

GT.M: A Tried and Tested Open-Source NoSQL Database

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NoSQL / Schema-less DBs

- Many contenders, eg:
 - CouchDB
 - MongoDB
 - Voldemort
 - Cassandra
 - Dymomite
 - HBase
 - HyperTable
 - VPork
 - Tokyo Cabinet
- Schema-less, “key-value”, often hierarchical
- Free Open Source
- Design Goal: massive scalability + very high performance
- But all are new!

New versus Tried and Tested

- Any existing alternatives? ie featuring:
 - Schema-less, key-pair architecture
 - Massive scalability
 - Extremely high performance
 - Ability to start small, grow to any size
 - Free Open Source licensing
 - Low maintenance
 - Proven track record
 - Accessibility via HTTP

Yes: GT.M



GT.M: What is it?

- Tried and tested database
- Ideal for use in the Cloud
- Worthy alternative to the more well-known NoSQL databases

GT.M: Key-pair database

- Schema-free, key-pair database
- Schema implicit in application
- Persistent multi-dimensional sparse arrays

```
^Offices ("UK")=2
```

```
^Offices ("UK", "London")="+44 20 8123 1999"
```

```
^Offices ("UK", "Reigate")="+44 1737 987654"
```

GT.M: Massive Scalability

- Massive databases
 - Individual database files up to multi-TBs
 - Unlimited files per logical database
- Built-in replication, non-stop operation
 - Replication hierarchy
 - Each instance can replicate to 16 others
 - No limit to hierarchy depth
 - Logical Multi Site Configurations
 - Local, national, inter-continental

GT.M: High Performance

- World's largest core banking system:
 - 17 million accounts
 - Single integrated database
 - Excellent response for 10,000 users during peak load
 - Plus network of ATMs
 - Real-time processing
 - Batch mode is the expected norm in banking
- Even larger systems currently underway

GT.M: Start small, grow large

- Small foot print:
 - Latest version on x86 GNU/Linux: 16.2MB
- Very parsimonious of system resources
 - Excellent performance even on a Netbook
- Scale to massive multi-site configuration
 - No changes to application logic
 - No changes to logical database structure

GT.M Licensing

- FOSS on 32- and 64-bit GNU/Linux:
 - AGPL v3
 - Support available on commercial terms
- Traditional user-based license & support
 - pSeries AIX
 - SPARC Solaris
 - Integrity HP-UX & Linux
 - zSeries z/OS

GTM: Low Maintenance

- No DBA required
 - No repeated manual optimization as it scales
- Schema-less
 - Database structure can be extended on the fly
 - No pre-declaration required
- “Lights out” automated operation
 - Operational management via shell scripts
 - Live transaction-consistent backup

GTM: Proven Track Record

- In production since 1986
- High end real-time banking systems, chosen for:
 - Rock-solid reliability
 - Security
 - Performance
- Healthcare (eg VistA), chosen for:
 - Security
 - Price/performance
- Transportation & manufacturing
 - Highly adaptable to many sectors

GT.M: Accessibility

- Built-in language
 - Dynamically compiled
 - Procedural
- Easily accessed from popular languages
 - eg Python
- Extremely high-performance HTTP access
 - Via inetd/xinetd
 - Apache gateway

New versus Tried and Tested

- GT.M ticks all the boxes
 - ☑ Schema-less, key-pair
 - ☑ Massively scalable
 - ☑ Extremely high performance
 - ☑ Able to start small, grow to any size
 - ☑ Free Open Source
 - ☑ Low maintenance
 - ☑ Proven track record
 - ☑ Accessible locally and also via HTTP

GT.M: Other features

- Proven security
- Database can be encrypted
- Unicode support
- ACID transactions

GT.M – Where do you get it?

- Home page:
 - <http://fis-gtm.com>
- Stand-alone:
 - <http://sf.net/projects/fis-gtm>
- Bundled with VistA:
 - <http://sf.net/projects/worldvista>
- Bundled with M/DB installer:
 - <http://bit.ly/4xzkRQ>

