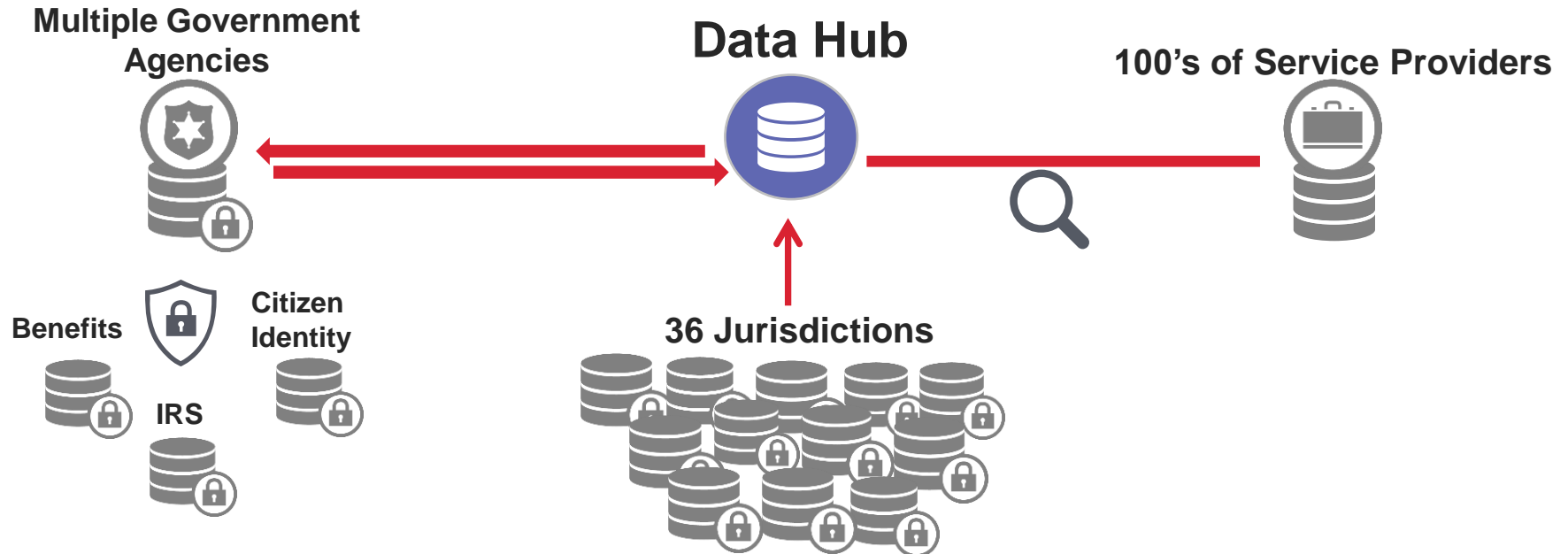


Building a Data Strategy for a Digital World

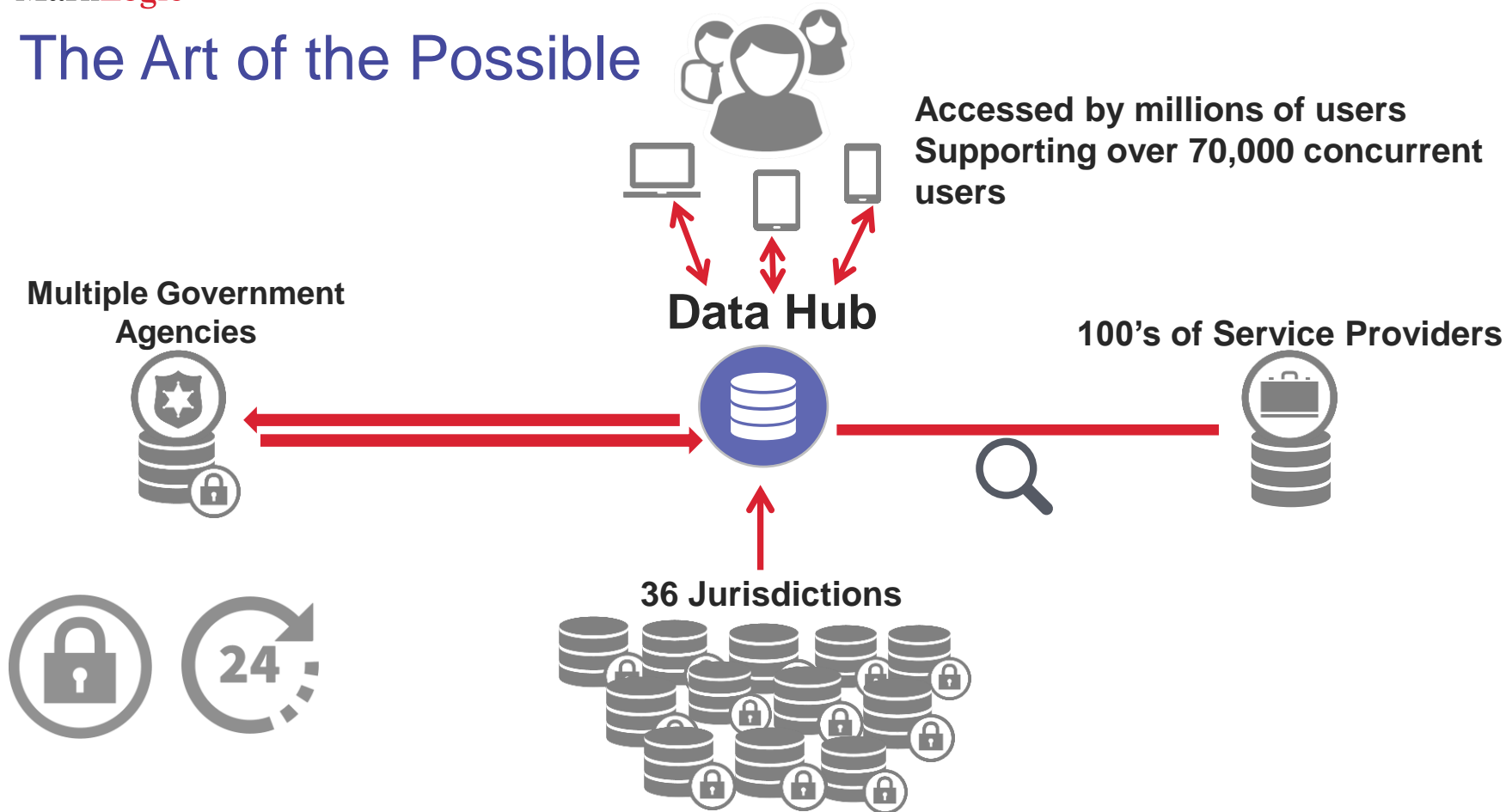
Jason Hunter, CTO, APAC

Data Challenge: Pushing the Limits of What's Possible

The Art of the Possible



The Art of the Possible



Health Insurance for Millions of Americans

Before MarkLogic

- Unable to handle complexity
- Impossible data model
- Development too slow
- Limited scalability
- Inflexible to change



The Results

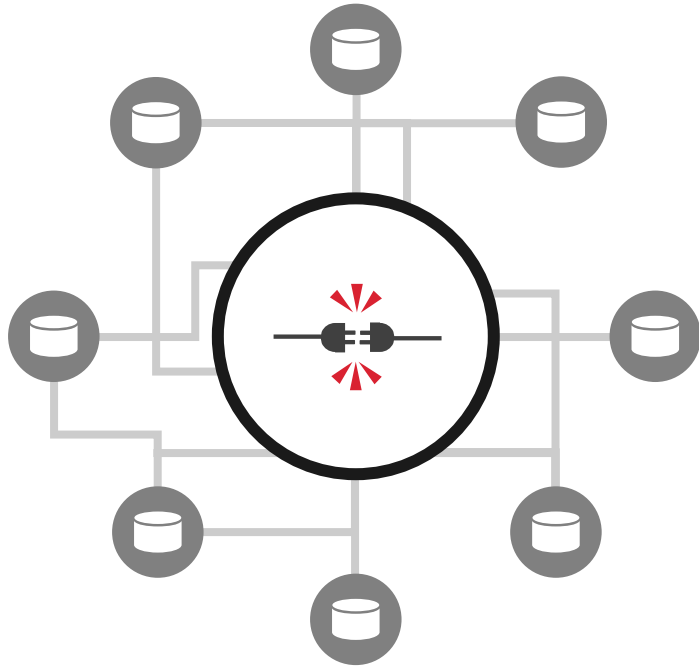
- **Built for Today's Data**
Schema-agnostic data model that could handle various data sources and adapt to later changes with policies and regulations
- **Agile Development**
18-month timeframe from procurement to launch for what has been called “the most complex government-IT project of all-time”
- **Secure and Trusted**
Did not have to sacrifice any of the enterprise features required, and could rely on a system with government-grade security, ACID transactions, and HA/DR
- **Successful Deployment**
Over 8 Million people signed up for health insurance in less than 5 months during the first year of open enrollment

