FIS GT.M™ – An Introduction

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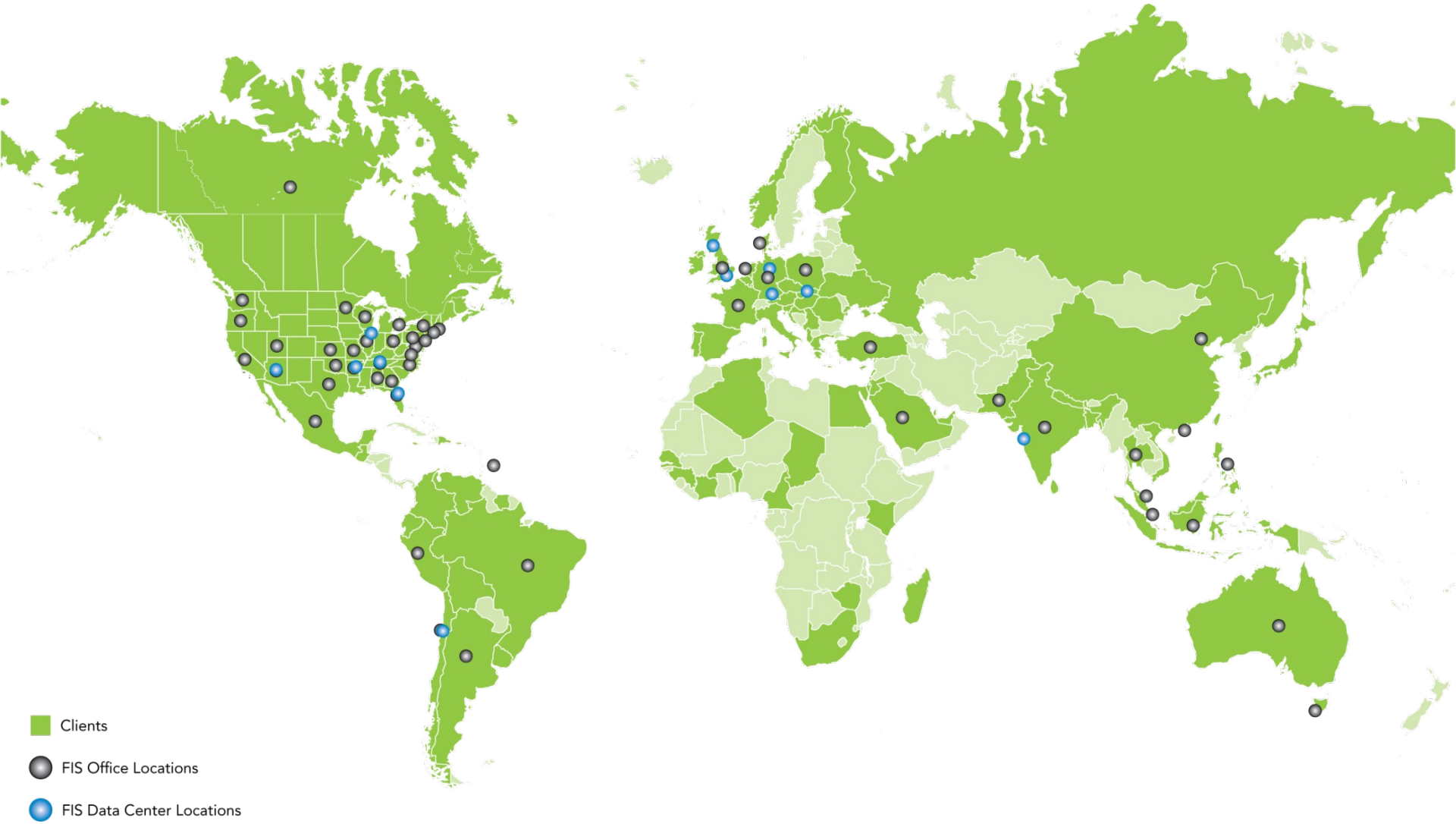
What is FIS?

- 30,000 employees worldwide
- More than 40 years of market leadership and $5 billion in 2009 pro forma revenue
- Member of the Standard and Poor's (S&P) 500 index
- #1 technology provider to the global financial industry
- 14,000 clients in more than 100 countries
- 25 strategic operating centers outside the U.S.
- Clients include 9 of the top 10, and 40 of the top 50 global banks

Global Locations



What is GT.M?

