

RED HAT  
**SUMMIT**

# DEVELOPING REAL TIME INTELLIGENT APPLICATIONS WITH IN-MEMORY DATA MANAGEMENT

Data → Insights → Actions

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May 2nd, 2017

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# AGENDA

- Demand for Data Driven Insights
- Emergence of Intelligent Applications
- Red Hat Solution for Intelligent Application Development
- Customer Case Studies
- Demo

# SMART USE OF DATA EQUALS HIGHER REVENUE GROWTH

Organizations which use analytics get

**\$10.66 for every \$1** they spend on data management and analytics

Source: MIT Sloan, Gartner, Nucleus Research

**93%** of executives believe their organization is losing revenue as a result of not being able to leverage fully the information available to them. On average they estimate this lost opportunity to equate to **14%** of annual revenue

\*Figure based on private sector organizations only

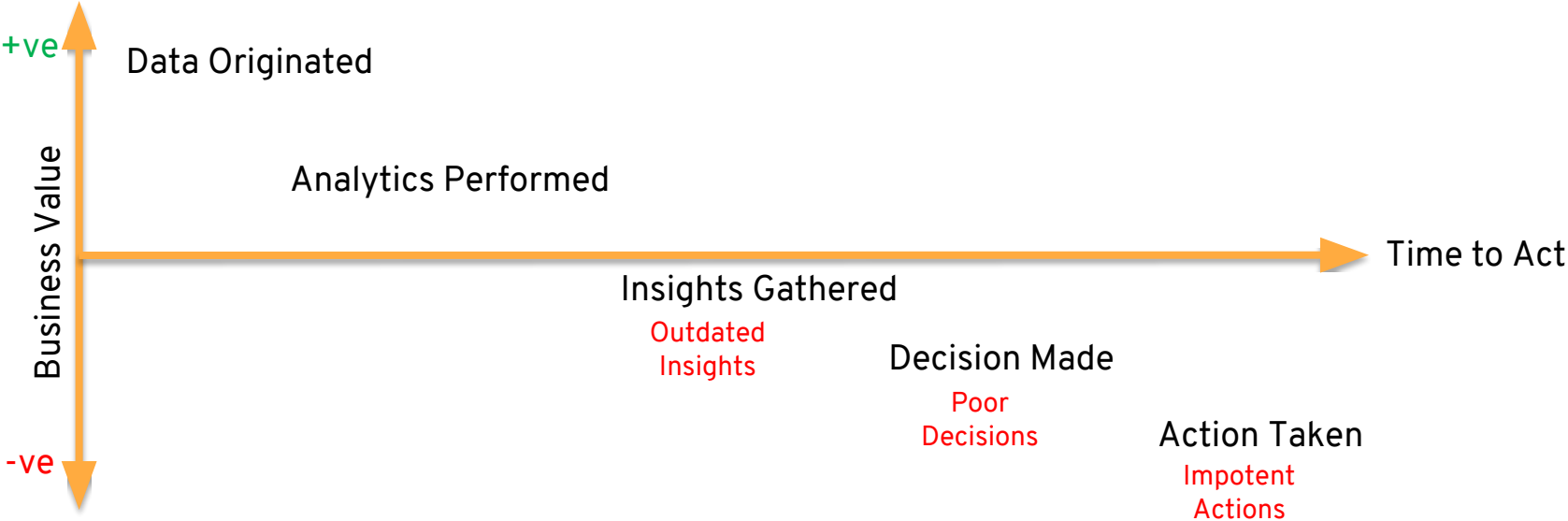
Source: From Overload to Impact: An Industry Scorecard on Big Data Challenges

