Open Source in Financial Services: Meet the challenges of new business models and disruption

Speakers

- Vamsi Chemitiganti, General Manager Financial Services, Hortonworks

- Josh West, Senior Solutions Architect, Red Hat Financial Services

- Andrew C. Oliver, President & Founder, Mammoth Data

AGENDA

- Why Red Hat, Hortonworks and Mammoth Data?

- Financial Services Industry

- What is Risk Management

- Technical Challenges

- Architecture

- Demo

- Conclusion

RED HAT, HORTONWORKS & MAMMOTH DATA

- Best of breed infrastructure
  - Red Hat Enterprise Linux is the core of most Hadoop installations
  - Hadoop is the force behind big data and modern data analytics
- Complementary products
  - JBoss Data Virtualization
  - JBoss Data Grid

- Expertise needed to make this work
  - Mammoth Data knows how to make Hadoop work for customers
  - Navigate the complexity of the Hadoop ecosystem
  - Create comprehensive data strategies & architectures

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FINANCIAL SERVICES ARE TRANSFORMING

Focused around business and technology vectors:

TECHNOLOGY VECTORS

- Cloud Computing (OpenStack)
- DevOps and PaaS
- Mobility
- Big data and analytics
- BPM and microservices
- Software-defined datacenters

TABLET

MOBILE

COMPUTER

DIGITAL BANK
Bank 3.0

BUSINESS VECTORS

- Regulation and risk management
- Compliance and regulation
- Trading systems
- Omni-channel wealth management
- Legacy Modernization
- Payments Systems

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WHAT IS RISK MANAGEMENT

- "Liquidity Risk - financial risk due to uncertain liquidity

- An institution might lose liquidity if it falls, it experiences sudden unexpected cash outflows, or some other event causes counterparties to avoid trading with or lending to the institution.

- A firm is exposed to liquidity risk if markets on which it depends are subject to loss of liquidity."

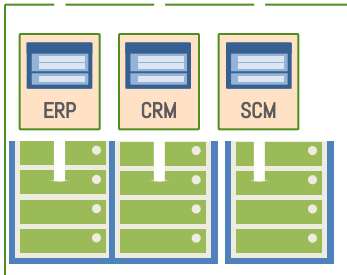MAMMOTH DATA   Hortonworks   redhat.

CHALLENGES

- Homegrown and proprietary architectures

- Data needs only growing

- Need for open and interoperable architectures

- Need for low latency and high performance

- Easy development, deployment and management

- Ability to integrate seamlessly with rest of IT ecosystem

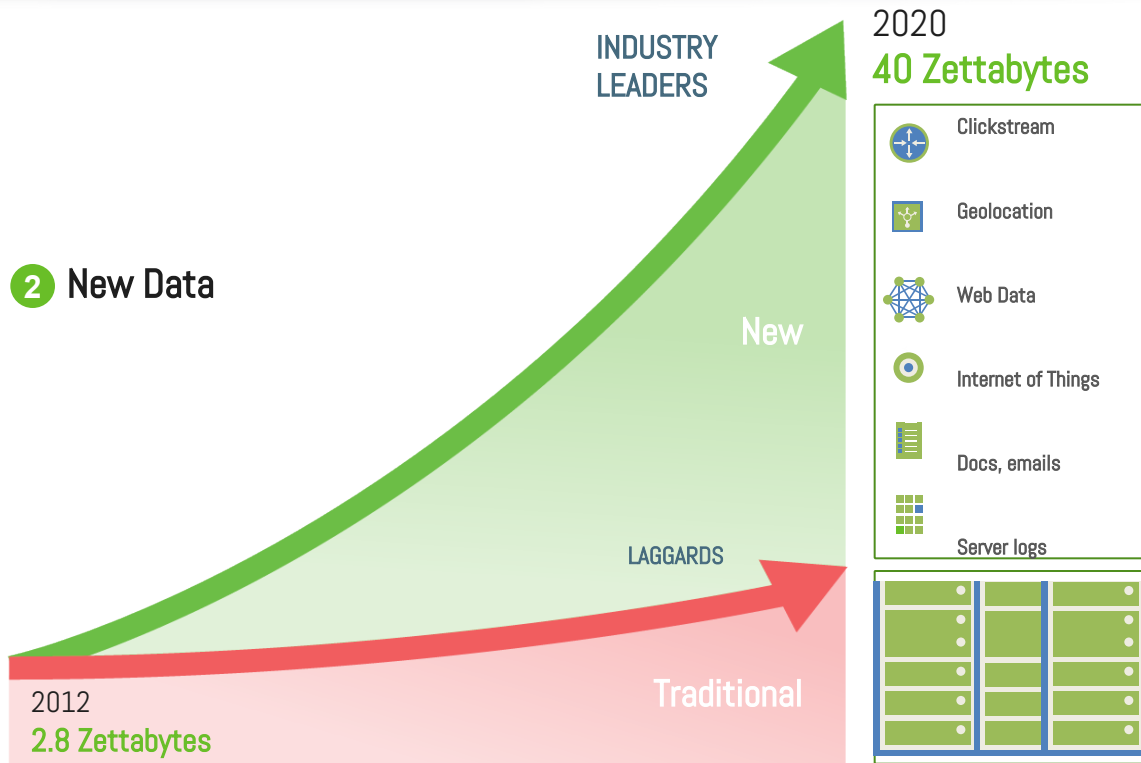- Support various deployment model – On Premise/Cloud, etc...