- For VistA users (& others with MUMPS applications)
  - An implementation of MUMPS
    - Database engine
    - Compiler
    - System management utilities
  - Widely used for VistA deployments worldwide
- For everyone else
  - Transaction processing database application platform with key-value datastore
- For everyone
  - Highly scalable
  - Robust & secure
  - Extreme levels of business continuity

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GT.M Highlights

- Technical
  - Open Architecture
  - Security and Integrity
  - Continuity of Business
  - Throughput & Scalability

Open Architecture

- Integrates well with operating system
  - Freely integrate functionality available in underlying operating system –inetd / xinetd for deploying web services, TZ environment variable for timezones, etc.
- Leverages existing software
  - Development tools – CVS, emacs, vim, etc.
  - Graphical IDE – Serenji (http://georgejames.com)
  - Objects – ESIObjects (http://esiobjects.org), PIP (http://fis-pip.com)
  - SQL/ODBC/JDBC – Medsphere Fileman Projection (https://medsphere.org/community/project/fm-projection), PIP, KB_SQL (http://knowledgebasedsys.com)
  - Web 2.0 / Smartphone / Tablet applications – EWD / iWD (http://mgateway.com)

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Security & Integrity

- Uses underlying operating system
  - Clearly articulated security model
- Processes run as user level processes
  - No database daemon
- All updates recorded in journal file
  - Journal files are never reused
- Database encryption to protect data at rest
  - Plug-in architecture allows your choice of encryption algorithms / libraries
- Proven in banking & finance
  - System of record for tens of millions of bank accounts in North America, Europe & Asia

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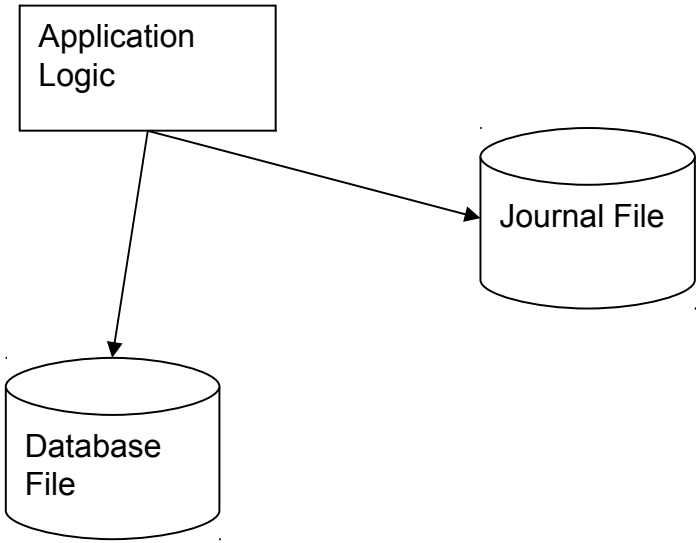
Technical Notes

- Performance and MUMPS functionality
  - About the same as other MUMPS
- Administration and Operations – Robust and Easily Automated with scripting
  - Online backup, reorg, integ
  - Configuration of databases and environments
  - Continuity of business with logical multi site (LMS) application configurations
    - Support for continuity of business in the face of both unplanned and planned events
  - Unicode support

