



# Databases, CAP, ACID, BASE, NoSQL... Oh My!



#MarkLogic



**Jason Hunter**  
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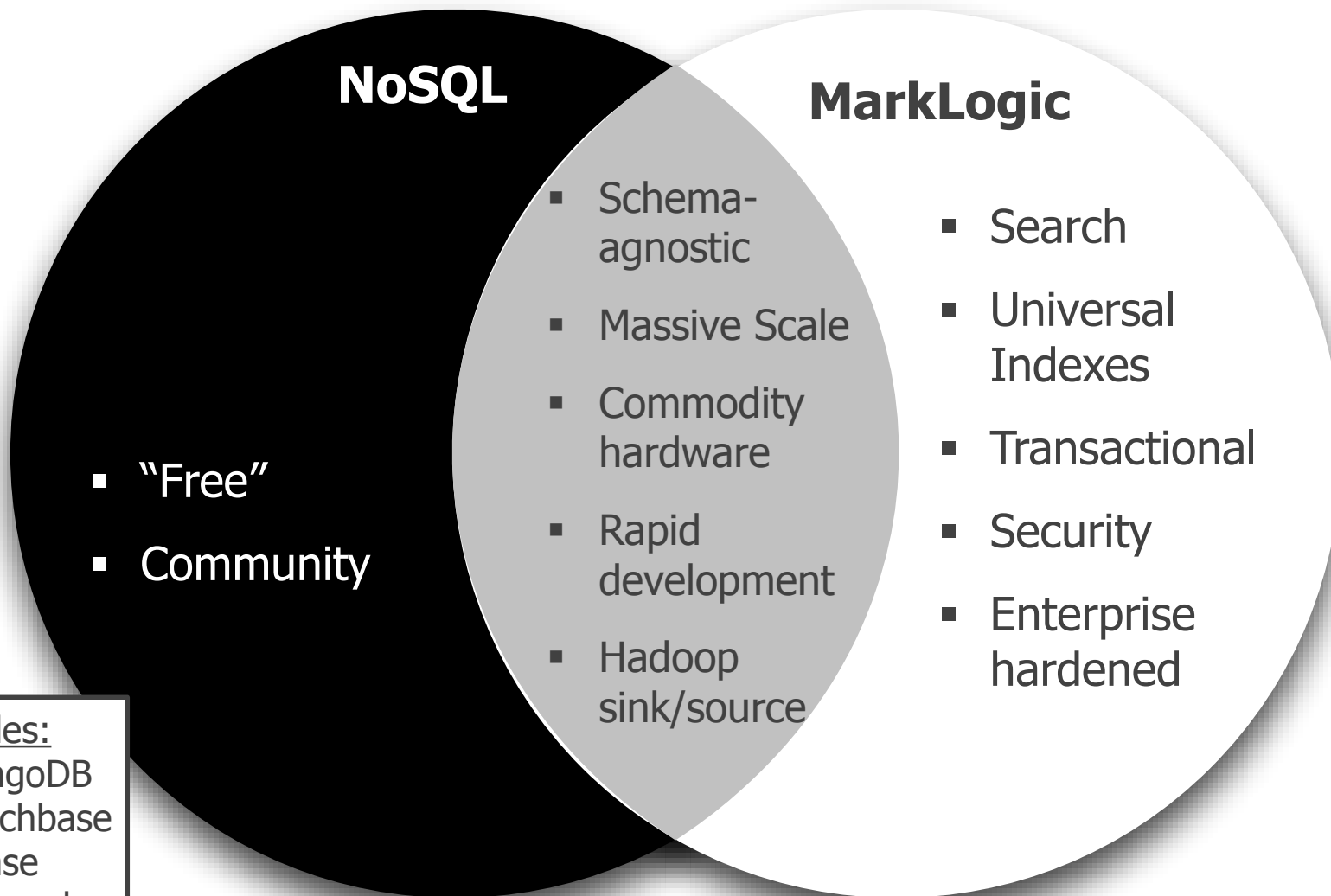
**Diane Burley**  
MarkLogic



