally seen as a normal, acceptable cost of using cloud services.[5]

B. The existence and prevalence of data transfer fees – as well as differentiation and innovation around pricing models – shows a well-functioning competitive cloud market

8. Given that data transfer fees are part of the ordinary course provision of cloud infrastructure services (with the majority of external data transfer volumes relating to ordinary course 'serving' egress[6]), it is to be expected that most customers pay them. This does not and cannot constitute evidence that they represent a barrier to switching or multi-cloud.

9. The Egress Working Paper raises a concern that different cloud providers have different fee structures – with some players adopting tiered pricing models whilst others adopt a flatter fee structure[7] or choose to embed these costs into other products and services. Specifically, the Egress Working Paper notes that AWS, Azure and Google Cloud typically charge higher egress fees than other providers such as Oracle and OVHcloud.[8] This observation must be understood in the correct market context and reconciled with the different propositions and associated investments that CSPs have made across their product and service offerings.

10. Pricing differences across cloud providers are evidence of effective competition in a market characterised by heterogeneous goods – cloud infrastructure services, including data transfers, are not a utility or commodity. There are many markets where rivals compete across a range of parameters driven by different customer use cases and needs, and are free to compete to cater to all or some of those. The same is true in the cloud services market – providers compete vigorously across a range of parameters, including quality and innovation (in addition to, *e.g.*, price). In turn, customers have a range of choices available to them across varying price points.

11. Google Cloud's competitive strategy (explained further in Section III below) is to attract and retain customers by providing networking services across our global geographical footprint with maximum security and reliability. To do so, we have invested significantly in our high-quality network infrastructure[9] (in addition to our leasing arrangements) and range of innovative networking products so that we can compete effectively for the full range of customer demands/needs. For example, Google Cloud offers bespoke networking products such as Premium Tier egress which deliver traffic by using our low latency, highly reliable global network as far as possible and relies only on transfer via the public internet for the final limb of the transfer. This backbone network consists of a private fibre network with over 100 Points of Presence (PoPs)[10] around the globe and is designed to tolerate multiple failures and disruptions while still delivering traffic. Premium Tier also comes with >99.9% monthly uptime guarantees across a broader range of covered services as compared to Standard Tier. Some, but not all, cloud providers offer similar options and their pricing structures will reflect this.[11]

12. By contrast, some CSPs such as OVHcloud and Oracle have a more limited product offering in terms of how customer data can be transferred and can therefore adopt a more straightforward flat pricing structure. There are many customers for whom this will be the preferred solution due to

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5 Jigsaw Report, paras. 5.1.2., 5.1.3. and 5.1.9.
6 See [✂].
7 Egress Working Paper, para. 1.31.
8 Egress Working Paper, Figure 1.2.
9 See [✂].
10 See Google Edge Network.
11 Egress Working Paper, para. 1.27(e).

its cost-efficiency and prices for these standard internet data transfers have generally been trending down (see below).

13. The availability of choice in how data transfers are executed, reflected in different price offerings, is a positive feature of the market. Any regulatory intervention that risks removing such choice and product differentiation from the market by harmonising egress fees across the board would likely result in worse outcomes for customers and dampen competition.[12]

C. Prices for standard transfers via the internet have consistently been trending down as a result of competition

14. Across the range of networking solutions available to customers, standard internet transfers are the most commonly used method for ordinary course external data transfers – it involves carrying the customer's data from wherever it is held in the cloud provider's network over the public internet by an ISP to the external destination.[13] This method is offered by all CSPs (including AWS, Microsoft, Google Cloud, OVHCloud, IBM, Oracle and many others) and is used by many customers, as it is often the most cost effective method of transfer for customers whose business does not require them to transfer particularly large volumes on data on a regular basis.

15. The effective price paid for standard internet transfers has been trending down over time.[14] Over the last 5 years, most of Google Cloud's networking SKUs have either experienced no price change or an effective price decrease[15] – clear evidence that there is effective price competition in the market. In particular, Google Cloud introduced a free tier across all Standard Tier SKUs in October 2023, keeping the prices of all other tiers the same. Our free tier for standard internet transfers is more extensive than other free tiers[16] at up to 200 GiB per month per region – another example of effective price competition.

16. The CMA's Egress Working Paper states that even if egress fees were shown to be declining over time, the current level of egress fees may still constitute a barrier to switching and multi-cloud.[17] There is no evidence to support this hypothesis – data transfer fees account for a very small proportion of customers' cloud spend (less than 1% of most customers' annual cloud spend according to the CMA's own analysis[18]) and the Jigsaw Report highlights that egress fees are not considered to be one of the main barriers to switching or multi-cloud.[19]

17. In summary, the fact that almost all customers pay egress fees is not an indicator that competition is not working well. The existence and prevalence of data transfer fees – as well as differentiation and innovation around pricing models – shows a well-functioning competitive cloud market. The evidence shows that (i) fees for standard internet data transfers have been trending down; (ii)

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12 As recognised by customers in the Jigsaw Report, para. 5.1.9.

13 There are differences in where cloud providers 'hand off' traffic to the public internet. We generally seek to carry the traffic across our backbone network closest to the end user destination, consistent with our competitive strategy of differentiating ourselves through our high quality networking proposition.