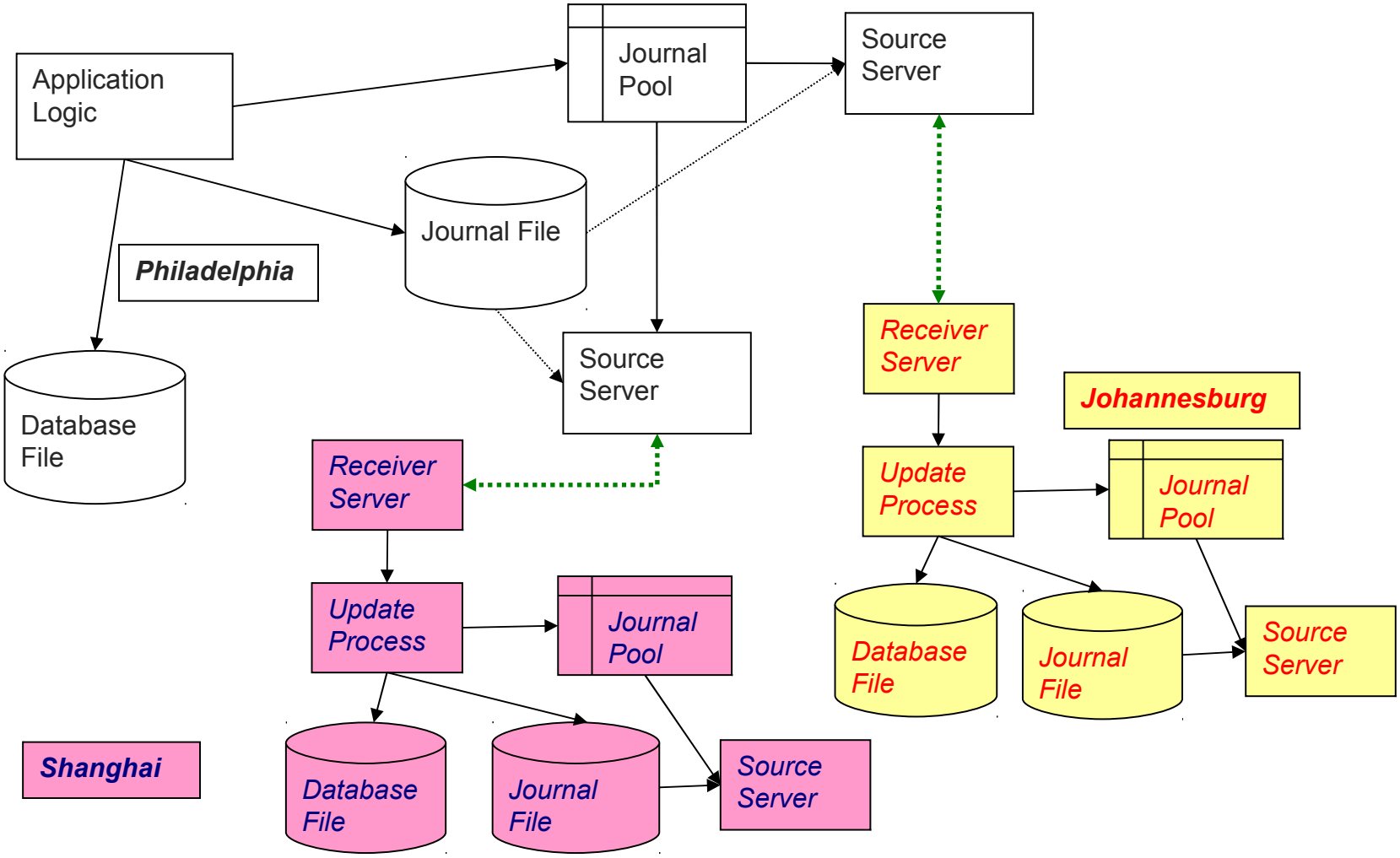
Continuity of Business

- Unique functionality for creating logical multi site operation
  - 1 originating instance streams to up to 16 replicating instances to up to 256 tertiary instances...
- Keeps application available during not only unplanned events but also planned events

