

Hortonworks

Hadoop Big Data in Telecom

SAP Telco Day

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Hortonworks

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# About Hortonworks



Founded in 2011

Original 24 architects, developers,  
operators of Hadoop from Yahoo!

**740+**

EMPLOYEES

**1350+**

ECOSYSTEM  
PARTNERS

## Customer Momentum

- 550 customers (as of August 5, 2015)
- 119 customers added in Q2 2015
- Publicly traded on NASDAQ: HDP

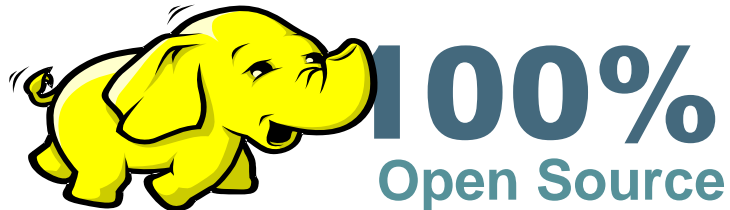
## Hortonworks Data Platform

- Completely open multi-tenant platform for any app and any data
- Consistent enterprise services for security, operations, and governance

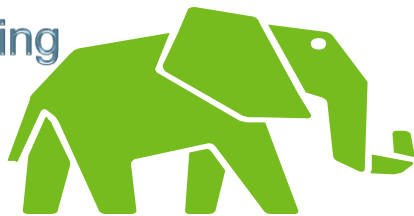
## Partner for Customer Success

- Leader in open-source community, focused on innovation to meet enterprise needs
- Unrivaled Hadoop support subscriptions





