Cloudscape II event

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Europe's position and the Challenges ahead

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Economic crisis

Pres. Barroso to Heads of States & Governments, Feb 2010

- While between 2000 and 2008, the GDP per capita increased in EU by 13.5% and unemployment fell to 7%...
- … in 2009 alone (year of crisis) GDP has fallen by 4%; industrial production is down 15% and is back to 1999 levels
- Since 2008, the number of unemployed has jumped by 7 million and unemployment increased to 10%, i.e. more than 23 million people, levels not seen since the early 1990s
- Public finances are severely affected, with average deficits now reaching 7% of GDP and debt levels having increased by 20 percentage points in two years, undoing 20 years of consolidation

We are in the midst of a profound social and economic business transformation!!!!

- ❖ We are now all connected: technically , socially and economically
- ❖ The world is becoming smarter: systems, processes, service delivery
- ❖ The world is becoming instrumented, interconnected, intelligent
- ❖ We can turn data into intelligence
- ❖ Hybrid Intelligence (AI+user feedback) is prevalent

- ❑ Europe has 23 Million SMEs
- ❑ They make up 99% of all firms and host 90% of the European workforce
- ❑ They are the prime candidates for a Cloud Experience

Source: Dr. Joao Schwarz Da Silva

IT-challenges

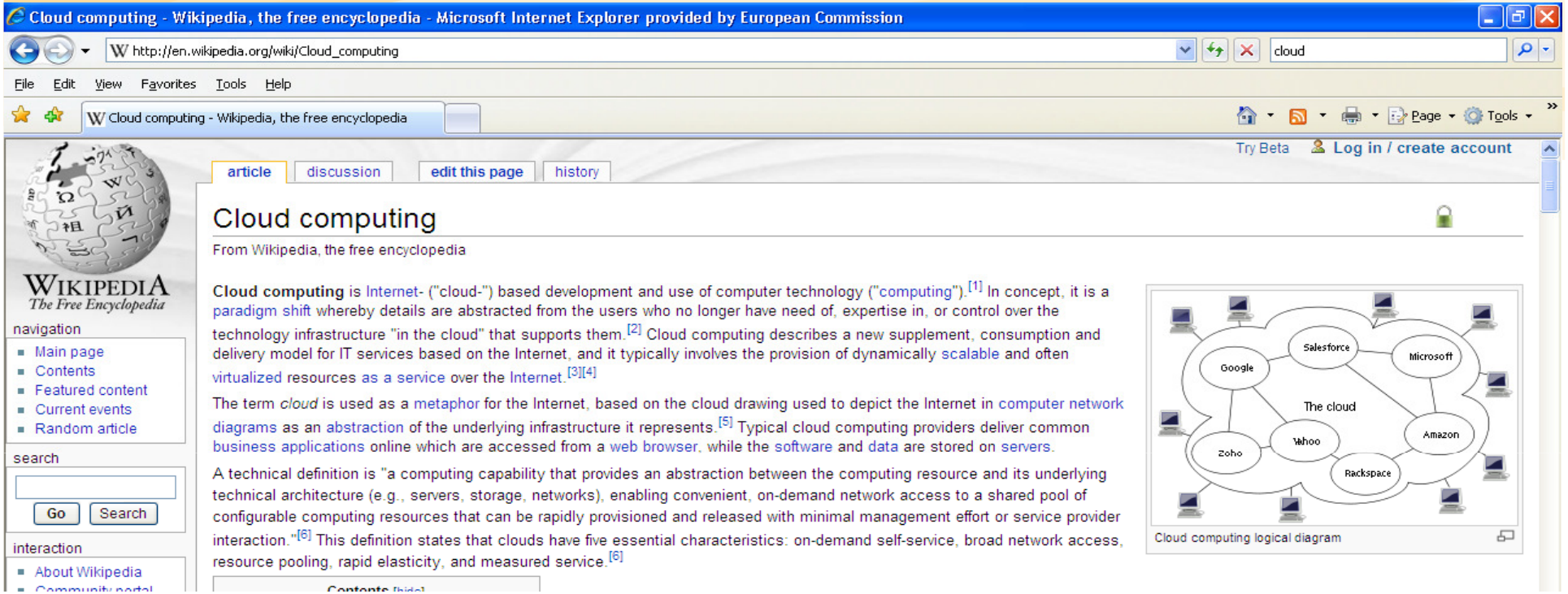
Public organisation & Enterprise

- Data deluge
- Services outside organisation's regime
- Need to align and sync with the business in a constantly changing environment
- Always faster product/service cycles

Resulting in:

- data-centre (infrastructure) complexity
- Increasing management/administration spending
- Scalability issues (low resource utilization..)
- IT-capital investment more difficult (particularly for start-ups) and riskier (particularly for SMEs, small organisations)

The Cloud promise



key economic incentive:

renting cost is higher than owning cost over long-term; in IT (rapid lifecycle of HW and to a lesser extent SW) little motivation to own something for more than a few years (the faster the technology moves, the more incentive there is to rent it)

Cloud issues

- **High-speed Internet access**
  - particularly for large datasets
- **Interoperability**
  - lock-in risks
  - portability of data, settings;
- **Privacy & Legal**
  - where is my data? whose law applies? who can access it?
- **Governance, control**
  - no control of updates, problem resolution priorities
- **Security**
  - data, outages
- **Operational**
  - inadequate application modelling to the cloud

Where do clouds appear today?