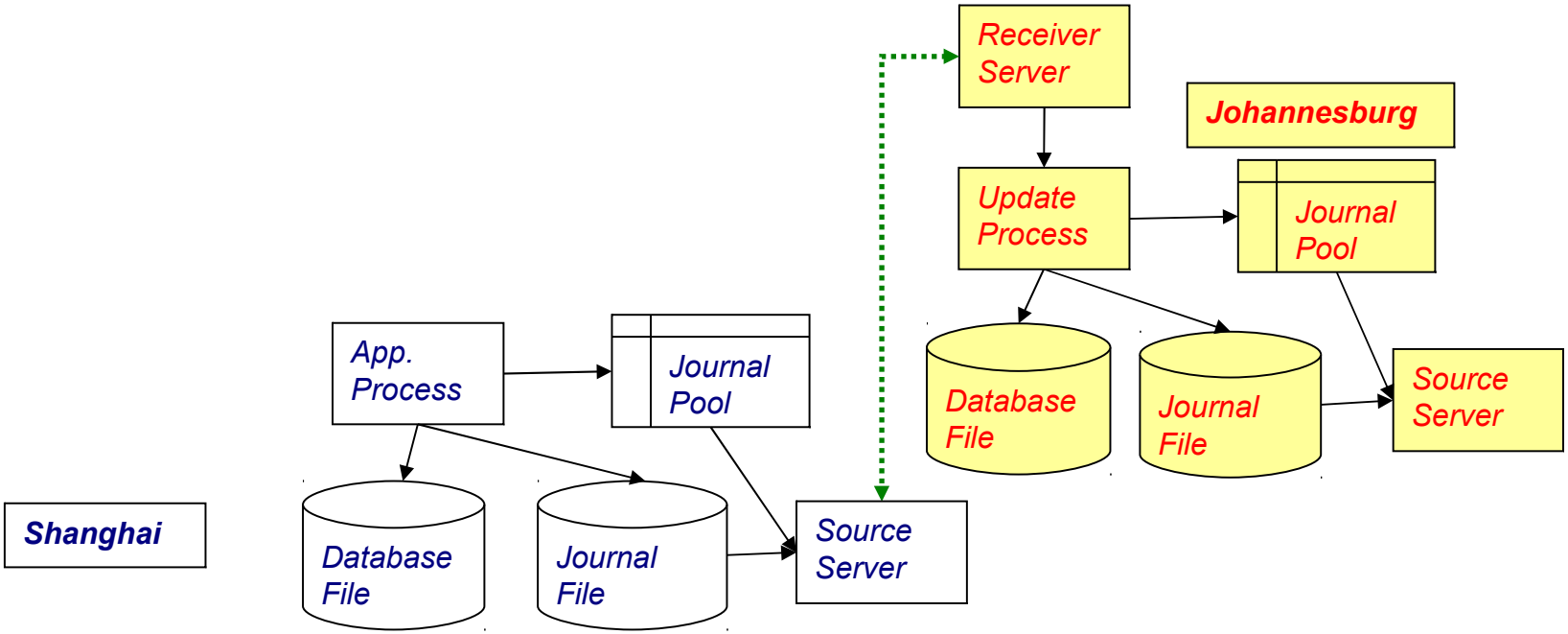
GT.M – Basic Database Operation



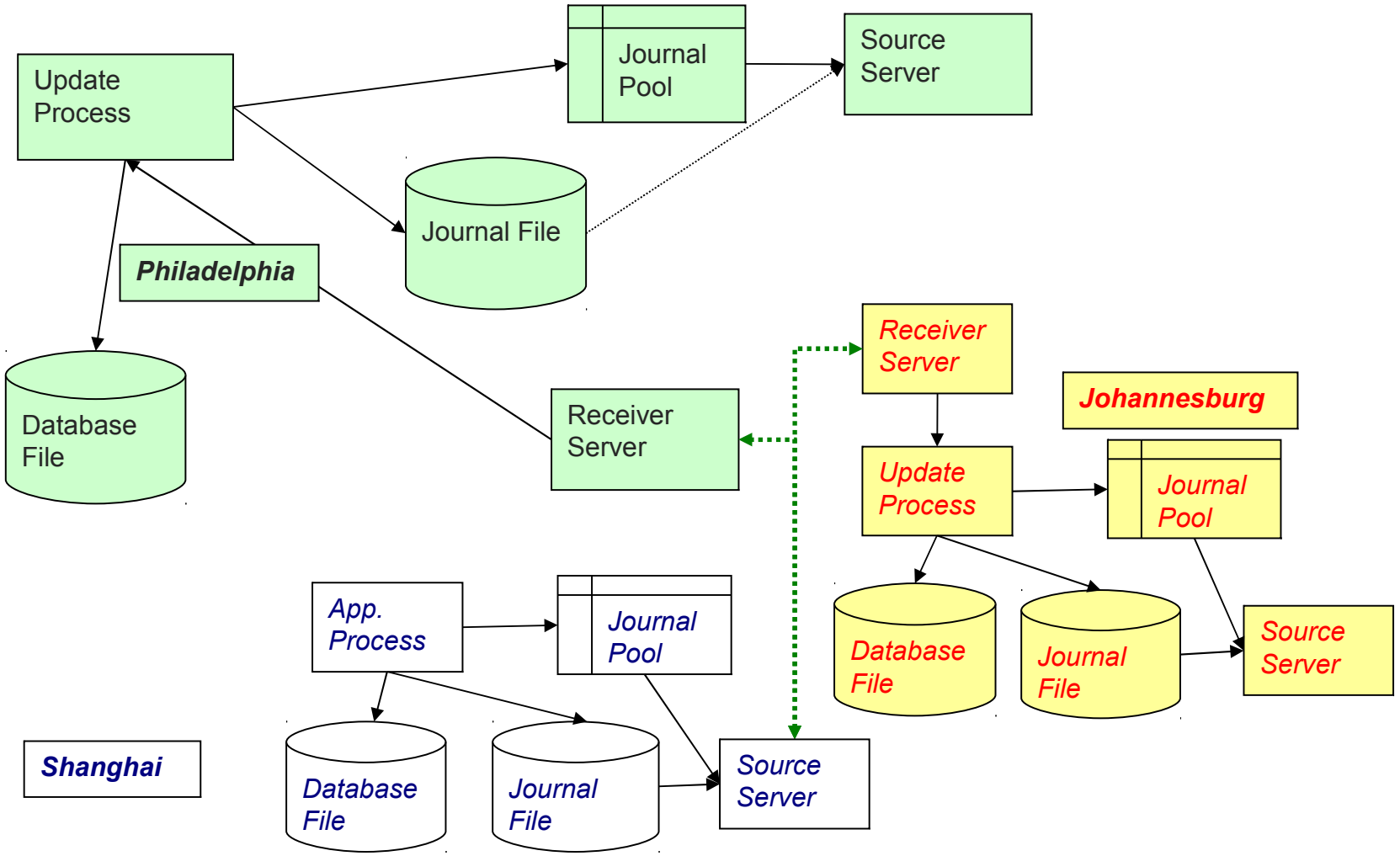
GT.M – Logical Multi-Site



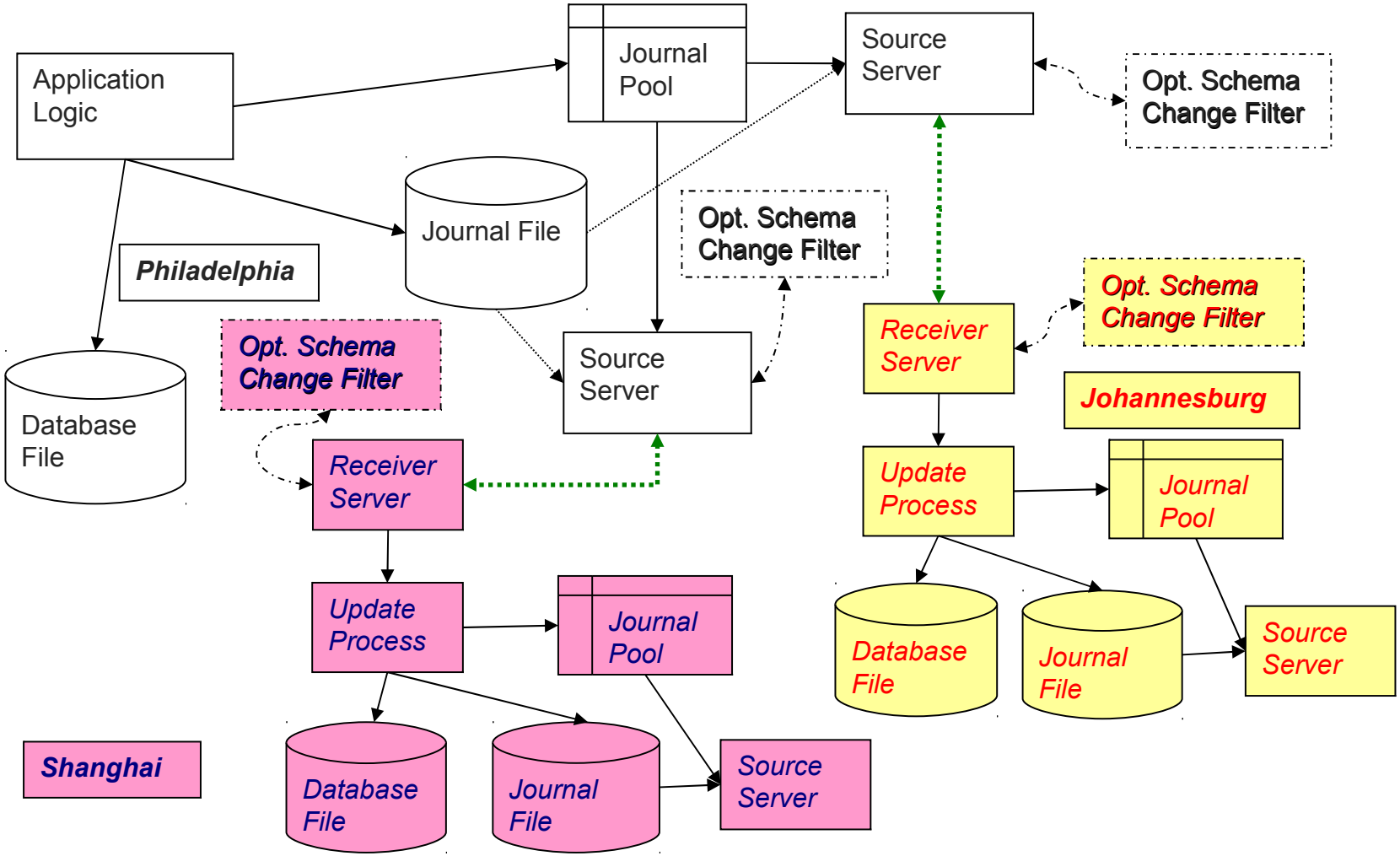
GT.M – Philadelphia Down



GT.M – Philadelphia Recovers



GT.M – LMS + Schema Change



Throughput & Scalability

- Live since 2005 at the then largest real-time core processing system in daily production use at any bank anywhere in the world that we were aware of
  - Processing volumes have grown 50% since then
  - Completed benchmarks: 1.5x that largest system on x86 Linux; 3x that largest system on proprietary UNIX
