



Cloud Computing

Benefits and Drawbacks

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Benefits of Cloud Computing



No up-front commitments

کم شرکت لازم نیست بلکه نوع کار به قدر فراهم کردن
تجهیزات خود کنی هم

- IT assets are turned into utility costs, which are paid for as long as they are used, ***not paid for up front.***



Reduced capital and operational cost

مکانیزم های کم کاربرد

- Capital costs are costs associated with assets that need to be paid in advance to start a business activity.



Reduced capital and operational cost (cont.)

Before cloud

- IT infrastructure and software generated capital costs.

↓
from scratch
و با اینکه از لایسنس

Reduced capital and operational cost (cont.)

Before cloud

- IT infrastructure and software generated capital costs.
- The revenue of the business is utilized to compensate over time
for these costs.
چنان که

Reduced capital and operational cost (cont.)

Before cloud

- IT infrastructure and software generated capital costs.
- The revenue of the business is utilized to compensate over time for these costs.
- A server bought today for \$1,000 will have a market value less than its original price when it is eventually replaced by new hardware.

Reduced capital and operational cost (cont.)

Cloud computing

- CC significantly contributing to increasing a company's net gain.

عدد خاصیت

که جوں مزمنها رو طبقہ مارہ

Reduced capital and operational cost (cont.)

Cloud computing

- CC significantly contributing to increasing a company's net gain.
- Small organizations and start-ups ***do not need large investments to start their business.***

Reduced capital and operational cost (cont.)

Cloud computing

- CC significantly contributing to increasing a company's net gain.
- Small organizations and start-ups ***do not need large investments*** to start their business.
- Maintenance costs are significantly reduced.

On-demand access

5 - 4 - 3 ماده

- “Users can automatically arrange for cloud computing resources according to their needs and demands, without needing to communicate first with their cloud service provider”



ب محترف اتوماتیک براسن می‌سازند
با این تکنولوژی روابط خوب نمایند

→ بدون خدمات
provider

<https://www.trendmicro.com/vinfo/id/security/news/security-technology/the-cloud-what-it-is-and-what-it-s-for>

Scalability

- By leveraging the potentially huge capacity of cloud computing, organizations can ***extend their IT capability more easily.***



<https://www.bluepiiit.com/blog/on-demand-scalability-one-of-the-pre-dominant-advantages-of-cloud-migration/>

Scalability

- By leveraging the potentially huge capacity of cloud computing, organizations can ***extend their IT capability more easily.***

- PaaS providers offer runtime environment and programming models

designed to scale applications.

*platform
as
a
service*

→ Cloud app نمایش این اپلیکیشن
و سرعت افزایش آن



<https://www.bluepiiit.com/blog/on-demand-scalability-one-of-the-pre-dominant-advantages-of-cloud-migration/>

Scalability

- By leveraging the potentially huge capacity of cloud computing, organizations can ***extend their IT capability more easily.***
 - PaaS providers offer runtime environment and programming models ***designed to scale applications.***
 - SaaS offerings can be ***elastically size on demand*** without requiring users to provision hardware or to program application for scalability.

