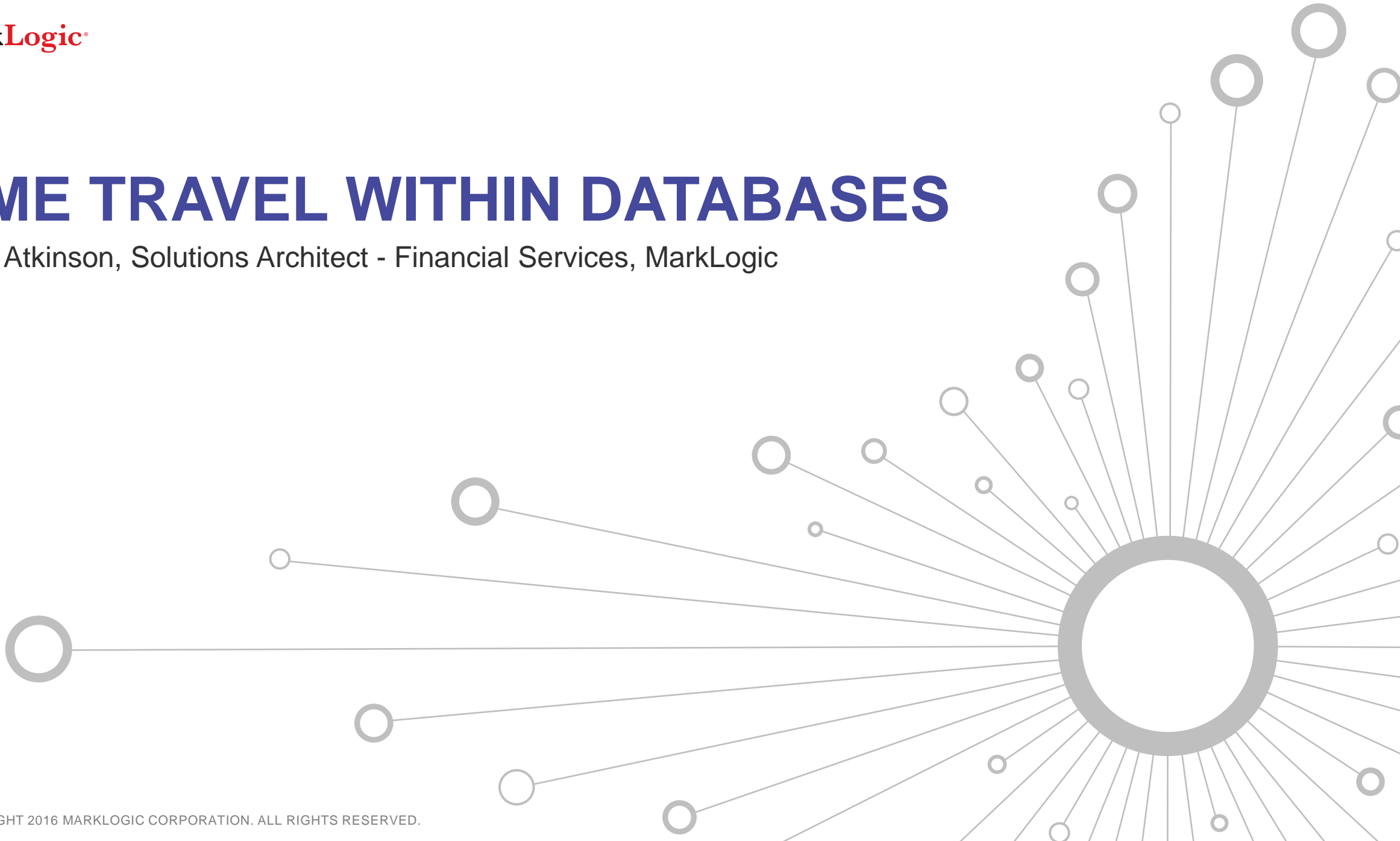


TIME TRAVEL WITHIN DATABASES

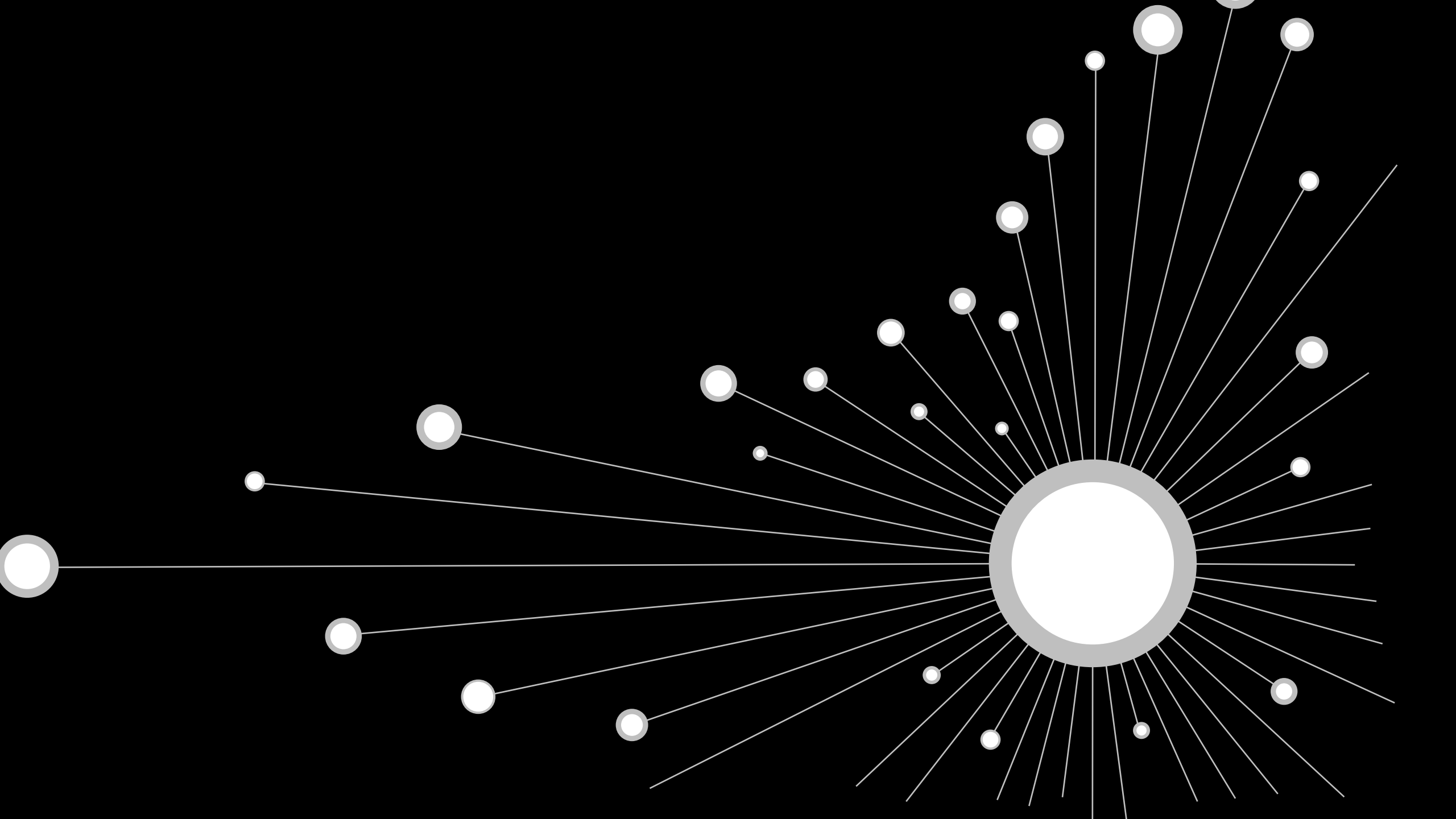
Chris Atkinson, Solutions Architect - Financial Services, MarkLogic





CHRIS ATKINSON
MARKLOGIC TIME LORD
2 YEARS OF TIME TRAVEL







CHRIS ATKINSON
MARKLOGIC TIME LORD
2 YEARS OF TIME TRAVEL





MARKLOGIC BITEMPORAL

You Will Learn.....

- What Bitemporal is
- Basic Examples
- Why MarkLogic

What is Bitemporal?