**3X** Growth in spending on real-time analytics vs. spending on non-real-time analytics

Gartner: Move Analytics to Real Time Sept 2016 ID: G00249626

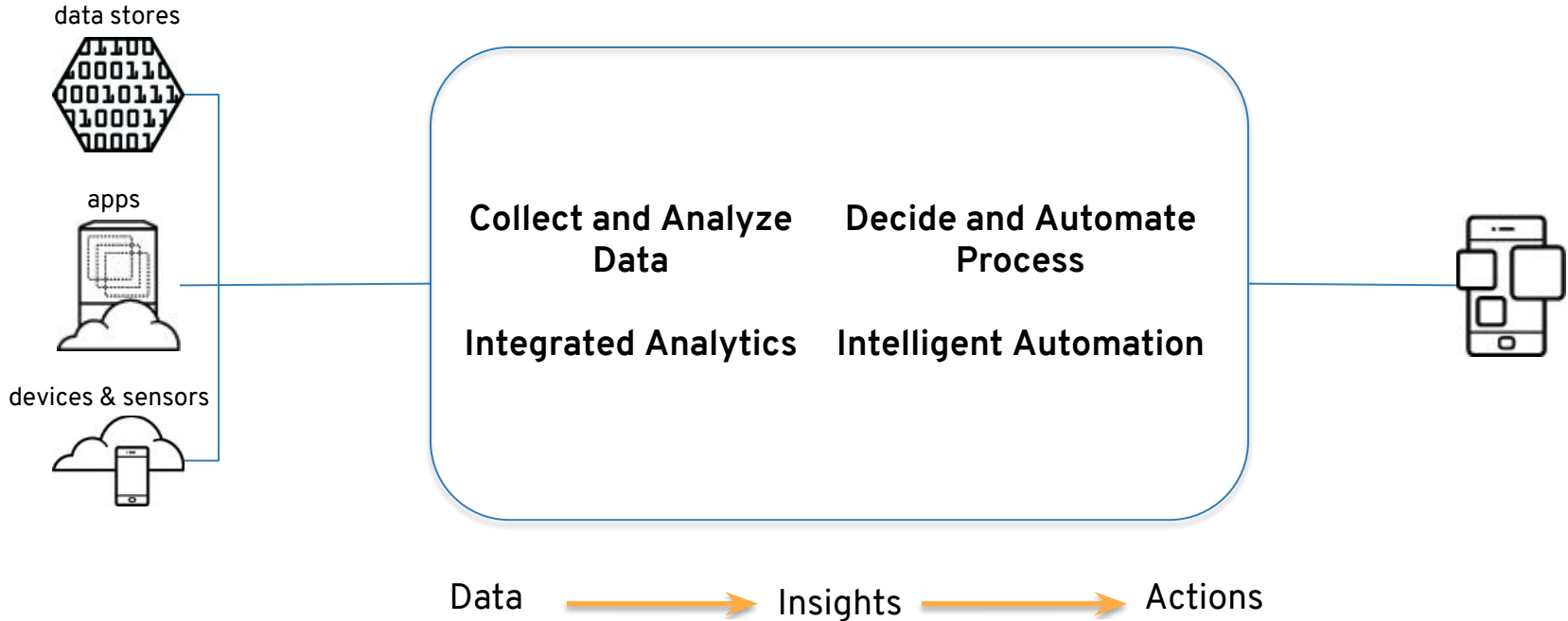
# DATA TO INSIGHTS TO ACTIONS

All data originate in real time!  
But analytics to gain insights is usually done much later, often without any meaningful action



# INTELLIGENT APPLICATIONS

Infuse Analytics in Apps to Act in Real Time and Maximize Business Impact



# ENTERPRISES MUST ACT ON A RANGE OF *PERISHABLE INSIGHTS* TO GET VALUE FROM DATA AND ANALYTICS



# EXAMPLE OF MODERN INTELLIGENT APPS

**The Great Divide: Unequal Societies and What We Can Do About Them**  
by Joseph E. Stiglitz (Author)  
★★★★☆ 122 customer reviews

**Spalding 72354 Residential Portable Basketball System with 48" PolyCarbonate Backboard**  
★★★★☆ 37 reviews Q&A By: Spalding Walmart #: 551148222

