

Appendix O: Customer views on egress fees

- O.1 This appendix sets out in greater detail the views expressed by customers in relation to egress fees.
- O.2 To inform our views on whether and to what extent egress fees may influence customers' decisions about switching and multi-cloud, we gathered information from large customers of several cloud providers.¹ We asked customers in writing and on calls about a range of issues, including:
- (a) their use of public cloud computing and the associated architecture
 - (b) factors influencing their choice of public cloud
 - (c) the suitability of alternative clouds for their needs
 - (d) their reasons for using a single or multiple cloud providers
 - (e) integration of multiple clouds (where applicable); and
 - (f) their experiences of attempting to switch public cloud providers
- O.3 The Jigsaw report also covered these areas.²
- O.4 The appendix is structured as follows:
- (a) first, we look at customer evidence related to switching
 - (b) second, we look at customer evidence related to multi-cloud; and
 - (c) finally, we summarise evidence on transparency and predictability of customers' spend on egress fees
- O.5 Our evidence was gathered from customers before the introduction of programmes for free egress fees for switching. We address the potential impact such programmes may have on our analysis in Chapter 5 and Appendix N.

¹ AWS, Microsoft, or Google, IBM or Oracle.

² [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 1.2.4. and section 9.3

Switching

Large customers' views on switching

- O.6 In interpreting evidence from customers, we consider that:
- (a) if a customer has considered switching or has switched, they are likely to have a more informed view of whether egress fees are a barrier to switching. In contrast, if a customer is relatively new to public cloud and has not considered switching, then they may be less likely to have a view informed by direct experience. In that context, we may place more weight on customers that have considered switching.
 - (b) customers' perceptions and descriptions of the role of egress fees in decisions about switching may be influenced by their importance relative to other barriers.³ This may explain why some customers do not highlight egress fees as a determining factor, even though such fees may have affected their switching behaviour.⁴
- O.7 In this context, we asked large UK customers whether they had previously switched or considered switching between public clouds and, if so, to explain any challenges they encountered (or anticipated they would encounter), distinguishing between commercial (including egress fees, committed spend discounts and software licensing costs) and technical aspects. We also asked large UK customers who had never considered switching why they had not considered switching.

Customers that have never considered switching

- O.8 Many customers we spoke to had never considered switching because they had only recently moved to or were satisfied with their current provider. For example:
- (a) a financial service provider said that its current cloud provider had 'continued to meet and exceed [its] infrastructure requirements like scalability, security, compute power and global presence'.⁵
 - (b) a software company said that it had been using public cloud since 2019, so switching clouds had not been 'technically relevant'.⁶

³ For example, a customer may have initially considered switching, but after conducting an initial assessment of the technical effort involved in switching, ultimately decided against it without considering other commercial aspects. In this situation, it is plausible that egress fees could still have affected switching behaviour in the absence of that technical effort.

⁴ Customers may have become accustomed to egress fees and consider it an unavoidable cost of the service, given most providers charge them.

⁵ [redacted] response to the CMA's information request [redacted].

⁶ [redacted] response to the CMA's information request [redacted].

- (c) at the time of submission, an insurance company said it was ‘broadly satisfied with current pricing and service levels’ from their current cloud provider.⁷ Since then, however, it has seen a hardening of their current cloud providers’ stance with ‘less recognition of existing footprint’ and ‘more emphasis on commercial models that incentivise growth and drive greater lock-in’.⁸

O.9 A few customers that have never considered switching explicitly identified egress fees as a factor that could disincentivise switching. This was because egress fees can be significant given the volume of data stored. For example:

- (a) a technology company submitted that, as its storage requirements are significant, it was aware the egress charges would be significant, and it has therefore ‘operated around them to date by keeping specific and related projects within a single provider’. It continued that ‘the significance of such fees means that they will be subject to close monitoring and management’.⁹
- (b) a large government department submitted that ‘switching between cloud suppliers brings significant egress charges’.¹⁰
- (c) a logistics company said that it was incentivised to remain with its existing cloud provider due to egress fees (amongst other factors). It added that ‘if Egress costs were removed... it would make moving works loads easier between clouds’.¹¹

Customers that have switched or considered switching

O.10 Among customers that we spoke to that had switched or considered switching, a few customers noted that egress fees could be mitigated to some extent. For example:

- (a) a customer with large data volumes submitted that data egress fees can ‘be mitigated to some extent by [its] enabling of common ingress in standard ways, allowing a gradual move for feeds from network and consumer devices’.¹²
- (b) another customer submitted that ‘Egress charges would be considered [when switching], but again these are a one-off cost, and would form part of any

⁷ [redacted] response to the CMA’s information request [redacted].

