Potential Market Distortions in the Cloud Infrastructure Services Market

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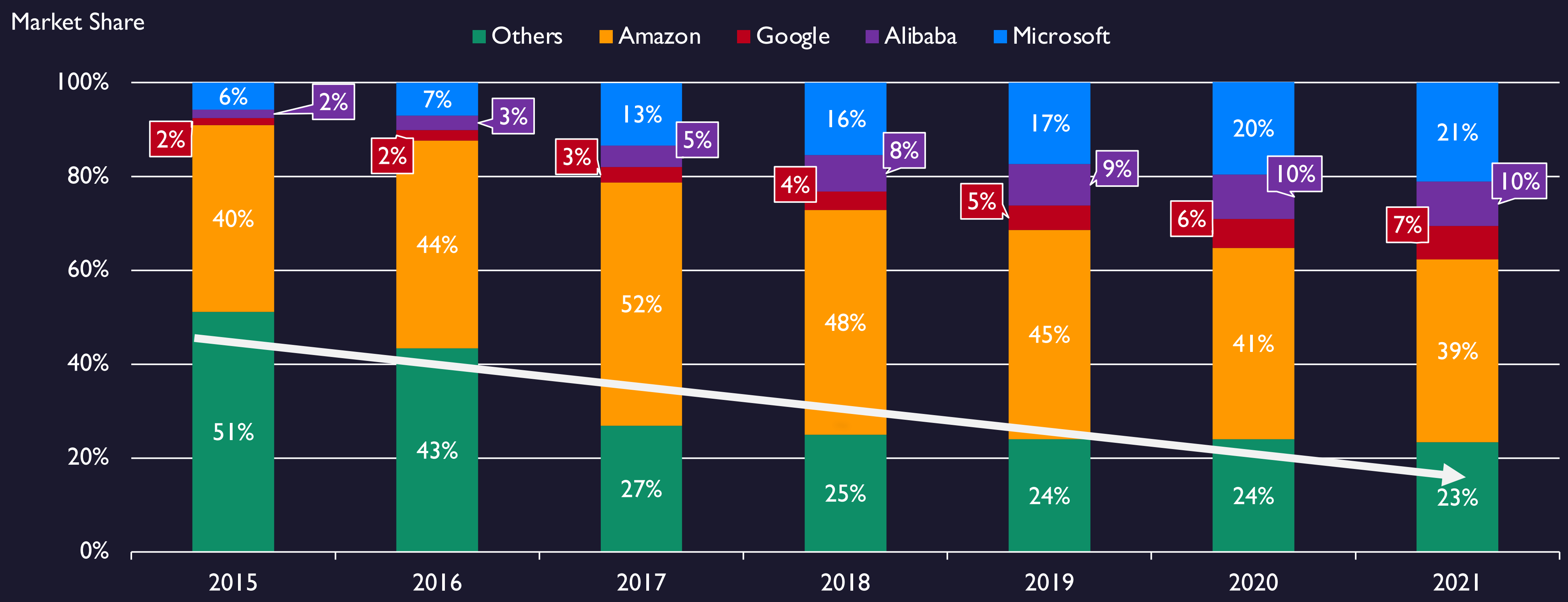
22 March 2023

Agenda

- Market characteristics are prone to market distortions
- Practices that may distort competition
- Novel survey evidence on problematic practices distorting competition
- Cost calculation of Microsoft's BYOL policy change
- Call for action

Market characteristics are prone to practices that distort competition

On the IaaS market, rapid expansion was accompanied by increasing concentration, mostly to the benefit of Microsoft



Source: *Statista*

The share of the four largest providers increased from **49%** to **77%** in six years

Certain integrated providers can leverage their dominance on adjacent markets to exclude rival cloud providers in core cloud markets

The scale and revenue of integrated providers in adjacent markets give them competitive advantage in overcoming the entry barriers (R&D, fixed costs, etc.) that non-integrated providers face