# What we can agree NoSQL is ...

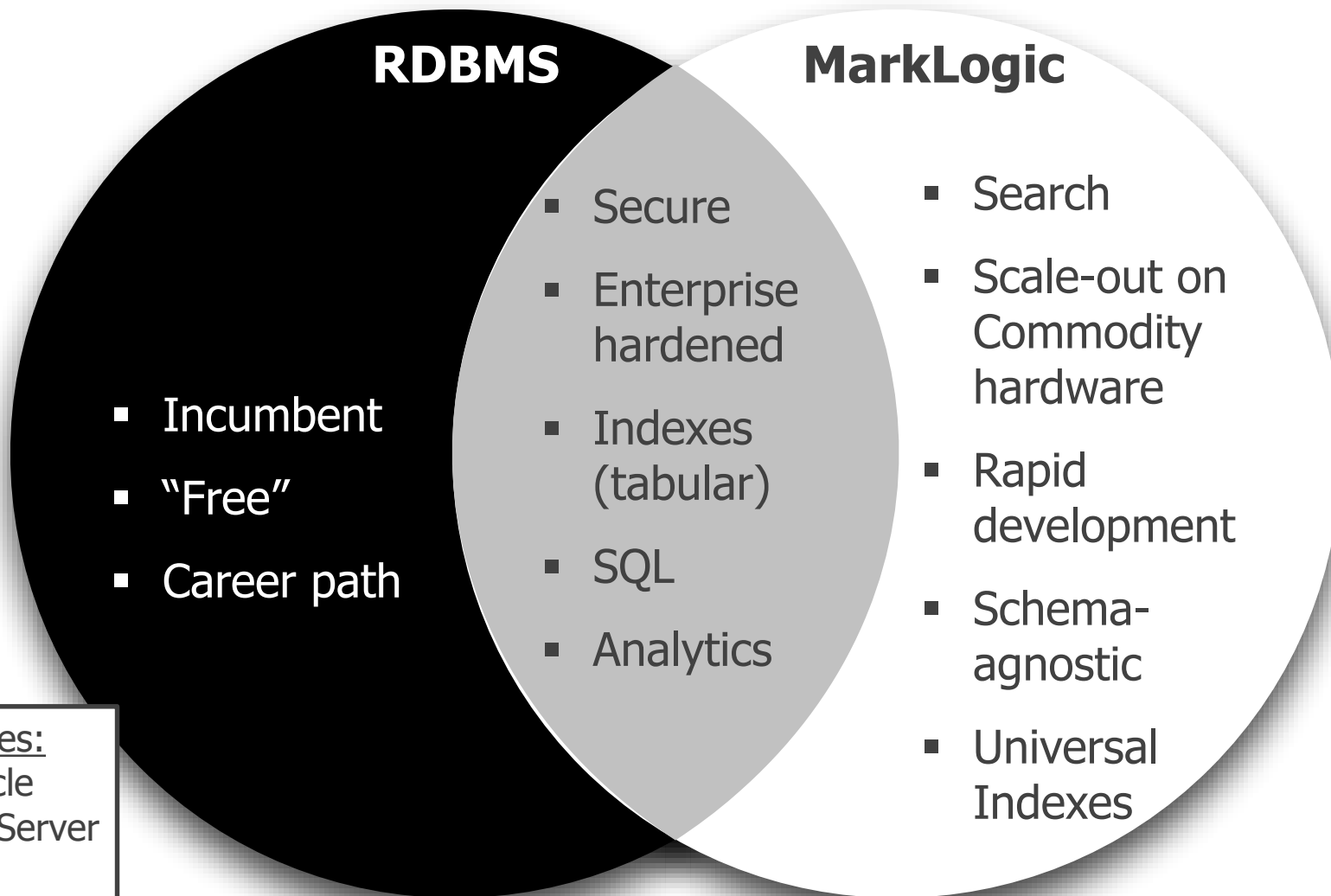


- It's Not Only SQL
- A Break from Relational Model
- Solves a different type of problem



