

3.5. System Design

In this lecture we look at...

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3.5.01. Databases in Application

- Where's the data?
- Programmer driven future
- OODBMS limitations
- RDBMS longevity
- System design by
 - Data store, delivery, interface
- Case study

3.5.02. Where's the data?

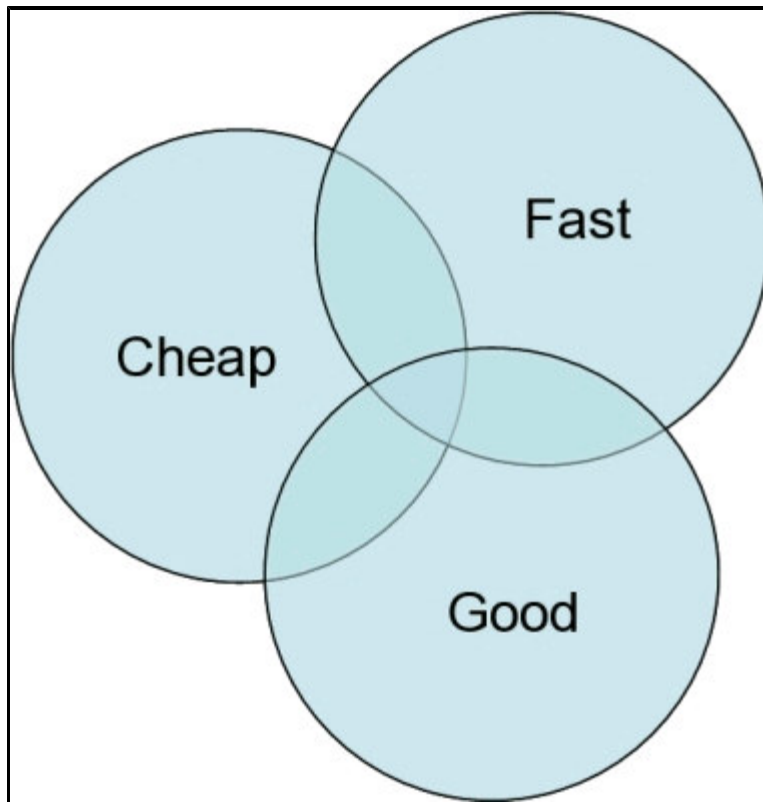
- Previously covered distance from User to Data (and reason for it)
- Client-Server data model creates DBMS
 - P2P alternative
- Accountability
- Distribution (BitTorrent, eDonkey)
- Caching

3.5.03. Where's the data?

- Answer: everywhere
- But where is it meaningful?
- Answer: for whom?

3.5.04. Quality paradigm

- Large projects require large teams
- Team overhead (ref 2nd year)
- Code responsibilities
- Data/data model resp.
- Object responsibilities



3.5.05. Web application data support

- Web application programming
- Goal, dynamically produced XHTML
- Client side designer-programmer split
 - CSS, XHTML
- Server side programmer-programmer split
 - Old school: query design, integrator
 - New school: MVC (Model-View-Controller)
 - Controller – user input
 - Model – modelling of external world
 - View – visual feedback

3.5.06. CMS

- Content Management System
- part of other courses
- CMS is a DBMS
- Zope/Plone and ZODB
- e107, Drupal and Seagull
- Zend MVC Framework (pre-beta)

3.5.07. OODBMS limitations

- Future unknown
- RDBMS supports
 - Application data sharing
 - Physical/logical data independence/views
 - Concurrency control
 - Constraints
- at inception these requirements not known
- RDBMS mathematical basis → extensible
- Crude Type Inheritance (see EER mapping)
- OODBMS as construction kit

3.5.08. Weaknesses in RDBMS

- Data type support
- Unwieldy, created 3VL (nulls)
- Type Inheritance and Relationships
- Tuple:Entity fragmentation
 - not to be confused with ‘fragmentation’
- Entity approximation requires joins

3.5.09. System design

- Client specifications
- Variance amongst Mobile devices
- Rich-media Content delivery
- Where’s the data? (M – media database)
- Where’s it going? (C – mobile browser)
- How’s it going to get there? (query design)
- What’s it going to look like? (V – XHTML)

3.5.10. Muddy boots

- The real world of databases
- Massive Excel spreadsheets
- Access Migration
- Normalisation
- Update implications
- Visual language of the Internet limitations
- Future of browser components