Operationalize Your Data

And Get the Most out of Your Smart Content!

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July 25th, 2019

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#MarkLogic
The Importance of Data
Data rich or data poor, companies with the greatest ability to turn data into action are going to win.
smart content summit

InterCon Los Angeles Century City
November 5, 2014

presented by MarkLogic
What is Smart Content?

- Inception
- Pre/Production
- Entertainment Content
- Archive
- Distribution
  - Primary
  - Secondary
- Post Production
DATA IS THE NEW OIL OF THE DIGITAL ECONOMY
Type III: data-centric architecture reduces both application and database sprawl

App code trapped in Database orphans and models

Applications for execution only, models exposed with the data

Semantic model/rules

Data lake or hub
## Largest change in market cap by company (2009 to 31 March 2018)

<table>
<thead>
<tr>
<th>Company name</th>
<th>Location</th>
<th>Industry</th>
<th>Change in market cap 2009-2018 ($bn)</th>
<th>Market cap 2018 ($bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>United States</td>
<td>Technology</td>
<td>757</td>
<td>851</td>
</tr>
<tr>
<td>Amazon,Com</td>
<td>United States</td>
<td>Consumer Services</td>
<td>670</td>
<td>701</td>
</tr>
<tr>
<td>Alphabet</td>
<td>United States</td>
<td>Technology</td>
<td>609</td>
<td>719</td>
</tr>
<tr>
<td>Microsoft Corp</td>
<td>United States</td>
<td>Technology</td>
<td>540</td>
<td>703</td>
</tr>
<tr>
<td>Tencent Holdings</td>
<td>China</td>
<td>Technology</td>
<td>483</td>
<td>496</td>
</tr>
<tr>
<td>Facebook</td>
<td>United States</td>
<td>Technology</td>
<td>383(1)</td>
<td>464</td>
</tr>
<tr>
<td>Berkshire Hathaway</td>
<td>United States</td>
<td>Financial</td>
<td>358</td>
<td>492</td>
</tr>
<tr>
<td>Alibaba</td>
<td>China</td>
<td>Consumer Services</td>
<td>302(1)</td>
<td>470</td>
</tr>
<tr>
<td>JPMorgan Chase</td>
<td></td>
<td></td>
<td></td>
<td>375</td>
</tr>
<tr>
<td>Bank of America</td>
<td></td>
<td></td>
<td></td>
<td>307</td>
</tr>
</tbody>
</table>
What’s Going On?
Machines Don’t Get Context . . .

Manu Sporny  Founder/CEO - Digital Bazaar, Inc.
http://www.cambridgesemantics.com/semantic-university/what-is-linked-data
Traditional Approach Strips Context

- Define everything in rows and columns
  - Narrows to specific purpose
- Fix categories into hierarchies
  - Strips general context

**Result:** Data can’t be used across all parts of the business

“Running on opinion not data”
Enter Linked Data!

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http://www.cambridgesemantics.com/semantic-university/what-is-linked-data
NoSQL and Semantics: Using CONTEXT to Create Data Layer

Diagram:
- Asset
  - Title
  - HD Master
- Dates
  - Production Date
  - Editing Date
  - Release Date
  - International Date
- Film1 <work>
- <Character>
  - lives in
  - lived in
- <time period>
- London <place>
- Actor1 <performer>
  - played
- Film Series <collection>
  - is a
  - is part of

Relationships:
- Film1 <work> is a Crime-Thriller <category>
- Actor1 <performer> appears in Film1 <work>
- Film Series <collection> is part of the Film1 <work>
ENTERPRISE ARCHITECTURE PATTERN

MarkLogic Operational Data Hub

AS IS DATA
- SOURCE 1 DATA
- SOURCE N DATA
- METADATA

CURATION
- VALIDATION
- INDEXING
- REFERENCE DATA DENORMALIZATION
- HARMONIZATION
- POLICY APPLICATION
- SMART MASTERING
- RELATIONAL VIEWS
- SEMANTIC VIEWS
- TEMPORAL TRACKING

CURATED DATA
- ENVELOPE (ENTITY 1)
- ENVELOPE (ENTITY 2)
- ENTITY N

ACCESS PRIVILEGES & PERMISSIONS
- BUSINESS APIs
- STANDARD INTERFACES
- ACCESS ENVELOPE (ENTITY 1)
- ACCESS ENVELOPE (ENTITY 2)
- ACCESS ENTITY N

PROVENANCE & LINEAGE

BUSINESS PROCESSES
- DATA SERVICES, MICROSERVICES

TRANSACTIONAL APPS
- OPERATIONAL, SEARCH, SEMANTIC APPS

ANALYTICS APPS & BI
- REAL-TIME TRENDS, BI TOOLS

DOWNSTREAM SYSTEMS
- ERP PROCESSING, ARTIFICIAL INTELLIGENCE
Smart Content in Action
Integrated Digital Delivery for Streamlined Auto Repair

MITCHELL1 PRODEMAND

✅ REPAIR INFO ✅ EXPERT ADVICE ✅ REPAIR ORDERS

Challenges

- Structured, unstructured data
- Needed advanced search
- Needed scalability for growing data
- Multi-device delivery (desktop, tablet, Snap-On ProDemand device)
Dtc To Component Matches

- P0128: Engine Coolant Thermostat
- P0128, P0456: Thermostat Housing
- P0128, P0340: Engine Cooling System
- P0128, Powertrain Control Module: Engine Coolant Thermostat Seal
- P0128, Engine Coolant Temperature Sensor: Camshaft Position Sensor
- P0128, Camshaft Position Sensor: Radiator Pressure Cap

Number Of Repairs For P0128:
- Engine Coolant Thermostat: 540
- Thermostat Housing: 193
- Engine Cooling System: 112
- Powertrain Control Module: 26
- Engine Coolant Temperature Sensor: 23
- Engine Coolant Thermostat Seal: 11
- Camshaft Position Sensor: 10
- Radiator Pressure Cap: 9
Catalytic Converter

< Probable Components

Real Fixes

Real Fixes

PO420, Replaced Catalytic Converter (81)
The customer states the check engine light is on. Connected a scan tool and found code PO420 -.