Central Data Architecture  
with Yarn as Data Operating  
System



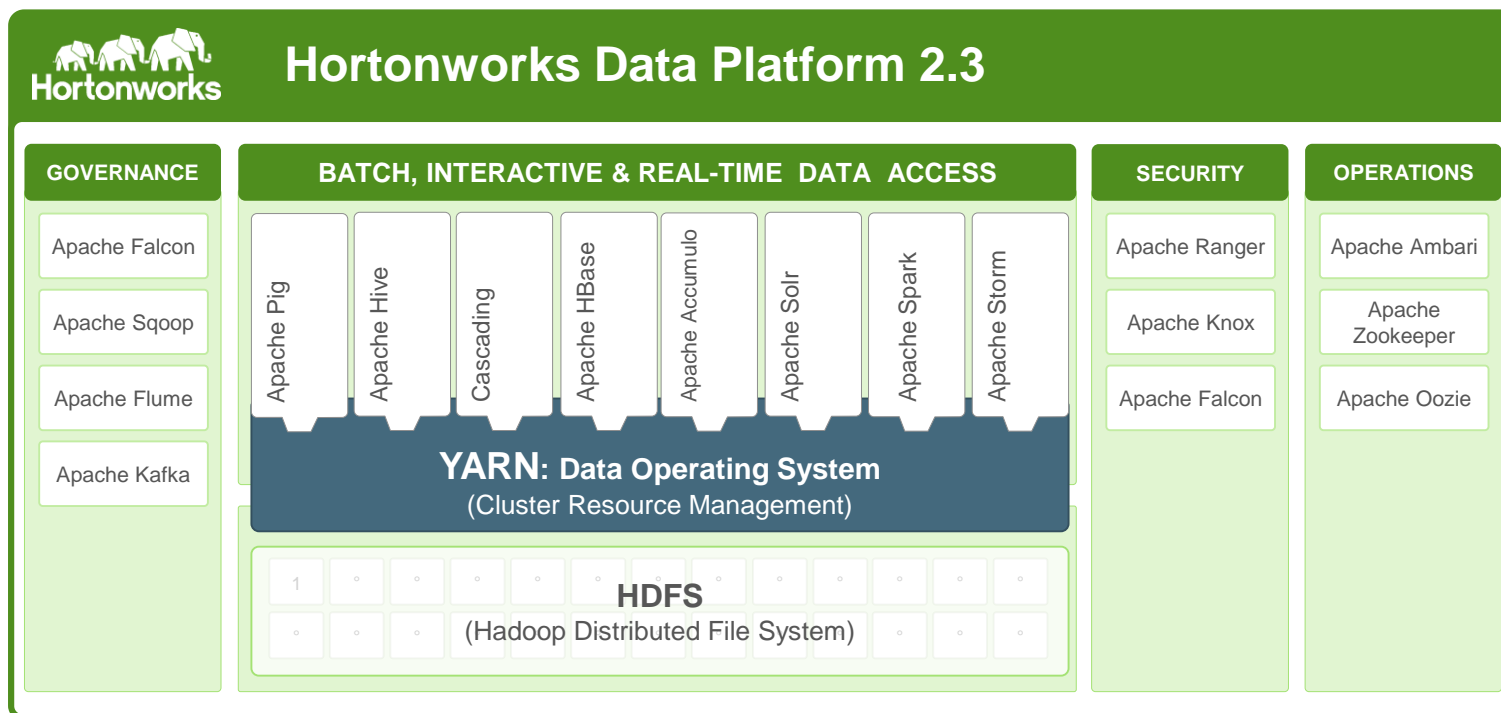
*Most Experience  
in Telecom*



- **De-Risk Future Architecture:** 100% open source Hadoop ensure current and future alignment with marketplace (non proprietary vendor lock-ins)
- **Accelerated Path to New Functionality:** Open source community Speed of Development/Release far exceeds proprietary
- **Best Path to Influence Hadoop Roadmap:** Ensure Mission Critical Support and needed new Functionality can best be engineered in Hadoop and available in all future Releases
- **Integrates with your environment & Partner Solutions:** Data Centric Architecture with Yarn allows other partner/vendor solutions to readily integrate and participate. (Not just solutions in silos)
- **Allows the Road to Data Centric Organization:** Data Centric Architecture with Yarn to minimize the movement of data and let the applications interact directly with the data with our replication
- **Best Chances of Success in your Telecom Environment:** Best business value for current industry solution needs and a trusted partner to help on your Hadoop Journey for a Data Centric Transformation in Telecom

# HDP delivers a completely open data platform

**Hortonworks Data Platform** provides Hadoop for the Enterprise: a centralized architecture of core enterprise services, for any application and any data.



## Completely Open

- HDP incorporates every element required of an enterprise data platform: data storage, data access, governance, security, operations
- All components are developed in open source and then rigorously tested, certified, and delivered as an integrated open source platform that's easy to consume and use by the enterprise and ecosystem.

# Apache NiFi, Onyara and Hortonworks



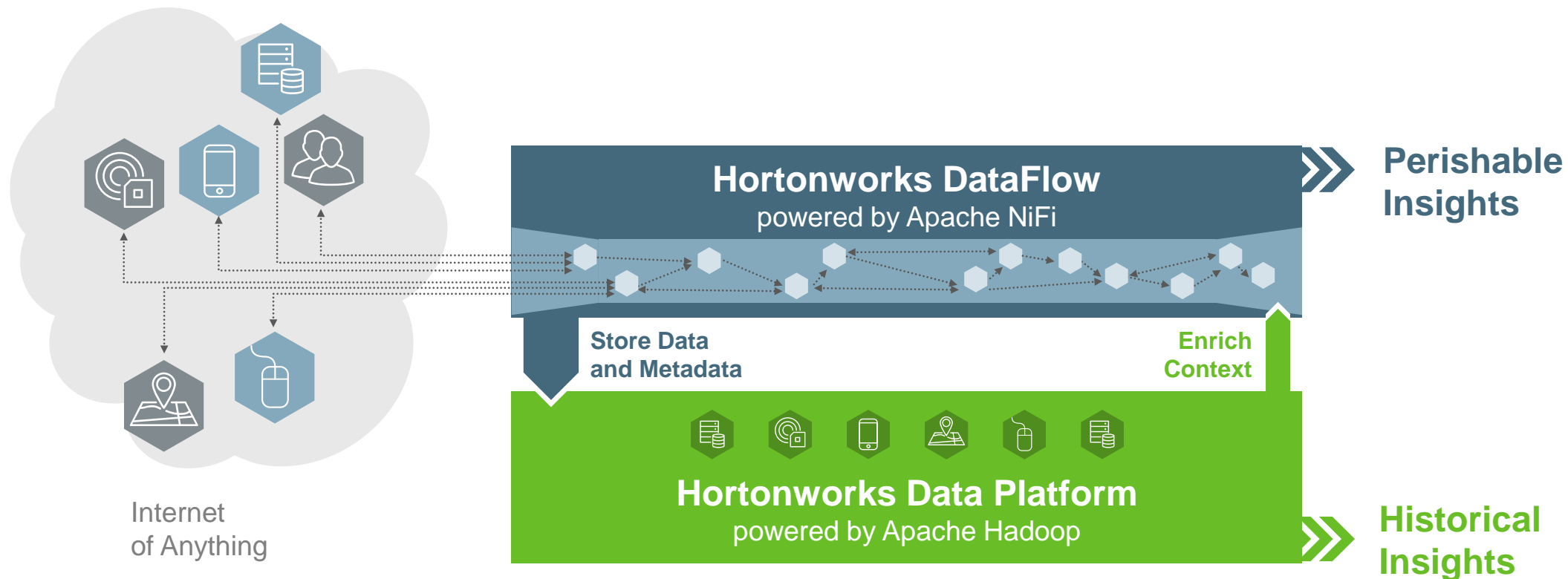
“Niagara Files” software developed at NSA over 8 years became Apache NiFi in 2014

Onyara was founded in 2015 by the chief architects of Apache NiFi

Hortonworks acquired Onyara in August 2015, to further extend its Big Data management product line



# Hortonworks DataFlow – Apache NiFi



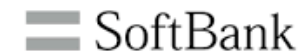
Hortonworks DataFlow and the Hortonworks Data Platform deliver the industry's most complete solution for management of Big Data

# Who is using Hadoop & Hortonworks?



# Who is using Hortonworks in Telecom?

*Telefonica*



**8 of the Top 9**

North American Communication Service Providers have Standardized on **Hortonworks**