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TRADITIONAL SYSTEMS UNDER PRESSURE

1 Challenges

- Constrains data to app
- Can't manage new data
- Costly to Scale

2 New Data

Business Value

ERP   CRM   SCM

INDUSTRY LEADERS

2020
40 Zettabytes

Clickstream

Geolocation

Web Data

Internet of Things

Docs, emails

Server logs

New

LAGGARDS

Traditional

2012
2.8 Zettabytes

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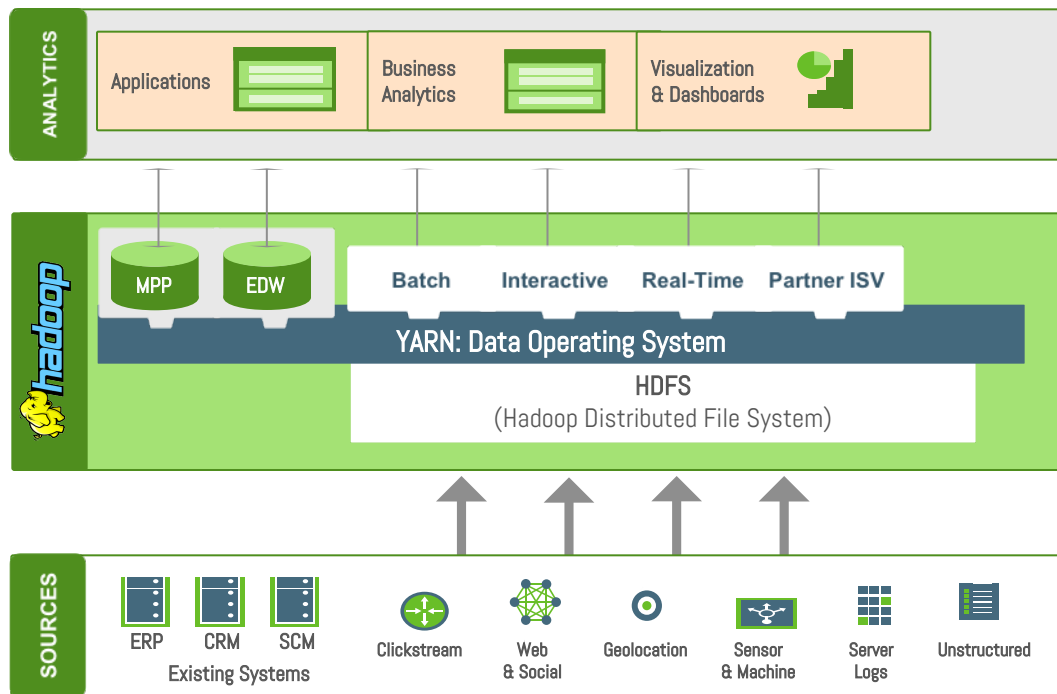
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MODERN DATA ARCHITECTURE EMERGES TO UNIFY DATA & PROCESSING

Modern Data Architecture

- Enable applications to have access to all your enterprise data through an efficient centralized platform

- Supported with a centralized approach governance, security and operations

- Versatile to handle any applications and datasets no matter the size or type

WHAT ARE YOU SHOWING?

Liquidity Risk

- Three data sources, loaded in between HDFS and JDG

- Heterogeneous data

- Well understood problem

- Monte Carlo analysis across a Hadoop cluster against data living in JBoss
  Data Grid

DEMO: TECHNICAL CHALLENGE

- Not every system can begin with a big ETL or data migration project.

- JBoss Data Virtualization front ending existing sources
  - JBoss Data Grid for fast access to both existing and feeds of data
  - Map Reduce for analysis across both existing and new sources

DISTRIBUTED MONTE CARLO SIMULATION

- The financial services industry has used automation and machine learning algorithms for decades
    - Money is not their product. Data is their product.
- As an industry we spread the knowledge
    - We don't compete with each other, we compete with Microsoft Excel
- Liquidity risk is not I have $100 of IBM, I have $100 at risk
- Monte Carlo simulation measures movements over time, and simulates how we might move today

DEMO: BUSINESS CHALLENGE FOR LIQUIDITY RISK

- We need the ability to run a Liquidity Risk Algorithm on our Investment Portfolios at many different intervals
  - Intra Day; End of Day; Weekly; Monthly; Quarterly; Annual

- In support of
  - maximizing investment opportunities
  - satisfying regulatory capital reserve requirements

DEMO

BEST PRACTICES

- Think through your Data Strategy first

- Think through your Data Architecture holistically

    – What are the transition costs, how can they be mitigated

    – What are the long term costs of both new technology and legacy

- Make Data a core competency and not a system side effect

    – Who is making sure you have "one way" to express a concept

BEST PRACTICES (CONTINUED)

- Take a hybrid approach for entrenched legacy technologies
  - …believe it or not PL/SQL can call a web service
- Don't play favorites
  - consider operational costs but pick the right technology for the right job!
- Get Help

Summary

- The operative word is "business value"

- Red Hat offers distinct platforms, but this is about solutions

- Opportunity is everywhere

More about Red Hat & Hortonworks
http://hortonworks.com/partner/RedHat/

MAMMOTH DATA

THE LEADER IN BIG DATA CONSULTING

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