

Short history review:

1970s: hierachial and network databases are the rule. Databases are large company supported resources, accessed via fixed point terminal connections, and structured interfaces.

1980s: emergence of relational databases. Birth and rapid growth of workstations, personal computers, beginnings of individual databases.

1982: Sun Microsystems "the network is the computer"

1990: World Wide Web (http) as we know it came into being.

1990s: realization that relational databases didn't meet all needs, extensions to relational databases, object oriented databases, data mining, etc.

2000s: the web is the default for most everything. Databases are connected to the web and to each other, and accessible by the masses. Most all information is contained in some sort of "database", interaction is through web forms (yellow pages, travel reservations, stores, blogs, classes). Access to a database is essentially free for most people (Microsoft Access, MySQL). Three tier systems: intelligence at client (visualization), processing done mostly at middle tier (application level), data storage is on server tier. Relational databases still dominate, in part because vendors increasing support additional capabilities (object oriented, XML, data mining, data warehousing, beyond text (audio, video, etc)). Interfaces begin to expand to devices beyond the desktop (laptop, PDAs, cellphones, etc.).

2010:

mobile devices (smartphones in particular become the most commonly used computing device)
NoSQL for very large scale, distributed, redundant databases

2020: **What do you think?**

Divide class into four groups:

- Visual interfaces: Google Glass, holograms, ...
- (digital) Personal Assistants: handles all your daily tasks, interactions.
- Sensors Everywhere (clothing, body, public spaces, cars, roads, work)
- Cloud, free storage, supercomputer in pocket: all your information is on the cloud. Disk is essentially free (dropbox, iCloud, Google Drive with unlimited storage). Computers have huge amounts of memory and supercomputer like processing speeds.

Discuss impact on databases and how they are used (user interfaces, agents, visualizations, new query methods), how they store information (where, local, dept, cloud, etc?; memory only no disk?), what kinds of new objects they store and how they are handled (accessed/retrieved).