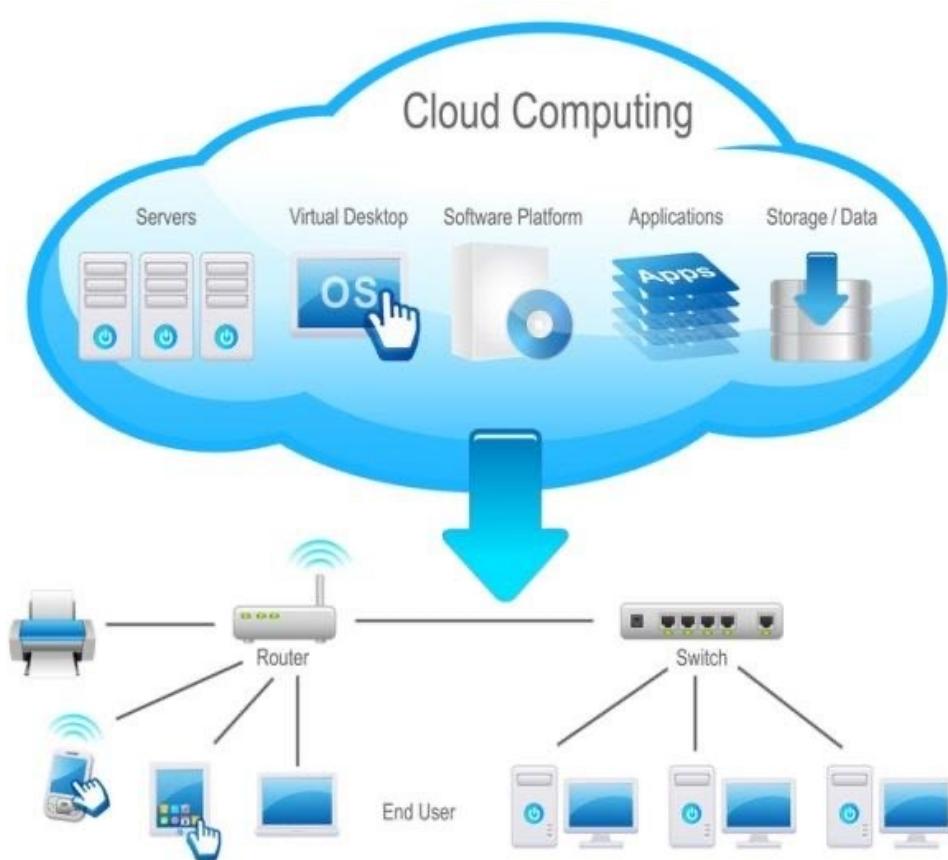
software
as
a
service



<https://www.bluepiit.com/blog/on-demand-scalability-one-of-the-pre-dominant-advantages-of-cloud-migration/>



Availability of vast cloud resources for every kind of application



[https://www.researchgate.net/publication/270992697 Network Intrusion Detection in Virtual Network Systems and Countermeasure Selection NIDCS/figures?lo=1](https://www.researchgate.net/publication/270992697_Network_Intrusion_Detection_in_Virtual_Network_Systems_and_Countermeasure_Selection_NIDCS/figures?lo=1)

میزبانی و پردازش
قابلهای دسترسی بودن کی محیط زیاد از صنایع
حصیری اقتصادی دره
GPU ، لپتاپها ، ...

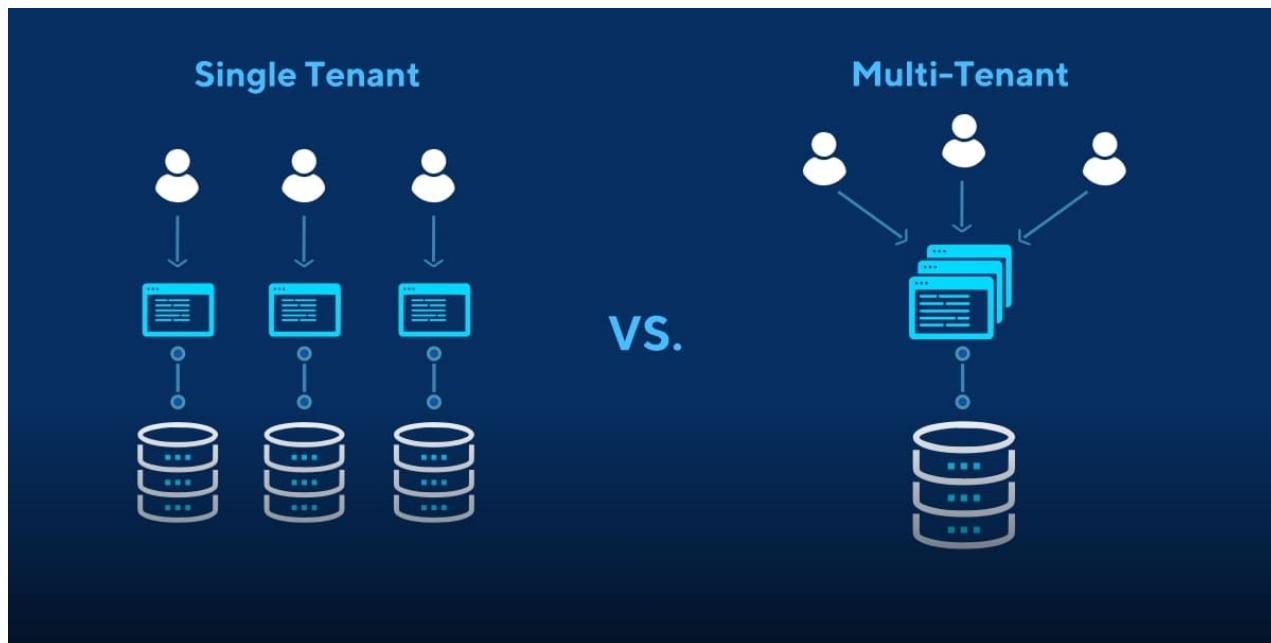
Efficient resource allocation and energy efficiency