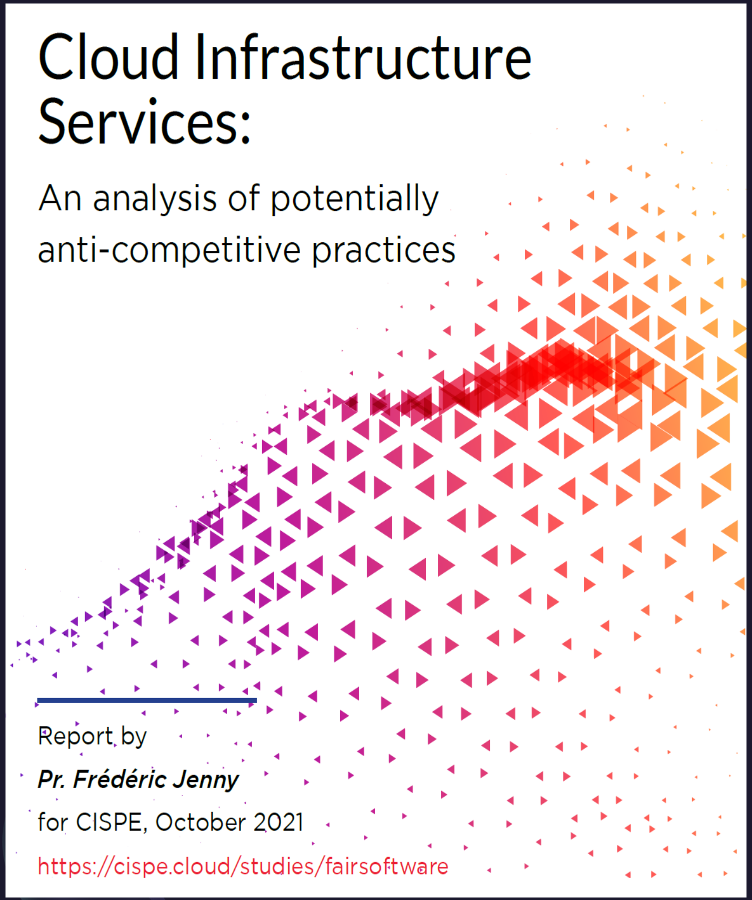
Tie the sales of (dominant) adjacent products to the sales of cloud solutions

Establish a strong initial position in the cloud market that may be enhanced by initial discounts (e.g. cross-subsidisation)

High switching costs (e.g. licencing requirements or data format incompatibility) enable cloud providers to lock-in customers

Practices that may distort competition

A previous CISPE study raises concerns of the strength of competition in cloud markets


Cloud Infrastructure Services:

An analysis of potentially anti-competitive practices

Report by
Pr. Frédéric Jenny
for CISPE, October 2021
https://cispe.cloud/studies/fairsoftware

Main findings of the previous study

A 2021 study for CISPE already highlighted certain concerning practices employed by integrated providers

By leveraging their dominance in legacy software markets, integrated providers may gain traction on core cloud markets

Twofold harm: against cloud competitors (exclusion) and against end customers (abusive practices)

Urgence for a level playing field in the cloud market

Potential example: Microsoft's 2019 BYOL policy change

Microsoft's "Bring Your Own Licence" policy forces customers to repurchase their MS software licence if they want to deploy it on third-party IaaS services

IaaS-providing rivals must decrease their prices for customers seeking to deploy MS software, reducing their profitability

MS may increase prices on its IaaS offering as long as the increase is less than the price increase imposed on rivals

An example: SAP's Indirect access

SAP's "Indirect Access" policy requires the payment of licence surcharges when data generated through the SAP ecosystem is accessed by non-licensed users

SAP effectively increases the price of access to its customer base

Therefore, rivals offering complementary software may not be able to profitably service SAP's customers

Novel survey evidence on problematic practices distorting competition

A survey of cloud customers highlights serious concerns over the future of the market

Details of the interview process

Large enterprise users with experience of migrating on-premise infrastructure onto the cloud
Participants first invited to respond to a survey, followed by an in-depth interview
Respondents requested to provide qualitative and quantitative elements regarding the abuses encountered
Data collected allows to derive preliminary estimates of the economic harm suffered by cloud customers

It is difficult to gather information from cloud users since they often fear potential retaliation from dominant providers

Cloud users are often reluctant to speak, for fear of reprisals from cloud service providers

Providers frequently enact retaliatory measures (licencing, etc.) designed to intimidate & enact compliance from users

As a result, cloud customers tacitly submit to providers' policies over the lifetime of their contractual relationship

"We are dealing with a market that is very close to what we have in organised crime scenes, to the point where you are ***risking your career if you say something****"*

"There is a ***pricing distortion*** *in the market. When [my company] chooses to execute its workloads on third-party clouds, it costs significantly more than on native infrastructure"*

"Microsoft leverages its existing Enterprise Agreements and users' familiarity with its products to ***drive adoption of the Azure ecosystem****…"*