  - Largest single database file created in a benchmark: 2TB
  - Databases in hundreds of GB are very common
- Even larger bank now in production
- On x86 Linux platform, name brand US bank processing millions of accounts

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GT.M Highlights

- Technical
  - Security and integrity
  - Continuity of business
- Licensing

Licensing

- FOSS (Free / Open Source Software) on:
  - x86 GNU/Linux (32- and 64-bits)
  - HP Alpha/AXP OpenVMS (32-bits)
- Reasonably priced on other platforms (64-bits)
  - IBM System p AIX
  - IBM System z Linux & z/OS
  - Sun SPARC Solaris
  - HP Integrity (Itanium) HP-UX & Linux
- Supported on a commercial basis on all platforms (normal business hours; 24x7)
- Simple pricing

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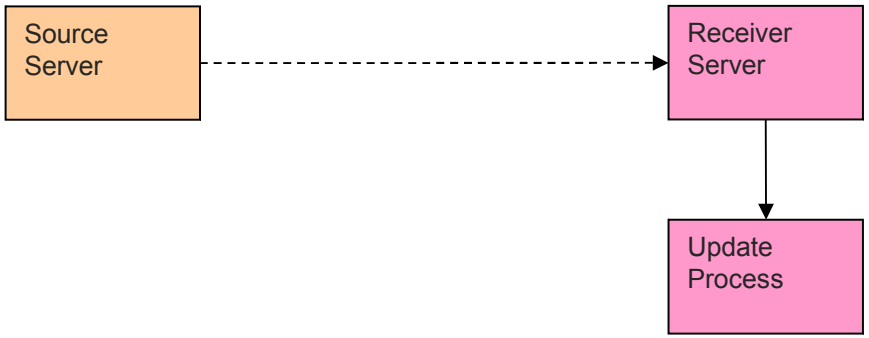
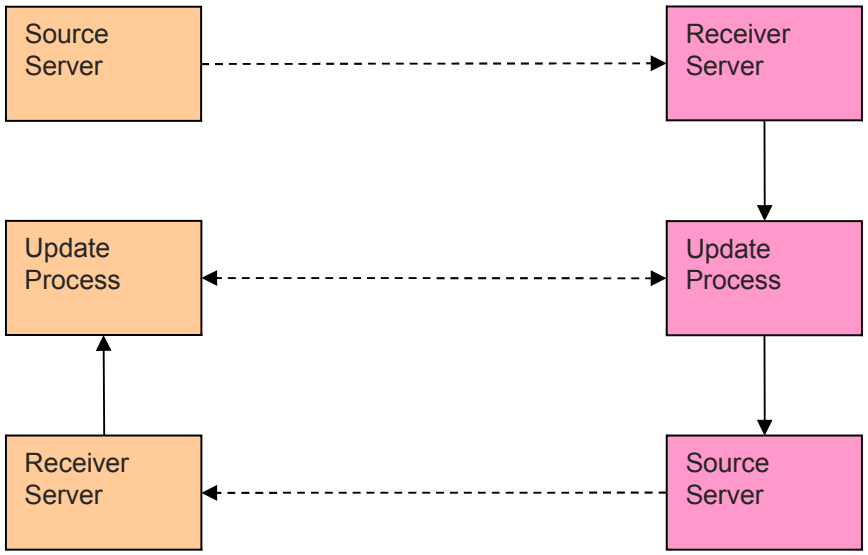
Coming up – from LMS



… to LMX


Source Server
Receiver Server
Update Process
Update Process
Receiver Server
Source Server

Questions / Discussion

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