⁸ [redacted] submission to the CMA [redacted].

⁹ [redacted] response to the CMA’s information request [redacted].

¹⁰ [redacted] response to the CMA’s information request [redacted].

¹¹ [redacted] response to the CMA’s information request [redacted].

¹² [redacted] response to the CMA’s information request [redacted].

TCO calculation, along with any contractual commitments on minimum spend, and leveraging existing licences and reservations'.¹³

- O.11 Only a few customers that have switched or considered switching spontaneously identified egress fees as a challenge. For example:
- (a) a telecoms customer with large data volumes submitted that 'Data egress fees would also be a significant obstacle [to switching]. For moving [its] data pool, [it] might still need to move petabytes of data which would involve a significant data egress cost'.¹⁴
 - (b) a large supermarket submitted that the cost of moving data was a consideration when switching. In some cases where there was lots of infrequently accessed data, [it] considered limiting the amount of data transferred across to reduce costs, but this presented additional challenges with maintaining security in the original cloud.¹⁵
 - (c) a broadcaster submitted that it had 'transferred a significant volume of archive content onto [its new cloud]'. Prior to the introduction of its cloud provider's free switching programme, it did not expect to migrate this content away 'due to the cost'. If necessary, it expected to delete rather than migrate the content.¹⁶

Other customer evidence

- O.12 Egress fees related to switching were also mentioned by customers when discussing other perceived issues (eg technical barriers). We present here evidence from these instances.
- O.13 A few customers said that they had not found egress fees an issue or they had not explicitly considered them and that there were other costs to switching that were far more significant. For example:
- (a) a large supermarket said that egress fees were not in the top five things it considers when thinking about switching and may be outside of the top 10. It noted that in previous strategic discussions about the costs of moving cloud providers, egress fees were never an explicit discussion as other costs were far more significant.¹⁷
 - (b) an energy company submitted that, while it pays egress fees for moving data, it had not found any issue with egress fees and that egress fees had never

¹³ [X] response to the CMA's information request [X].

¹⁴ [X] response to the CMA's information request [X].

¹⁵ [X] response to the CMA's information request [X]; Note of meeting with [X].

¹⁶ [X] response to the CMA's information request [X]; [X] submission to the CMA [X].

¹⁷ Note of meeting with [X].

exceeded more than 0.5% of its monthly bill. As such, they were not material enough to influence decisions. It submitted that the main cost of switching was the time and effort it takes to switch.¹⁸

- O.14 One customer submitted that the extraction of data from a cloud could be costly and that it was incurring standard egress charges for transferring workloads out of its cloud provider.¹⁹ This customer, despite switching, did not appear to be utilising its cloud provider's free switching programme.
- O.15 Another customer submitted that the removal of egress charges by cloud providers should simplify cloud provider exit and multi-cloud architectures.²⁰
- O.16 A few customers indicated that egress fees would impact their decision making when considering a change of cloud provider, as these fees could be substantial if switching applications from one cloud provider to another.²¹

Jigsaw report

- O.17 To obtain a wider range of views on switching, we commissioned primary market research from Jigsaw Research ('Jigsaw'). This research was intended to capture a wider range and a different set of customers from those we spoke to through direct channels. A narrative summary of the results, as well as some quotes from customers, is included below.
- O.18 Jigsaw said that customers did not generally perceive egress fees as the main barrier to switching. Technical challenges were cited more often as a reason not to switch.²²
- O.19 However, while egress fees are often not the primary barrier to switching, they do contribute to some customers' reluctance where they have high data volumes or have accumulated large amounts of data over several years of cloud usage.²³ Such customers consider egress fees a disincentive to switch to another cloud provider.
- O.20 Jigsaw reported that some participants said that egress fees play a part in disincentivising them from considering a migration to another cloud.²⁴ One-off 'exit costs' were mentioned by some participants as a potential source of concern when

¹⁸ Note of meeting with [redacted].

