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Overview

- Cloud computing
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Offentlige indkøb og produkter med høj miljømæssig fortjeneste



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Cloud Computing



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- ⊙ 'Cloud computing' er den lagring, bearbejdning og brug af data på afsindiges liggende computere som tilgås over internettet
- ⊙ Brugeren kan gøre krav på, næsten, ubegrænset computer kapacitet når behovet opstår, uden at skulle investere store summer. Samtidig kan dataene tilgås alle steder med en internetforbindelse.
- ⊙ Potentiale for at nedbringe 'slash brugerens' udgifter til IT. Samtidig med muligheden for at udvikle en bred vifte af nye funktioner
- ⊙ Ved at bruge 'cloud funktionen', bliver det muligt for offentlige institutioner at gøre deres service tilbud mere attraktive og mere effektive, imens udgiverne til IT falder

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Cloud Computing og offentlige institutioner's rolle



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- ⊙ EU's største køber af IT-services: Definer stringente krav til funktioner, ydeevne, sikkerhed, interoperabilitet og data mobilitet, samt overensstemmelse med tekniske krav
- ⊙ Definer krav til certificering: Adskillelige medlems stater har startet nationale inivitiver f.eks. Andromede i France, G-Cloud i Storbritannien, Trusted Cloud i Tyskland.
- ⊙ Når markedet for den offentlige sektor er fragmenteret, påvirker de krav der stilles i meget lav grad. Integrationen af forskellige service er næsten ikke eksisterende, og i sidste ende får borgerne ikke det bedst mulige produkt. Ved at samle de offentlige udbud kunne man muligvis tilvejebringe højere effektivitet. Fælles krav til de services der indkøbes kan samtidig være med til at nedbringe driftsomkostningerne.

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Fordele ved 'Cloud Computing' indenfor den offentlige sektor

- ⊙ Effektivitets besparelser
- ⊙ Produkter som er mere fleksible og tilpasset borgernes og de forretningsdrivenes behov
- ⊙ Lavere omkostninger til IT ved at reducere kapital behovet og driftsomkostninger
- ⊙ Forøgelse af udnyttelsen af hardware (i dag kan udnyttelsen være helt ned til 10% af totalen)
- ⊙ Gentænkning af IT processer og hyppigere opgraderinger muliggøres ved lavere omkostninger. Målet er at dele infrastruktur imellem forskellige offentlige institutioner.



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European Cloud Partnership



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- ⦿ Steering Board provided advice on turning cloud computing into an engine for sustainable economic growth, innovation and cost-efficient public and private services
- ⦿ Aims at driving better public procurement of cloud services in Europe
- ⦿ Pooling public requirements could bring higher efficiency and common sectoral requirements (e.g. eHealth, social care, assisted living, eGovernment services) would reduce costs and enable interoperability

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Environmental impacts by ICT devices



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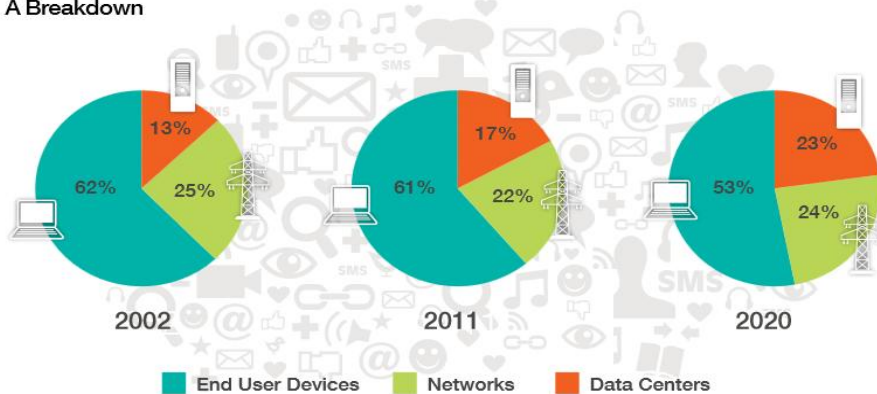
- ⊙ Energy consumption and resulting CO₂-emissions
- ⊙ Air, soil, water pollution, ozone formation (smog)
- ⊙ Bioaccumulation or food chain exposure due to hazardous substances
- ⊙ Effects on aquatic organisms due to hazardous constituents like mercury content in LCD-displays and flame retardants
- ⊙ Negative health impacts of employees due to noise, causing stress to noise sensitive people
- ⊙ Use of energy, finite resources and release of harmful emissions related to the production of ICT products
- ⊙ Generation of waste, incl. packaging and final disposal