14 This decline is noted in Microsoft's submission referenced in the Egress Working Paper (para 1.34) and Google Cloud's own data also supports this finding.

15 The CMA has overestimated Google Cloud's prices for Standard Tier Egress in Figure 1.2. For other providers, the prices presented are for North America/Europe/UK, but for Google Cloud, the CMA has used the rates for Johannesburg (africa-south1). The correct rates can be obtained by using the rates for London (europe-west2) and are as follows: 0 - 0.2 TB: free, 0.2 - 10 TB: £0.062 per GB, 10 - 150TB: £0.048 per GB, 150 - 500TB: £0.033 per GB. These rates were obtained using the conversion 1GiB = 1.07GB and an exchange rate of $1 = £0.78.

16 For example, AWS offers up to 100GB/month globally. See, EC2 On-Demand Instance Pricing – Amazon Web Services.

17 Egress Working Paper, para. 1.34.

18 Egress Working Paper, Table 2.3.

19 Egress Working Paper, paras. 2.46 and 2.65.

customers can (and do) negotiate on data transfer fees;[20] and (iii) data transfer fees are in any event a *de minimis* proportion of customers' total cloud spend. In those circumstances, Google Cloud considers that there is no basis to conclude that data transfer fees have a meaningful impact on customer decision-making such that they could give rise to an AEC.

III. Our ability to charge fair and reasonable data transfer fees is fundamental to maintaining a high-quality offering that is capable of challenging AWS and Microsoft

A. Google Cloud has made significant investments to offer customers a broad range of high-quality networking products

18. As explained above, our networking products are not commodities – quite the opposite, we offer a range of innovative services that are designed to meet different customer demands and needs. While not all customers require all of our networking services (and Google Cloud therefore also competes with other CSPs with a narrower offering and regional network), the breadth, range and quality of our networking proposition is an important parameter of competition and one which is crucial to our ability to compete with – and offer customers a credible alternative to – AWS and Microsoft.

19. To that end, we have made (and continue to make) significant investments in our global, fibre-optic software-defined infrastructure network with presence in over 200 countries and territories,[21] including 187 network edge locations, 40 regions, 120+ zones, 113 interconnect locations and 14 sub-sea cables. This high-quality offering is intended to serve the needs of a broad and diversified customer base (in the UK and globally).

20. Across this network, Google Cloud has developed a suite of networking services to allow businesses to choose options that best meet their commercial demands and needs. We seek to differentiate ourselves through innovative networking products such as Cross-Cloud Interconnect, and by offering a range of quality and service level options, including networking product add-ons such as additional security (*e.g.*, Cloud Armour, Cloud Firewall), load balancing (Cloud Load Balancing), etc.,[22] to suit a broad range of needs. Similarly, while both Standard Tier and Premium Tier networking products deliver data to external locations via the public internet, these are very different product propositions.

21. These investments and innovation efforts come at a material cost – indeed, the CMA correctly notes that Google Cloud only recently turned a profit.[23] As a challenger who has to compete fiercely on quality (*e.g.*, latency, resilience, etc.), range and service (as well as price), a decision to remove or cap egress fees would likely disproportionately impact Google Cloud and our ability to continue to invest, innovate and compete for new and existing workloads by offering a range of high-quality services to new and existing cloud customers, in particular those currently captured by AWS and Microsoft.

B. Our prices reflect the quality and innovation of our products, as well as our significant cost base and ongoing investment. Together these factors explain why it is commercially rational that certain types of data transfer are more expensive than others.

22. Google Cloud does not set prices for networking products exclusively with cost recovery in mind – our prices reflect differences in service levels and quality (as well as other 'add-ons') associated

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20 See [✂].
21 See Global Locations - Regions & Zones | Google Cloud.
22 See Products and Services | Google Cloud.
23 CMA, competitive landscape working paper, para. 6.40(b)(iii) and [✂].

with different networking products/services; the need to continue to invest in our infrastructure (as well as the cost associated with ongoing leasing arrangements) and product innovation; as well as the commercial reality that certain types of data transfer are indeed more expensive than others (*e.g.*, because they rely on our expensive edge network). There are therefore perfectly legitimate, and economically rational, reasons for why our fees for external data transfers are higher than for internal transfers, as well as why prices for certain products or in certain regions are higher or lower, and why our prices may be different from those charged by other providers (both those larger and smaller than us).

23. Google Cloud's network infrastructure is complex and the underlying costs for our networking services consist of many different components, suppliers and inputs. For example, the cost incurred through third-party telecom providers or ISPs, the cost of personnel, hardware and physical infrastructure, maintenance and security, and energy supply (for which prices differ regionally). Although many of these costs are shared across networking products and services [✂️], significant changes in supplier and/or equipment and infrastructure costs will generally require us to reassess our data transfer pricing.

24. While it is accurate to say that much of the same 'backbone' network infrastructure is used to support internal and external data transfers – there are significant additional hardware components, infrastructure, software and other costs associated with the final 'external' leg of a data transfer. We therefore disagree that "*the only [...] justification for egress fees is the cost for using internet bandwidth from ISPs*"[24] – this is an overly simplistic view which does not sufficiently take account of the complexity of the networking infrastructure which supports external data transfers.

    a. For **transfers via the public internet:** Internet transit/peering is delivered via peering points of presence, which are not generally present in a Google Cloud region or a Google data centre but rather in 'carrier neutral facilities' which have multiple ISPs and peers.[25] Managing such locations incurs incremental costs, such as: [✂️].

    b. For **dedicated connections**: Google Cloud Interconnect customers use dedicated 10/100G ports on Google Cloud's network and expect guaranteed 99.99% reliability and have protected capacity for the bandwidth they purchase – this means that [✂️]. These costs are unique and incremental as Interconnect is a dedicated network.

