

ANTICIPATED ACQUISITION BY BROADCOM INC. OF VMWARE, INC.

Issues statement

21 April 2023

The reference

1. On 29 March 2023, the Competition and Markets Authority (**CMA**), in exercise of its duty under section 33(1) of the Enterprise Act 2002 (the **Act**), referred the anticipated acquisition by Broadcom Inc. (**Broadcom**) of VMware, Inc. (**VMware**) (the **Merger**) for further investigation and report by a group of CMA panel members (the **Inquiry Group**). Broadcom and VMware are together referred to as the **Parties**, and for statements referring to the future (if the Merger was to proceed), as the **Merged Entity**.
2. In exercise of its duty under section 36(1) of the Act, the CMA must decide:
 - (a) whether arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation; and
 - (b) if so, whether the creation of that relevant merger situation may be expected to result in a substantial lessening of competition (**SLC**) within any market or markets in the United Kingdom (**UK**) for goods or services.

Purpose of this issues statement

3. In this issues statement, we set out the main issues we are likely to consider in reaching a decision on the SLC question (paragraph 2(b) above), having had regard to the evidence available to us to date, including the evidence obtained in the CMA's phase 1 investigation. This does not preclude the consideration of any other issues which may be identified during the course of our investigation, during which we will be gathering and considering further evidence.

4. The CMA's phase 1 decision (the **Phase 1 Decision**)¹ contains much of the detailed background to this issues statement. We are publishing this statement to assist parties submitting evidence to our phase 2 investigation.
5. As noted above, this issues statement sets out the main issues we are likely to consider in our investigation and we invite parties to notify us if there are any additional relevant issues which they believe we should consider.

Background

The Parties

6. Broadcom is a technology company that designs, manufactures, and provides a broad range of semiconductors and infrastructure software solutions. Broadcom is headquartered in the United States and listed on NASDAQ. Broadcom generated worldwide revenues of approximately £26,961 million in the fiscal year ended 30 October 2022, with £[<] generated in the UK.²
7. VMware is active in IT software including virtualisation and related workload management technologies for datacentres and cloud computing environments, application development, and end-point management. VMware is headquartered in the United States and listed on the New York Stock Exchange. VMware was spun off from Dell Inc. in 2021, with entities affiliated with Michael Dell still owning approximately 40% of VMware's non-controlling shares.³ VMware generated worldwide revenues of approximately £9,499 million in the financial year 2022, with £[<] generated in the UK.⁴

The transaction

8. Pursuant to a merger agreement dated 26 May 2022, Broadcom will acquire all of the voting securities in VMware in exchange for Broadcom common stock and cash, valuing VMware at approximately \$61 billion. Broadcom will also assume \$8 billion of VMware's net debt.⁵
9. The Parties informed the CMA that the Merger has been reviewed by competition authorities in Canada, Brazil, and South Africa where no competition concerns were found by the relevant authorities.⁶ The Merger is

¹ The Phase 1 decision will be published on the case page: [Broadcom / VMware merger inquiry - GOV.UK \(www.gov.uk\)](https://www.gov.uk).

² CMA, Phase 1 Decision, paragraph 24.

³ CMA, Phase 1 Decision, paragraph 25.

⁴ CMA, Phase 1 Decision, paragraph 25.

⁵ CMA, Phase 1 Decision, paragraph 26.

⁶ CMA, Phase 1 Decision, paragraph 27.

subject to ongoing review by other competition authorities including in the United States, the European Union, and China.⁷

10. The Parties submitted that their offerings are mostly unrelated and serve different enterprise needs.⁸ Upon closing, Broadcom intends to rebrand and operate its IT infrastructure software solutions as 'VMware'. According to the Parties, combining their software offerings will create an improved software portfolio that will provide customers with greater choice and flexibility to build, run, manage, connect, and protect applications at scale across diversified, distributed environments, regardless of where these applications are deployed. Broadcom's aim is to compete more vigorously with larger software and cloud computing competitors by creating a more attractive software portfolio for datacentre managers.⁹

Our inquiry

11. Below we set out the main areas of our intended assessment in order to help parties who wish to make representations to us.

Jurisdiction

12. We shall consider the question of jurisdiction in our inquiry.
13. In its phase 1 decision, the CMA found that it is or may be the case that arrangements are in progress or contemplation which, if carried into effect, will result in the creation of a relevant merger situation on the basis that each of Broadcom and VMware should be considered an enterprise, these enterprises will cease to be distinct as a result of the Merger, and the UK turnover of VMware exceeded £70 million in its last fiscal year.¹⁰

Counterfactual

14. We will compare the prospects for competition resulting from the Merger against the competitive situation without the Merger: the latter is called the 'counterfactual'. The counterfactual is not a statutory test but rather an analytical tool used in answering the question of whether a merger gives rise to an SLC.¹¹
15. For anticipated mergers the CMA generally adopts the prevailing conditions of competition as the counterfactual against which to assess the impact of the

⁷ CMA, Phase 1 Decision, paragraph 27.

⁸ CMA, Phase 1 Decision, paragraph 28.

⁹ CMA, Phase 1 Decision, paragraph 28.