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Environmental impacts by cloud computing

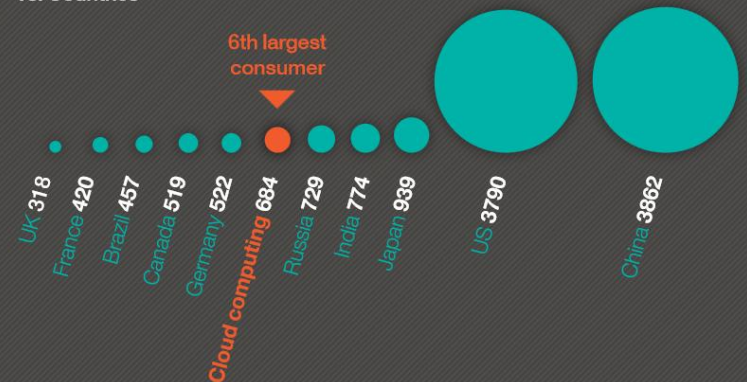
- ⦿ The aggregate electricity demand of the cloud (including data centers and networks, but not devices) in 2011 was 684 billion kWh.
- ⦿ If compared with the electricity demand of countries in the same year, the cloud would rank 6th in the world, with demand expected to increase 63% by 2020

The Cloud's Growth:
A Breakdown



Electricity demand:
Cloud computing
vs. Countries

Electricity in Billion kWh, 2011



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GPP criteria to approach environmental impacts through cloud computing

- ⊙ Unprecedented increase of data flow and processing of information over the Internet leads to significant environmental impact through energy and water consumption, and greenhouse gas emissions
- ⊙ Cloud computing can help mitigate these problems through efficient use of hardware and by building data centres to use low-energy servers and green energy
- ⊙ For example, according to some estimates, large companies in the US could save \$12.3 billion annually in energy consumption by adopting cloud computing.



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Standardisation for cloud computing

- ⦿ The U.S. National Institute for Standards and Technology (NIST) has published a series of documents including a widely accepted set of definitions.
- ⦿ The European Telecommunications Standards Institute (ETSI) has set up a Cloud Group to consider cloud standardisation needs and conformity with interoperability standards.
- ⦿ Additional standards setting initiatives will clearly be needed.



Cloud of Europe

Best practise example



Introduction

- ⊙ The public sector has a key role in shaping the cloud computing market
- ⊙ With the public sector market fragmented, its requirements have little impact, services integration is low and citizens do not get the best value for money
- ⊙ Part of the ECP is the Cloud-for-Europe (C4E) initiative, aiming at helping Europe's public authorities procure cloud products and services, so as to build trust in European cloud computing
- ⊙ Tender to be published in August 2014 on <http://ted.europa.eu/>

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Further resources

- ⊙ EC Cloud Computing Strategy
<https://ec.europa.eu/digital-agenda/en/european-cloud-computing-strategy>
- ⊙ Cloud for Europe
- ⊙ <http://www.cloudforeurope.eu/>
- ⊙ Legal implications on cloud computing
- ⊙ <http://www.cloudforeurope.eu/documents/10179/15444/D2.1+Legal+implications+on+cloud+computing+v1/023da045-4c78-4cd7-afe6-0a5de01c0347>
- ⊙ How Clean is your Cloud? (Greenpeace report)
<http://www.greenpeace.org/international/Global/international/publications/climate/2012/iCoal/HowCleanisYourCloud.pdf>