¹⁹ [redacted] response to the CMA's information request [redacted].

²⁰ [redacted] response to the CMA's information request [redacted].

²¹ [redacted] response to the CMA's information request [redacted]; Notes of meetings with [redacted].

²² [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.3.

²³ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.

²⁴ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.2.

switching cloud providers and transferring large amounts of data out of the incumbent cloud and into a new one.²⁵ For example:

- (a) one customer noted that it was expensive to move data out of a cloud platform, which ‘impacts the decision ... to move wholesale from a cloud provider’.²⁶
- (b) another customer, when discussing a hypothetical switch, noted that it would experience a ‘fairly hefty egress cost’ if it were to transfer the data it had stored in its incumbent cloud provider.²⁷
- (c) a third customer, that was migrating from Google to AWS, spoke of egress fees influencing its decision on which data to transfer over, saying that egress fees were a ‘key decision maker’ which ‘affect decisions’, meaning it had to ‘really think about moving the data around’.²⁸

O.21 Jigsaw said some customers who had already switched described egress fees as a price worth paying to deliver the cloud strategy that makes most sense for their business.²⁹

Multi-cloud

Large customers’ views on multi-cloud

- O.22 We asked large customers to explain any challenges they encountered in setting up or operationalising the multiple public clouds they were using and in setting up or operationalising any integrations between them. We asked them to distinguish between commercial aspects (explicitly referring to egress fees, committed spend discounts, and software licensing costs as examples) and technical aspects. We consider the points set out above at paragraph Q.8 apply equally to this evidence.³⁰
- O.23 As described in the Competitive Landscape chapter, multi-cloud architectures lie along a spectrum of different degrees of integration. The degree of integration may influence the responses of customers as well as the interpretation of those responses.
- O.24 The extent to which egress fees are incurred depends on the volume and the frequency of the data transfers between public clouds (ie the degree of

²⁵ Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024), paragraph 5.2.5.

²⁶ Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024), paragraph 5.2.2.

²⁷ Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024), paragraph 5.2.6.

²⁸ Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024), paragraph 5.2.8.

²⁹ Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024), paragraph 5.3.2.

³⁰ For example, some customers may not have perceived egress fees to be a challenge because they may have only a limited level of integration in their multi-cloud infrastructure for other reasons.

integration). However, the level of integration across clouds is not independent from the level of egress fees; on the contrary, it may be that customers have chosen their current level of integration (or lack thereof) after considering the cost that would imply, including in egress fees.

- O.25 We consider responses below based on the type of multi-cloud architecture the customer we spoke to currently uses. We acknowledge that the interpretation of ‘siloes’ versus ‘integrated’ multi-cloud may be somewhat subjective, as these categories are self-reported.

Customers with integrated architectures

- O.26 Many customers we spoke to identified themselves as using an integrated form of multi-cloud architecture, with different levels of integration.³¹
- O.27 A few customers using an integrated form of multi-cloud said that they did not consider egress fees to be a material challenge in setting up a multi-cloud infrastructure. For example:
- (a) a technology customer submitted that it ‘understands the costs for data movement (including egress fees), and this is considered as part of the decision-making process’.³²
 - (b) one customer submitted that it ‘did not have challenges such as egress fees’.³³
- O.28 Most customers with an integrated form of multi-cloud said that egress fees have been a challenge to multi-cloud architectures and/or took them into consideration when taking their decision to set up a multi-cloud architecture. Reasons for this included concerns that egress fees make it difficult to use the lowest cost service across cloud provider and that they incentivise the use of one cloud provider. For example:
- (a) a logistics company explained that ‘egress charges are particularly frustrating and unfair as they add overhead to any cross-cloud integration’³⁴ and that ‘for the open market to work more efficiently, regulations would be needed to address unfair egress fees and ensure open integration standards are enforced’.³⁵

³¹ Responses to the CMA’s information requests [redacted].

³² [redacted] response to the CMA’s information request [redacted].

³³ [redacted] response to the CMA’s information request [redacted].

³⁴ [redacted] response to the CMA’s information request [redacted].

³⁵ [redacted] response to the CMA’s information request [redacted].