¹⁰ CMA, Phase 1 Decision, paragraphs 33-35.

¹¹ [MAGs](#), paragraph 3.1.

merger. In its phase 1 decision, the CMA found no evidence supporting a different counterfactual.¹²

16. We currently intend to adopt the prevailing conditions of competition as the most likely counterfactual to the Merger but welcome any evidence on this part of our assessment.

Assessment of the competitive effects of the Merger

Theories of harm

17. The term ‘theory of harm’ describes the possible ways in which an SLC could arise as a result of a merger. The theory of harm provides the framework for our analysis of the competitive effects of a merger.¹³
18. In its phase 1 decision, the CMA found that the Merger gave rise to a realistic prospect of an SLC as a result of (1) foreclosure of hardware competitors through leveraging VMware’s position in server virtualisation software and (2) non-horizontal effects from commercially sensitive information sharing.¹⁴ We intend to focus our competitive assessment on these theories of harm at phase 2. Subject to new evidence being submitted, we do not currently intend to investigate any other theories of harm in relation to this Merger.
19. We may revise our theories of harm as the inquiry progresses and the identification of a theory of harm does not preclude an SLC being identified on another basis following further work, or our receipt of additional evidence.

Foreclosure of hardware competitors through leveraging VMware’s position in server virtualisation software

20. In certain circumstances non-horizontal mergers can weaken rivalry, for example when they result in foreclosure of the merged firm’s competitors. This would weaken the constraints that the merged entity faces and, as a result, harm competition and therefore customers.¹⁵
21. In assessing a foreclosure theory of harm, the CMA’s approach is to consider whether three cumulative conditions are satisfied:
 - (a) Ability: Would the merged entity have the ability to use its control of inputs to harm the competitiveness of its downstream rivals?

¹² CMA, Phase 1 Decision, paragraph 39.

¹³ MAGs, paragraph 2.11.

¹⁴ CMA, Phase 1 Decision, paragraph 334.

¹⁵ MAGs, paragraph 7.2.

- (b) Incentive: Would it have the incentive actually to do so, ie would it be profitable?
- (c) Effect: Would the foreclosure of these rivals substantially lessen overall competition?¹⁶
22. In the Phase 1 Decision, the CMA found there was a realistic prospect of an SLC as a result of foreclosure effects. The CMA considered that the Merged Entity would be able to leverage VMware's market power in server virtualisation software to reduce the competitiveness of Broadcom's hardware rivals by, for example, impairing the certification of competitors' drivers for Ethernet NICs, FC HBAs, and storage adapters, and impairing access to VMware's API for competitors' FC switches.¹⁷
- (a) In relation to Ethernet NICs, FC HBAs and storage adapters, this could be through total foreclosure, whereby the Merged Entity prevents interoperability between rivals' new hardware products that have not yet had drivers developed and certified. As these new products are not currently installed in existing servers, it would not cause any disruption to customers' existing servers.¹⁸ Alternatively, it could be through partial foreclosure whereby the Merged Entity refuses, delays, or hampers information exchange regarding driver updates or technical support for rivals' new or existing hardware.¹⁹
- (b) In relation to FC switches, the Merged Entity could reduce VMware's engagement in bilateral discussions which facilitate the implementation of VMware's APIs, avoid or delay making any new APIs available to rivals supplying FC switches and/or choose not to make APIs public in the future.²⁰
23. During our investigation we will consider whether the Merger may be expected to result in an SLC as a result of foreclosure of hardware competitors through leveraging VMware's position in server virtualisation software.
24. To assess this theory of harm, we shall consider evidence on the ability and incentive of the Merged Entity to pursue foreclosure strategies such as those

¹⁶ [MAGs](#), paragraph 7.10. The CMA may use the same framework in similar situations where the merged entity could use its presence in one market to directly harm the competitiveness of its rivals in another, even if there is not a conventional supplier/customer relationship. For example, it could do this by using control of a complementary product to deteriorate its interoperability with competitors. For further details see [MAGs](#), paragraph 7.11.

¹⁷ CMA, Phase 1 Decision, paragraph 11.

¹⁸ CMA, Phase 1 Decision, paragraph 189.

¹⁹ CMA, Phase 1 Decision, paragraph 188-189.

²⁰ CMA, Phase 1 Decision, paragraph 194.

identified at paragraph 22 and the effect that this could have on competition. We intend to consider evidence in relation to:

- (a) Ability: (i) whether VMware has market power in the supply of server virtualisation software; and (ii) whether degrading (or preventing) interoperability between VMware server virtualisation software and the products supplied by Broadcom's hardware rivals would harm rivals' competitiveness due to the importance of interoperability.
- (b) Incentive: (i) quantitative and qualitative evidence on margins and switching patterns in server virtualisation software and hardware components; (ii) qualitative evidence on Broadcom and VMware's business plans and overall strategies; and (iii) qualitative evidence on the likely response of third parties (such as cloud service providers and server OEM customers), including whether the risk of an adverse response by third parties (eg server OEM customers) would constrain the Parties' conduct.
- (c) Effect: drawing on the evidence considered under (a) and (b) above, the pre-existing position of the Merged Entity in the relevant hardware markets, and whether a sufficient number of rivals with sufficient scale will be unaffected by any foreclosure strategy.