Challenges for Insurance?

It's All About Data!

- ✓ Mergers & Acquisitions – creating data challenges
- ✓ Personalization – customer centric approach
- ✓ Agility
 - Move from reactive to proactive
 - Bring innovations to market quicker (6 months not 3 years)
- ✓ Insight-driven decision-making
- ✓ Ensure regulatory governance and compliance

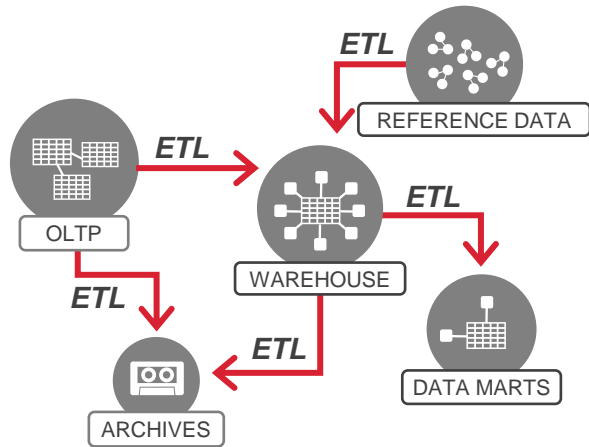




THE REALITY

Data Is In Silos

- Data is spread across disconnected databases
- M&A outpaces the speed of data integration
- Data needs to be delivered in real time

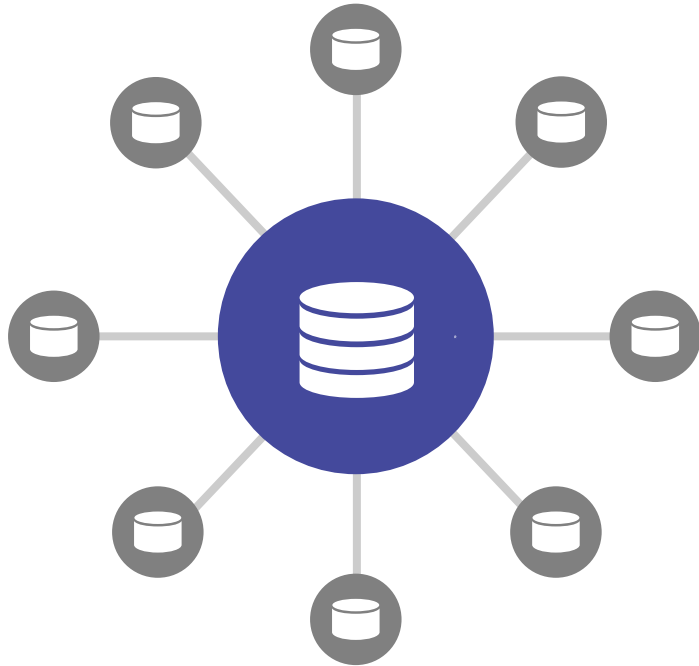


THE IT CHALLENGE

Relational Databases With ETL Sacrifice Agility, Timeliness, and Cost

- All future data needs must be predictable
- Siloed database changes require ETL re-writes
- New SQL queries require database re-indexing
- Security risk increases with each additional silo