When did 'something' Start and Finish
TIME #1 VALID TIME



When did we know about this 'something'
TIME #2 SYSTEM TIME

Financial Example

VALID TIME

20-May-2016

INSURANCE POLICY VALIDITY

19-May-2017

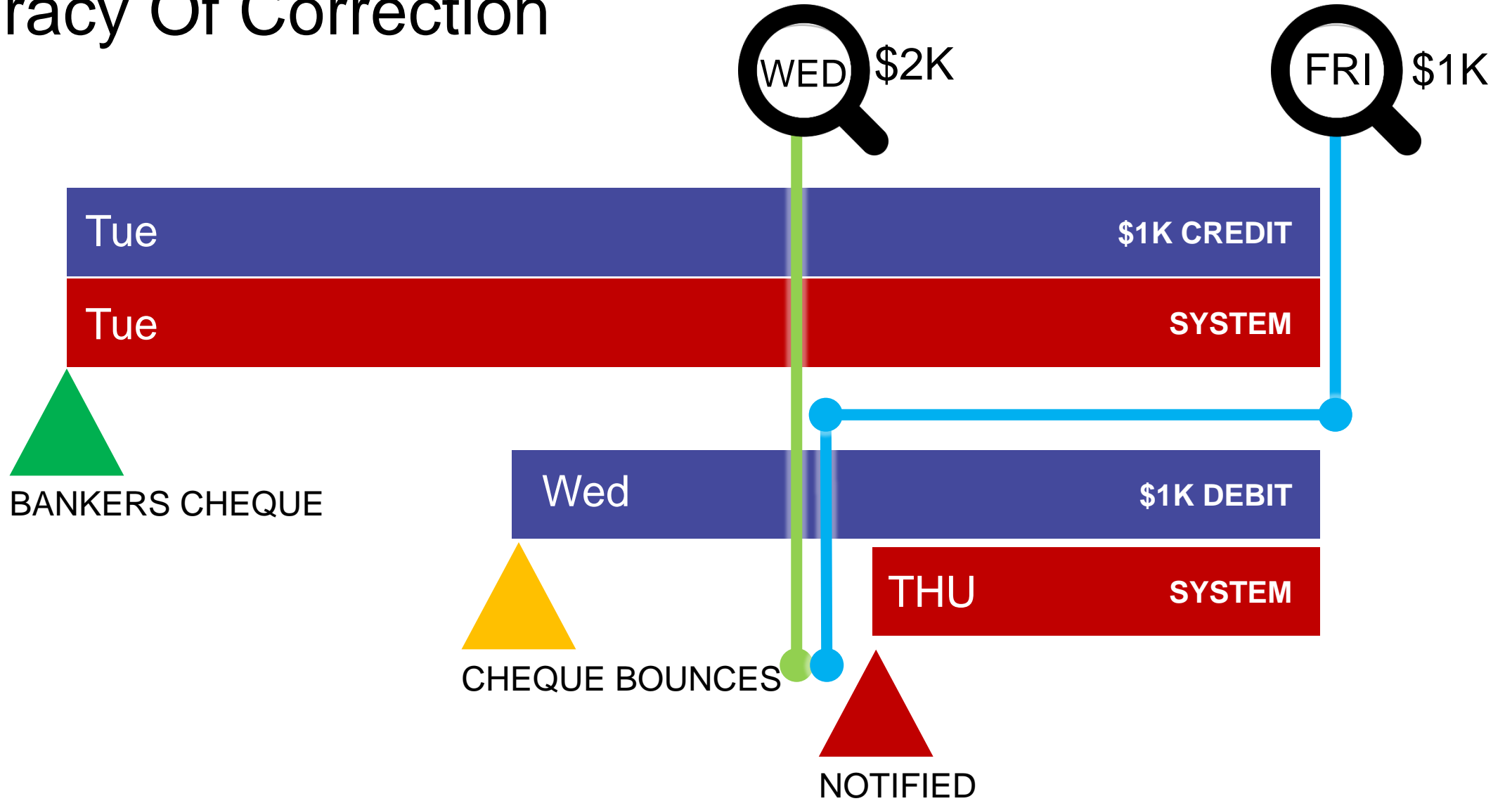
SYSTEM TIME

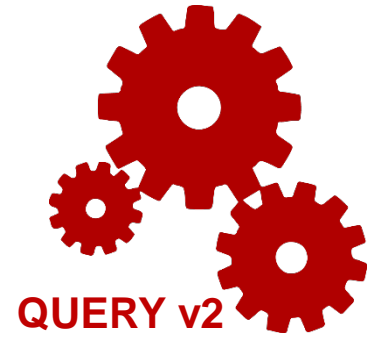
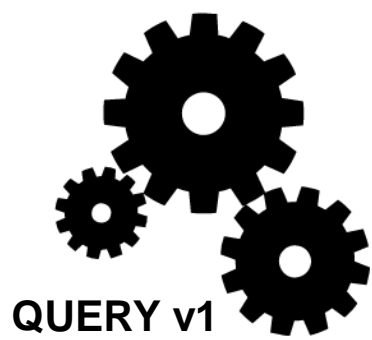
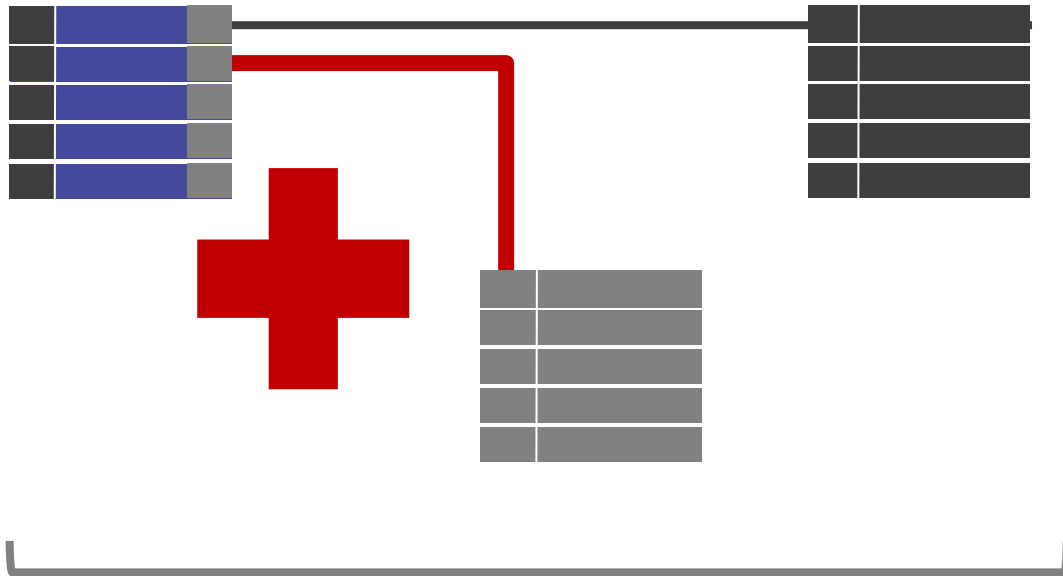
10-May-2016