- (b) an insurer submitted that network egress fees ‘continue to be a barrier to being able to cost-effectively share data between public clouds’.³⁶
- (c) a broadcaster submitted that egress fees create a ‘Hotel California’ situation (ie you can move data into a cloud, but it is very difficult to leave). It described the cost of moving data out of the cloud and having multiple suppliers as ‘problematic’.³⁷
- (d) a multinational asset management firm submitted that ‘the main challenges [to multi-cloud] are predominantly egress costs for movement of data between cloud providers, committed spend models to obtain preferential commercial contracts and technical limitation when considering the use of more abstract services such as PaaS and serverless’.³⁸
- (e) a telecoms firm submitted that the cost of data egress was a challenge to multi-cloud ‘even with special consideration to private interconnects’.³⁹

Customers with siloed architectures

- O.29 A handful of customers said that they used a siloed multi-cloud architecture.⁴⁰
- O.30 Only a few customers with a siloed multi-cloud architecture suggested that egress fees had influenced their multi-cloud architecture. Reasons included because egress fees were significant enough to be a consideration in the design phase of a multi-cloud architecture. For example:
- (a) a large financial institution submitted that ‘data egress fees are currently a key financial consideration when assessing the move of workloads across public clouds.’⁴¹
 - (b) another financial institution submitted that network egress costs are ‘significant enough to be a consideration in the design phase of a theoretical application for which cross-cloud deployment may be an option.’⁴²
- O.31 A broadcaster said at the time of submission that egress fees were not a material challenge because they were not a material disincentive to multi-cloud for its use cases.⁴³ However, it has since developed a use case that involves the

³⁶ [X] response to the CMA’s information request [X].

³⁷ [X] response to the CMA’s information request [X].

³⁸ [X] response to the CMA’s information request [X].

³⁹ [X] response to the CMA’s information request [X].

⁴⁰ Responses to the CMA’s information requests [X].

⁴¹ [X] response to the CMA’s information request [X].

⁴² [X] response to the CMA’s information request [X].

⁴³ [X] response to the CMA’s information request [X].

synchronisation of large amounts of data between two repositories. It submitted that, in this case, egress fees do provide a disincentive to multi-cloud.⁴⁴

Customers with single-cloud architectures

- O.32 A few of the customers we spoke to said they used a single cloud provider.⁴⁵
- O.33 We asked these customers the reason for using a single public cloud and any potential challenges that they may encounter if moving to a multi-cloud architecture. None of the customers commented on whether egress fees were a reason to adopt a single cloud architecture or whether egress fees had been a challenge preventing them from using multi-cloud. This could be due to several reasons: customers might not have considered using multi-cloud, they might have considered multi-cloud but considered egress fees not a significant challenge, or they might have not considered egress fees when responding to our information request.

Other customer evidence

- O.34 As in the case for large customers with regard to switching, set out above, egress fees related to multi-cloud were also mentioned by customers when discussing other perceived issues (eg technical barriers). We present here evidence from these instances.
- O.35 A handful of customers said that egress fees would impact their decision making when considering adopting a multi-cloud architecture or switching cloud providers.⁴⁶ For example:
- (a) a retailer submitted that '[egress fees] will certainly impact [its] decision-making in future, whether as part of changing public cloud providers, or opting to switch to multi-cloud. It also has implications when [it] consider[s] adopting services from ISVs, given the ISVs' preference for AWS and Azure.'⁴⁷
 - (b) a university submitted that, as a research-led institution, it was often required to move large amounts of data between public cloud providers. It said that 'the costs and technical limitations of the way that data ingress and egress works make this both expensive, time consuming and also impacts on other network dependent services run by the University.'⁴⁸

⁴⁴ [X] submission to the CMA [X].

⁴⁵ Responses to the CMA's information requests [X].

⁴⁶ Responses to the CMA's information requests [X]; Notes of meetings with [X].

⁴⁷ [X] response to the CMA's information request [X].

⁴⁸ [X] response to the CMA's information request [X].

- (c) a bank submitted that 'egress fees are lower than [it] expected in 2016' and that it rarely thinks about them nowadays.⁴⁹

O.36 One customer, a bank, said that it had managed to reduce egress fees through the architecture it had employed.⁵⁰

Jigsaw report

O.37 As part of its research, Jigsaw also asked about egress fees in the context of using multi-cloud architectures.

