Future home of data

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Application evolution

- Centralized or mainframe era
  - Everything on the same machine, dumb terminals
- Client-server era
  - App on PC talking through ODBC to backend database
- App (web) server era
  - Browser to app server to backend database
Next stage – Web services

- App relies on services (other apps) available on the internet
- Message-based, asynchronous
- Event driven
- Routing of messages/events
- Many more devices, many wireless

What does this mean?

- Massive distribution of messages/events
  - Capture, store, route, distribute
- Coarser-grained DB interactions
  - XML messages in and out (data and action requests)
- Lots o’ caching going on
  - Less tight coupling to backend database
  - Improved scale-out
  - Disconnected operations
- Asynchronous updates
Scrap or adapt existing DBMSs?

- We’re good at several things
  - Highly reliable store
  - Concurrent access and update
  - Handling large volumes of data
  - Queries over large volumes of data
- It’s adapt or die so relational systems will adapt

Is XML the answer to all needs?

- Important but not enough to start all over again
- XML view of existing relational data
  - XML-formatted data in and out
  - Queries over XML views
- Well-structured XML data
  - Map to tables and proceed as above
- Storing and querying semi-structured XML data
- Action requests as XML messages
Role of DBMSs changing?

- Will remain final arbiter of current state
- Part of state information will be replicated on other devices
  - Caching on web servers and mobile devices
- Need to handle “delayed” updates
- Better mechanisms for “event” monitoring and distribution of notifications