

Semantic Web and Nanotech



Information Technology and Social Life

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Semantic Web

- Application of Weblike design to data
- Adds definition tags to information in Web pages and links them in such a way that computers can discover data more efficiently and form new associations between pieces of information.
- Programs are able to understand data as opposed to simply presenting it on the screen.
- Serendipitous reuse of data: one person puts data up there for one thing, and another person uses it another way.
- Part of Tim Berners-Lee's grand vision of "a single Web of meaning, about everything and for everyone."
- Involves common data format and consistent names to basic concepts involved in the data.
- Example: Going to a conference, Web page for conference can update datebook, contacts, gps info., etc.
- Does not completely replace human assistant (rerouting example)
- Potential in sciences, health research



Web Universality

Independent of:

- hardware/software/operating systems
- culture
- quality of documents
- language, character set, etc.
- disabilities

Future of the Web

- more creative, flexible medium
- annotation systems, group editors
- new portable devices
- speech-based technologies



Nanotechnology

- Nanotechnology is the projected ability to make things from the bottom up, using techniques and tools that are being developed today to place every atom and molecule in a desired place.
- Combine atoms to make molecules that don't exist in nature
- Applicable in many areas including drug-delivery systems, cancer treatments, ultrastrong lightweight metals, and mass-produced superconducting wires
- Offers both benefits and risks
- Risk categories - biological systems and environmental concerns
- One application - creating small machines that can be inserted in body to detect and repair diseased cells
- Won't see radical new paradigm-shifting technologies for 3, or 5, or even 15 years



Voiceover IP

- Calls are transferred in digital packets over data networks instead of over circuit-switched copper wires.
- Making calls over the Internet
- Open standards and decentralization of Internet allows for flexible programming and changes
- Issues of federal control and standards (require 911 or ability to wiretap); competition from traditional phone companies
- Michael Powell, FCC, hands-off to encourage innovation; new chairman, Kevin Martin, position yet unknown