# Telecom Industry: Data-Centric Transformation

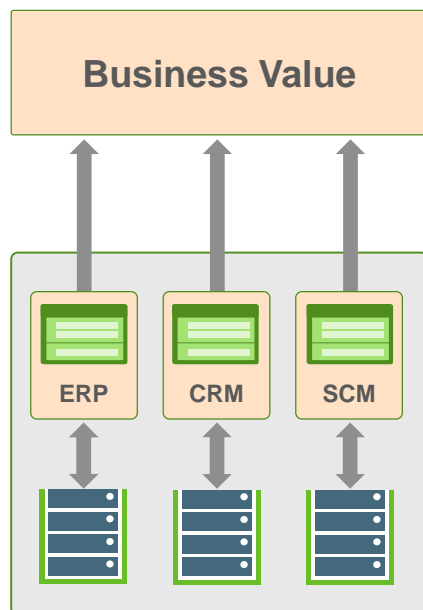
Hortonworks. We do Hadoop.



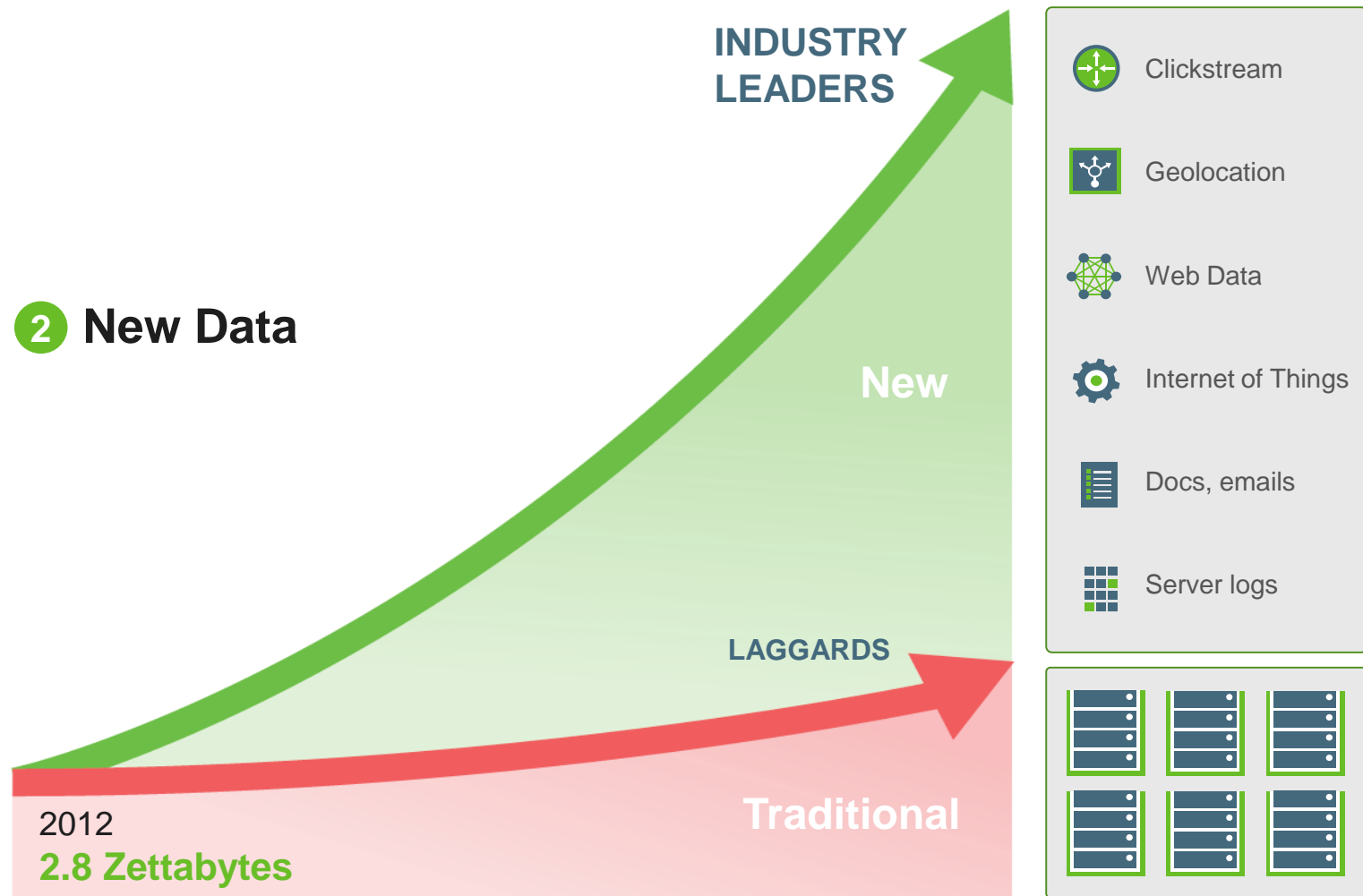
# Traditional systems under pressure

## 1 Challenges

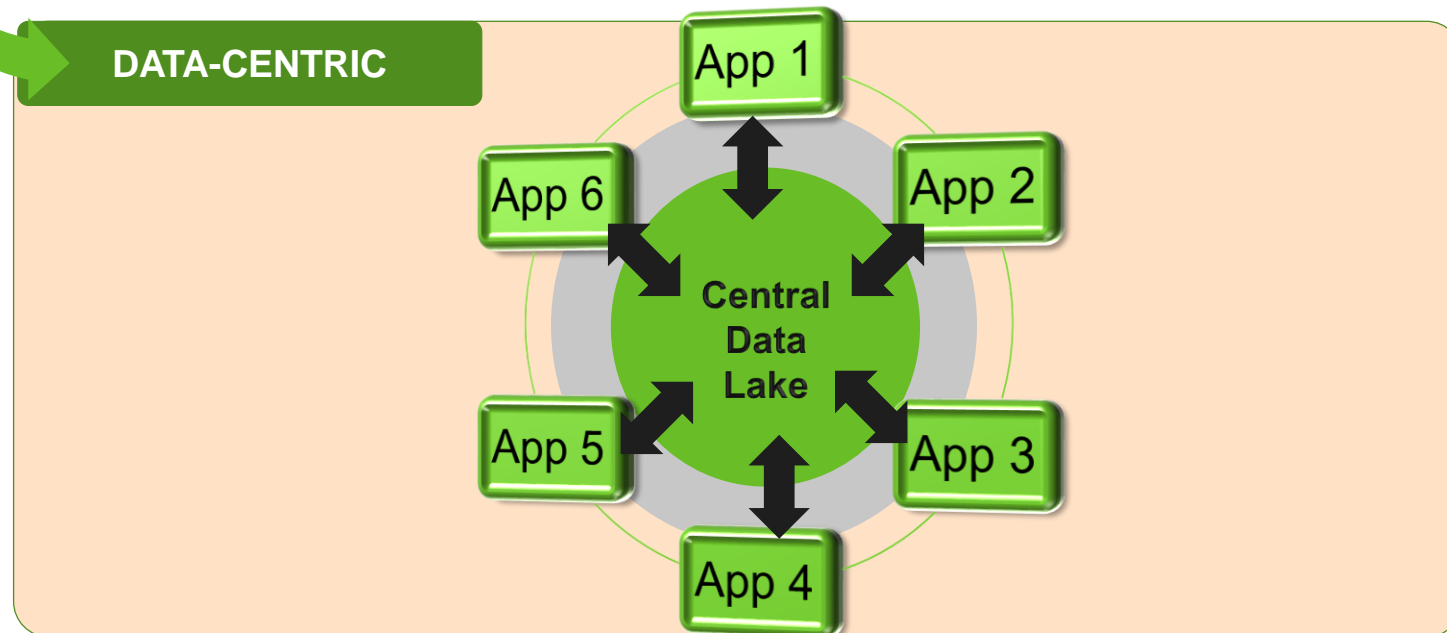
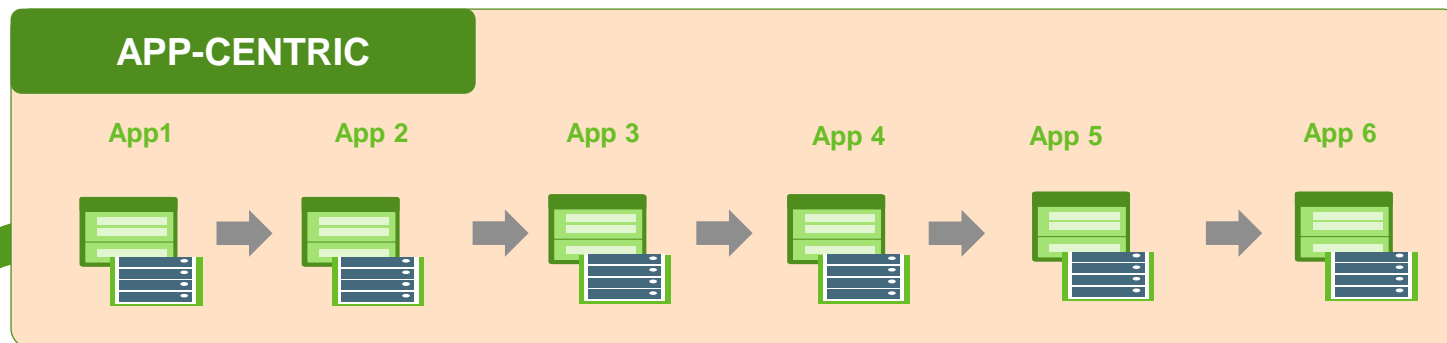
- Constrains data to app
- Can't manage new data
- Costly to Scale



## 2 New Data



# Tomorrow: A Data-Centric Model for Your Business



## Limitations:

- Multiple copies of data
- Difficult cross-system integration
- Upper-limit on data volumes before harming performance