- **Business**
  - 20% of world servers (over 1m annually) being bought by a small handful of companies which include cloud-service provision in their business portfolio ("cloud" giants)
  - US dominance
  - Rapidly increasing commercial interest in Europe – *single market / regulatory issues pose obstacles*
- **Governments**
  - Attractive technology: cost cut; competition - efficiency
- **Research**
  - Increasing efforts in the world
  - In EU: Expert Group, RESERVOIR, new e-Infrastructure & ICT projects on clouds expected to be launched soon
- **Standards**
  - (Cloud-Standards Coordination WG, Cloud Security Alliance)
  - *important EU support through OGF-Europe*

Cloud as a science infrastructure?

- Incentives: cost, flexibility/scalability, grid shortcomings
- Exploration phase, pilots *(which business models?)*
  - Big science? Small science? both?
  - Computation? Data storage/sharing? all?
  - Secondary tasks? Core tasks? (security?)
  - Public / private cloud services? Incentives? Sustainability?
- Grids-Clouds: converging? diverging? Hybrid solutions?
  - Example: OpenNebula toolkit (RESERVOIR) in EGEE case
- Link to existing investments?
  - Investment protection vs innovation
  - European Grid Initiative (EGI)

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Roles for the EU/governments

- Research, e-Infrastructures (advanced platforms pioneering solutions in real world-settings)
- Open solutions, standards (innovation)
- Broadband
- Coherent framework for data flow and data protection (within Europe, in the world)
- Privacy and Security regime
- Energy, environmental (green) aspects
- Power of public procurement

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Next steps for Europe *(in plan)*

- The European Digital Agenda *(in preparation)*
  - A Public European Cloud? *(role of e-Infrastructures as a proof of concept facility?)*
  - Very fast Internet access; Trust & Security..
- Research
  - ICT, RI (e-Infrastructure) Work-programmes 2011-12 *(in preparation)*
  - EGI establishment
- Data flow/protection, Trust and Security
  - Directives: Data Protection *(currently in review)*, e-Privacy
  - Enhancement of cross-border security (including cyber-crime) through Lisbon Treaty
  - Opportunity for Europe to lead international initiatives based on internal experiences

Overcoming old ideas and business models

"I believe in horses....

The automobile is a transient phenomenon"

There's no better time to innovate than right now, anticipating the eventual upturn in the economy and laying the intellectual foundation for new products and services

Source: Dr. Joao Schwarz Da Silva

Thank you!

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