25. In contrast, internal data transfers are generally cheaper and easier to execute (and we have greater control over latency, security, etc.) as data can travel along Google Cloud's network infrastructure backbone without needing to (i) utilise the expensive edge network; or (ii) establish a physical connection with an external destination. The network devices used in the internal network are also different and less costly. It therefore makes commercial sense for our charges for external transfers to take into account the costs and investments associated with the edge network and for our charges for internal transfers not to do so.

C. Our cost base, quality of service and pricing structure differs from other providers

24 Egress Working Paper, para. 3.14.

25 As regards peering specifically, we invest in private and public peering links as well as settlement free peering arrangements, which - importantly - are not 'free' and do not render costs avoidable as suggested in the Egress Working Paper. Under these settlement arrangements each party must still pay for their own devices and ports, and the extensive network infrastructure which connects their data centres to the point at which the CSP-ISP connections are made.

26. More broadly, as a challenger, we have to innovate harder to provide bespoke networking solutions and offer higher levels of service, quality and security in order to tempt customers away from their primary provider. This puts us in a very different position from AWS and Microsoft.

27. The assumption in the Egress Working Paper that Google Cloud's margin and unit cost are similar to AWS and Microsoft simply because we have broadly comparable geographic footprints[26] is flawed for a number of reasons. In fact, as the evidence we have provided to the CMA shows, [✂].

28. Likewise, it is also inaccurate to conclude that other smaller CSPs' data transfer fees (insofar as they are charged transparently and not embedded in non-networking cloud products, which would not be uncommon) are more cost-reflective than ours.[27] As noted above, a conclusion like this must be based on an actual comparison of these cloud providers' prices and costs, which we understand the CMA has not been able to undertake. Differences in prices, cost and margins are likely to be reflective of different customer bases and preferences and/or different quality of product offerings, as well as different business models deployed by different CSPs. For example, while we try to differentiate ourselves based on the quality of our data transfer services (which means that we need to invest more in our networking infrastructure than other CSPs with a different competitive strategy), other providers may wish to differentiate themselves specifically based on a lower price for a particular product, choosing to make up the difference on other products or hoping to increase revenue by attracting more customers who value that lower price.

29. The factors outlined above explain why it is economically rational for Google Cloud to charge data transfer fees and, more specifically, why it is rational that we charge higher fees for external data transfers than for internal transfers, why prices for certain products are higher or lower, and why our prices may be different from those charged by other providers.

30. We now explain in **Sections IV** and **V** below why there is clear evidence that this delta between our internal and external data transfer fees is clearly not a meaningful switching or multi-cloud barrier.

IV. The quantitative and qualitative evidence set out in the Egress Working Paper shows that egress fees are not a meaningful barrier to switching

A. Customer feedback shows that egress fees are not a meaningful barrier to switching

31. The majority of customer feedback in the CMA's Egress Working Paper shows that egress fees are not a meaningful barrier to switching. Of customers surveyed by the CMA, "*only a few…spontaneously identified egress fees as a challenge [to switching]*"[28] and just "*[a] few…indicated egress fees would impact their decision making when considering a change of cloud provider*".[29] While the scope of the CMA's customer feedback exercise was limited, the findings of the Jigsaw Report are consistent with the other evidence available to, and considered by, the CMA – including Google Cloud's own evidence and Ofcom's customer survey.

32. Google Cloud's own experience of engaging with customers, as well as our quantitative evidence submitted to Ofcom and the CMA, shows that – even prior to the introduction of Free Switching programmes – switching-related egress fees accounted for a *de minimis* proportion of a customer's total cloud spend, whereas other barriers, including artificial licensing restrictions, result in switching related costs that are over [✂] times the amount of switching related egress costs for small customers, over [✂] times for medium-sized customers and over [✂] times for large

26 Egress Working Paper, para. 3.42 and Fn 92.
27 Egress Working Paper, para. 3.74.
28 Egress Working Paper, para. 2.39.
29 Egress Working Paper, para. 2.44.

customers.[30] Google Cloud's evidence appears to also be consistent with data provided by other cloud providers and IDC.[31]

33. All of this evidence together aligns with the findings set out in Ofcom's October 2023 Final Report – *i.e.*, that customers rarely consider egress fees as a barrier to switching. Only 6% of Ofcom's market test respondents said that egress fees were the main switching barrier.[32] We note that Ofcom's findings were drawn from 64 in-depth interviews and 1,004 online quantitative interviews with decision-makers - a wider pool of customers than the CMA engaged with for the Egress Working Paper.[33]

34. The fact that the large majority of customers do not consider egress fees to be a meaningful impediment to switching or multi-cloud highlights that egress fees are not a material driver of customers' decisions on a market-wide or material scale. The possibility that a small number of customers might view egress fees as more significant is not sufficient to reach a conclusion that there is an AEC.[34]