Building a Data Strategy: The Operational Data Hub



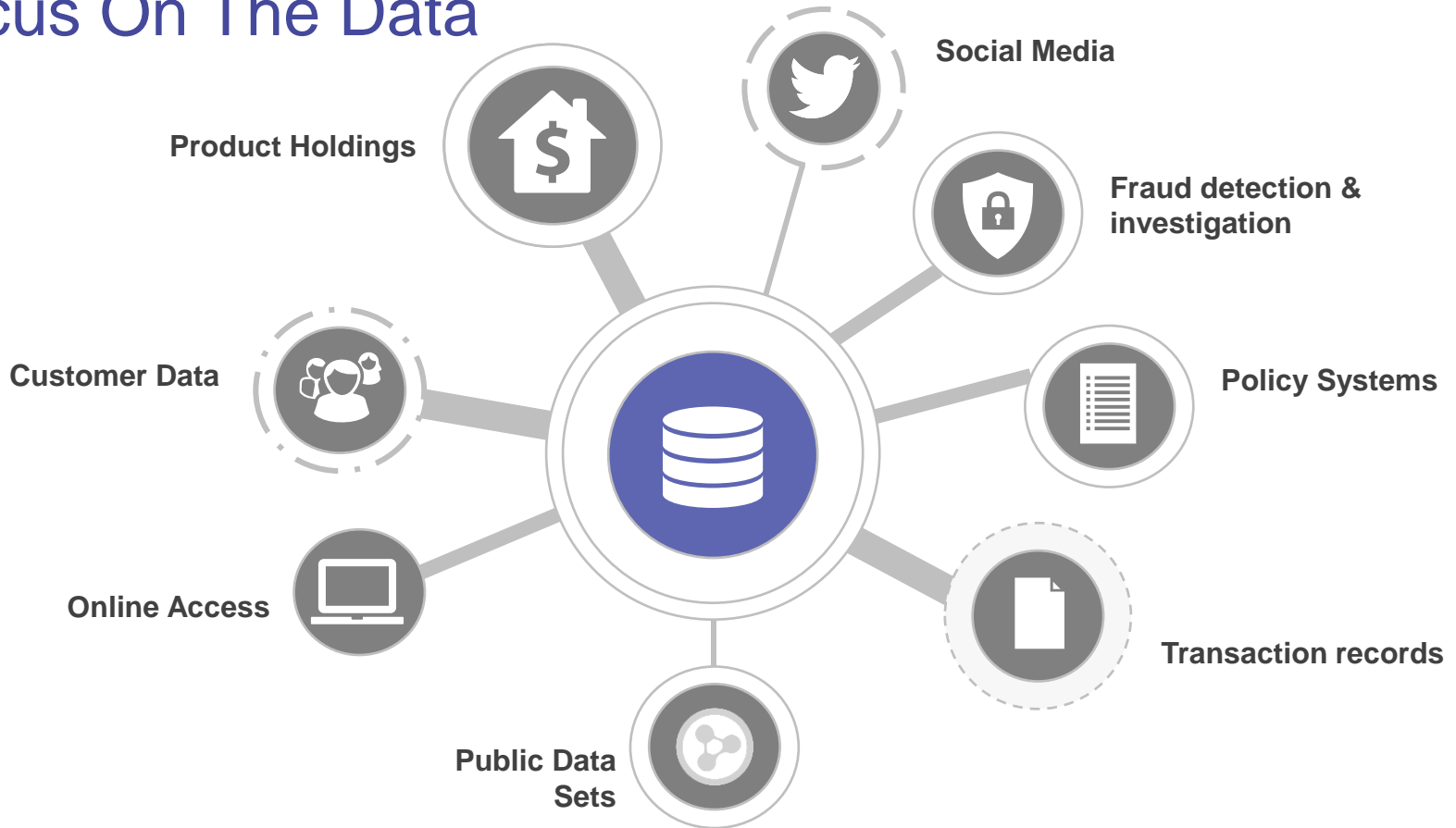
THE DESIRED SOLUTION

A Database That
Integrates Data Better,
Faster, With Less Cost

Focus On The Data



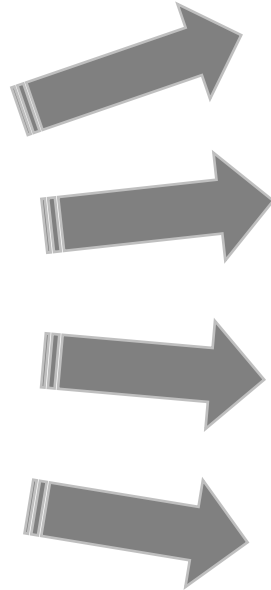
Focus On The Data



Focus On The Data



Fast & Agile Development – Ready for Business



**360 view of Customer,
Operation, Risk**



**Transaction
Management systems**

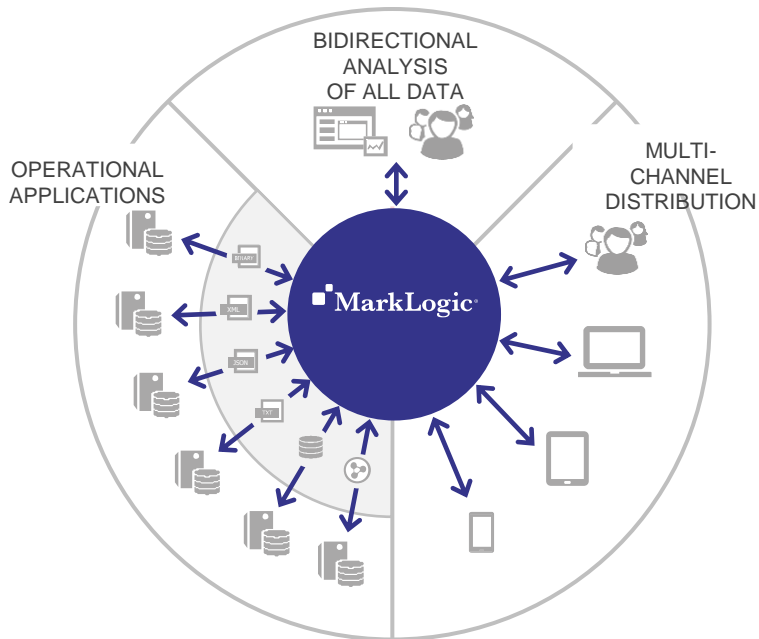


Analytical analysis



**Content
Management**





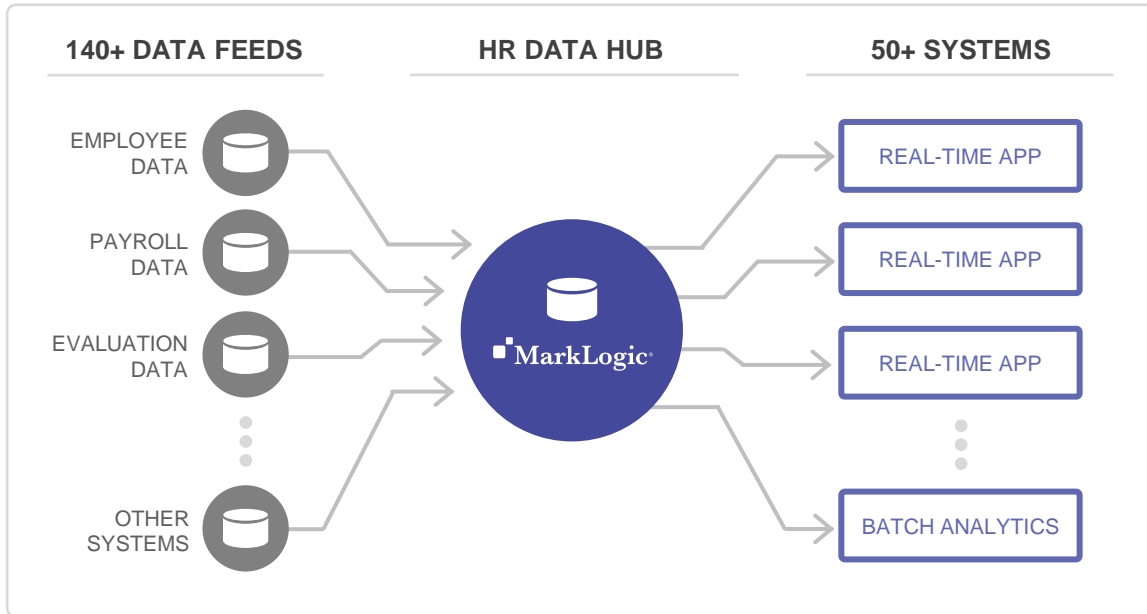
DESIGN PATTERN

Operational Data Hub

- **Data-Centric:** Integrates at the data level, not just functionally. Data is the longest living asset of a business!