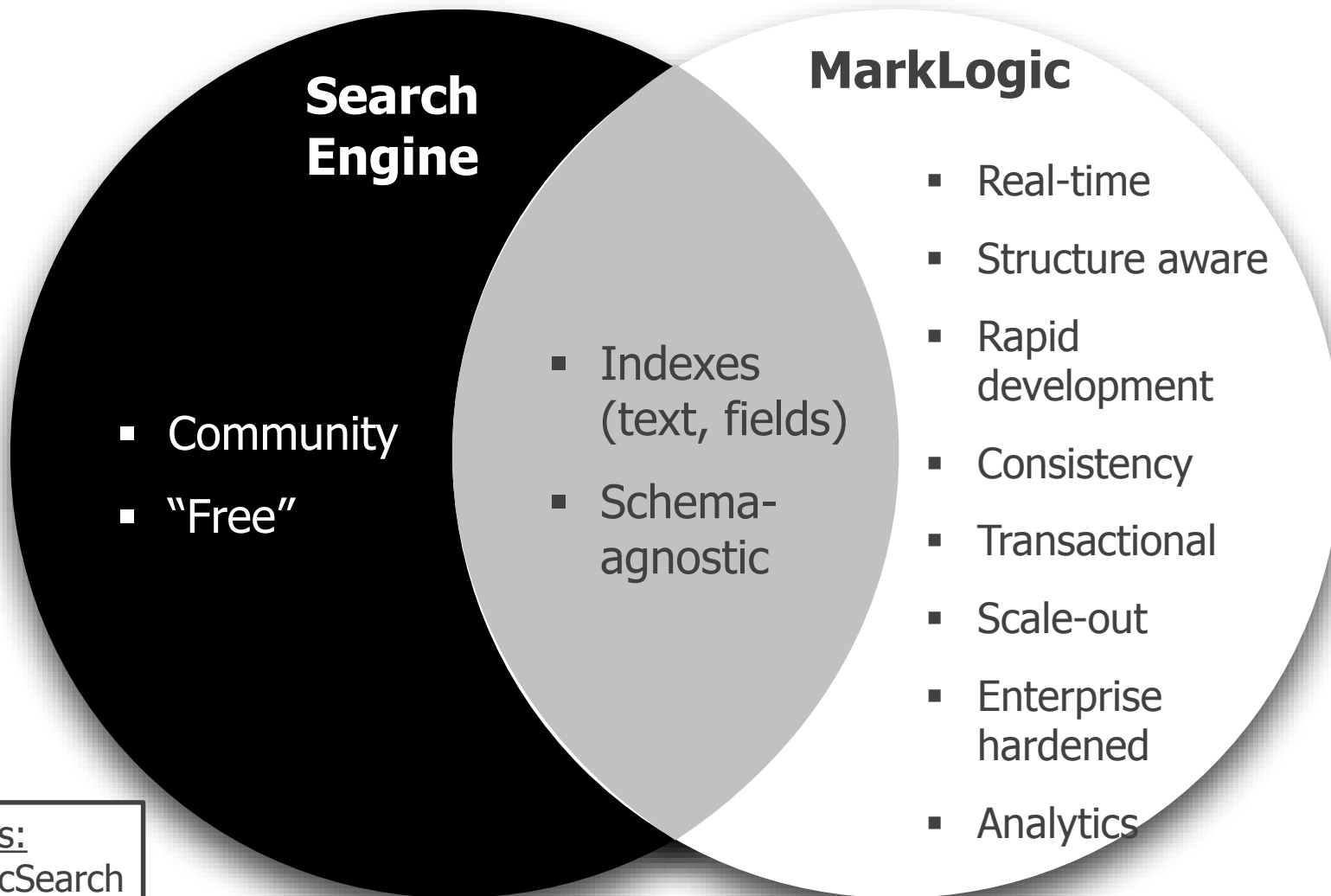
Examples:

- MongoDB
- Couchbase
- HBase
- Cassandra
- Accumulo
- Riak
- ...



