GT.M Update

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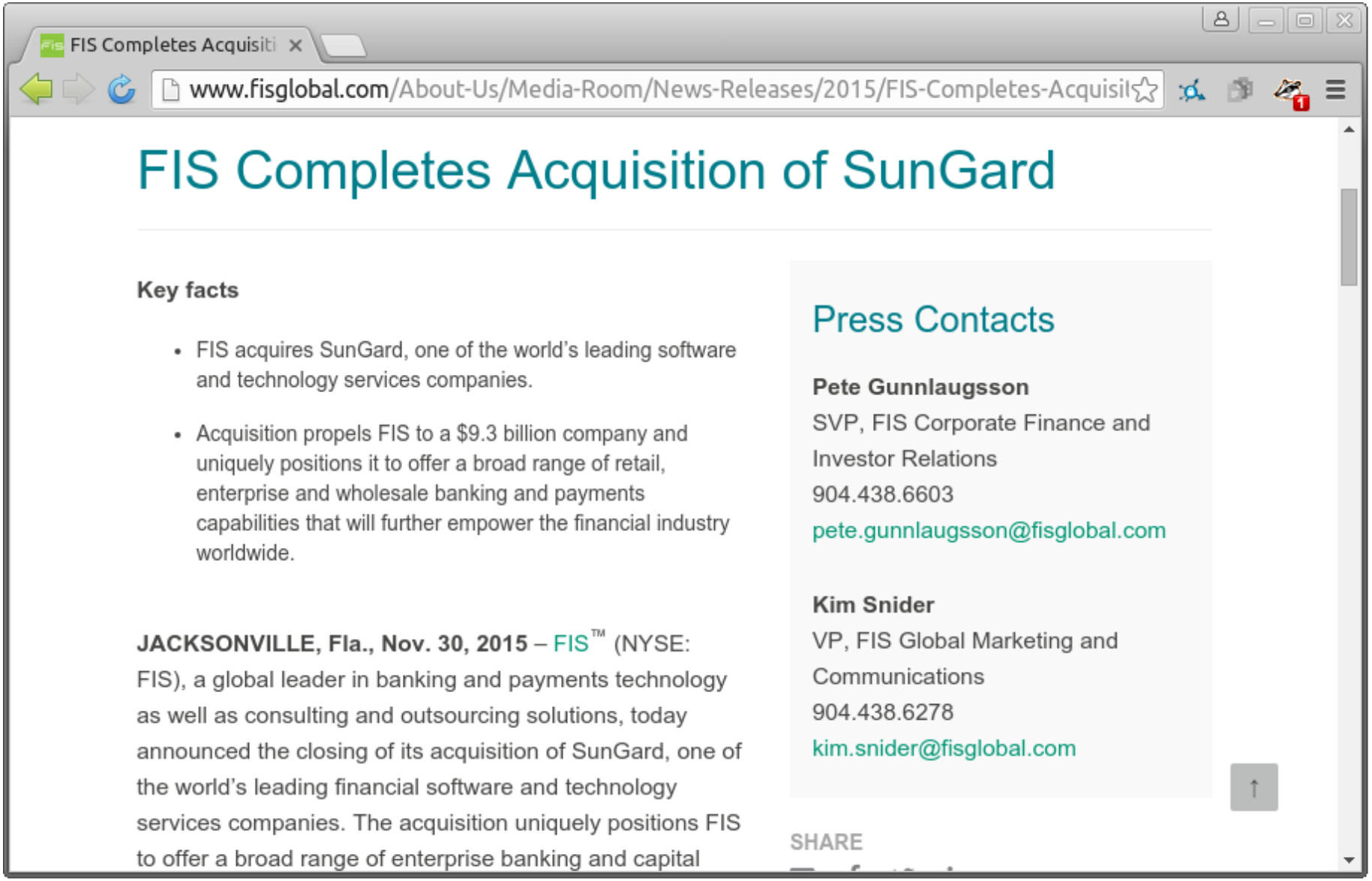
Empowering
the Financial World