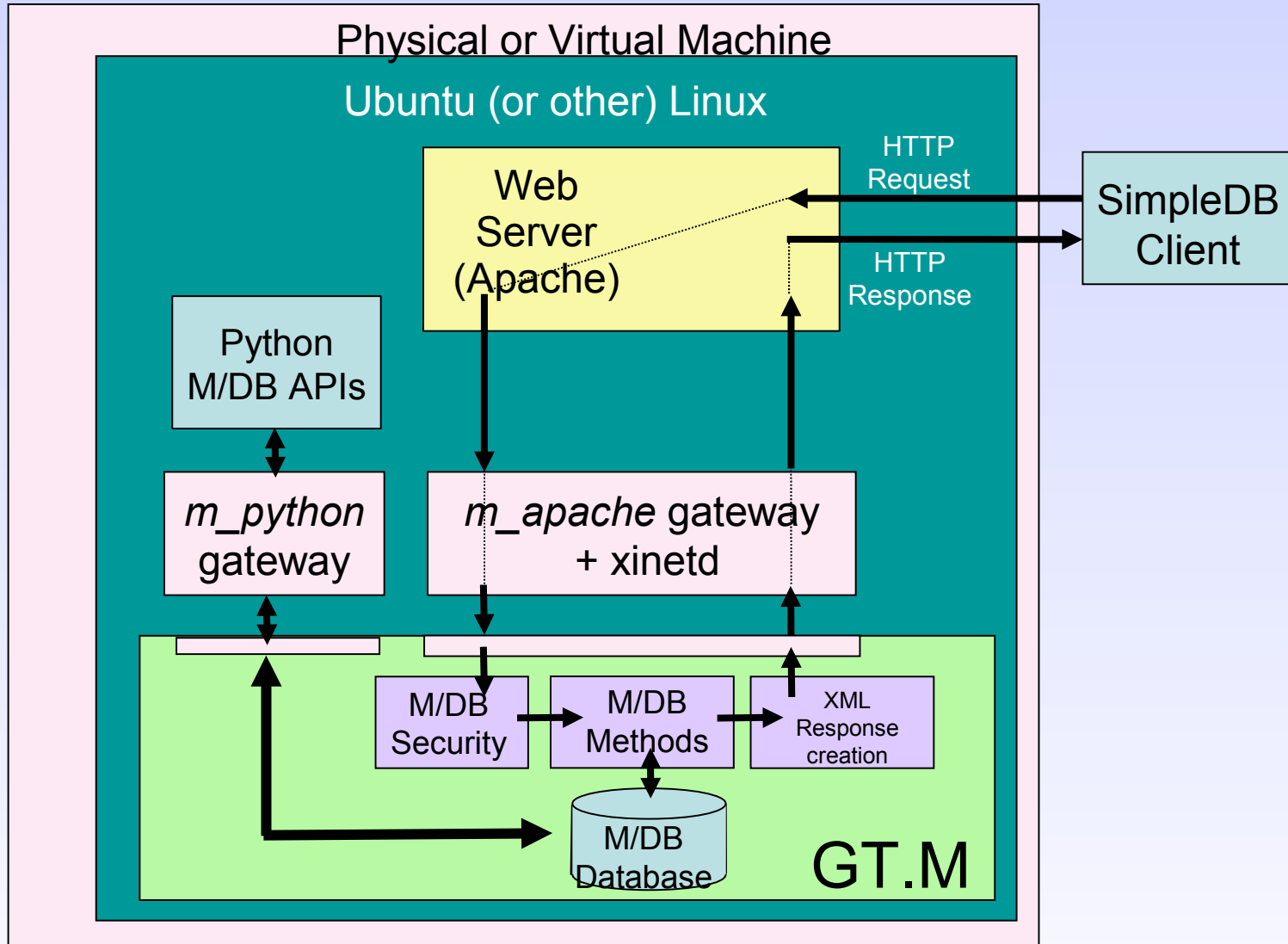
GT.M: ideal for use in the Cloud

- M/DB
 - Free Open Source alternative to SimpleDB
 - API-compatible
 - Behaves identically
 - Accessed identically
 - Just a different endpoint URL
 - Designed for:
 - Local use
 - Private Cloud
 - Alternative Public Cloud to Amazon

M/DB v Amazon SimpleDB

- Limitations that M/DB addresses:
 - Number of “domains”
 - Data types and record sizes
 - Text only
 - 1k maximum
 - Can be costly
 - Eventual Consistency
 - Locked in to Amazon’s Cloud
- M/DB: the SimpleDB model can be used anywhere

M/DB Appliance Architecture



M/DB

- In Ubuntu 9.10 Enterprise Cloud (UEC):
 - M/DB to be available in the UEC Image Store
 - Fills the missing gap in UEC: SimpleDB API

M/DB

- Why GT.M was the ideal technology:
 - Rapid development
 - M/DB version 1.0: 1 week!
 - At high-end:
 - Massive scalability and ultra-high performance
 - At low-end:
 - Undemanding of hardware and Free Open Source
 - Rock-solid reliability
 - It probably manages your bank account & healthcare records
 - Very high-performance HTTP interfacing
 - Python supported as scripting language
 - Read/write access to M/DB's database records

GT.M: Summary

- GT.M is an excellent NoSQL database
- Free, Open Source
- Tried and Tested
- Rock Solid, Lightning Fast

Find out more

- GT.M: <http://www.fis-gtm.com>
- M/DB: <http://www.mgateway.com>
- GT.M Python Primer: <http://bit.ly/GAV6w>