B. Technical and licensing challenges are the main barrier to switching

35. Based on the Jigsaw Report, the CMA notes that other issues, notably technical barriers and licensing restrictions, are customers' "*main barriers to switching*".[35] Jigsaw's research "*shows that there are very significant technical barriers that reduce participants' willingness to consider switching cloud provider*".[36] The significance of technical challenges relative to egress fees is aptly summarised in the report: "*the technical barriers [...] as well as the perceived lack of a strong argument in favour of switching or using multiple clouds, tend to weigh heavier than any potential concern around egress fees*".[37]

36. The Egress Working Paper and Jigsaw Report reinforce the findings of Ofcom's market test that technical and licensing challenges are the main barriers to switching. The most mentioned single main switching barrier was the time and cost of changing cloud providers (cited by 20% of respondents). However technical difficulties in transferring data (*i.e.*, data portability) and applications and software (*i.e.*, application portability) were cited as the main switching barrier by a combined 23% of respondents. These findings align with our own engagement with customers, as well as the experience of other smaller CSPs such as IBM.[38]

37. In those circumstances, we consider that the evidence strongly suggests that the CMA should focus on understanding and addressing any artificial technical and/or licensing barriers put in place by the two leading providers (in particular, Microsoft) that seek to disincentivise switching, given that the effective removal of such barriers will allow smaller cloud providers to compete more effectively for customers' business. Put differently, there is no evidence in the CMA's Egress

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30 See [✂].

31 Egress Working Paper, para. 2.23.

32 Ofcom, Cloud services market study final report, para 5.153.

33 Decision-makers were drawn from a range of UK companies, across size bands and industry sectors, which were either existing users of cloud computing services, or considering adoption within 12 months. Ofcom, Cloud Services Market Research, p. 8 and 9.

34 As the CMA will appreciate, even if egress fees might lead a small number of customers to decide against switching or multi-clouding, the fact that they do not hinder the large majority of customers means that the general propensity to switch and the speed of development of multi-cloud will not be affected by egress fees.

35 Egress Working Paper, para. 2.47.

36 Jigsaw Report, paras. 1.4.8 and 1.4.11.

37 Jigsaw Report, para. 1.4.19.

38 Egress Working Paper, para. 4.23. "*IBM also said that its experience is that customers are more focused on technical barriers than on the cost of egress fees.*"

Working Paper or the Jigsaw Report that suggests that – once those barriers are removed – the existence of egress fees alone would dissuade customers from switching cloud providers.

C. CMA's analysis of switching costs as proportion of total cloud spend shows that egress fees are not a switching barrier

38. The CMA's hypothetical 'one-off' switching cost modelling notes that "*most of AWS', Microsoft's and Google's UK customers would have had to pay less than 5% of their total annual spend if they were to transfer all of their data out of their current cloud*" and "*for the average UK customer of Google, 'one-off' switching would represent [0-5]% of their average annual costs*".[39] The data reflects customer sentiment in the Jigsaw Report. One respondent commented that "*It's such a low fee that we pay [...] It's maybe just a few percent of our spending*" and another that "*It honestly isn't looked at. [...] And I don't believe the fees are that much*".[40] Indeed, the Jigsaw Report concludes that customers who have switched "*considered the egress fees they incurred a price worth paying*".[41]

39. The findings are entirely consistent with the submissions and analysis that Google Cloud has provided to Ofcom and the CMA which show that, even prior to the introduction of Free Switching, egress fees relating to switching/exit accounted for only a very small proportion of an average customer's total spend with Google Cloud.[42]

40. The CMA concludes that its modelling "*serve[s] only to set out some contextual information about current levels of spending on egress fees*".[43] While this statement is reasonable in isolation, when the CMA's quantitative modelling is viewed in the round with the other qualitative evidence, there is only one conclusion that can reasonably be drawn: the minimal cost which egress fees represent relative to customers' total cloud spend highlights that these fees are simply not a significant barrier to switching.

D. In any event, the introduction of Free Switching by Google Cloud, AWS and Microsoft takes any switching related concern off the table

41. While Google Cloud remains of the view that egress fees clearly are not a barrier to switching, we wanted to take the issue off the table to allow regulators to focus on addressing the real switching barriers in the market. With this in mind, our global Free Switching programme was launched on 11 January 2024.[44]

42. Following our lead, AWS and Microsoft introduced similar programmes. The Egress Working Paper recognises that as a result of these changes most customers can now freely switch their entire cloud spend to another cloud provider or an on-premises environment (with Google Cloud and AWS also supporting free partial switching).[45] The only reasonable conclusion that can be drawn is that egress fees do not pose any – real or perceived – barrier to customer switching

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39 Egress Working Paper, para. 2.30(a) and 2.28(c).

40 Egress Working Paper, paras. 5.1.2 and 5.1.3.

41 Jigsaw Report, para. 1.4.13.

42 Google Cloud, Cloud Services Market Study, Response to Ofcom's Interim Report and Consultation on its Proposal to make a Market Investigation Reference, para. 10 and Google Cloud, Cloud Services Market Investigation, Response to the CMA's Issues Statement, para. 27.

43 Egress Working Paper, para. 2.72.

44 Google Cloud notes the CMA's observation at para. 1.38 of the Egress Working Paper that "*free switching egress only applies to data residing in Google Cloud storage and data management products*". We note that these products capture effectively all of a customer's data held in Google Cloud – it would not make sense (nor any difference) to 'extend' free switching to products and services that do not hold data (as no data can be transferred in or out of such products/services). Our Free Switching Program is therefore comprehensive.