"…[they have] a stance against users ***deploying Microsoft products on non-Azure infrastructure****"*

Respondents emphasised licence portability across providers and vendor lock-in as key issues

LICENCE PORTABILITY

Microsoft severely limits users' freedom to deploy and virtualise on-premise MS licences on externally-hosted infrastructure

Respondents highlight that there are no specific technical reason to justify such a price differential

One surveyed firm intended to use Office 365 via AWS but ultimately chose Microsoft's in-house solution, as the latter allowed the seamless transferal of licences between operating environments

Similarly, the licencing around SQL Server may be problematic, given that it is an integral and costly part of the enterprise workflow with limited substitutability

Respondents confirm that dominance in SaaS may lead to a snowball effect, with users gradually becoming entrenched in the Azure ecosystem

MIGRATION COSTS

Respondents note the presence of significant switching costs (e.g. when deploying their workflows in a third-party environment)

Technical obstacles and the costly nature of migrating large volumes of data were noted to be time and resource-intensive, and often entail auxiliary spending on external consultants and/or the retraining of employees

Respondents also stressed the importance of assessing the indirect costs associated with migration (potential data loss or interruption to business operations)

Respondents report considerable economic costs resulting from cloud providers' abusive practices

Microsoft's BYOL policy implies that users are required to pay the additional licence fee, which costs 80-100% of the original licence price, even if they had already paid Microsoft for running the software on their premises

Some enterprise users estimated the cost to fully migrate their IT infrastructure to a third-party provider to be in the ~$500,000 range, others cited substantially higher estimates, often in the order of millions

The choice to deploy Oracle's Relational Database Management System (RDBMS) services on third-party clouds leads to a pricing distortion, costing up to 2x more than on the native Oracle Cloud

One respondent remarked that they do not know of a single customer that successfully migrated away from SAP's ecosystem (due to the complex policies imposed by SAP), implying prohibitively high switching costs

Cost calculation of Microsoft's BYOL policy change

An example

The cost calculation amounts to the conservative benchmarking, and multiplication, of three variables

1. Average cost of repurchasing a Microsoft Office 365 licence

Three distinct packages (plus possible discounts) considered:
(1) Office 365 F3 $57.6
(2) Office 365 E3 $331.2
(3) Office 365 E5 $547.2

2. Average number of Office licences per firm

The average firm size of Office using firms, adjusted for the share of white-collar workers

3. The number of European firms that deployed Office on non-Microsoft IaaS in 2019

Calculation relying on four parameters:
(1) Number of firms holding Office 365 licences in the EU
(2) % of cloud user firms in the EU
(3) Share of IaaS in the entire European cloud market
(4) Non-Microsoft share of worldwide IaaS market

The yearly costs of MS's licence repurchase policy for Office 365 may have reached €0.4 billion in Europe following its introduction

Interpretation of the results

Estimating pure extra costs since i) no novel services involved in repurchasing and ii) deploying on Azure remained essentially free

Possible estimates fall between €0.06 and €0.6 billion, €0.4 billion per year being the baseline estimate

The magnitude of the baseline cost value is robust to realistic changes in assumptions

Reasonable value compared to the market size (MS's European office productivity software revenue in 2019: ~ €2 billion)

Call for action

Summary of our findings

The European cloud market has expanded rapidly, but this expansion was accompanied by increased concentration in certain segments

Integrated providers may leverage their dominance in adjacent markets to engage in potentially unfair and exclusionary abuses in the cloud computing market

An interview series with large enterprise users provides qualitative and quantitative evidence, allowing us to characterise the economic harm suffered by users as a result of potential abuses

The aggregate cost of certain abuses might be at the order of hundreds of millions of euros

It is urgent to create fair and equitable conditions in the market, safeguarding the dynamism and sustainability of European cloud services in the long term

Why intervene? High concentration in the cloud market may harm innovation

HARM TO INNOVATION

<u>Competition is important</u> for innovation since higher competitive pressure incentivises firms to <u>increase investments</u> as to improve productivity.