سازمانی

- **Multitenancy** allows for better utilization of the shared infrastructure that is kept operational and fully active.

مکانیزمی منع حفظ کار درد!

↓
efficiency ↑

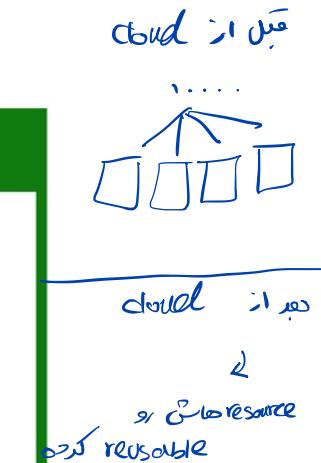
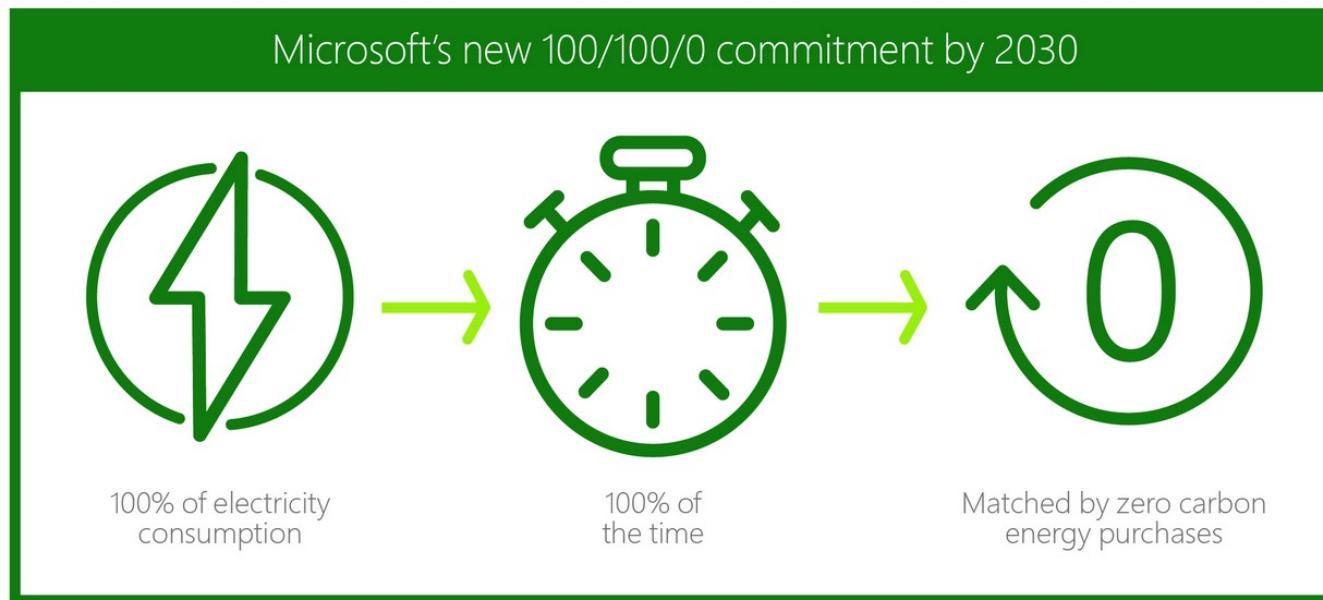