O.38 The report said that customers generally did not perceive egress fees to be one of the main barriers to multi-cloud, but in some cases, they can present a challenge to maintaining a multi-cloud infrastructure. While this was usually mentioned in the context of a hypothetical multi-cloud scenario, this consideration does suggest that egress fees might act as a barrier or deterrence to even considering a multi-cloud strategy.⁵¹

O.39 The report also described instances where customers have voiced concerns about egress fees' impact on a potential multi-cloud strategy. These participants were particularly concerned about the costs of keeping large databases synchronised across different cloud providers.⁵² For example:

- (a) one customer said that its egress costs from running a multi-cloud architecture are '10 times higher' than what its egress fees would be if it were to switch.⁵³
- (b) another customer explained that it felt that it could not use both Google BigQuery and AWS simultaneously as it would require 'not an insignificant amount of money to do that egress on a daily or more frequent basis'.⁵⁴
- (c) another customer explained that it stores a lot of data in AWS. The potential egress cost of choosing a third party provider for their backup means the customer '[has] no other choice but to go with AWS native'. It describes itself as being 'locked into' AWS and explains that the backup solution being offered does not carry all of the features it would want.⁵⁵

⁴⁹ Note of meeting with [redacted].

⁵⁰ [redacted] response to the CMA's information request [redacted].

⁵¹ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.3.4.

⁵² [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.5.

⁵³ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.6.

⁵⁴ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.8.

⁵⁵ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.9.

- O.40 The report said that customers also noted that the increasing importance of AI, alongside the expected larger data volumes, will bring egress fees more into focus in the future.⁵⁶ We explore the impact of the emergence of AI further below.

Egress fees' contribution to the predictability of cloud spend

- O.41 We have some evidence on the predictability of both general cloud spend and egress fees in particular. We have considered how it might be relevant for our assessment of whether egress fees are a barrier to switching and/or multi-cloud:
- (a) if general cloud spend is hard to predict, estimating the benefits from switching/multi-cloud will be harder. If it is uncertain whether a switch or a multi-cloud architecture would lead to net benefits, customers are more likely to choose not to use alternative cloud providers, even though the offer may be better for that customer.
 - (b) insofar as egress fees contribute to this, a customer may be more reluctant to switch or multi-cloud as they will not be able to accurately forecast the egress fees they would incur from doing so.

Predictability of general cloud spend

- O.42 A few customers submitted that general cloud spend was difficult to track over time and compare against either minimum commitment levels or other cloud providers' offerings.
- (a) one customer said that it had experienced challenges in comparing solutions because of unexpected fees. It also said that some cloud providers provide fairly plain pricing while others have lots of added extras which can be hard to estimate against.⁵⁷
 - (b) another customer said it has had challenges comparing cost models and creating financial forecasts. It described developing accurate forecasts as 'incredibly resource intensive'.⁵⁸
- O.43 A few other customers submitted that, while cloud spend was difficult to predict at first, they were able to overcome this challenge through regular reviews with cloud providers and 'greater central oversight'.⁵⁹

⁵⁶ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.10.

⁵⁷ [redacted] response to the CMA's information request [redacted].

⁵⁸ [redacted] response to the CMA's information request [redacted].

⁵⁹ Responses to the CMA's information requests [redacted].

- O.44 Wasabi, a smaller cloud provider, submitted that customers' inability to accurately predict their monthly costs can deter them from fully adopting cloud technologies.⁶⁰
- O.45 Ofcom also received evidence to this point, hearing that many customers lack the required skills and knowledge to understand the long-term implications of their choices. It heard that customers tend to forecast on a year-on-year basis and are unlikely to be able to forecast accurately beyond this.⁶¹ A cloud provider agreed, telling Ofcom that the difficulty in reading AWS', Microsoft's and Google's prices has a detrimental effect on customers, as they are not 'guaranteed the best price/performance ratio when they sign up to a cloud provider and often face 'hidden costs' due to the complexity'.⁶²