- **Convergent:** Operational & Analytical. Read and write. Always current.
- **Contextual:** Data harmonized with semantic metadata
- **Cost-effective:** Minimizes ETL, data copying, business silos, technical silos, and people-centric integration
- **Secure:** Provides a platform for rich data governance
- **Complementary:** Leverages existing assets and patterns

Aetna – Human Resources Data Hub

Integrated HR Data, Real-Time Delivery at Scale



WHY MARKLOGIC?

- Massive ETL too complex
- Flexibility for future change
- Cost and timeline constraints
- Enterprise requirements

Aetna – Integrated HR



The Results

- **Flexible** – Managed complex data ingestion, complex output
- **Scalable** – Daily throughput of 50GB+
- **Agile** – Deployed in 1 year versus a 5 year ERP replacement
- **Future-proof** – Enabled maximum reuse and consistency
- **Success** – MarkLogic now the data layer for all HR data

“This could not have been done with DB2, or Oracle, or any kind of relational database... I think eventually relational will die off.”

- DIRECTOR OF ARCHITECTURE, AETNA

140+ DATA FEEDS

EMPLOYEE
DATA

PAYROLL
DATA

EVALUATION
DATA

OTHER
SYSTEMS

IC?

o complex

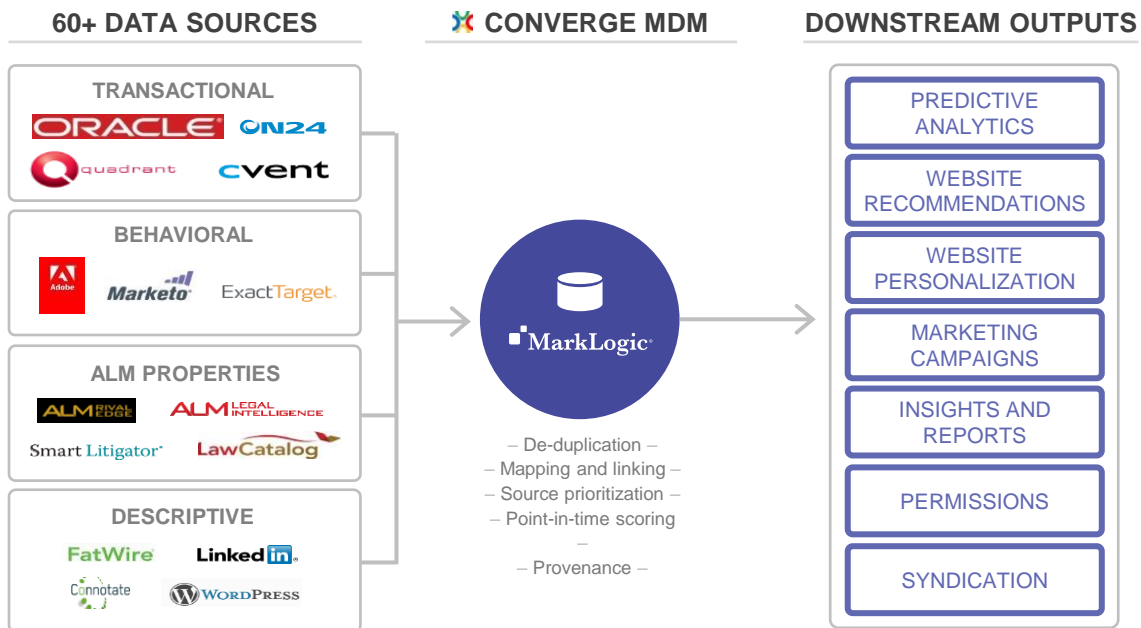
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ALM – Customer 360

Integrated Publishing Data to Drive Better Customer Engagement



WHY MARKLOGIC?