Significant <u>investment by major IaaS players into AI services</u> might represent a <u>risk</u> to the future development of the IT sector

As an example, the acquisition of equity stakes in exchange of free cloud computing "credits" enables providers to lock in AI start-ups into their own infrastructure

How to intervene? The largest cloud providers may be defined as gatekeepers as per the DMA

DMA'S CRITERIA FOR BEING A GATEKEEPER

- Cloud providers offer "core platform services" (Article 2) which include cloud computing services (e.g. MS Azure, AWS, Google G Suite) and operating systems (e.g. MS Windows, MacOS)

- Cloud providers such as Microsoft, Google and Amazon probably also satisfy the quantitative thresholds (Article 3) that include:

    - EU turnover equal to or above €7.5 billion, or market capitalization of at least €75 billion

    - At least 45 million MAUs or10,000 yearly active business users

SOME RELEVANT RULES TO BE FOLLOWED

- Gatekeepers will not be allowed to restrict customers' choice by preventing them to switch (via technical means or otherwise) between software applications. (¶52)

    - Practices of tying products and services (e.g. MS Teams with Office 365) and implementing licencing policies (e.g. BYOL) may increase switching costs and lock-in customers

    - Although SAP's Indirect Access does not directly infringe EU Competition Law, its compatibility with the DMA's provisions is questionable

- Gatekeepers providing hardware or software using operating systems, will also have to ensure equally effective interoperability with, the same hardware or software features provided by rivals. (¶53 and ¶57 of the DMA)

THIS MAY PROVIDE REASONABLE GROUNDS FOR A POTENTIAL INVESTIGATION PURSUANT TO ARTICLE 41 OF THE DMA

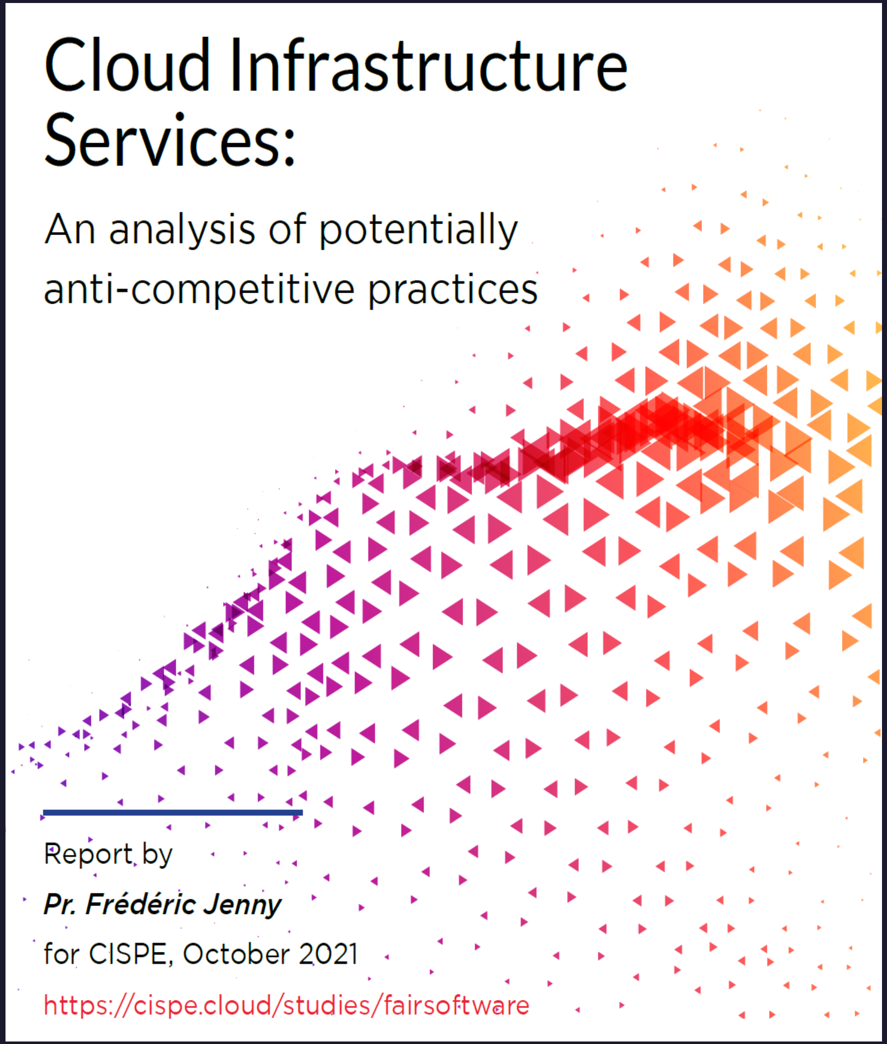
How you may help to further our investigation

Contribute to the report by participating in an interview

Provide information / estimates that can help to quantify the costs of unfair practices

Help reach other companies that may have relevant information or complaints

Participation is **entirely anonymous**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