<https://www.eescorporation.com/multi-tenancy-issues-in-cloud-computing/>



Efficient resource allocation and energy efficiency

➤ The ***concentration of IT infrastructure*** and services into ***large data centers*** also provides opportunity ***for considerable optimization in terms of resource allocation and energy efficiency.***



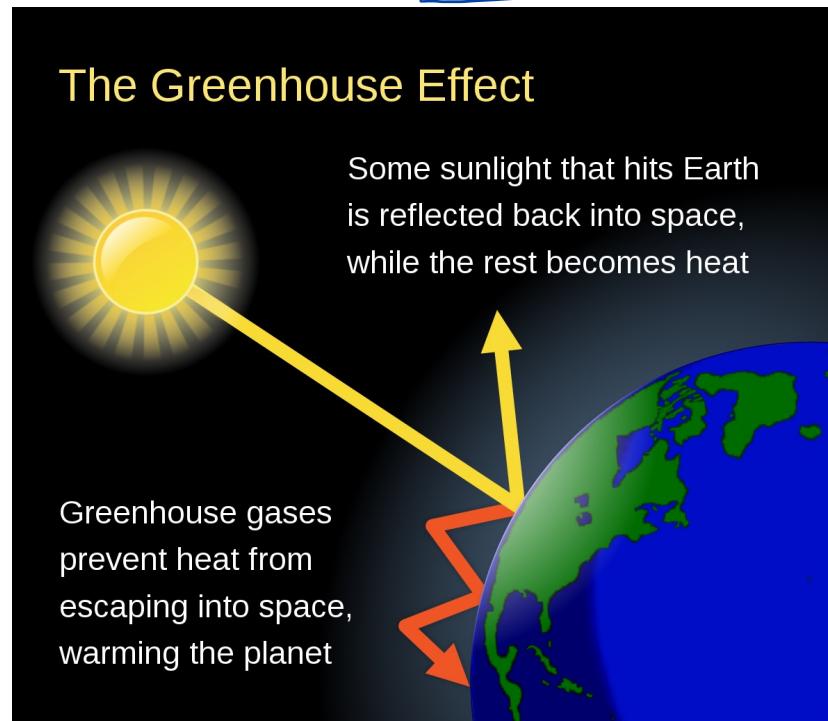
<https://blogs.microsoft.com/blog/2021/07/14/made-to-measure-sustainability-commitment-progress-and-updates/>

Efficient resource allocation and energy efficiency (cont.)

- *The energy efficiency benefit can eventually lead to a **less impacting approach on the environment.***

- Please learn and contribute to **green computing**.

استفاده از محاسبات
تجهیزات



Drawbacks of Cloud Computing



Security and Privacy

دادهای که از سرور مالک خارج شود
باید بتوان ۱۰۰٪ اطمینان
نماید

- Organizations ***do not own the infrastructure*** they use to process data and store information.
 - What if cloud provider is ***untrusted or malicious?***

