

The Next Big Paradigm: Computing in the Cloud



William F. Slater, III, PMP
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Where the Future of Computing Is Going

- According to Nicholas Carr, author of *The Big Switch*, published in January 2008, the IT Industry is now in a huge paradigm shift where companies will move from expensive IT professional staffs and infrastructures, to smaller IT staffs and getting their services across the Internet from large providers like Google, Microsoft, etc. This is called “cloud computing.”
- These services will be provided on servers that are accessible via the Internet and web technologies.



Nicholas Carr

Where the Future of Computing Is Going

- According to Bill Gates and Ray Ozzie, in separate memos published on October 30, 2005: Microsoft will do a better job of embracing the web and web services. “People don’t care how this stuff works, they just want it to work.”
- These services will be provided on servers that are accessible via the Internet and web technologies.

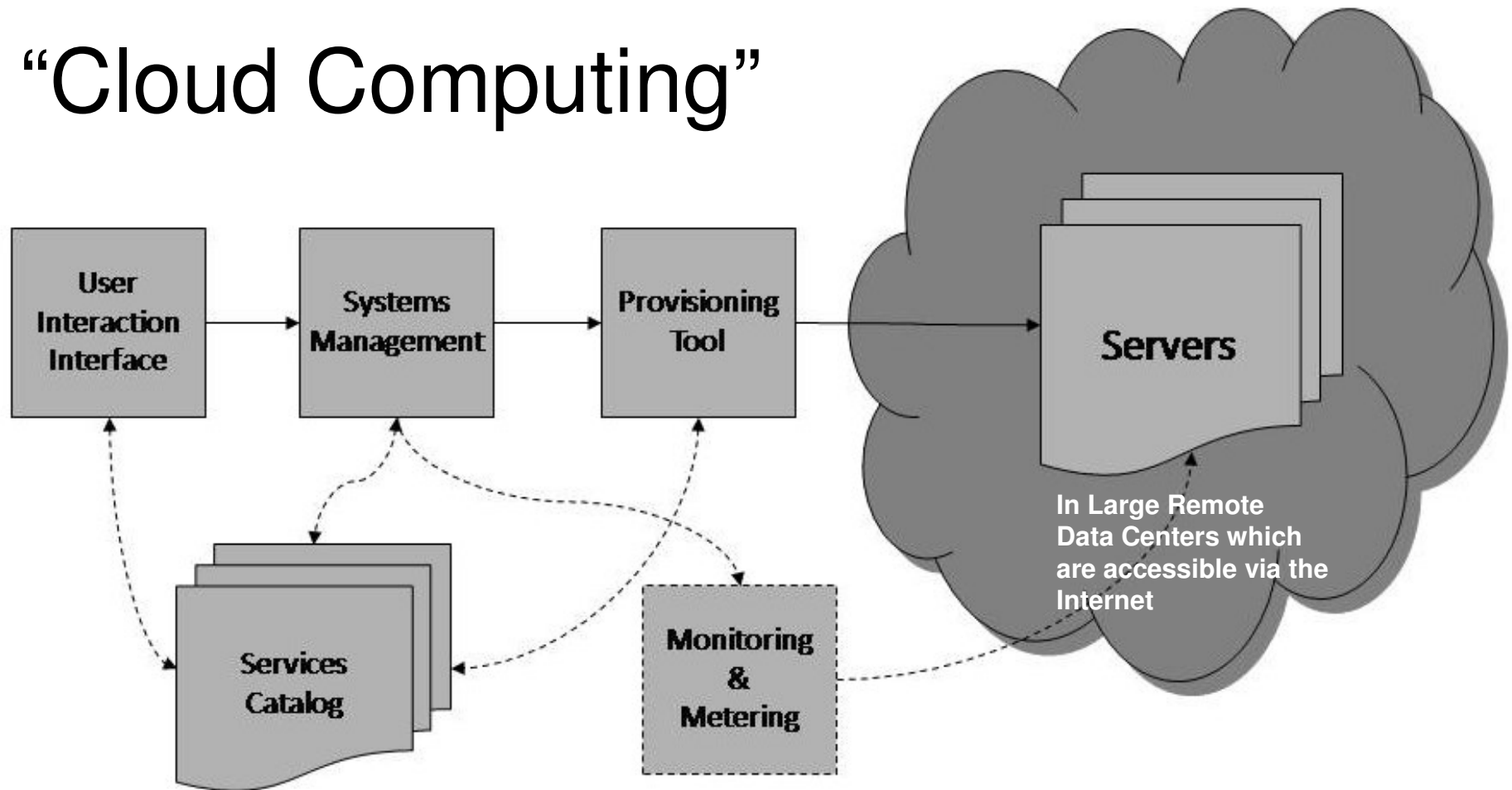


Bill Gates



Ray Ozzie

“Cloud Computing”