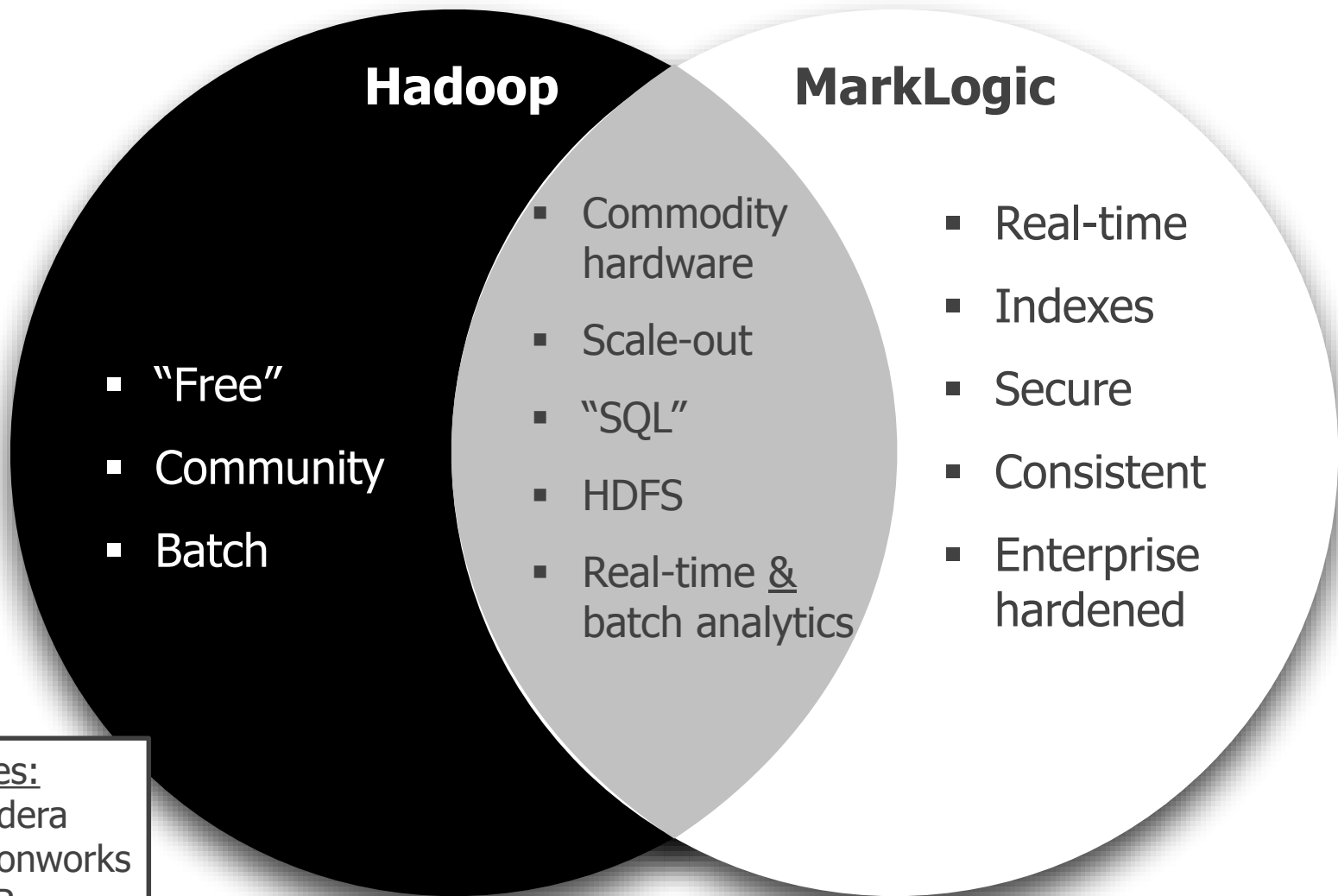
Examples:

- Oracle
- SQLServer
- DB2
- MySQL
- Postgres
- ...



Examples:

- ElasticSearch
- Solr
- Lucene
- FAST



Examples:

- Cloudera
- Hortonworks
- MapR
- Apache
- ...

# ATOM vs BASE

ATOM	BASE
Strong Consistency	Weak Consistency – stale data OK
Isolation	Last Write Wins
Transaction	Programmer Managed
Available/Consistent	Available/Partition-Tolerant
Robust Database/Simpler Code	Simpler database, harder code

