Best Practices for Database Administrators

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MIRE

- Make It Really Easy
- Automate
- Document
- As for your brain.....

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Use your brain for CPU, not storage!

(use a request tracking system!)

Monitoring Basics

- Graph (Cacit)
- Alert (Nagios)
- Check your checks

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Tradeoffs

- Tradeoffs always exist
- Think about them

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Most Commonly Given Advice

- Backup
- Restore
- What do you use backups for?

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In Case of Failure.....

- Restore from backup
- Master/Slave
- Master/Master
- Cluster

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DR? HA!

- Test your DR/HA plans
- What scenarios do they cover?
- What scenarios do they NOT cover?

Ounces of Prevention

- Configuration vs. reality
- Possible memory usage
- Disk space / tablespace size

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Pounds of Cure

- Error Logs
- Slow Query Logs
- Query Review

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Query Profile

- mk-query-profiler
- mysqlreport
- SHOW STATUS before and after
- Is every index being used?

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What Does This Query Do?

- `SELECT amount, created FROM payments where user='sheeri'`

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What Does This Query Do?

- `SELECT amount, created FROM payments where user='sheeri'`

vs

- `SELECT /* find payments for customer */ amount, created FROM payments where user='sheeri'`

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Data Profile

- PROCEDURE ANALYSE()
- What does each column, table do?
- What's in a name?

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Does It Make Sense?

- Can you “read” the data?
- Question “best practices”
- Then, make some!

Schema Profile

- Start normal
- Denormalize if necessary
  - Descriptive foreign keys can prevent denormalization
- Stored procedures for developers

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Replication

- Be careful of TRIGGERs
  - And any DML from SP or UDF
- Sync often with mk-table-sync
- Handle duplicates carefully

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Maintenance

- Partition
- Archive
- Purge
- Static data

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Manage User Expectations

- Constant report refreshes
- Aggregate data once every hour or 15 minutes
- Split off processing:
  - customer/non-customer
  - internal/external

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Creative Suggestions – Forums

- COUNT(*) for paging
- LIMIT 0,n+1
- Cache each page of forum
  - First page can have up to n+5 entries

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Creative Suggestions – Calculations

- Limited set of calculations?
  - Distance between zip codes in the US
- Calculate the same thing more than once?
- Calculating easy constants?

Foreign Keys

- Application still has to handle problems

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Summary

I THINK WE SHOULD BUILD AN SQL DATABASE.
UH-OH
DOES HE UNDERSTAND WHAT HE SAID OR IS IT SOMETHING HE SAW IN A TRADE MAGAZINE AD?
WHAT COLOR DO YOU WANT THAT DATABASE?
I THINK MAUVE HAS THE MOST RAM.

When I Walk In the Door

- alerting
- request tracking
- graphing
- documentation

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My Toolbox

- EXPLAIN
- Ma'atkit
- hackmysql.com (mysqlsla, mysqlreport)
- MySQL Manual

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Also Useful

- mytop
- innotop

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Testing, Testing...is this thing on?

- Functional
- Load
- Start now!

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Consider

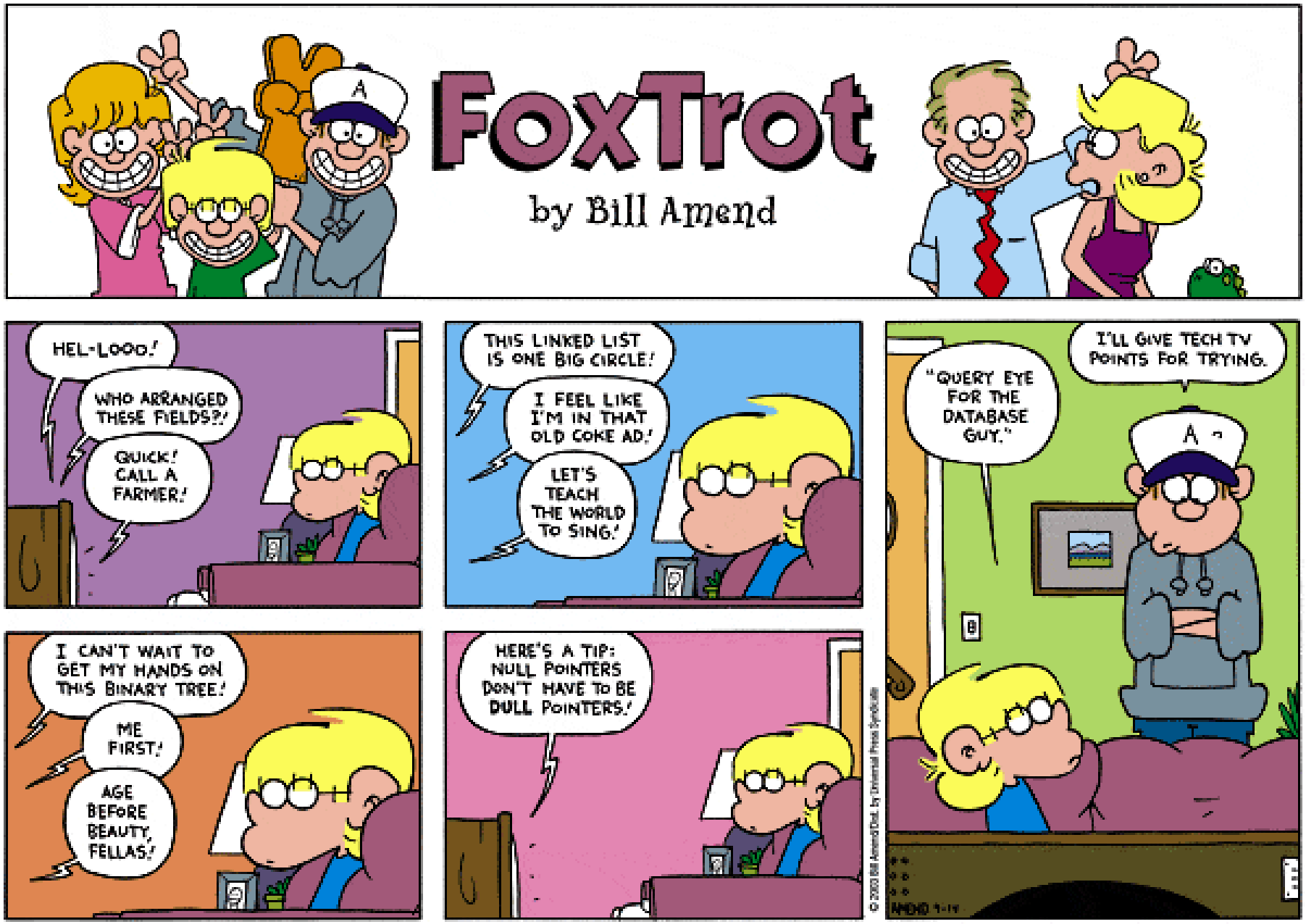
- master/master vs. read_only slave
- Learn the foundations
- Semi-dynamic data

Redundancy

- Make everything replaceable
  - Kickstart
  - Automated config management
- Including yourself!
  - Don't you want a vacation?

Be a Good DBA

- Prove your work to yourself
- Be clear



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