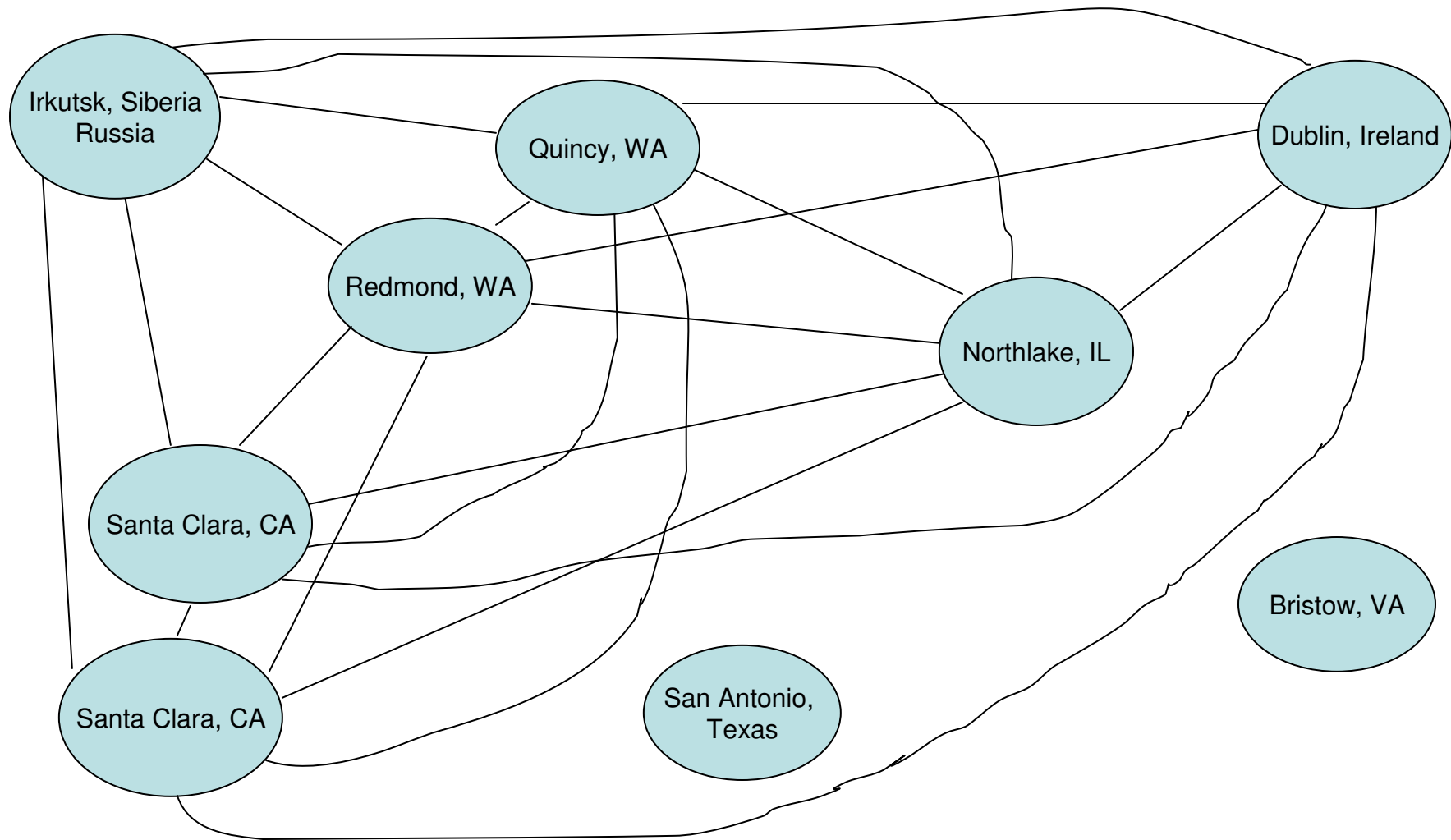


- User interaction interface: This is how users of the cloud interface with the cloud to request services.
- Services catalog: This is the list of services that a user can request.
- System management: This is the piece which manages the computer resources available.
- Provisioning tool: This tool carves out the systems from the cloud to deliver on the requested service. It may also deploy the required images.
- Monitoring and metering: This optional piece tracks the usage of the cloud so the resources used can be attributed to a certain user.
- Servers: The servers are managed by the system management tool. They can be either virtual or real.

Source: Wikipedia Article on Cloud Computing, retrieved on February 5, 2008

Microsoft's Cloud Computing Plans

(based on media coverage)

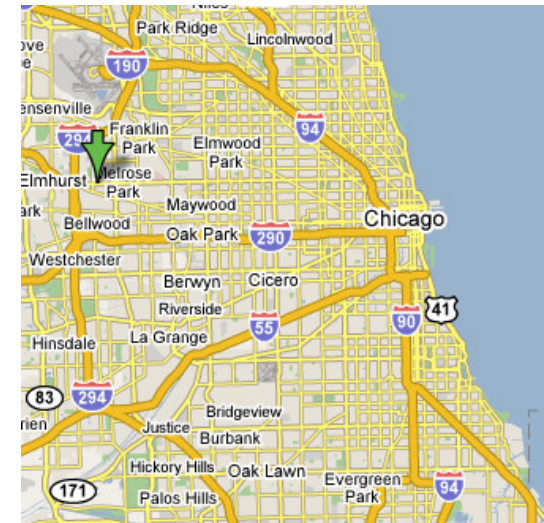


1,000,000 Servers online by 2010!

Microsoft Chicagoland Data Center

The Operational Description

- **Location:** Northlake, IL
- **Facility Cost:** \$500 M
- **Building:** 550,000 sq. ft, two stories (approximately 275,000 sq ft. each), new construction
- **Power:** 120 MW supplied by ComEd
- **Cooling:** Free cooling
- **Capacity:** 1KW/sq ft, “10s of thousands of servers”
- **ASHRAE Rating:** Tier 4
- **Target Opening Date:** April 1, 2008
- **Expected Useful Life:** 10 – 15 years



Northlake, IL

If You Don't Believe This Cloud Computing Thing Will Happen...



It Already Has Happened!

- Hotmail
- Gmail
- eBay
- Google applications: Google Search, Word Processing, Spreadsheet, Flickr, Calendar, etc.
- YouTube
- YAHOO Search, e-Mail, Groups, etc.
- MySpace
- FaceBook
- LinkedIn
- ClassMates
- Second Life
- SKYPE
- MSN Live Spaces
- Windows Live Writer
- And will just continue to grow...



It Already Has Happened!



Conclusion

- The Future is in “the Cloud”
- Big Players:
 - Google
 - Microsoft
 - Yahoo
- The one with the most Data Centers, Web Services and Servers will win.



Questions?



William F. Slater, III
Data Center Manager,
BP Naperville Data Center,
In December 2005