# Real Value From Big Data



Make The World More Secure

Provide Access To Valuable Information

Create New Revenue Streams

Gain Insights to Increase Market Share

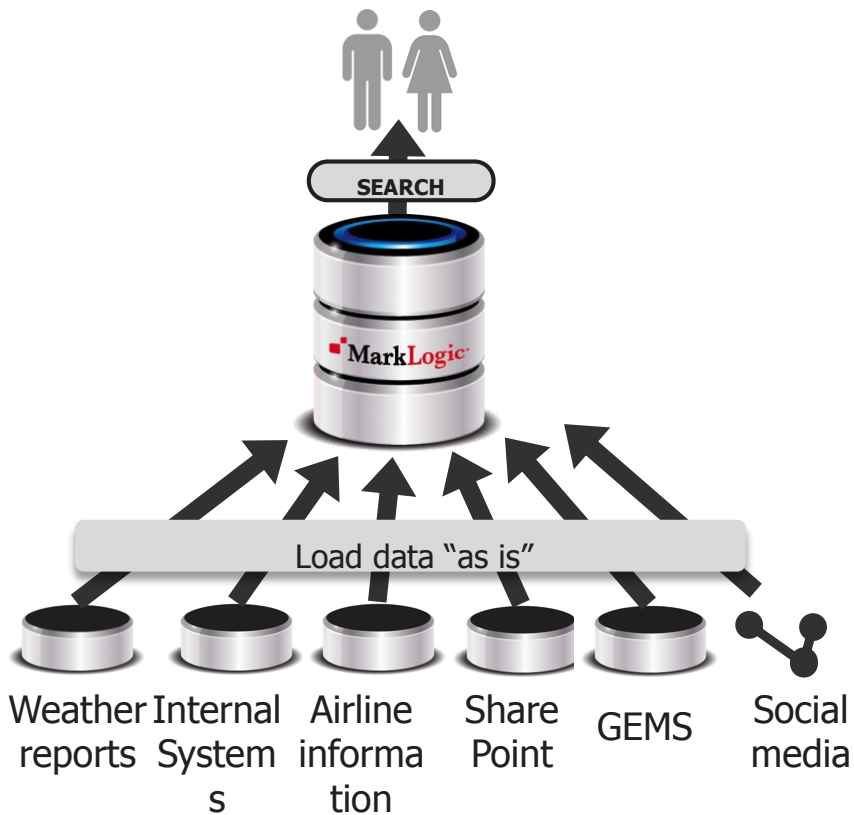
Reduce Bottom Line Expense





The FAA enhances airline safety with real-time monitoring.

# The FAA enhances airline safety with real-time monitoring & dashboards.



## Goals

Monitor and track emergencies and severe weather, and update a real-time dashboard for crisis management.

## Solution

Repository for multi-source, complex, multi-structured data; supports geospatial enrichment, faceted navigation & search; integrated with Google Earth, Microsoft SharePoint & internal systems.

## Benefits

Proof of concept complete in 2 weeks. Entire system went from purchase to Beta in 6 months. Able to deliver mission-critical system that had previously failed on RDBMS.



“Global Oil Co.” makes real-time trading decisions based on real-time, global information.

# We help “Global Oil Co.” maximise their price advantage when buying or selling oil.



## ***Notify me if....***

- ✓ More than “mmm” barrels of crude are in transit in the Gulf of Arabia
- ✓ Severe weather in excess of force 8 scheduled to hit Gulf of Mexico

## Goals

Get a complete picture of oil and gas market influencers to maximise profits.

## Solution

System pulls in real-time political, weather, vessel data, location, terminal data and trading data, and sends alerts to traders to notify them of noteworthy issues, so they can make fastest decisions possible.

## Benefits

Traders use the system to ensure they are able to get the best price on the market. Reduced Total Cost of Ownership (TCO) by 75%



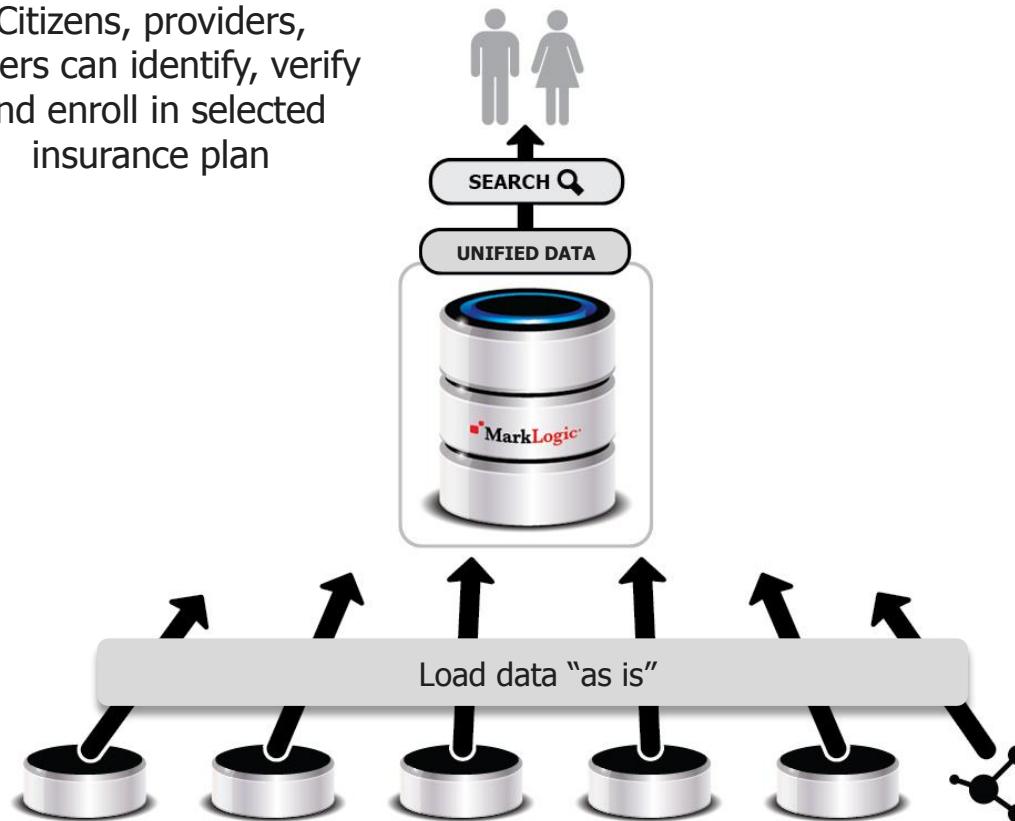
Medicare and Medicaid (CMS) helps customers easily research, select and enroll in the right insurance plan...