45 Egress Working Paper, paras. 1.38-40.

V. Egress fees are not a meaningful barrier to multi-cloud either

A. Customer feedback shows that egress fees are not a meaningful barrier to multicloud either

43. Customer feedback in the Egress Working Paper shows that egress fees are also not a meaningful barrier to multi-cloud. The Jigsaw Report highlights that, as with switching: "*in almost no case[s] were egress fees [cited as] the main or even one of the main barriers to...multi-clouding*"[46]; the majority of participants cited technical challenges, combined with the lack of a clear business case, as the main barriers to multi-clouding;[47] and technical challenges "*tend to weigh heavier than any potential concern around egress fees*".[48]

44. Furthermore, those participants in the Jigsaw Report who do multi-cloud considered the egress fees they incurred a price worth paying to deliver their cloud strategy.[49] This is an important piece of feedback that does not appear to have been considered further in the Egress Working Paper. Integrated multi-cloud brings significant benefits to customers, including avoiding vendor lock-in, enhanced operational resilience, combining best-in-class cloud products to suit commercial needs, and the ability to carry out pricing arbitrage between two providers to reduce costs. In Google Cloud's experience, customers considering moving to an integrated multi-cloud architecture (i.e., those that have identified a good business case for it) weigh these benefits against any limited incremental delta in egress fees (which, as explained below, is *de minimis*) and generally find that the former vastly outweighs the latter.

B. To understand whether egress fees are a deterrent to multi-cloud, the CMA must consider whether there is a meaningful delta between single-cloud and multi-cloud egress fees

45. Recognizing the limitations of the Jigsaw Report and the limitations of using data on total egress spend to assess the importance of egress fees on multi-cloud decisions,[50] we consider that the quantitative evidence we have submitted to the CMA on multi-cloud related egress fees to be of significant probative value. Our [✂] shows that data transfer fees are not a meaningful barrier to our customers' multi–cloud decisions, because the incremental difference in data transfer costs between a multi-cloud and single-cloud set up is *de minimis* (less than [✂]). In fact, the total data transfer charges as a proportion of overall cloud spend on a particular workload are very small and largely the same across multi-cloud and single-cloud ([✂] and [✂] respectively).

46. Estimating the share of data transfer costs in a multi-cloud setup can be complex because it will vary by customer and individual use case. However, we consider that our cost modelling, based on a real-world customer's multi-cloud set-up, provides a robust assessment of the impact of egress fees on multi-clouding. [✂]. [✂].[51]

47. Furthermore, building on the customer feedback in the Ofcom survey and the Jigsaw Report, the more important question for the CMA to consider is how the *de minimis* difference in egress fees in a multi-cloud vs a single-cloud scenario compares to the far greater (artificial) difference in costs imposed by artificial technical and licensing restrictions. For example, consider a customer who wants to migrate an on-premises workload and has to choose whether to migrate to a single or a multi-cloud setup. If the customer's legacy on-premises workload is based on Microsoft products (*e.g.*, an application written in .NET and running on Windows Server), the customer can use the

46 Jigsaw Report, para. 5.2.2.
47 Jigsaw Report, para. 5.2.3.
48 Jigsaw Report, para. 5.3.8.
49 Jigsaw Report, para. 5.3.2.
50 Egress Working Paper, para. 2.12.
51 [✂].

Azure Hybrid Benefit and migrate the workloads to Azure with no additional licensing costs. But if the customer wants to use a multi-cloud strategy involving both Azure and GCP, for example in order to maximise resiliency in case of failure in Azure, the customer would have to re-purchase all of its Windows Server licences for the same workload to run on GCP. It is worth noting that these restrictions are not imposed by other providers of operating system software - for example Red Hat. For most customers, the incremental cost of duplicating Windows Server licences would be far more significant than the *de minimis* cost of additional egress fees associated with replicating the single-cloud set-up in GCP.[52]

48. Finally, we also note that the CMA is still considering the multi-cloud scenarios used by Ofcom. We have previously shared our view with the CMA that Ofcom's scenarios are overly simplistic and do not answer the question of the incremental difference in data transfer fees as between a multi-cloud and single cloud set-up.[53] In short, we consider that these scenarios are not a reasonable or representative estimate of the proportion of annual spend that a customer may spend on egressing data between different cloud providers in a multi-cloud set-up because (i) Ofcom appears to assume that in a multi-cloud setup, customers would transfer all of the new data they generate in a year to the secondary cloud provider (this is not a realistic scenario – even in a multi-cloud set-up, customers will transfer only data that is needed to achieve the desired commercial outcome) and (ii) Ofcom appears to assume that a customer would substantially increase the amount of data it stores and transfers, but that its overall spend would not increase at all (this is also not realistic – in circumstances where a customer sees a meaningful increase in its data storage volumes, this is usually also accompanied by an increase in overall cloud spend).

49. Critically, Ofcom's analysis did not consider whether the incremental difference in internal vs external data transfer fees - the most relevant data point - is sufficiently meaningful to deter customers from opting for a multi-cloud setup (especially when compared to the other, far greater costs, the customer may incur due to technical, commercial and/or licensing barriers imposed by certain CSPs). In contrast, the estimates presented by Google Cloud show that, once appropriately modelled, the incremental difference in data transfer fees between multi-cloud and single-cloud in each scenario would be *de minimis* and clearly not a barrier – both on a standalone basis, but especially when compared to the incremental difference in costs arising as a result of certain artificial technical and licensing barriers.

C. Customers are well-equipped to design their infrastructure in a way that minimises their data transfer costs

50. Google Cloud also notes, consistent with customer feedback,[54] that most customers with an integrated multi-cloud set-up further mitigate the relevance of egress fees through well thought-out cloud architectures.

51. The fact that customers take data transfer flows (and associated data transfer fees) into account when designing their integrated cloud architectures does not mean, as the Egress Working Paper appears to suggest,[55] that egress fees are a barrier to customers fully adopting the integrated multi-cloud architectures that they want or that they are otherwise accepting sub-optimal outcomes. Rather, the opposite is true – an effective and resilient multi-cloud architecture will, by its nature, be designed to achieve optimal levels of performance, latency and therefore avoid unnecessarily moving high volumes of data back-and-forth. For example, our customers commonly use innovative Google Cloud products and services, such as BigQuery Omni and Anthos (GKE

52 See [✂].
53 See [✂].
54 Egress Working Paper, para. 2.63 and Jigsaw Report p. 67.
55 Egress Working Paper, para. 2.54.

Enterprise) which avoid unnecessary data transfers and related costs being incurred and therefore minimise data transfer fees in a multi-cloud set-up.

52. Moreover, designing a multi-cloud set-up that avoids redundant data flows is to be encouraged – the customer achieves a higher degree of operational efficiency and functionality across its multi-cloud architecture, whilst also minimising the environmental impact of its cloud footprint and avoiding placing unnecessary burdens on a cloud provider's finite networking infrastructure capacity and resources.

VI. If the CMA considers that current levels of switching and multi-cloud are at suboptimal levels, any intervention should address the root causes identified by customers

53. As set out in Sections IV-V above, the CMA's Egress Working Paper, Jigsaw Report and Ofcom market study consistently find that technical challenges and artificial licensing restrictions are the main barrier to switching and multi-cloud. While Google Cloud is generally able to innovate around technical barriers, we recognise that for certain customers these challenges are real and that they therefore are likely to have an impact on their decision-making.

54. This is supported by the CMA's technical barriers working paper which identifies certain technical limitations and asymmetries, in particular in respect of certain popular AWS and Microsoft services. Consistent with Google Cloud's own experience, customers emphasise concerns and challenges around Microsoft's IAM services and tools, and highlight the impact these artificial technical restrictions have on their ability to switch and multi-cloud.[56] These technical challenges may indeed make it burdensome, costly and unattractive for customers to move incremental workloads to secondary cloud providers – even when those providers offer competitive (or lower) egress fees.

55. However, more critically, it is simply not possible for Google Cloud (and other cloud providers) to find workaround solutions to artificial licensing restrictions. These issues are particularly acute in respect of Microsoft's ecosystem of enterprise software solutions which includes several 'must-have' non-cloud products for enterprise customers. The overall strength of Microsoft's artificial licensing restrictions is such that, in many circumstances, customers have no economically reasonable alternative to using Microsoft cloud products. Even the complete removal of egress fees by providers such as Google Cloud, would not come anywhere close to being able to compensate for or overcome these artificial barriers.

VII. Remedies with respect to egress fees are neither necessary, reasonable nor appropriate

A. Intervention in egress fees across the board is not supported by the evidence

56. Google Cloud remains of the view that market-wide intervention in egress fees is unnecessary and not supported by the evidence. Egress fees make up a very small percentage of a customer's total cloud spend (as shown by our evidence and the CMA's own analysis)[57] and customer feedback overwhelmingly supports the conclusion that egress fees are simply not a meaningful or relevant consideration when it comes to a customer's decision of whether or not to switch cloud providers or adopt a multi-cloud strategy,[58] and therefore cannot reasonably be seen to give rise to an AEC.

57. We believe that the removal of egress fees does nothing to address the actual barriers to switching and multi-cloud – artificial technical and licensing restrictions erected by the two providers with significant market power – while risking inefficient market outcomes as well as decreased innovation and product quality.

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56 CMA, technical barriers working paper, para. 6.46 et seq.
57 Egress Working Paper, para. 2.72.
58 Egress Working Paper, paras. 2.46 and 2.65.

B. Nevertheless, if the CMA considers regulatory intervention appropriate - remedies should only apply to cloud providers with significant market power

58. We believe that market-wide intervention in egress fees would not only fail to address the root cause, it would likely also result in negative unintended consequences – especially for smaller cloud providers like Google Cloud (as the CMA itself acknowledges[59]) who do not have a large established, captive customer base from which to recover significant infrastructure investments through other means. Consequently, market-wide intervention in egress fees is unlikely to meet the requisite standard of proportionality set out in the CMA's Guidance,[60] especially when the potential disadvantages are weighed against the aims pursued – *i.e.*, removing those barriers to switching and/or multi-cloud that are sufficiently material such that they are capable of giving rise to an AEC.

59. In view of the need to identify a remedy that is both the least onerous and proportionate to the objectives being pursued, price control remedies have historically focussed on regulating pricing freedom for dominant companies. For example, in the CMA's mobile radio network services market investigation,[61] Airwave Solutions (and its owner) were found to have unilateral market power and the CMA decided on a 'charge control' remedy imposed on Airwave Solutions in lieu of a market wide remedy. This is also consistent with Ofcom's approach in the Wholesale Fixed Telecoms Market Review 2021-2026, where Ofcom identified loyalty discounts or pricing contingent on large volume commitments used by Openreach (but not smaller suppliers) as a potential concern because of the risks that such discounts by the incumbent might undermine the growth of new competition, and the remedy accordingly was applied only to Openreach and not market-wide.

60. Therefore, to the extent that the CMA considers remedies are required, Google Cloud agrees that such remedies should not apply market-wide, but rather should only apply to cloud providers with significant market power (AWS and Microsoft).

61. Please see **Annex** for Google Cloud's responses to the CMA's consultation questions on potential remedies.

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59 Egress Working Paper, para. 4.38.

60 See CC3 (Revised), Guidelines for market investigations: Their role, procedures, assessment and remedies (publishing.service.gov.uk), para. 344(d).

61 See CMA, Mobile Radio Network Services, Final Report.

Annex - Google Cloud's responses to remedy consultation questions

As set out in our main submission, Google Cloud considers that data transfer fees are a normal feature of the cloud market and that any market-wide intervention could have significant ramifications for our ability to continue to invest, innovate and compete effectively with the two market leaders, AWS and Microsoft. Google Cloud therefore responds to these consultation questions solely for completeness, in the event that the CMA is nevertheless minded to pursue remedies related to egress fees.

(a) How should we define the scope and duration of any egress fee remedies?

Which providers should be in scope and duration

Price control remedies have potentially wide-reaching effects on a market. As the CMA acknowledges, a market-wide remedy on egress fees could have a disproportionately negative impact on smaller players like Google Cloud who are at a different stage of their investment and growth.[62] This could create the perverse result of entrenching the market power of AWS and Microsoft further.

Google Cloud therefore supports the CMA's emerging view – consistent with its guidance and precedent – that any pricing and/or discounting restrictions should be limited to cloud providers with significant market power (AWS and Microsoft).[63] Any restrictions on egress fees should continue to apply for as long as a cloud provider retains market power (with appropriate sunset and/or review clauses).

Which services should be in scope

Google Cloud agrees with the characteristics the CMA has identified that differentiate direct connections from transfers via the public internet.[64] We consider that intervention in respect of fees for external transfers via the public internet would be capable of comprehensively addressing any CMA concerns around potential barriers to switching and/or multi-cloud, given that this is the most commonly used form of transferring data externally.

Therefore, insofar as remedies are deemed necessary and appropriate at all, we agree that bespoke and/or premium networking solutions should be excluded from the scope. This approach would be consistent with the CMA's Guidance which requires remedies to be, *inter alia,* proportionate and no more onerous than needed to achieve their aim.[65]

(b) To what extent should voluntary commitments made by some cloud providers to provide free switching egress globally be taken into account in our remedies assessment? Given eligibility requirements, customer self-nomination and applicability to switching but not multi-cloud usage, to what extent may these commitments impact UK customers?

We consider that the launch of our Free Switching Programme, which has been followed by AWS and Microsoft, is relevant to the CMA's remedies assessment on the basis that these programmes have effectively taken the issue of egress fees as a potential barrier to switching off the table.

Google Cloud's Free Switching programme extends to all customers globally – including UK

62 Egress Working Paper, para. 4.38.
63 See also our response to the CMA's Consultation Questions on CSA remedies.
64 Egress Working Paper, para. 4.40.
65 See CC3 (Revised), Guidelines for market investigations: Their role, procedures, assessment and remedies (publishing.service.gov.uk), para. 344.

customers (no size, minimum spend or minimum contract duration requirements) – and all storage and data management products are covered. For the avoidance of doubt, our programme also covers partial switching.

Given that these programmes are now widespread, we currently consider that it would not be viable to retrospectively narrow the applicability of our Free Switching program – the reputational and commercial damage to our business would be severe. This, combined with the fact that customers simply do not consider egress fees to be the main barrier, or even one of the main barriers to switching, is directly relevant to the CMA's assessment of whether intervention in switching related egress fees – even following industry-led action to remove such fees – is proportionate, necessary and effective in achieving the aim of removing any significant switching barriers that give rise to an AEC (which egress fees are not).

In respect of addressing multi-cloud usage, Google Cloud urges the CMA to focus on remedies that remove those artificial technical and licensing restrictions which customers consistently identify as the real barriers to multi-cloud adoption.

(c) What would be the estimated costs to cloud providers and/or other impacted parties of implementing each of the potential egress fees remedies?

While we currently do not have an estimated cost of impact, it is clear that a market-wide remedy on egress fees would have a disproportionately negative impact on smaller players like Google Cloud.

As a challenger CSP with a 5-10% market share, Google Cloud has made significant infrastructure investments and launched innovative networking products that come at a material cost – indeed, the CMA correctly notes that we only recently turned a profit. Our cost base as regards our network infrastructure investment therefore likely differs from AWS and Microsoft, as well as from smaller CSPs. A decision to intervene in egress fees across the market, would disproportionately impact Google Cloud and our ability to continue to invest, innovate and compete for new and existing workloads, in particular those currently captured in AWS' and Azure's 70-80% share of the market.

On this basis, any intervention in egress fees should be limited to those players with significant market power (AWS and Microsoft).

(d) Are there any alternative remedies that would be as effective as those set out in this paper in addressing any barriers to switching and/or multi-cloud for customers arising from egress fees, and that could be less costly and/or intrusive?

If the CMA concludes that intervention in egress fees is necessary and appropriate, Google Cloud agrees that limiting any pricing restrictions to those providers with significant market power (AWS and Microsoft) would amount to the most effective and proportionate approach.

However, we consider that the removal of egress fees is generally an intrusive measure that will be ineffective in addressing the actual barriers to switching and multi-cloud – *i.e.*, certain technical restrictions and artificial licensing barriers. Intervention to remove these barriers (which customers consistently identify as the real barriers to switching and multi-cloud) will be far more effective, less intrusive and easier to monitor, and result in greater benefits for all market participants by creating a level playing field for all CSPs.

(e) Could ASNs be a reasonable proxy for determining whether an external data transfer has gone to another cloud provider? Are there ways that ASNs could be feasibly supplemented (*e.g.* a step in the data transfer process that requires customers to select their purpose from a menu) to more accurately determine the purpose of a data transfer?

As multiple cloud providers have submitted,[66] the use of identification data associated with data transfers (*e.g.*, BGP/ASN) is complex and subject to significant technical limitations.[67] Google Cloud also considers that, even if such an industry-wide solution was technically feasible (which is highly uncertain) the proposed use of identification data associated with data transfers in this way would result in the collection and processing of large volumes of sensitive customer data by cloud providers (*i.e.*, monitoring exactly where an individual customer's data packet is being transferred to), which many customers may not find a desirable outcome.

We therefore do not consider that this would be a viable, workable solution to more accurately determining the purpose of an individual customer's data transfer.

(f) In relation to the potential remedy of capping egress fees at cost, how should the relevant costs be determined, and cap enforced? What types of costs should or shouldn't be included in determining a cap at cost?

Google Cloud considers that it would be inappropriate to identify a fixed list of cost items that can or cannot count towards any fee cap measure. As set out in our main submission, different cloud providers have vastly different business models, cost allocations, and classifications into fixed/variable and direct/indirect costs. Moreover, certain costs that may be relevant to one provider's business may not apply to another (for example, because the cloud provider does not operate in a certain region or does not offer a particular method of external data transfer).

A 'fixed list' approach would likely result in significant practical challenges around implementation and compliance, and would likely disproportionately affect a challenger CSP like Google Cloud who has invested heavily in providing a broader range of high-quality networking products and services in order to provide an effective competitive constraint on (and realistic customer alternative to) the two leading providers. It could also result in less pricing transparency for customers if certain networking cost items that are not on the permitted list end up being embedded in, and recovered through, the pricing of non-networking cloud products and services. More broadly, we consider that a remedy which seeks to cap egress fees at cost could result in less pricing certainty for customers, as fees will fluctuate constantly based on the underlying cost items (*e.g.*, energy, labour costs, changes in ISP rates, changing in leasing costs, etc.).

Insofar as the CMA considers it appropriate and necessary to cap egress fees, we therefore consider that there should be flexibility for individual cloud providers to make confidential submissions to the CMA on what the appropriate cost level for their business is. This would also be the most appropriate approach given that this level of information around an individual provider's cost base is highly commercially and competitively sensitive.

(g) In relation to the potential remedy of capping egress fees by reference to other fees charged by cloud providers, what would be an appropriate reference fee for setting the cap and why?

For similar reasons to those noted in response to (f) above, we foresee significant practical implementation and compliance challenges with such a proposal given the vastly different nature of different cloud providers' business models, product offerings and pricing structures.[68]

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66 Egress Working Paper, para. 4.41.

67 See [✂️].

68 A similar cap was considered as part of the French Digital Bill, but ultimately not included.

(h) Are there any relevant customer benefits in relation to egress fees that we should consider as part of our assessment of a remedy package?

We believe that data transfer fees allow smaller CSPs, like Google Cloud, to continue to invest in developing a range of networking products as well as maintaining, expanding and upgrading their network infrastructure. This, in turn, generates significant benefits for customers by fostering a competitive market that provides greater choice and gives customers credible alternatives to the two large incumbents. For the reasons explained in our submission above, we consider that market-wide intervention in egress fees would put these customer benefits at risk.

Additionally, a market-wide removal of egress fees also carries a risk of inefficient usage of (finite) networking capacity and resources, which would not only negatively affect the availability of network capacity for customers across the industry, but would also unnecessarily give rise to a greater carbon footprint and related harm to the environment.

(i) Would a complementary information transparency remedy be required in order for a price control remedy to be effective?

Google Cloud considers that there is already a high degree of transparency around data transfer pricing in the market – *i.e.*, most providers publish their list prices and provide various price calculator tools. While we therefore do not consider further intervention necessary, we would generally support any measures that seek to further improve pricing transparency. However, we do not consider that increasing the amount of information available to customers would address the main barriers to switching or multi-cloud, which are artificial licensing restrictions and certain technical barriers imposed by providers with significant market power.