Non-horizontal effects from commercially sensitive information sharing

- 25. In its Phase 1 Decision the CMA considered whether competition could be harmed by the flow of commercially sensitive information (**CSI**) from Broadcom's hardware competitors to VMware (and therefore to the Merged Entity) that occurs as part of the process by which VMware certifies the interoperability of their products with VMware's server virtualisation software. Certification is a vital step in ensuring interoperability.²¹ The information passed to VMware includes product samples, product roadmaps, driver source code, and other technical information.²² This concern is relevant in relation to Broadcom's competitors in the supply of Ethernet NICs, FC HBAs, and storage adapters.
- 26. In the Phase 1 Decision, the CMA found there was a realistic prospect of an SLC as a result of non-horizontal effects from the sharing of CSI. The CMA found that, post-Merger, there would be a risk that Broadcom would gain access to this CSI. This could harm competition in two ways. First, Broadcom may have a reduced incentive to innovate and compete because it could develop its products to be only marginally better than its competitors'

²¹ CMA, Phase 1 Decision, paragraph 16.

²² CMA, Phase 1 Decision, paragraph 16.

products. Second, Broadcom's competitors may have a reduced incentive to innovate because they would anticipate that Broadcom would use their CSI to advance its own product improvements.²³

27. The CMA also considered that the effect on competition could be substantial given that the relevant hardware markets are already relatively concentrated and interoperability with VMware's server virtualisation software is very important to server hardware manufacturers.²⁴
28. During our investigation we will consider whether the Merger may be expected to result in an SLC as a result of non-horizontal effects from the exchange of CSI in each of the global markets for the supply of Ethernet NICs, FC HBAs, and storage adapters.
29. To assess this theory of harm, we shall consider evidence on:
 - (a) whether VMware currently has access to CSI of Broadcom's hardware competitors;
 - (b) whether Broadcom would have access to the same CSI absent the Merger;
 - (c) whether Broadcom would have access to the same CSI post-Merger; and
 - (d) whether the Merged Entity or its rivals would have the incentive to compete less aggressively and/or whether the Merged Entity would otherwise put its hardware rivals at a competitive disadvantage, particularly in terms of product development/innovation.

Market definition

30. Where the CMA makes an SLC finding, this must be 'within any market or markets in the United Kingdom for goods or services'.²⁵ The CMA is therefore required to identify the market or markets within which an SLC exists. An SLC can affect the whole or part of a market or markets. Within that context, the assessment of the relevant market is an analytical tool that forms part of the analysis of the competitive effects of a merger and should not be viewed as a separate exercise.²⁶
31. In its phase 1 decision, the CMA found a realistic prospect of an SLC in the UK as a result of the impact of the Merger on the supply of ethernet NICs, the supply of FC HBAs, the supply of storage adapters and the supply of FC

²³ CMA, Phase 1 Decision, paragraph 17.

²⁴ CMA, Phase 1 Decision, paragraph 18.

²⁵ [Section 36\(1\)\(b\)](#), the Act.

²⁶ [MAGs](#), paragraph 9.1.

switches. The CMA also considered the supply of server virtualisation software.²⁷ In terms of geographic scope, the CMA assessed the impact of the Merger in these product frames of reference on a global basis, including in the UK.²⁸

32. We will use the frame of reference adopted in the Phase 1 Decision as a starting point for our analysis and our view of market definition will be drawn largely from the same evidence that informs our competitive assessment. Where relevant, we will consider out-of-market constraints and/or any differences in the degree of competitive constraints on the Merged Entity from different suppliers.

Countervailing factors

33. We will consider whether there are countervailing factors which are likely to prevent or mitigate any SLC that we may find. Some of the evidence that is relevant to the assessment of countervailing factors may also be relevant to our competitive assessment.
34. We will consider evidence of entry and/or expansion by third parties and whether entry and/or expansion would be timely, likely and sufficient to prevent any SLC from arising as a result of the Merger.²⁹
35. We will also consider any relevant evidence submitted to us by the Parties that the Merger is likely to give rise to efficiencies that will enhance rivalry, such that the Merger may not be expected to result in an SLC.

Possible remedies and relevant customer benefits

36. Should we conclude that the Merger may be expected to result in an SLC within one or more markets in the UK, we will consider whether, and if so what, remedies might be appropriate.
37. In any consideration of possible remedies, we may have regard to their effect on any relevant customer benefits that might be expected to arise as a result of the Merger and, if so, what these benefits are likely to be and which customers would benefit.³⁰

²⁷ CMA, Phase 1 Decision, paragraph 72.

²⁸ CMA, Phase 1 Decision, paragraph 94.

²⁹ [MAGs](#), paragraphs 8.28–8.43.

³⁰ [Merger Remedies](#) (CMA87), paragraphs 3.4 and 3.15–3.24.

Responses to this issues statement

38. Any party wishing to respond to this issues statement should do so in writing, no later than **11am BST on 9 May 2023** by emailing Broadcom.VMware@cma.gov.uk.