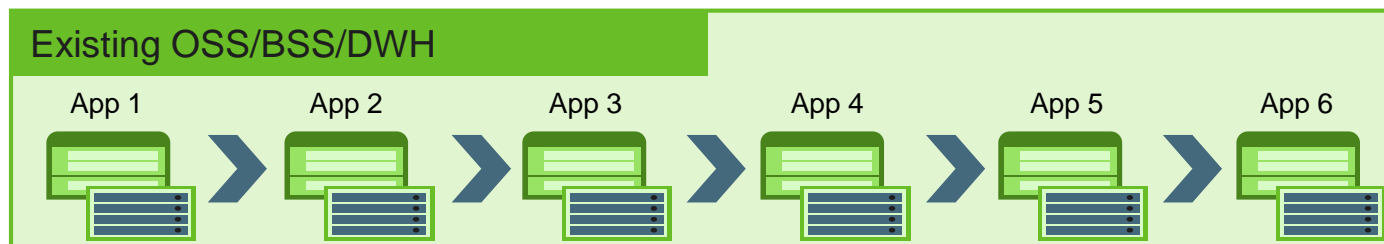
App Centric will break down with x10, x100, x1000...  
Need to shift to Data Centric

## Advantages:

- One version of the data
- No need for cross-app integration
- System scales linearly

# The Target: Data-Centric Operations

## Data Driven Business



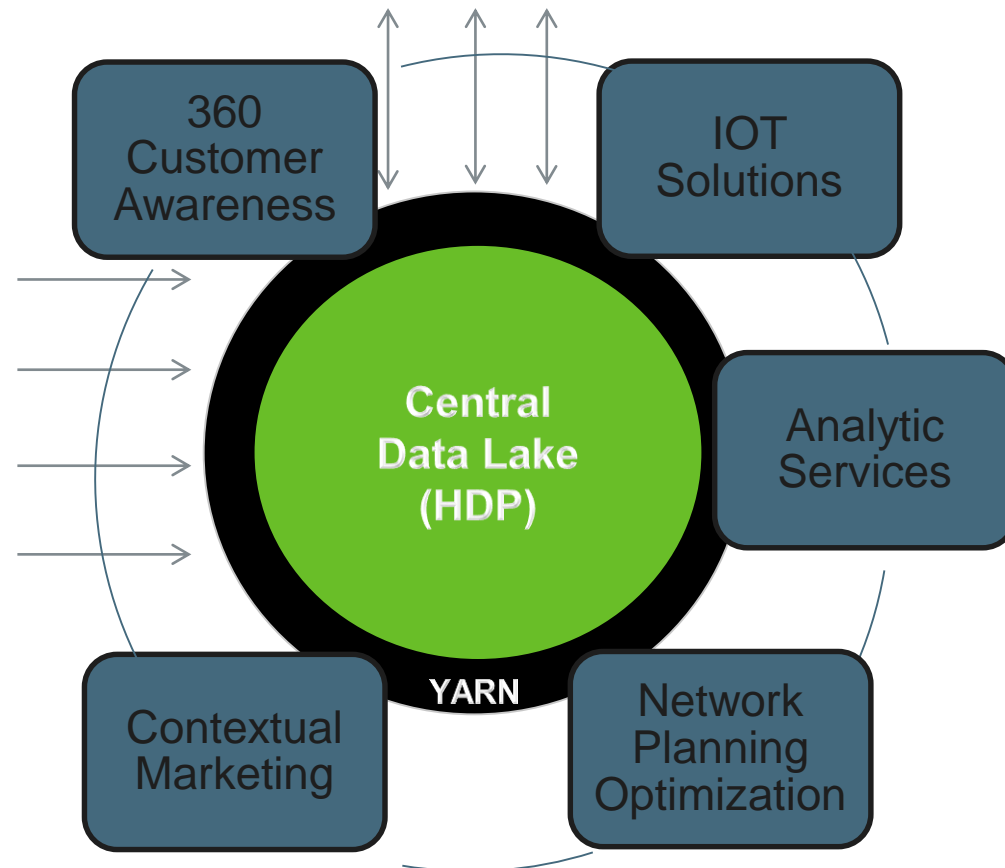
- Clickstream
- Web & Social
- Geolocation
- Event Records
- Call Logs
- Files, emails
- Server Logs

**Streaming:** Network Probes, Click Stream, Sensor, Location

**Batch:** Call Detail Records

**On-Line:** Customer Sentiment

**Unstructured:** Txt, Pictures, Video, Voice2Text



- Driving Business Operations through a Central Data Lake
  - Injest all sources of data for holistic view of customers, network, & products
- Extending Value from Existing Investments
  - Existing systems contribute and participate in central data storage and processing
- New Generation of Data Centric Solutions
  - 360 Customer Household View for enhanced Customer Experience
  - Network Optimization & Journey for NFV
  - IOT Solutions, Data monetization, and Analytics-as-a-service

