

Visions: from Memex to Labscape "All the world's knowledge" to PCR

- Post WW II visions of peaceful applications of technology
- First awareness of constant change inherent in organized technology
- Power of networks realized later
- Today's visions revolve around ubiquitous services
 - Weiser's vision of technology that disappears
- Labscape example shows importance of the user
- Localization and storage are critical technologies

Vannevar Bush's Memex

- July 1945 article in Atlantic Monthly
- Bush was Director of the US Office of Scientific R&D
- His definition of the problem: information overload
- His definition of the customer: himself and his peers
- Devices he predicts:
 - Tiny stereo camera
 - Exploit very short focal length lenses, tiny film
 - Xerography ("dry photography")
 - Microimages
 - Computers
 - Neural taps as input and output from the computer.
- Actions and processes:
 - Integrating camera into workflow of a scientist
 - Ultra low cost publishing
 - Computer-aided dictation (speech to text)
 - Logic manipulation by the computer
 - Centralized business records automation
 - Loading the Memex from other computers
 - Data mining to deal with complexity and information overflow
 - Hypertext as an automatic record of the connections one finds within a text.
 - Knowledge passed on as paths, not simply links
- Embedding the novel in the familiar
 - Not xerography, but "dry photography"
 - The memex looks like a microfilm reader...
- No sense of UI as a critical design issue
 - "Take me for example"
- Not aware of the consequences of things going digital
 - In 1945, the world was analog (Wiener, not von Neumann)
 - Bush's research career was in analog computing

Weiser's Ubicomp Vision

- Embodied Virtuality, not Virtual Reality
- Tabs, Pads and Boards
- Not all that different from the PSTN "cloud" in presence
- Applications are location and user-aware
 - Your work goes wherever you go

- Heavy requirements on localization and storage technologies
- Today's OS's are completely inappropriate
- Gestural interface for actions,
- Software objects embedded in real appliances

The sensor-rich interactive environment

Paper books → interactive media players

Teenagers discard cellphones and pagers in favor of constant A/V connections for hanging out wherever they are

Note taking becomes cheap, permanent and easy
Storage is essentially free

Many aids for the driver – navigation, traffic info, collision avoidance, maintenance monitors

Products and stuff identifies itself through ID tags

All external services are speech-enabled

The Web's portals have greatly enhances search and summary aids
(The Memex is finally here)

attentive environments that recognize you and which you can query

a virtually augmented world – you can see what is behind the wall, or the path to your destination...

(these borrowed from Mitch Stein and Jim Spohrer, IEEE Computer April 2001)

are we getting there?

Dick Tracy's watch

2way radio	1946
2way video	1966
2way datalink	1986
??????	2006

500M cellphones now in use, compared to 250M Internet users