FIS

Overview

- **Business**
- **Technical**

Business


FIS Completes Acquisiti
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FIS Completes Acquisition of SunGard
Key facts
FIS acquires SunGard, one of the world's leading software and technology services companies.
Acquisition propels FIS to a $9.3 billion company and uniquely positions it to offer a broad range of retail, enterprise and wholesale banking and payments capabilities that will further empower the financial industry worldwide.
JACKSONVILLE, Fla., Nov. 30, 2015 – FIS™ (NYSE: FIS), a global leader in banking and payments technology as well as consulting and outsourcing solutions, today announced the closing of its acquisition of SunGard, one of the world's leading financial software and technology services companies. The acquisition uniquely positions FIS to offer a broad range of enterprise banking and capital
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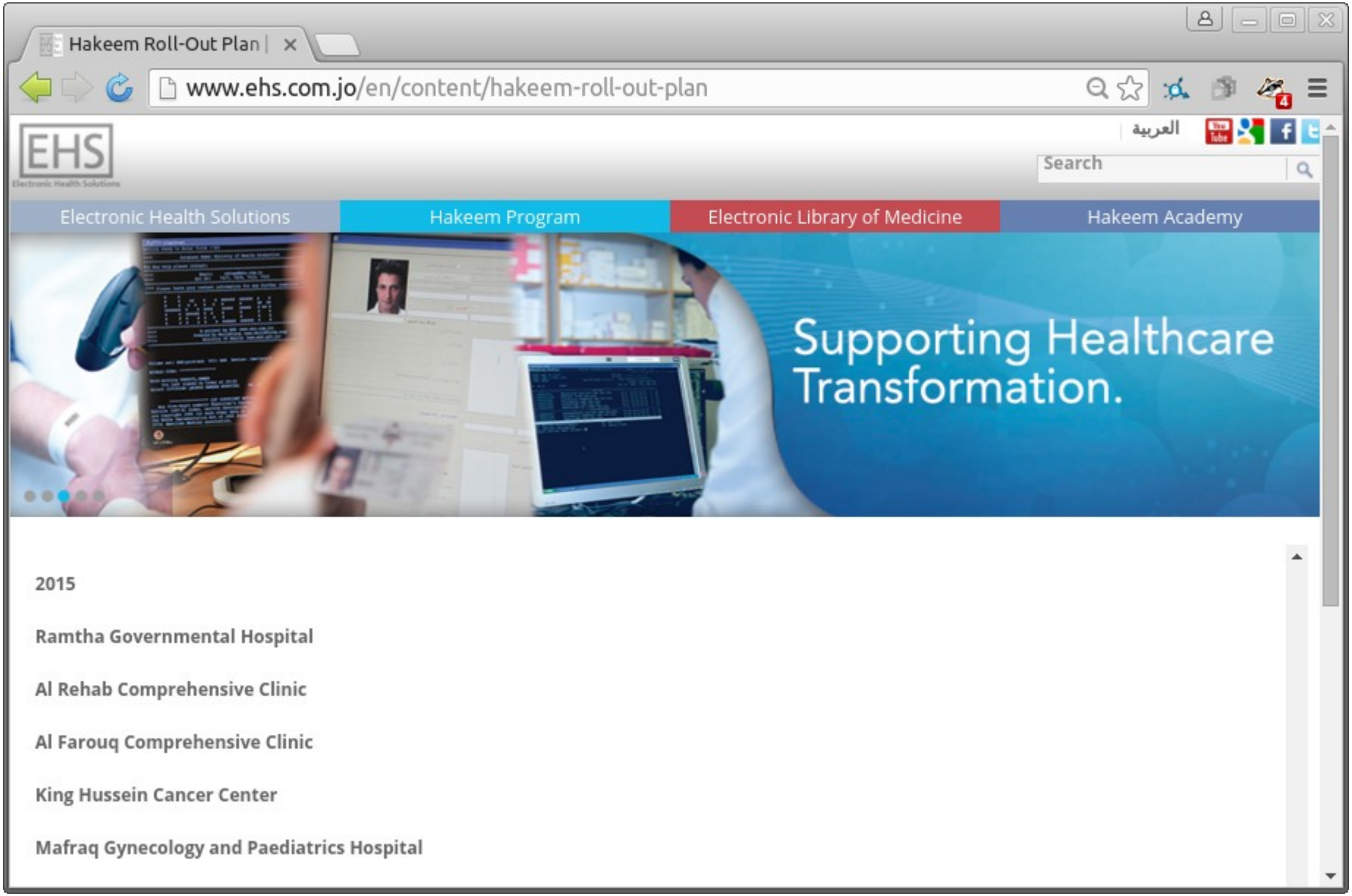
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Technical

V6.3-000 - target Q4/2015

Hofstadter's Law: It always takes longer than you expect, even when you take into account Hofstadter's Law.

V6.3-000 – target Q1 2016

Caveat: It is the business of the future to be uncertain.

- **Security & Operational East of Use**
  - **Change database encryption password while database is in use**
- **Security**
  - **Strengthening encryption with initialization vectors**
  - **TLS renegotation**
- **Performance and scalability**
  - **Parallelization of MUPIP ROLLBACK/RECOVER operations**
  - **Compiler optimization for string operations**
  - **More than 32Ki processes accessing a database file concurrently**
  - **Optimized code-paths for some common UTF-8 use cases**
- **And more, e.g.**
  - **Simpler, version-independent, access to common database and replication statistics**

Change database encryption password “on the fly”

- Database files vulnerable as a consequence of large data volumes and long lived keys
- Defense is to change keys periodically
  - Pre-V6.3-000: extract and load into new database
  - V6.3-000: Define two keys in configuration file, and run MUPIP REORG ENCRYPT to change encryption key while database is in use
- Can also encrypt unencrypted database files

Other Security Enhancements

- TLS key renegotiation
  - Protection against attacker who records a session for future
  - Effect with WRITE /TLS("renegotiate"[„[tlsid][„options]])
- Initialization vectors for database encryption – different for each block
  - Better protection against attacks seeking to exploit large volumes of data
  - Automatic for databases created with V6.3-000
  - Zero IV retained for databases created with older releases – changing the encryption key switches to using initialization vectors

Performance and Scalability

- Faster process termination
  - Especially when large numbers of processes and many regions both exist
- Option to allow more than 32Ki concurrent processes accessing a database region
- String expressions concatenation, $[Z]ASCII(), $[Z]EXTRACT(), $[Z]PIECE(), and $ZSUBSTR() on literals computed at compile time
  - In UTF-8 mode can result in BADCHAR warnings at compile time (errors at run time)
- Performance optimization for certain common UTF-8 mode use cases
- MUPIP JOURNAL commands have PARALLEL[=n] qualifier
- Enhanced replication throughput

And more...

- %PEEKBYNAME() gives symbolic access to internal statistics provided by $ZPEEK()
  - LISTALL^%PEEKBYNAME / LIST^%PEEKBYNAME(.var) list all the fields, but sheer number is overwhelming
  - Fields not documented because internals can change from release to release, even if most may not – work with GT.M support on specific needs
- MUPIP JOURNAL ROLLBACK FORWARD
  - Better / faster recovery from certain catastrophic operational failures, e.g., affecting multiple locations

Coming soon to your download site...

Questions and Answers

Contact – note new address and office landline!

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(Ask me about:

- **GT.M Administration and Operations class January 14-16, after the VCM**
- **GT.M Peer Replication**

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