**Customer reviews**  
3.8 out of 5  
★★★★☆  
see all 37 reviews

Sort by: Most relevant

**Buy Together & Save**

**Total = \$219.43**  
Buying together saves you: \$11.55  
**Add all to cart**

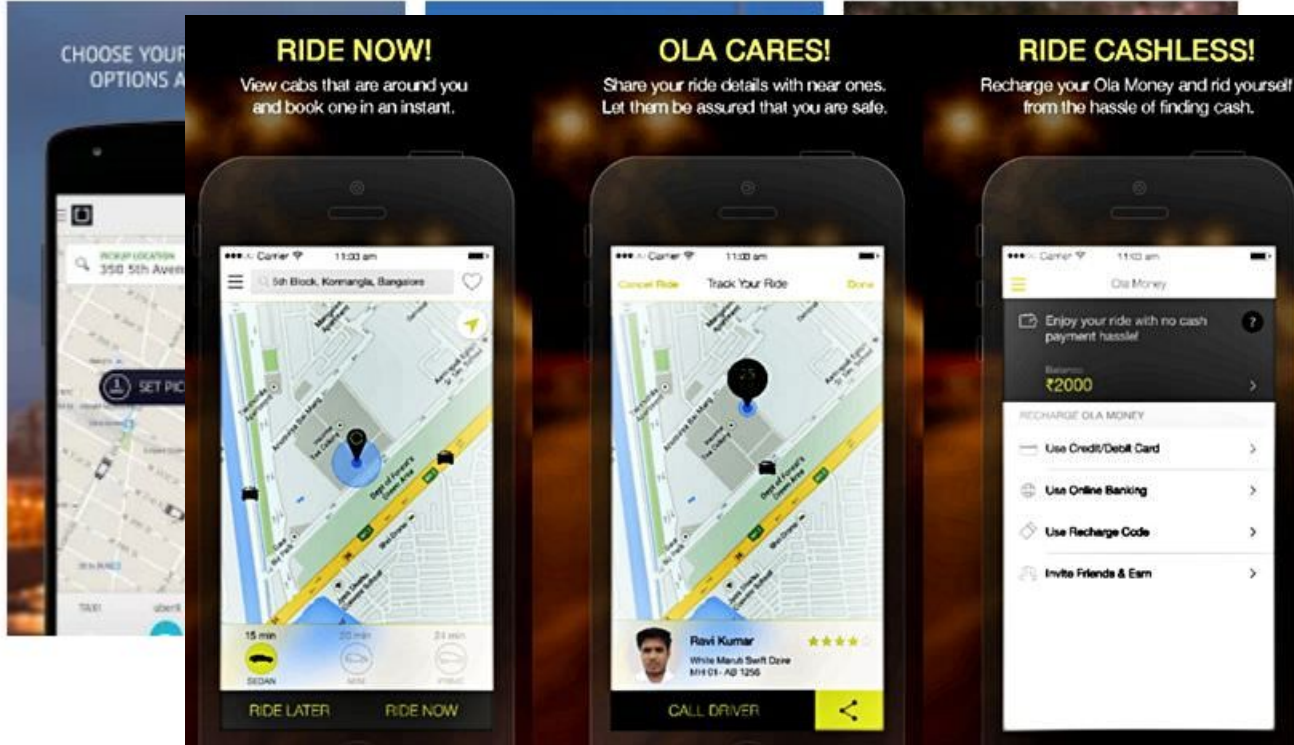
**Customers also considered**

- Spalding 72354 Residential Portable Basketball System: \$219.99
- Spalding NBA Varsity Basketball: \$14.99
- Spalding NBA 54" Polycarbonate...: \$197.00 (save \$192.00)
- Lifetime 48" Shatterproof...: \$179.00 (save \$140.99)
- Spalding 54" Angled Portable Backboard...: from \$209.00

## Engaging Experience

- Find
- Compare
- Ratings and Reviews
- Recommendations
- Cross-sell and Upsell
- Purchase
- Track
- Enjoy!

# EXAMPLE OF MODERN INTELLIGENT APPS

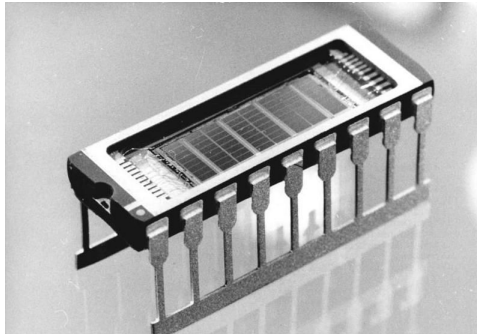


Fast and Safe Experience

- Find
- Track
- Share
- Cashless
- Arrive
- Enjoy!



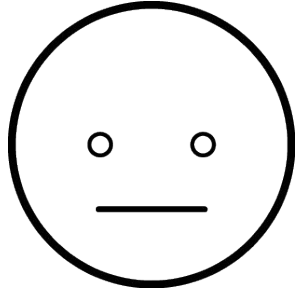
# 73%



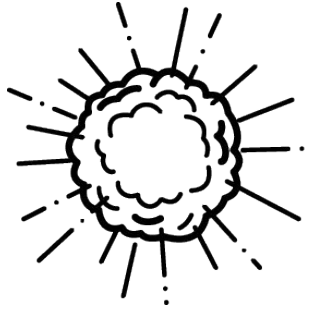
Planning, implementing, or expanding the use of in-memory data platform.

Source: Forrester Global Business Technographics Data And Analytics Online Survey, 2015

Base: 1,805 global data and analytics decision-makers



Modern app experiences require more and faster data access.

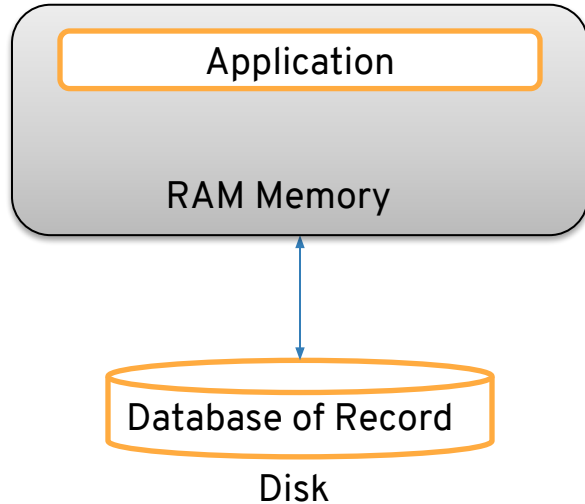


Scale and concurrency stress traditional architectural components to the breaking point.

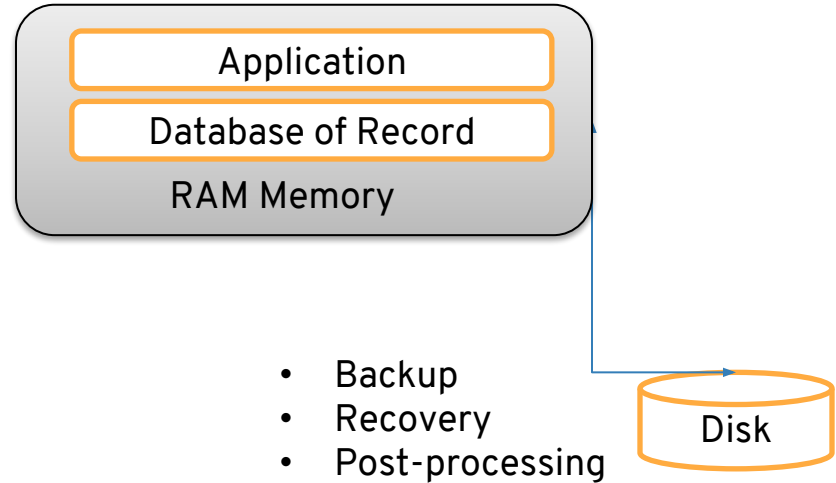
# WHAT IS IN-MEMORY COMPUTING?

In-memory computing (IMC) is an architecture-style where applications assume all the data required for processing are located in the main memory of their computing environment.

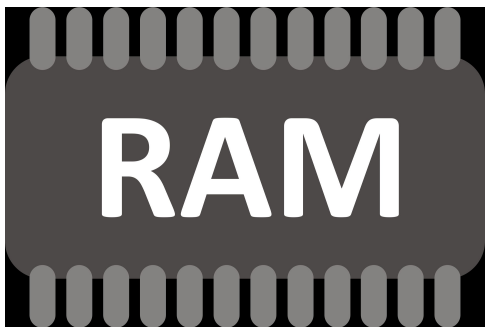
## Traditional Architecture



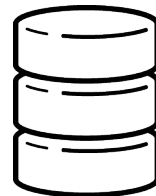
## In-Memory Computing Architecture



# DATA ACCESS (READ & WRITE)



MEMORY vs. DISK

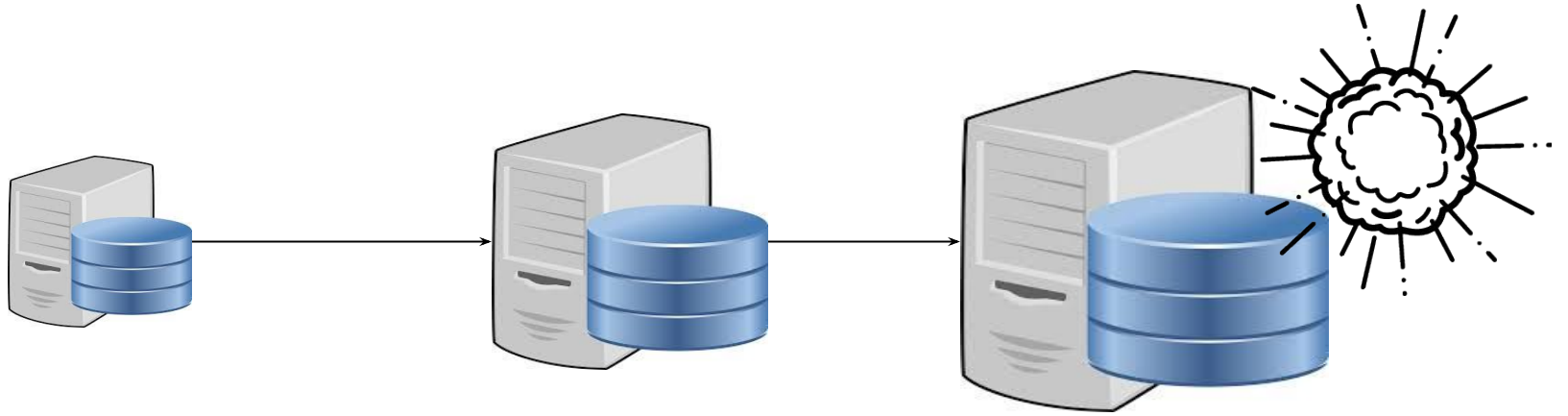


Hard Disk  
**1000x SLOWER**

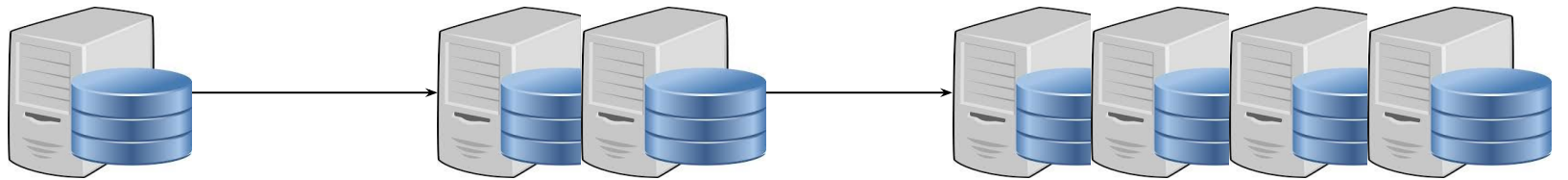


Solid State Disk  