# The View from the Customer



## How to See What the Customer Sees and Respond with Awareness

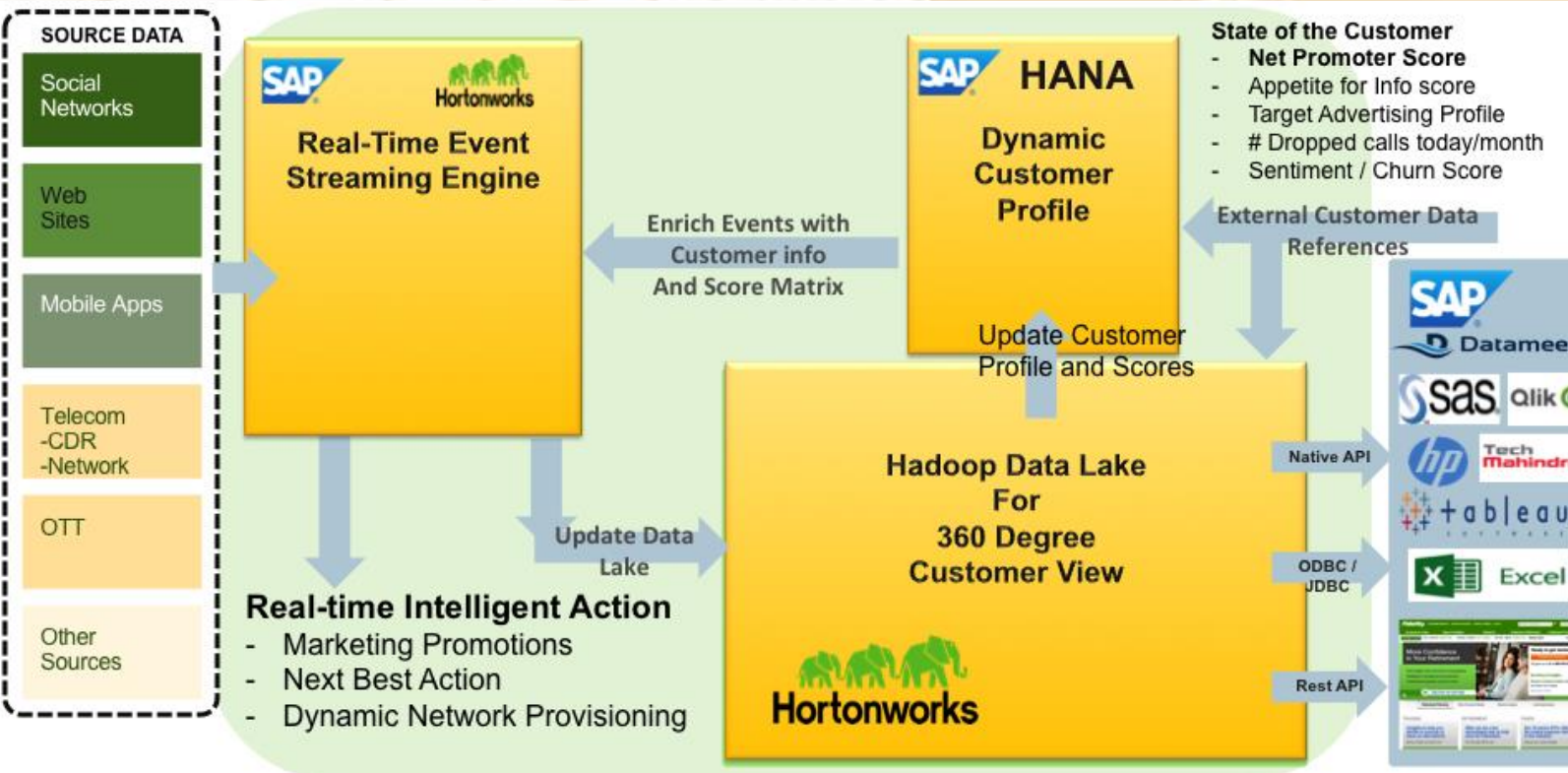
- View from The Customer (360 degree view)
  - Quality of Service Experience (Network details)
  - Call Center dialog (voice to text analysis)
  - Customer Interaction Channel (CRM, Billing)
  - Customer's Sentiment (what they are saying on social media)
- Understanding Current State of the Customer
  - Net Promoter Score (dynamically computed)
  - Churn Score
  - Appetite for Information & other Customer Metrics
  - Target Advertising Profile
- Next Best Actions
  - Context aware promotions
  - Churn risk response
  - Retail Store with State of the Customer
  - Omni-channel correlated actions



# Customer Experience Journey

## Customer Centric Model

- Enrich the Data Lake with all available customer interaction points
- Develop and Revise the Models that best get your customer metrics:
  - Net Promoter Score, Customer Churn Score, Appetite for Information, Customer Target Profile, etc
- Deploy the Current State of the Customer with references and customer real-time metrics
  - Computed (ML) from the Data Lake into a Dynamic Customer Profile that is available across business groups and systems
- Drive Next Best Action Using Real Time Event triggers and Dynamic Customer Profile for Context awareness
  - Next Best Care Action
  - Location & Context Aware Marketing