- Massive ETL too complex
- Development too slow on relational
- Structured and unstructured data
- Data harmonization
- Personalized content delivery

ALM – C

Integrated Pub



The Results

- **Timely** – Deployed into production in 4 months
- **Great ROR** – 600% improved response rate on 1st project
- **Better Insights** – Personalized content delivery
- **Success** – *“We’re building products around our customers’ workflow and making their lives easier, which translates into greater revenue opportunities. MarkLogic’s potential is virtually limitless.”*

- GENE BISHOP, VP OF TECHNOLOGY, ALM

60+ DATA SOUR

TRANSACTIONAL



BEHAVIORAL



ALM PROPERTIES



DESCRIPTIVE



Source prioritization
– Point-in-time scoring
– Provenance –

PERMISSIONS

SYNDICATION

The MarkLogic Alternative

An Operational and Transactional Enterprise NoSQL Database



EASY TO GET DATA IN

Flexible Data Model

- Data ingested as *is* (no ETL)
- Structured and unstructured data
- Data and metadata together
- Adapts to changing data and changing data structures



EASY TO GET DATA OUT

Ask Anything Universal Index

- Index once and query endlessly
- Real-time and lightning fast
- Query across JSON, XML, text, geospatial, and semantic triples in one database



TRUSTED TO RUN YOUR BUSINESS

Enterprise Ready

- Flexible cloud deployment
- Enterprise-grade data security
- Reliable data and transactions (100% ACID compliant)
- Out-of-the-box failover, replication, and elasticity

The World's Experts at Integrating Data From Silos

MATURITY

- 1,000+ global customers
- 10+ years of customer success
- 8 years of public cloud success
- 250+ partners
- 525+ employees worldwide

CREDIBILITY



EXPERTISE

- **Consulting Services**
Data integration experts for government and commercial
- **24x7 Expert Support**
Provided by true engineers
- **Online Community**
Collaborate with tens of thousands of people
- **Free Training**
Web-based and instructor-led

Thank you



Appendix

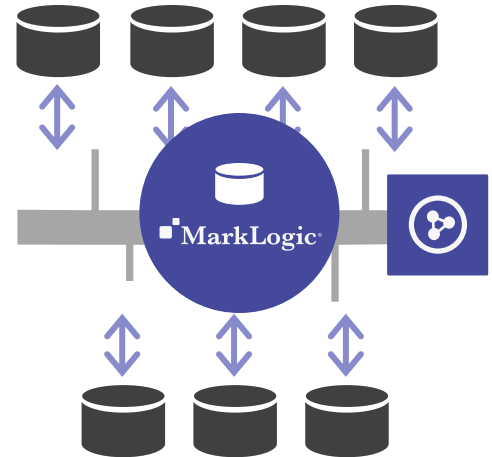
If You Have a SOA Infrastructure

SOA / EAI

- Function focused
- Emphasis on data movement
- SLA dependent on downstream systems
- Ephemeral information exchange
- Least-common-denominator data interaction

Operational Data Hub

- *Data* and function focused
- Emphasis on data *harmonization*
- Can proxy for off-line systems as appropriate
- *Durable* information management
- Throws nothing away; enhances data provenance



If You Have a Data Lake

Data Lake

- Batch-oriented
- Analysis only
- Save everything and process with brute force
- Simplified security model
- Limited or no context
- Multi-layered ecosystem *encourages* technical silos

Operational Data Hub

- Real-time
- Two-way analysis & *operations*
- *Save and index* everything for sub-second processing
- Mature and fine-grained security model
- Advanced Semantics capability for rich context
- Multi-model capability *eliminates* technical silos