**100x SLOWER**

# DATA SCALABILITY AND AVAILABILITY

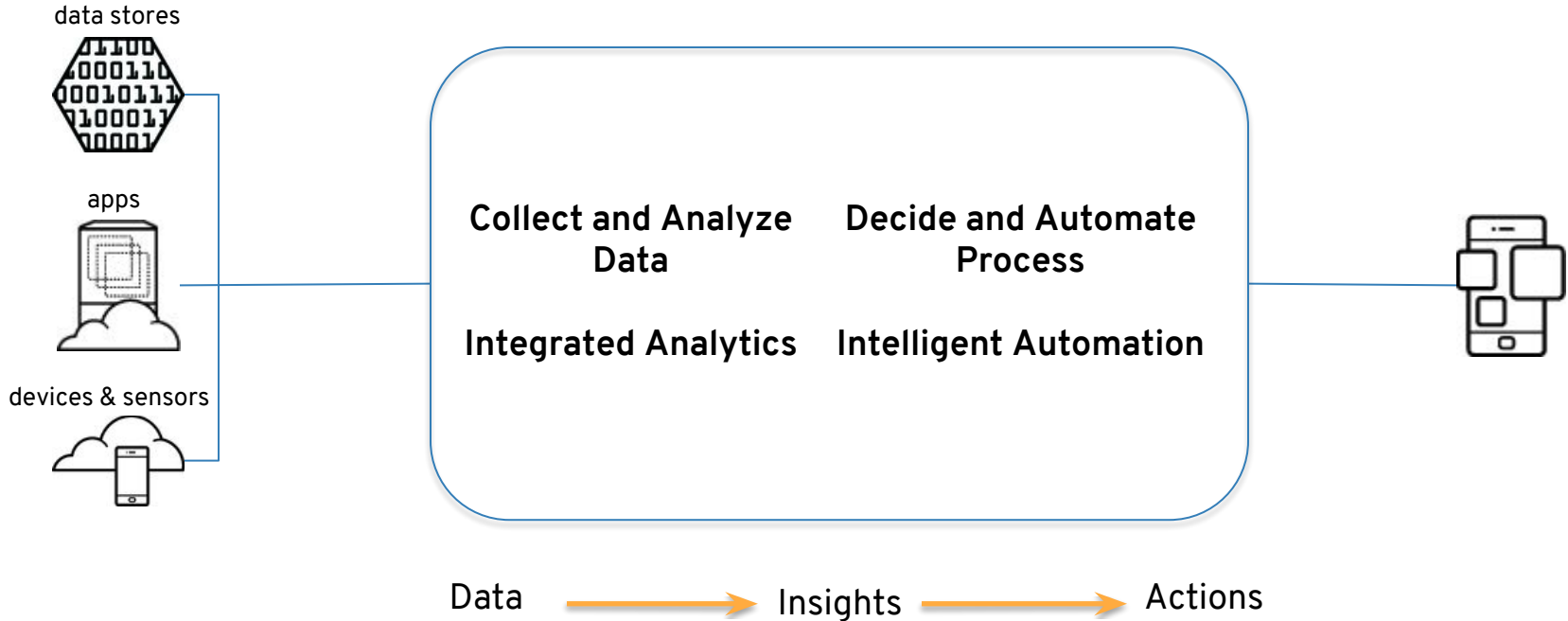


SCALE UP vs. SCALE OUT



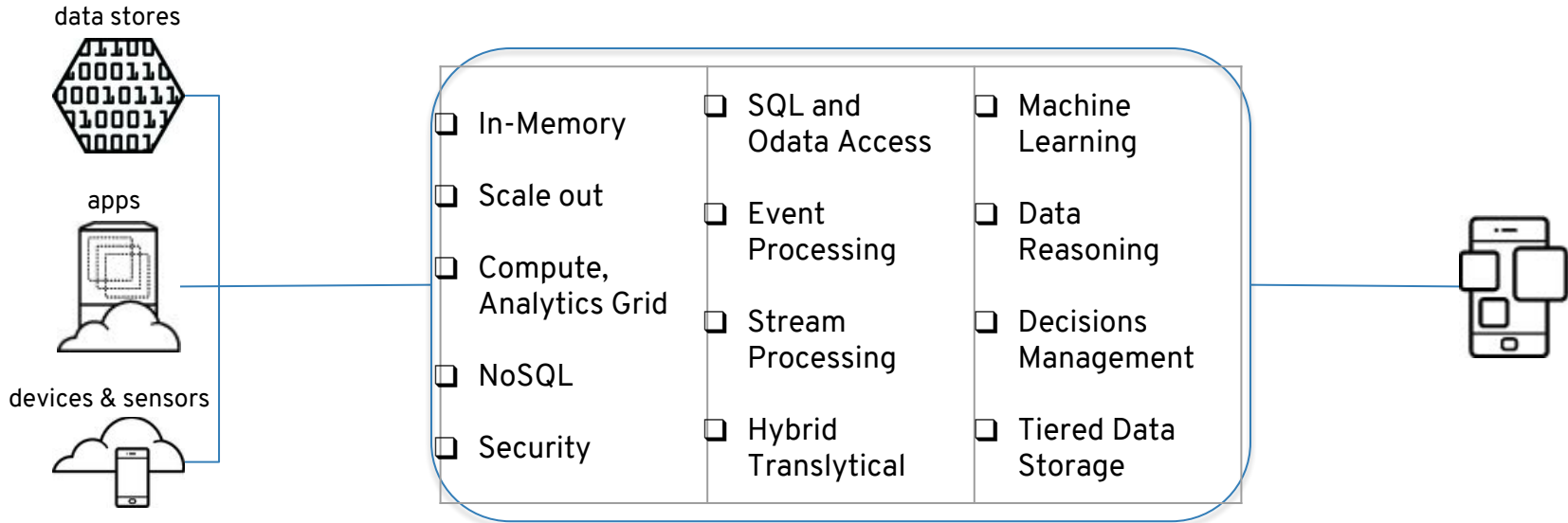
# INTELLIGENT APPLICATIONS

Infuse Analytics in Apps to Act in Real Time and Maximize Business Impact



# INTELLIGENT APPLICATIONS

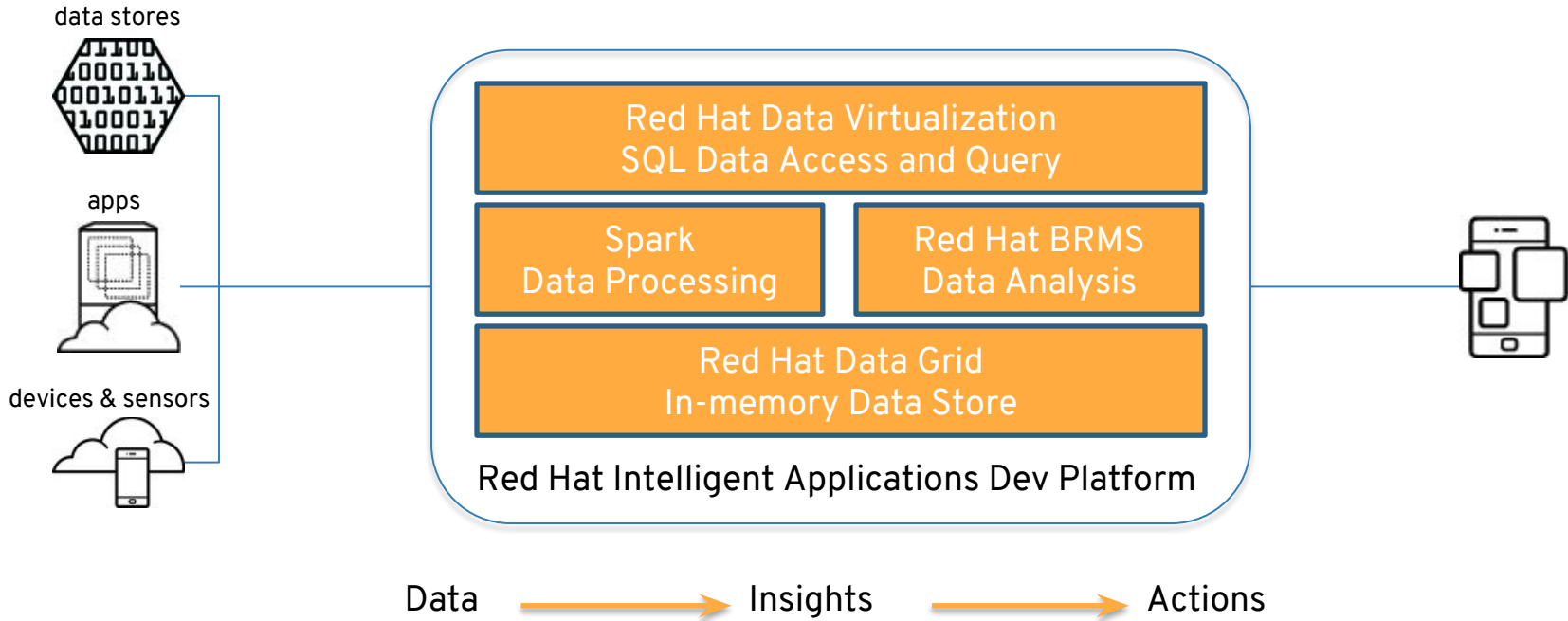
Infuse Analytics in Apps to Act in Real Time and Work Smarter



Data → Insights → Actions

# INTELLIGENT APPLICATIONS

Infuse Analytics in Apps to Act in Real Time and Work Smarter



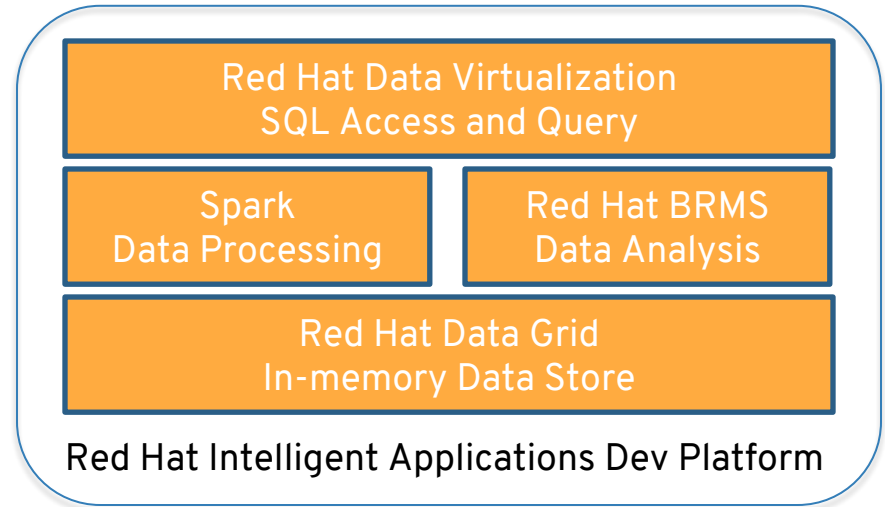


# INTELLIGENT APPLICATIONS

Aggregate -> Analyze -> Act

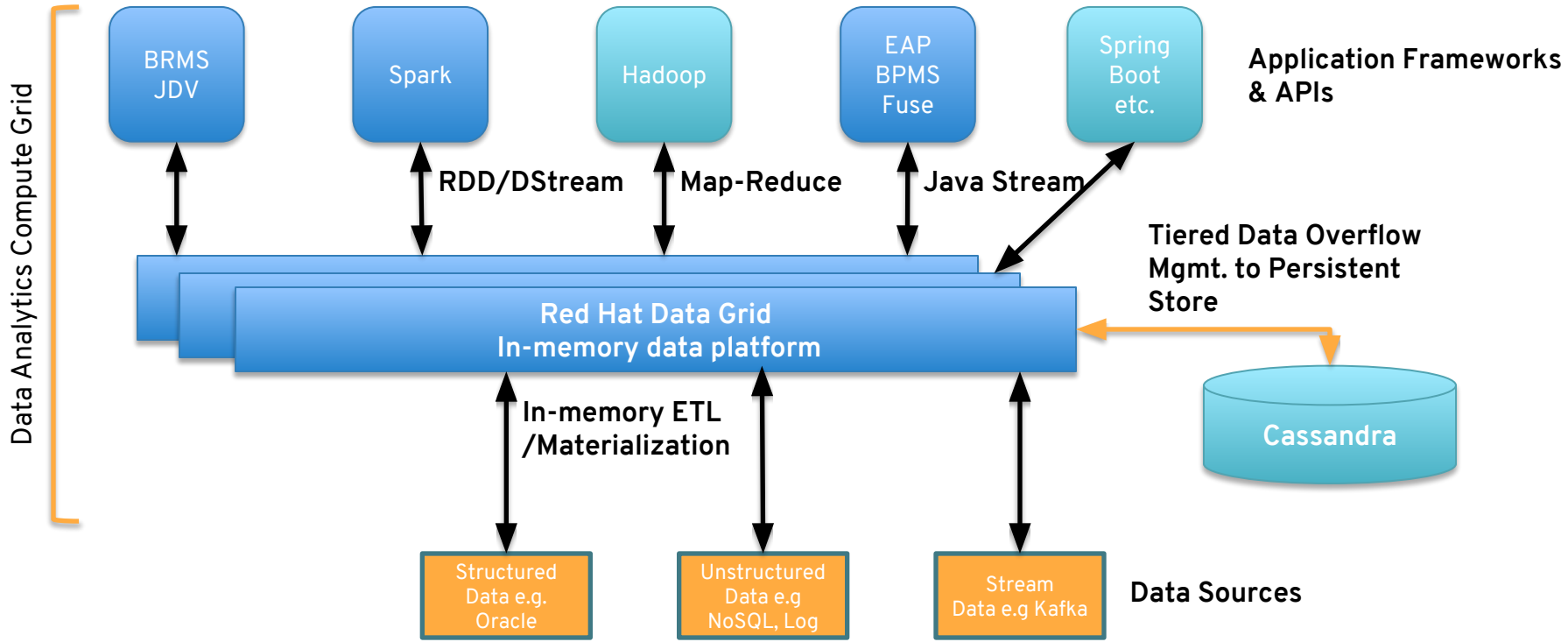
Simplify Development of Intelligent Applications

- Aggregate data in real time
- Analyze data in-memory
- Act on perishable insights



# RED HAT JOSS DATA GRID

## In-Memory Data Management



# IN-MEMORY DATA MANAGEMENT USE CASES

## Red Hat JBoss Data Grid

Distributed  
Cache

NoSQL  
Database

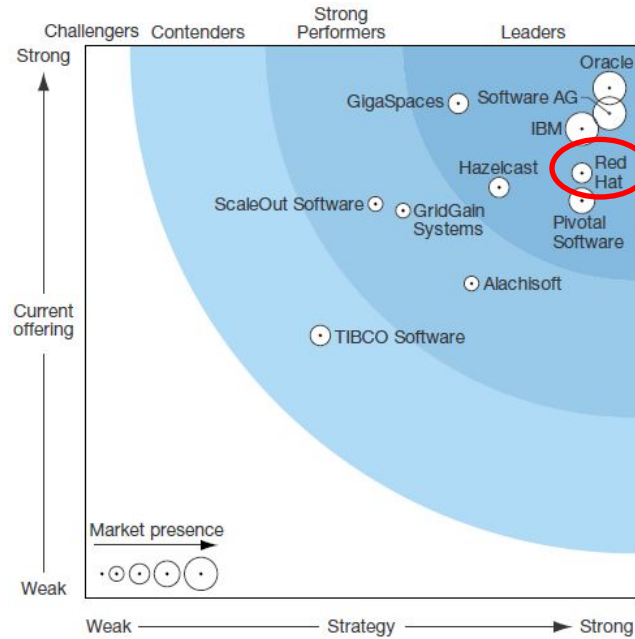
Event  
Broker

Compute  
Grid

*“Memory is the new Disk & Disk is the new Tape”*

# STRONG ANALYST RECOGNIZATION

In two (2) separate Forrester Waves for IMDG and IMDB



Forrester Wave™: In-Memory Data Grids, Q3 2015



Forrester Wave™: In-Memory Databases, Q1 2017

# MAJOR RETAILER IN APAC

## Real Time, Personalized Marketing Solution

NTT DATA

### Situation

- Biggest online apparel store with
  - Over 9million users and
  - Selling over 2 million products items
  - With 18000 views/sec
  - Needed digital marketing platform with real-time campaign needs

### Solution

- eCommerce site clickstream and user activity logs stored in JDG, along with product catalogs, store info, purchase history, marketing history and offering info.
- Marketing used BRMS to setup rules for campaigns and offers.
- Data change events in JDG trigger rules executions to generate real-time offerings

### Results

- Increase sales conversion rates by over 40%.

# REWE IMPLEMENTS

## PERISHABLE Products LOGISTICS SOLUTION



### Situation

- Largest food retailer in Germany with
  - 119,000 employees
  - 3400 stores
  - €17.7 billion revenue
- Needed a real-time purchasing and logistics solution to ensure just the right amount of fresh goods are available at all times.

### Solution

- Replaced legacy software by Red Hat JBoss Data Grid based automated fruit and vegetable purchase solution.
- Enable employees to modify automatically-generated order proposals directly in the produce section with a mobile device.
- Orders are immediately transferred back to headquarters for fulfillment.

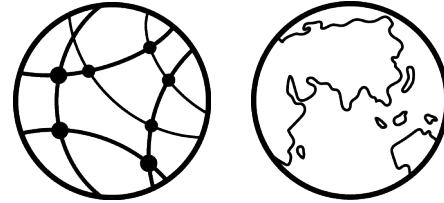
### Results

- “We increase efficiency in the supply of goods and logistics while reducing operating costs. In a business-critical environment like ours, we have stringent requirements for speed and availability. JBoss Data Grid meets these requirements. JBoss Data Grid allows us to transfer centrally-generated order recommendations to a large number of supermarkets in less than a second.”  
Jens Siebenhaar Managing Director, Rewe Systems

# DEMO

# DATA AND ANALYTICS ENABLE EVERYTHING IN THE DIGITAL ECONOMY

- ✓ Guide every interaction
- ✓ Drive every process
- ✓ Inform every decision



## CALL TO ACTION:

1. Walk through critical or challenging business processes
  - At each step of the business process ask how in-memory could accelerate your data-to-insights-to-action processing and reduce latencies.
2. Walk through customer journey to improve digital experience design
  - At each step of the customer journey, ask how in-memory could help capture interactive insights and create a dazzling, new customer experience.



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The logo consists of a red speech bubble shape pointing downwards, containing the text "RED HAT" in a smaller font above "SUMMIT" in a larger, bold font.

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