PO420, Replaced Catalytic Converter Manifold
The customer states the check engine light is on. Connected a scan tool and found code PO420 -.

PO420, PO430, Replaced Catalytic Converter
The customer states the check engine light is on. Connected a scan tool and found codes PO420 -.

PO420, Replaced Catalytic Converter (81), Oxygen Sensor (81-52)
The customer states the check engine light is on. Connected a scan tool and found code PO420 -.

PO420, Replaced Catalytic Converter
The customer states the check engine light is on. Connected a scan tool and found code PO420 -.

PO420, PO430, Replaced Catalytic Converter Manifold
The customer states the check engine light is on. Connected a scan tool and found codes PO420 -.

PO420, Engine Runs Rough, Replaced Catalytic Converter
The customer states the engine runs rough. The customer also states the check engine light is on.

PO420, Replaced Catalytic Converter Manifold (81)
Mitchell1 Data Hub

- Shop Manuals
- Repair Schedules
- Diagnostic Data
- Parts Ordering
- Expert Feedback
- Additional Data

AS IS DATA → CURATED DATA

HARMONIZATION
SMART MASTERING
VALIDATION
POLICY APPLICATION
SEMANTICS
GOVERNANCE

PRODEMAND PRODUCTS

DIAGNOSTIC SYSTEMS
FUTURE DATA FLOWS
Mainframe migration for “sales-to-finance” Data Hub

- Data made available to users in 3 months
- Faceted searches in seconds vs 40+ minutes
- Faster sales, increased revenue, and lowered costs

“Users really appreciate the sophistication… it’s head and shoulders above what they’ve had in the past. They are committing to increasing revenue because we’ve made their jobs easier.”

VP IT Worldwide Television
SONY PICTURES ENTERTAINMENT
How TV Shows are Sold and Managed

- Contract for IP is created
- Rights, Options, Fees, Deal Points are structured in system
- “Avails” system tracks consumption of rights
- Fees are translated to billing templates and payment terms
- Invoicing/Billing/Collections takes place
- Contract is executed and tracked over time, often over years
Legacy TV Program Distribution

United States

- Sales
  - Syndication (SharePoint, Access)
    - manual
- Mainframe
  - US Finance
- Participations
  - SAP
- Residuals
  - SAP

International

- Int’l Sales
  - Title / Master
- Int’l Sales to Finance
- Int’l Finance
- Participations
  - SAP

Legend:
- Outdated Technology
- Redundant System
- Proven Technology
- Non-TV Dist. System
Future TV Program Distribution

Global Integrated Workflow

Sales (Contract)

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Sales to Finance Hub

title / master

Cube (Sales Reporting)

Finance

Participations

SAP

EXAMPLES OF WHERE WE LICENSE CONTENT
Future TV Program Distribution

Global Integrated Workflow

EXAMPLES OF WHERE WE LICENSE CONTENT

Sales (Contract) Sales to Finance Hub

Finance Hub Participations

SAP Cube (Sales Reporting) SAP

Title / Master micro

services
Our Mission

making available best-of-breed technologies to conserve ecosystems and protect wildlife
Strengthening analytical capabilities

STEP 2

Ontology Search

Map Layers
- Roads (145)
- Dams tanks (99)
- Roads 2 (249)

Content impression
Elephants killed by arrow vs firearms
Warthog bycatch of charcoalers?
That’s Smart Content!
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MarkLogic Media Solutions

Media Data Hub helps you:

- Create Great Experiences
- Lead the Digital Transformation

DATA FIRST • CLOUD READY • SECURE
Data Hub Service

Cloud service that deploys in minutes with predictable, low cost
TruFan Preview

Enterprise Audience Insights

Better know your content and fans

From Birlasoft, powered by MarkLogic
Webinar: Sony Pictures: Driving Value with Descriptive Metadata

Jason Lambert and the MarkLogic Crew!

July 31st 11am PDT

https://www.marklogic.com/events/sony-pictures-driving-value-with-descriptive-metadata/
Thank You!

Matt Turner, MarkLogic CTO Media & Manufacturing

@matt_turner_nyc

#MarkLogic
**Resources**

- **Importance of Data**
  - Industrialize your Data, Michel de Ru: https://www.slideshare.net/MicheldeRu/industrializing-data

- **Semantic Data Layer**
  - Alan Morrison Keynote - https://www.slideshare.net/AlanMorrison/collapsing-the-it-stack-clearing-a-path-for-ai-adoption?from_action=save
    - Plus recording of the talk (+18min) -> https://www.facebook.com/fhstv/videos/308669336596727/
  - AI + Graph: https://www.zdnet.com/article/google-ponders-the-shortcomings-of-machine-learning/
    - Pre-print article: https://arxiv.org/abs/1806.01261

- **Semantics Primer**: http://www.cambridgesemantics.com/semantic-university/what-is-linked-data
  - Sensing Clues: https://sensingclues.com/
  - ABM Amro + Sensing Clues at MarkLogic 360: https://www.youtube.com/watch?v=RzJymikVvKs

- **Dogs and Chimps**
  - Pointing Study: https://doglab.shh.mpg.de/pdf/Scheider_et_al_2013_interpret_pointing_as_a_command.pdf
  - Who’s Smarter, Matt Turner: https://www.marklogic.com/blog/dog-chimp/