# SAP & Hortonworks

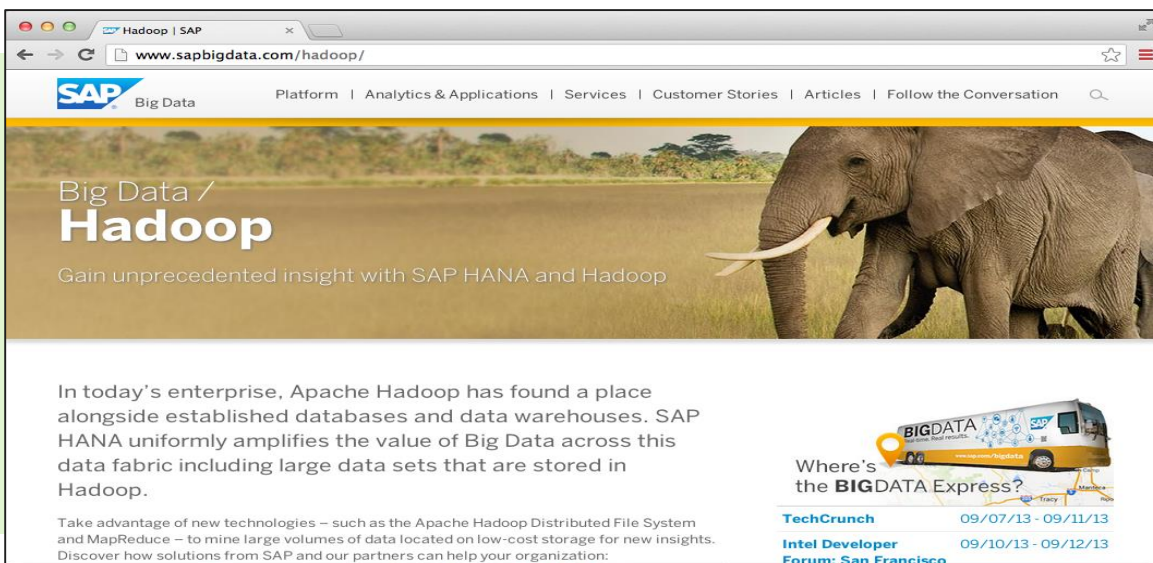
SAP HANA + Hortonworks Data Platform  
Delivering Instant Insight + Infinite Scale



# Value of SAP Hortonworks Big Data Solution

## Enabling a Modern Data Architecture

- SAP offers a single unified data architecture including
- SAP HANA + Hadoop = Instant access + Low Cost, Scale Out Storage
- Enables applications (analytics, ERP, CRM, predictive, etc.) to interact with Hadoop



The screenshot shows a web browser window with the URL [www.sapbigdata.com/hadoop/](http://www.sapbigdata.com/hadoop/). The page features the SAP logo and navigation links for Platform, Analytics & Applications, Services, Customer Stories, Articles, and Follow the Conversation. The main content area is titled "Big Data / Hadoop" and includes the subtext "Gain unprecedented insight with SAP HANA and Hadoop". Below this, there is a paragraph of text and a small image of a bus labeled "BIGDATA Express".

Big Data /  
**Hadoop**

Gain unprecedented insight with SAP HANA and Hadoop

In today's enterprise, Apache Hadoop has found a place alongside established databases and data warehouses. SAP HANA uniformly amplifies the value of Big Data across this data fabric including large data sets that are stored in Hadoop.

Take advantage of new technologies – such as the Apache Hadoop Distributed File System and MapReduce – to mine large volumes of data located on low-cost storage for new insights. Discover how solutions from SAP and our partners can help your organization:

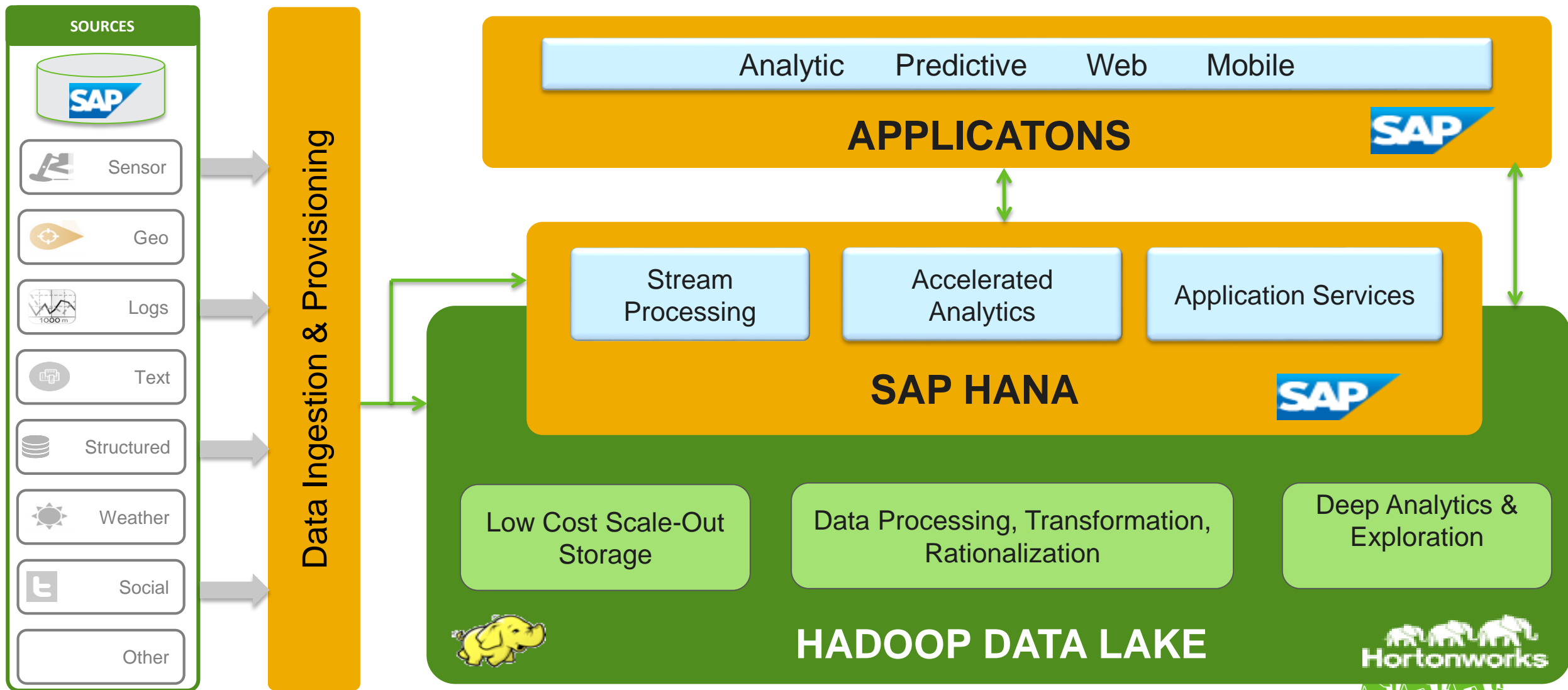
Where's the **BIGDATA** Express?