while ensuring that the systems are future-proof and can adapt to change.



# CMS has a future-proof system that can easily adapt to change.

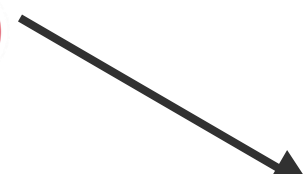
Citizens, providers,  
payers can identify, verify  
and enroll in selected  
insurance plan



Different insurance, eligibility sources from 50 states, federal agencies,  
medical providers and payers, and potentially 30-50 million citizens

# New Generation Fraud Prevention

Profile Configuration  
Tools

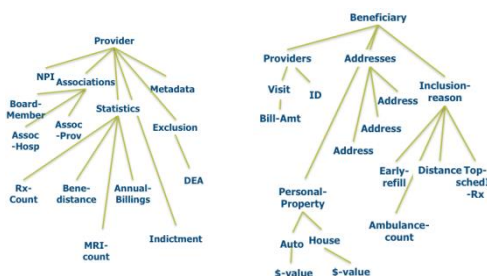


Profile Data Extracted  
from Claims Data



$f(x)$

Analytics



Provider and  
Beneficiary  
Profiles



The Press Association & BBC let you connect to your favorite team – even from thousands of miles away.





# BBC Sport Video Supply Chain



# Some Numbers Behind the Olympics

**55 Million**

Global browsers across the games

**9.5 Million**

Record of global browsers in single day

**106 Million**

Requests for BBC Olympic video content

**9.2 Million**

UK browsers from Mobile Devices

**12 Million**

Requests for Mobile Video

**2.8 Petabytes**

Data delivered in the busiest day

**45 Billion**

Data requests over the 2 Olympics

**2,160,000,000**

Daily average queries against web and mobile services

**25,000**

Average transactions PER SECOND

# What is Coming Next?

The image is a screenshot of the BBC Sport Football website, specifically the Chelsea team page. Handwritten annotations in black ink are overlaid on the page:

- An arrow points from the word "Chelsea" in the top navigation bar to the headline "Lampard reveals Tambling support".
- An arrow points from the word "Lampard" in the headline to the word "Chelsea" in the top navigation bar.
- An arrow points from the word "played in" to the "Latest Football" section, specifically to the match "Southampton v Chelsea".
- An arrow points from the word "plays in" to the "League Table" section, specifically to the "Premier League" tab.

The page content includes:

- BBC logo and navigation links (News, Sport, Weather, Travel, Future, Autos, TV, Radio, More...).
- SPORT FOOTBALL header with links to Home, Football, Formula 1, Cricket, Rugby U, Rugby L, Tennis, Golf, and More Sport.
- Sub-navigation links: All Teams, Chelsea, Results, Fixtures, Live Scores, All Teams, Leagues & Competitions.
- Advertisement: "25¢ a day can help Doctors Without Borders give emergency care to those who need it most."
- Main headline: "Lampard reveals Tambling support" with a photo of Frank Lampard.
- Match schedule: "Last Match" (Sun 17 March 2013, Chelsea vs West Ham United, Won 2-0) and "Next Match" (Sat 30 March 2013, Southampton vs Chelsea).
- Video & Audio section with three video thumbnails.
- Comment & Analysis section with a photo of Garth Crooks.
- Latest Football section with a list of upcoming fixtures.
- League Table section with a table showing the Premier League standings.

Pos	Team	P	GD	Pts
1	Man Utd	29	38	74
2	Man City	29	25	59

## To Find Out More



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## Paper: