

Unconference - WAN  
Breakthroughs from the top

Presenter  
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- runs Apple customer care call centers
- built a database that's used globally to do high level analysis of customer calls
- data is worth over \$40 million

How I got here...

- Summary fields for counts were slow
  - created data-side self-join

proxy tables

- de-normalized "placeholder" tables
  - candidates for denormalization
    - calculations
    - summaries
    - fields to be sorted on
    - deeply-nested data
- Attributes of proxy tables
  - "Flattened" table data
  - synchronized by auto-enter calc and scripting
    - server-side script every 2 minutes
      - if there isn't a proxy record for the cases attached to an issue, create the proxy records
      - if there are issues without cases attached, remove them from the proxy table

3 ways to speed up reporting over wan

- list view instead of sub-summary report
  - Pros
    - faster scrolling, sorting, refreshing than sub-summary reports
    - easier to code & test
    - Summary reports that contain more than 560 records run into "Unexpected behaviors"
      - can't get past 560th record
    - difficult to create dynamic, hierarchical reports
      - List in UI file might solve?
  - Cons
    - Data not updated in real-time
    - Larger data file size due to redundancy of data and increased indexing (de-normalization)
    - requires additional tables & fields (redundancy, contributing to data bloat)
    - requires scripts for refresh (affects timeliness)
- scripting

Dumb data (number/text values) vs evaluated fields (unstored/normalized)

- Evaluations over WAN
  - FM caches only 25 records at a time
  - index fields sort much faster
  - avoid unstored calcs
  - avoid summary fields
  - avoid deeply-nested relationships

Camp Software/BE Plugin

- uses SQL to update related records when parent record is changed
  - needs GLOBAL fields for data entry
  - uses an auto-enter calculation in the PARENT record
    - which runs an SQL statement, which performs an update on the CHILD records
  - sends data as parameters to PSoS
  - can be run in parallel (optionally)
  - add boolean logic and scheduled server script to ensure sync

Misc

- created a database, with a record for each scheduled script
  - allowed a visual matrix to determine how to do load balancing
  - [CLC:] this could also be solved with the PSOS management queue concept
- Apple has an app that will help you simulate a slow connection on your computer
  - <http://nshipster.com/network-link-conditioner/>

Q & A

- Do you have to send the actual value, not a reference to the value, when Performing Script on Server?
  - yes...ish?
- Are you then doing sub-summaries of the proxy data?
  - yes
  - still stay away from unstored calcs
  - performs better than on original table, but will be somewhat slower than a List view

Known bug

- If you are running a script in a file that has some dependency on a file hosted on another FileMaker server, the server-side script / PSoS will give a "file missing" error.
  - due to an issue in passthrough authentication