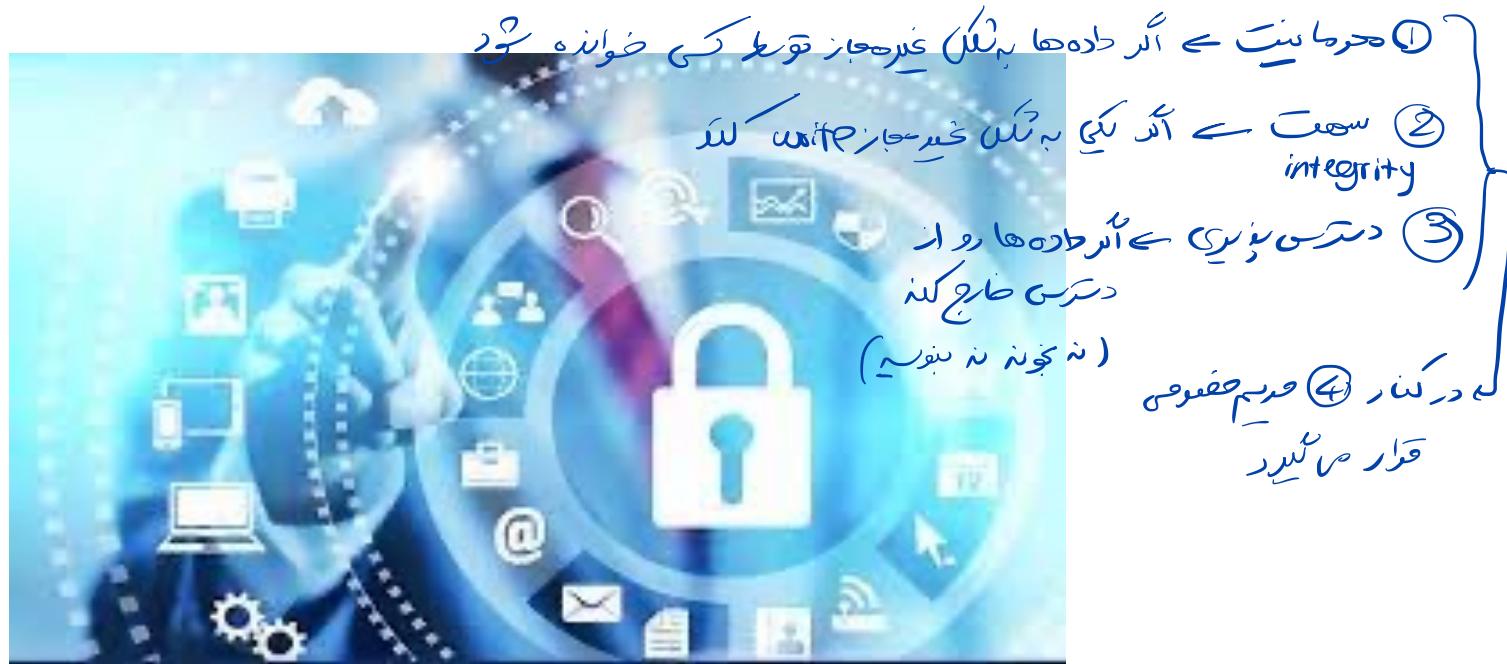


Untrusted Environment

Security and Privacy

➤ **This condition poses challenges for confidential data**, which organizations cannot afford to reveal.

حصینی کی



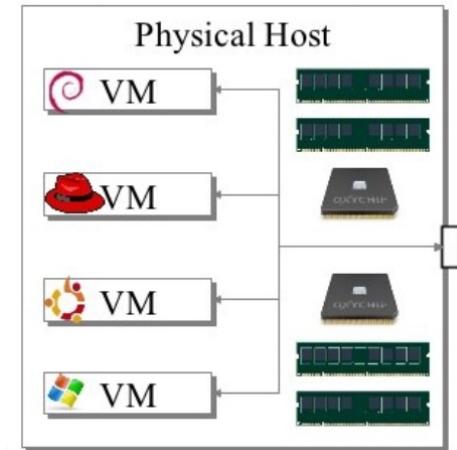
<https://searchcloudsecurity.techtarget.com/tip/Top-cloud-security-challenges-and-how-to-combat-them>

Performance unpredictability

غیر قابل پیش‌بینی بودن
رسانه‌ها را ایجاد

- Virtual Machines (VM) share underlying Physical Machine (PM) resources.