Predictability of egress fees

- O.46 We received limited evidence on the predictability of egress fees, but the Jigsaw report showed that egress fees can contribute to the difficulty in predicting overall cloud spend.⁶³
- O.47 The Jigsaw report found that 'several' customers noted a lack of transparency and control over egress fees. Some have begun making changes to their cloud architecture designs when the scale of their egress fees became apparent.⁶⁴ It found that the perception was that cloud providers have ultimate control over egress fees and can set them at whatever level they want, 'without justification or warning'. This perception was particularly strong among customers with high data volumes.⁶⁵
- O.48 The Jigsaw report also found that some customers were able to utilise 'helpful cost tracking tools' provided by cloud providers. Other customers said that various cost optimisation strategies on their part managed to reduce their egress fees.⁶⁶
- (a) one customer explained that it could 'do a lot on the Microsoft platform', including 'look at [its] spend over the past day, week, month, year... various different options'.⁶⁷
- (b) another customer described Azure as containing 'decent cost management' and pricing as 'not opaque'.⁶⁸

⁶⁰ [Wasabi's response to the working papers](#), page 3.

⁶¹ [Cloud services market study final report \(ofcom.org.uk\)](#), paragraph 5.263.

⁶² [X] submission to Ofcom [X].

⁶³ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.1 and 5.1.5.

⁶⁴ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.1.

⁶⁵ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.1.5.

⁶⁶ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.1.6.

⁶⁷ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.1.6.

⁶⁸ [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.1.6.

- O.49 The views expressed by some customers are supported by an internal document from a cloud provider, which showed that customers have told the cloud provider that it was becoming increasingly complex to compare the true cost of the cloud provider with competitors. It noted that this complexity comes from different discount plans and pricing structures.⁶⁹
- O.50 Where customers are unsure about the level of egress fees they may incur while switching or multi-cloud, a risk-averse customer may choose not to switch to avoid any chance of incurring high egress fees.
- O.51 Customers with high data volumes, who may be more sensitive to changes in egress fees, may be particularly affected by this factor. Customers who lack the skills or resources to manage egress fees may also be vulnerable.
- O.52 Our review of Microsoft's internal documents also found references to [redacted]. One document notes that Microsoft's [redacted].⁷⁰ Another document notes that customers [redacted].⁷¹

Impact of the emergence of AI

- O.53 The emergence of generative AI may have an impact on how much influence egress fees have on customers' switching and multi-cloud decisions. AI models may mean customers' data storage volumes increase, eg if they have large training datasets or the outputs of the AI model are stored in the cloud. Egress fees may then be a material factor in any decision to move this data, either as part of a switch between clouds or as part of a multi-cloud architecture.
- O.54 We have received some submissions from customers and a cloud provider that the rise of generative AI means that, in the future, egress fees may become more relevant.
- O.55 Some customers referred to in the Jigsaw report expressed concern about how egress fees may be influenced by AI. For example:
- (a) one customer explained that they would like to use the Azure AI service that powers ChatGPT on top of AWS, but doing so would mean 'sending the documents to Azure to get them processed to then send the result back... That is going to cost us a lot of money in egress fees'.⁷²
 - (b) another customer explained that in a situation where one was 'heavily Microsoft orientated' but wanted to use other capabilities in Google Cloud,

⁶⁹ [redacted] response to the Ofcom's information request [redacted].

⁷⁰ Microsoft's submission to the CMA [redacted].

⁷¹ Microsoft's submission to the CMA [redacted].

⁷² [Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw \(2024\)](#), paragraph 5.2.10.

egress fees would 'stop you from doing that, because it would probably then make it cheaper to run your AI in Microsoft'.⁷³

- (c) another customer said that their company wanted to explore using Azure OpenAI and integrate this with their IaaS on AWS but was put off by the potentially high egress fees this might incur.⁷⁴

O.56 These views are supported by Oracle, who submitted that the importance of egress fees will only increase with the growth of AI, as running AI in the cloud both requires and produces a voluminous amount of data. Moving these large data sets between cloud providers may be cost-prohibitive due to egress fees.⁷⁵

⁷³ Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024), paragraph 5.2.10.

⁷⁴ Cloud Services Market Investigation Qualitative Customer Research conducted by Jigsaw (2024), paragraph 5.2.10.

⁷⁵ Oracle's response to the Updated Issues Statement and working papers, page 5.