INSURANCE POLICY BOOKING

Infinite

Accuracy Of Correction





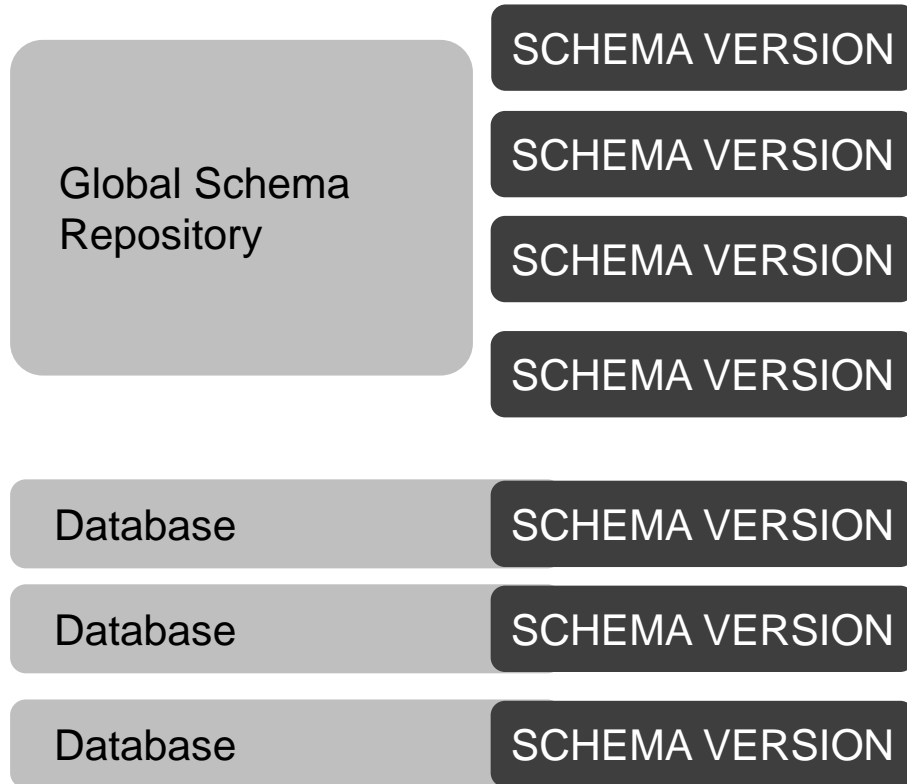
TRADITIONAL RELATIONAL APPROACHES

Schema Challenges

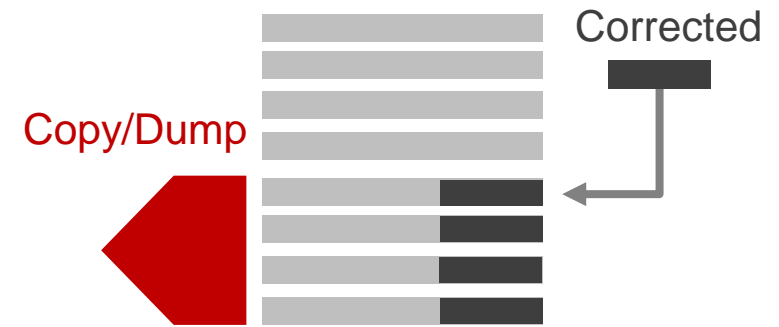
- Schema effects information
- Schema versioning
- Schema application
- Report & query versioning