TechCrunch	09/07/13 - 09/11/13
Intel Developer Forum: San Francisco	09/10/13 - 09/12/13



SAP can assure their customers they are deploying an SAP HANA + Hadoop architecture fully supported by SAP

# Big Data Reference Architecture





# Accelerating Data-Driven Transformation

Telecom Use Cases



# Use Cases Align with Service Provider Focus

## Customer Experience Management

- Enhance End-to-end Experience of Customer
- Become Trusted Partner to Customer
- Awareness of customer's needs when and where needed

## Network Optimization

- Move to Software Driven Networks
- Leverage Network Data Assets
- Self optimizing and provisioning

Service  
Providers

## New Business & Consumer Services

- New Digital & Infrastructure Services
- Data Monetization
- M2M, IoT, Analytics-as-a service



## Challenge

Fragmented view of the customer across applications and the omni-channel causing silos of operations, misaligned responses to customers issues and an incomplete view of the customers experience

Network data traffic growth of 50,000% within 6 year period due to smart phones

## Solution

- Deploy a Data Lake and Analytics for capturing all sources of customer interaction points across multi-channels (e.g. Network traffic, Social Media, Clickstream, IVR, Geo-Spatial data.) apply to customer experience and market campaigns
- Ingesting 30 billion data points an hour correlated to optimize customer & network experience
- Tower outage and network analyzer to prioritized the tower repairs to

## Impact

“ Our Big Data solution for managing the quality of service and customer interactions has helped to drive a 59% improvement in consumer experience”

*Victor Nelson*  
*SVP of Big Data*  
*AT&T*





## Challenge

Modernize Audience Platform for Targeted Marketing and Advanced Analytics.

Measure and Improve the end-to-end Customer Experience level to align organizational performances to Satisfaction of the Customer

## Solution

- Created Granular customer profile models from 5000+ attributes across 600+ traits of anonymized data for Campaign Optimization
- Computed Net Promoter Score (NPS) across different areas of customer touch points: Care, quality of service, customer sentiment. Reflect State of the Customer through dynamic customer Profile

## Impact

“We were able to double our advertising revenue in the first year alone... most success project in the companies history!”

“Now all Executive performances are measured against achieved Customer Net Promoter Scores.”

*Chris Dingle*

*Sr. Director Customer Intelligence  
Rogers*



## Challenge

To determine needed network investment, over-subscription models are developed from network event traffic. Traditionally, the size of the data has limited models to be based on sampling data over weeks of events not the months and years of data needed to be accurate.

To improve customer churn, data from unstructured sources like social media and voice-2-text from call centers need to be added with structured data from CMR, Billing and Network to better understand customer sentiment

## Solution

- Deploy a Data Lake and Analytics for capturing 250 billion events per day
- Develop network oversubscription models based on complete network event details for 13 month period to have an accurate view on demand
- Develop more detailed Customer Churn models with Hadoop to drive Next Best Action with customers across the

## Impact

“Hortonworks Hadoop platform has helped us better understand and model our network demand... saving us 10s of millions of dollars in network spending just on this one solution alone”

“Even after extensive churn reduction activities, we have been able to reduce our customer churn scores by an additional 20% with new customer insights.”

*Rob Smith*  
*Executive Director*  
*Verizon Wireless*





# Service Providers Adoption Journey for Big Data







Thanks You!

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Hortonworks

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