Critical view on cloud computing

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Gains for different groups

Winner and Prices

Who is gaining and how?

Cloud-Owners

Gains for different groups

Cloud-Owners

- higher utilisation of the existing computing power
- lower average costs for bigger systems
- additional income for companies from other sectors

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Cloud-Users

- easier access to computing ressources
- "scalable" ressources

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 means for censorship and prosecution (Youtube ans Pakistan, USA-Patriot-Act, "Great Firewall of China", BKA-"Stop-Signs") Critical view on cloud computing

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Challenges of using clouds

Obstacles and hurdles

What are we up to, if we consider to use a cloud-service?

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Performance challenges

Is it as fast as yesterday?

- varying performance in especially smaller and medium sized clouds load-changes have higer impact
- · latency might cause trouble with timeouts

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Accessability/dependence challenges

Why can't I connect and when is it fixed?

- as data and service is outsourced, connection has to be high-available
- need for outage prevention and mitigation

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Strategic challenges

How much do you want to pay for what?

- low-cost solution vs. better or more secure solutions. (aka. Finance Dept. vs. IT Dept.)
- outsourcing of know-how
- lock-in might be more expensive in the long run (raising prices)
- need for strict auditing
- more complex communication between cloud-provider and cloud-users

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Modifiability challenges

Your code is perfect, now change it!

- given standardised protocols and software-versions
- monopolisation of standards
- scalability is limited by the architecture of the cloud
- long-term SLAs might slow down developement

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Customer-Relationship challenges

What to tell on press-conferences?

- is the company allowed to store customers data in the cloud?
- are customers expecting the data to be stored inhouse?

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Risks for all participants

What can go wrong, will go wrong

Which problems and dangers might occur?

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Privacy risks

My data, your data, our data!

- need for complete encryption to protect privacy, slows down computation
- laws for privacy regulation might hinder services
- national security regulations can prevent privacy
- other cloud-users share the same hardware, thus it is easier to get access to protected date
- cloud-owners can access your data nearby as they wish

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Integrity risks

I am sure, I've checked that!

- since the processes are virtualised or layered, there are no guaranties for integrity of data or procedures
- possible loss of data, if the cloud-provider does not take care

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Reachability risks

Why is the internet offline?

- a cloud-service without connectivity is useless
- lower bandwidth inhibits effective use of services
- permanent connection is necessary, each breakdown hurts public-relations

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Security risks

Once my machine, now your machine!

- each security breach affects the whole cloud
- broken and taken over cloud-users could infect or slow-down the whole cloud
- standardised hardware and software-stacks are prefered targets

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Social risks

Some are more equal than others!

- cloud-computing leads to the centralising of the Internet
- regions without broadband-connectivity are excluded from cloud-usage
- monopolists push other companies out of the market
- computation-power concentrates on a few players
- know-how concentrates also on a few players

Where to look at

Security and high availability in cloud computing environments - IBM (2011)

- Emerging Issues: Cloud Computing 1 of 5- South African Internet Governance (2011)
- Above the Clouds: A Berkeley View of Cloud Computing (2009)

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