Relational Temporal Schema Solutions

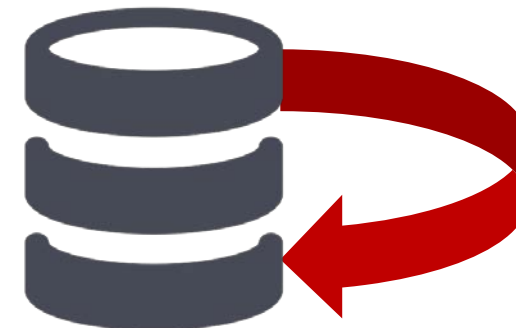
SCHEMA POOLING



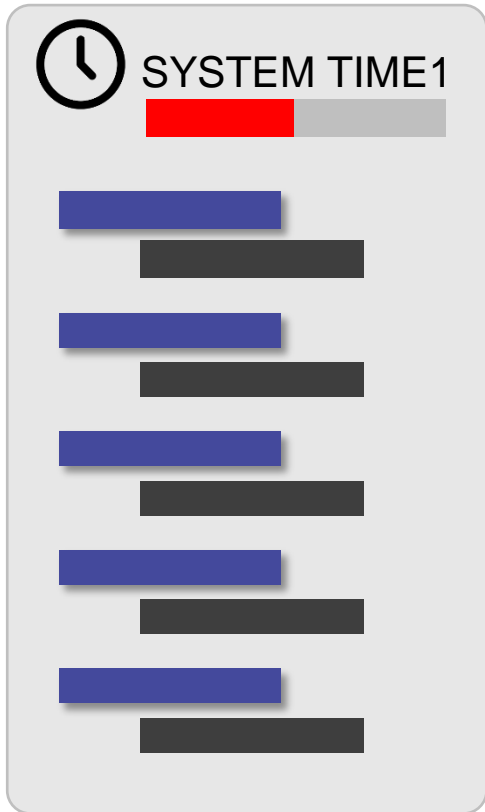
REPORT DUMPS



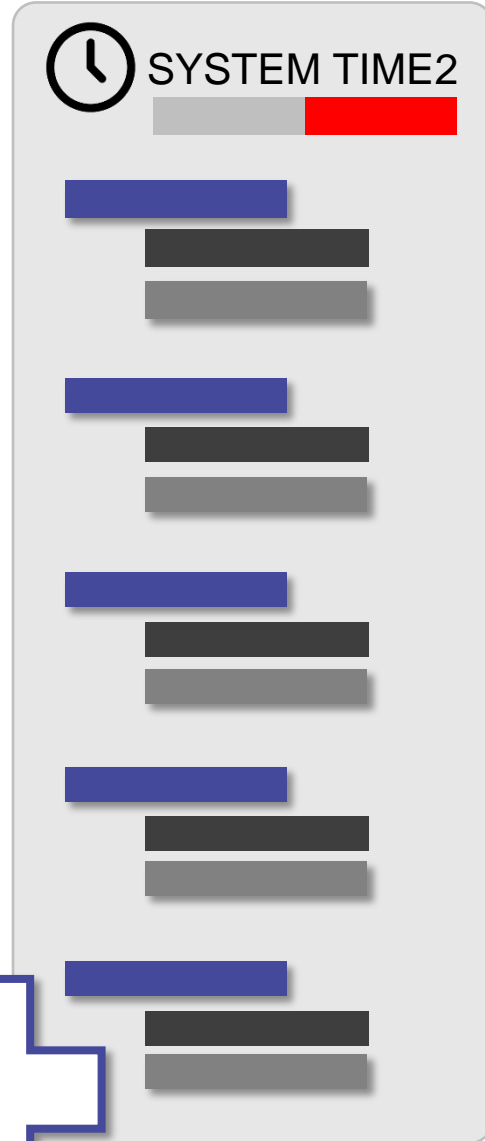
DATABASE ROLLBACK



Version 1



Version 2

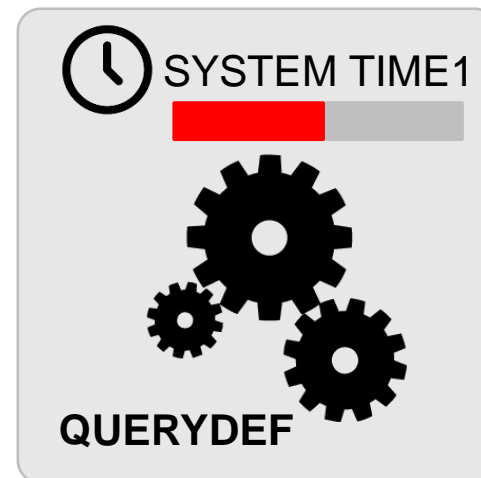


MARKLOGIC BITEMPORAL ARCHITECTURE

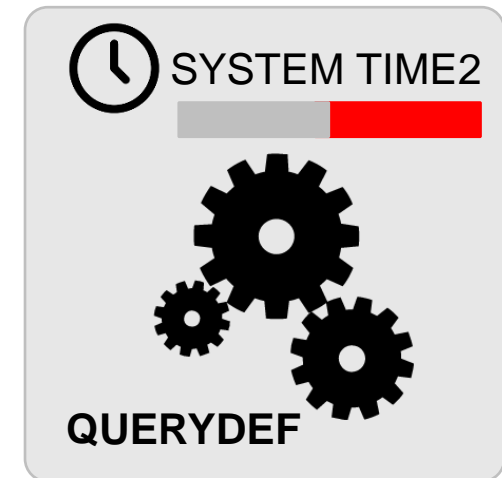
Inherent Versioning

- Self describing schema within document
- Schema (joins) at query time
- Temporal query definitions

Version 1



Version 2



- Temporal (temporal:)
 - temporal:advance-lsqt
 - temporal:axes
 - temporal:axis-create
 - temporal:axis-get-end
 - temporal:axis-get-start
 - temporal:axis-remove
 - temporal:collection-create
 - temporal:collection-get-axis
 - temporal:collection-get-options
 - temporal:collection-remove
 - temporal:collection-set-options
 - temporal:collections
 - temporal:document-delete
 - temporal:document-insert
 - temporal:document-load
 - temporal:get-lsqt
 - temporal:get-lsqt-automation
 - temporal:get-lsqt-automation-lag
 - temporal:get-lsqt-automation-period
 - temporal:get-use-lsqt
 - temporal:set-lsqt-automation
 - temporal:set-use-lsqt
 - temporal:statement-get-system-time
 - temporal:statement-set-system-time

MARKLOGIC BITEMPORAL API

REDICULOUSLY SIMPLE

24 Temporal Functions

- 15 Informational
- 6 Configuring /removing
- **3 Document functions**

Information Extraction

- Standard Period Range Query's

Secure

- Historical version protection
- Requires administrative override

Stretch Your New Temporal Muscle!

- Learn more about Bitemporal at:
<http://www.marklogic.com/what-is-marklogic/whats-new/bitemporal/>
- Contact me at Chris.Atkinson@MarkLogic.com

