

# Cloud Computing

NUTech Meeting

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# Overview

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- What is it?
- How does it work?
- Who cares?
- What are the Advantages & Disadvantages?
- Future of the technology?
- Discussion

# Yes there is a Santa Clause!

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# How does it work?

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# Hardware Adjustment?

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- Client Computers
  - Box
  - USB Ports
  - LAN & wireless
  - Flash memory
  - 50GB storage
  - Open Office
  - Linux
  - Consumes 2 watts TOTAL



# What is it?

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- The *cloud* is the term for networked computers that distribute processing power, applications, and large systems among many machines.

# What is it?

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- *Cloud computing* is specialized data centers that host thousands of servers
- What is CC?  
<http://www.youtube.com/watch?v=6PNuQHUiV3Q>

# What is it?

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## □ Cloud computing service types:

### □ Applications



### □ Infrastructure



### □ Computing resources minus development platform layer





# Cloud Services

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flickr®

Gmail™  
by Google



NETFLIX



facebook.

YAHOO!®

# Who cares?

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- #1 Top IT Trend for education
- To The Cloud and Beyond

“Watch for significant moves in the university space in the use of Internet-based, or “cloud,” technology that goes well beyond e-mail services.”

- <<http://www.insidehighered.com/layout/set/print/views/2009/01/06/gonick>>

# Who Cares?

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- 2009 Horizon Report



- 200 leaders in business, industry & education
  - 1<sup>st</sup> Adoption Horizon
  - Mobiles & CC
- “Wholly different ways of thinking about computers, software, and files”

# Use: Email in the Cloud

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- Designed to free Web hosters and service providers from the capital and administrative burden of managing email security, which continues to rise due to unpredictable levels of spam.

# Use: Yahoo Research

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**SANDBOX**   
Play with our innovations

**Cloud Computing**

Cloud computing is becoming an important arena for researchers and developers to test next generation software services, and scalable software and systems is at the heart of providing cloud services via the Internet.

At Yahoo!, we are very supportive of academic research in cloud computing that, to date, has been limited due to significant cost barriers in getting large computing systems operational and the lack of software tools. By making large systems available and by contributing to open source software such as Pig and Hadoop, we hope to enable researchers and students to innovate and create new kinds of systems, applications, and tools, pushing the boundaries in this field.

# Advantages?

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- Scalability
- Instant / Real Time
- Better Hardware management
- No hard drive required
- Easier to share content; social networking
- Easier data security management
  - ▣ All data is located on central server
- Save \$\$\$ / Cost Effective
  - ▣ Pay for only what you use; pay per use
- Green & sustainability
  - ▣ Reduction of energy consumption & CO2 emissions
  - ▣ Resizable computer power

# Disadvantages?

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- TRUST
  - C-based apps are services offered by companies and services providers in REAL TIME
- No hard drive required
  - Some apps or hardware require connected hard drives
- Peripherals may not work
- Relies 100% on network connections
- Overkill for the average user
- Bandwidth

# Future of CC?

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- All IT companies are throwing resources into it
- Causing paradigm shift
- Cloudworkers?
- Poised Disciplines: Science & Media studies
- 2 options for implementation
  - ▣ Host it within your network
  - ▣ Proprietary
    - Use devices from companies that provide server storage



QUESTIONS, COMMENTS?

Elaine L Westbrooks <[ewestbrooks2@unl.edu](mailto:ewestbrooks2@unl.edu)>