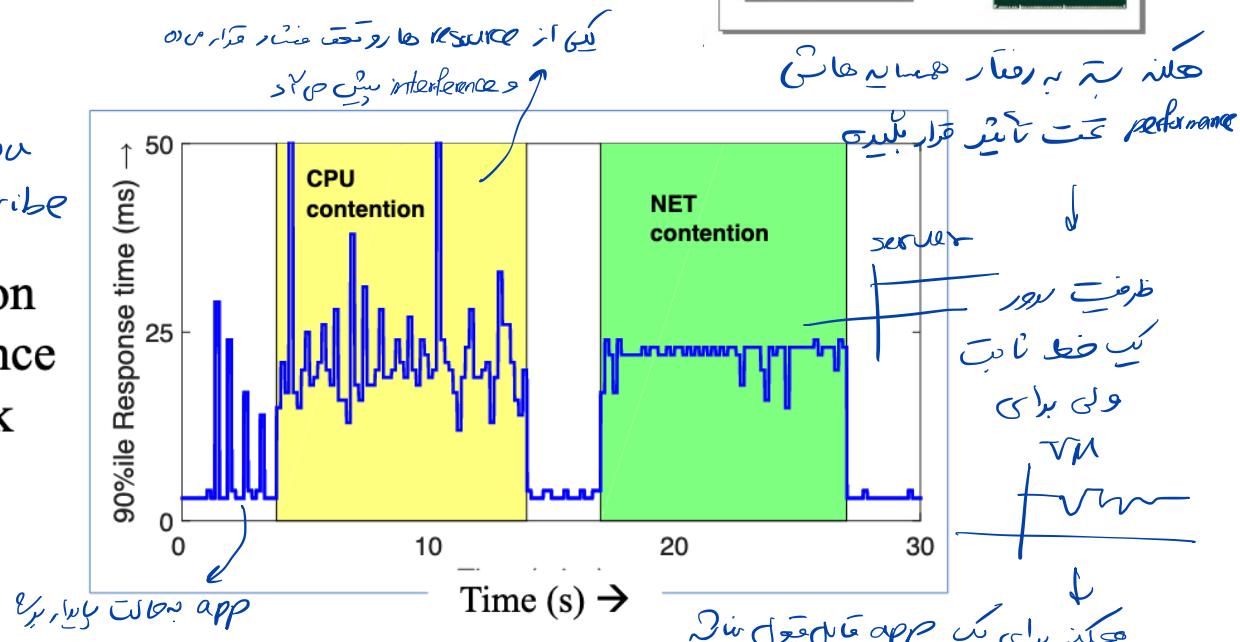
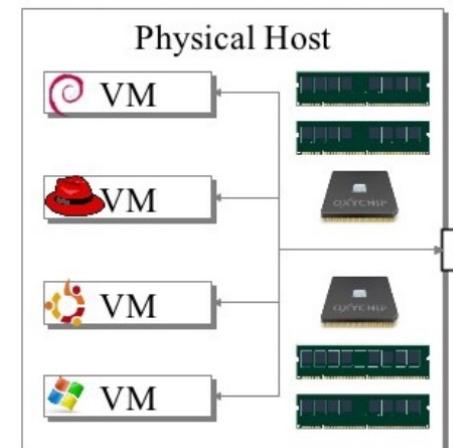
نمای عرضی کردن معرفه black factory ← چون حفظیه‌ها را در فضای ابری تعریف نمودند
و از صنایع بزرگ استفاده می‌کنند.
↓
interference باعث خطا می‌شود!
→ نیزه منع از بزرگی!



Performance unpredictability

برای app های حاسو →
با زمان و خود یعنی تقدیم برای حسنه مفع

- Virtual Machines (VM) share underlying Physical Machine (PM) resources.
 - VMs requests might contend for shared resources.



The diagram illustrates the following components and their relationships:

- AWS** is connected to **OpenStack** via an arrow.
- OpenStack** is connected to a **Web application under interference on OpenStack**.
- A bracket groups **AWS**, **OpenStack**, and the **Web application**.
- An arrow points from the bracket to the text "العنصر المهيمن على الأداء" (The dominant factor affecting performance).
- Below the bracket, the text "العنصر المهيمن على الأداء" is written again, followed by "العنصر المهيمن على الأداء" and "العنصر المهيمن على الأداء".

Other drawbacks

➤ Interoperability and standardization

تعاضل



این برای تعاضل در اینها!

متصل نیست:

AWS ~~→~~ Azure

گوگل، مپ نیز API دارد

و AWS دارند ولی کم خوبی

استفاده از آن سه مرتبه! من اگر

فایل CSV داشتم فایل سه مرتبه!

ادن شد که
map و نویز



Other drawbacks

- Interoperability and standardization
 - Availability and reliability of service
-

که قطع کردن اینترنت بی خواسته برای cloud های

Other drawbacks

- Interoperability and standardization
- Availability and reliability of service
- Vendor lock-in



نیازهای ابری!



نیازهای بعد

استانداردهای انتقال بین ابرها خالص نیست

Other drawbacks

- Interoperability and standardization
- Availability and reliability of service →

فوج و فوج AWS down
- Vendor lock-in
- Need for a reliable, high-speed network access

مدون یعنی قطع بین اینترنت و سرور میتواند ممکن باشد < مفهوم کامپیوچن اینترنت
از
Cloud Computing