

# Big Data, Fast Data, Actionable Data

Putting Big Data to Work in Utilities

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# What Does Big Data Mean?

*What is the key difference in managing this data now?*

**Volume, Velocity, Variety, Value**

VOLUME

*These characteristics challenge most utility's existing architecture, tools, staffing competency and business processes!*

VALUE

# Top Performing Companies Use Analytics to Drive Business Performance

## CHANGE YOUR BUSINESS

Imagine what analytics can do for your business

**3x** 

Top performers are **3x** more likely to use analytics than low performers

**53%** 

use analytics to drive **strategy**

**50%** 

use analytics to transform **daily operations**

## ORGANIZATIONS WHICH USE ANALYTICS GET

**\$10.66** 

FOR EVERY

**\$1** 

THEY SPEND ON **ANALYTICS**

## However, in utilities ...

ONLY

**17%**

of utilities are completely prepared for the data influx. Up from **9%** in 2012

JUST

**20%**

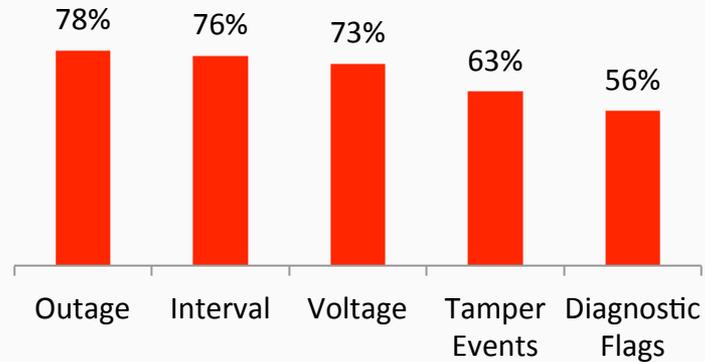
of utilities give themselves an **"A+"** for getting information to the people who need it. Up from **8%** in 2012

Source: Oracle Study 2013 – "Utilities and Big Data: Accelerating the Drive to Value"

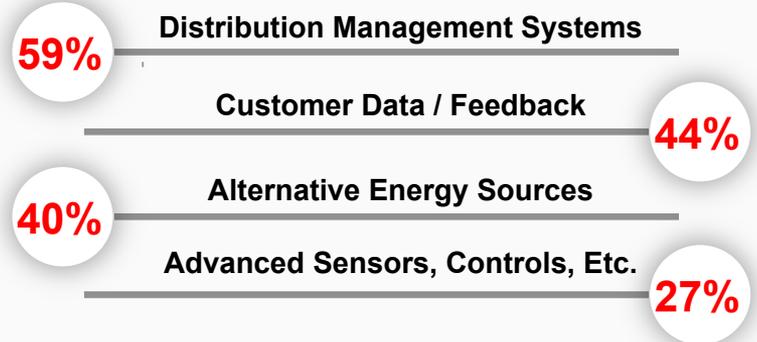
ORACLE

# Utilities Are Collecting Increasing Volume And Variety Of Data Through Multiple Sources

## Which Type Of Data Is Your Utility Collecting From Smart Meters?\*



## In Addition To Smart Meters, What Other Sources Are Contributing To Data Influx?\*

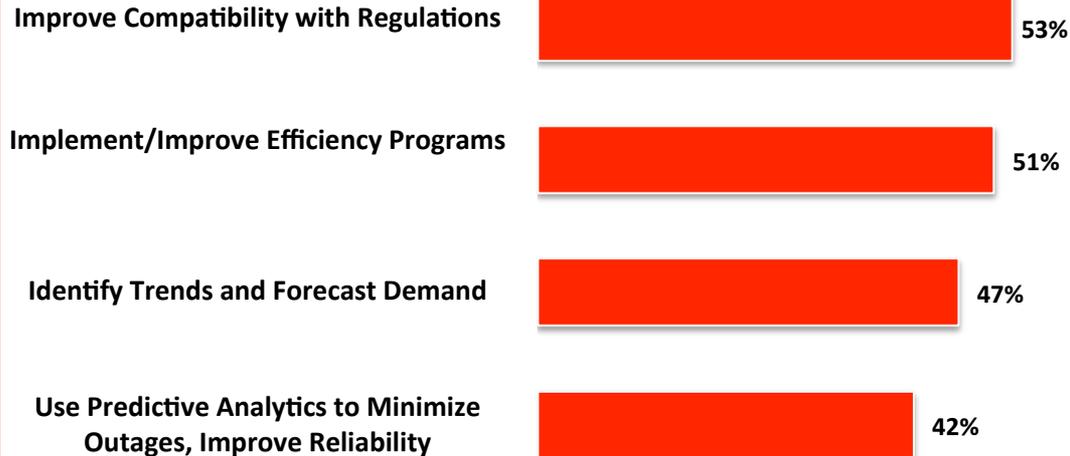


**The average utility with a smart meter program in place has increased the frequency of its data collection by 180x – collecting data once every four hours, on average, as opposed to just once a month\***

\*Based on a Survey Conducted by Oracle with Senior Executives in Utility Industry in North America in 2012  
Source: Big Data, Bigger Opportunities, Oracle, 2012

# Utilities Are Focusing On Optimizing Operations Through Smart Meters and Network Data

## How Are Utilities Leveraging Smart Grid Data To Drive Operational Value?\*



*“Utilities commonly undervalue the diagnostic potential of the information generated through various systems. This underutilization of company and customer information presents a valuable opportunity to optimize work effectiveness, raise performance, and improve the bottom line” – Oliver Wyman Report*

\*Based on a Survey Conducted by Oracle with Senior Executives in Utility Industry in North America in 2013

Source: Utilities and Big Data: Accelerating the Drive to Value, Oracle, 2012; Driving Performance Through Business Analytics—Leveraging Data to Improve Utility Performance, Oliver Wyman

# Big Data in Action



## Energy Retail



## Renewable Energy



## Demand Forecasting

# Big Data in Action

## Make Better Decisions Using Big Data – User Cases

Today's Utilities Challenge	New Data	What's Possible
Utilities Network Capacity Planning	Network Sensors	Real Time allocation, Automated diagnosis, support
Demand Response	Remote Control	Ratings Analysis, CT Behavior, Troubleshooting
Location-Based Services	Real time location data	Geo-spatial visibility and awareness, travel, Search
Plant, Network and Quality Monitoring	Real-time Events	Automated diagnosis, support, Better troubleshooting, UX, CX
Utilities Retail - One size fits all marketing	Social media	Sentiment analysis segmentation





**Complexity Obstructs Business Agility**  
Integrating Multiple Applications on Different Technologies



**Complexity Undermines Productivity**  
Using Separate Collaborative, Analytic and Transactional Tools



**Complexity Drives Up Costs**  
Building up IT Assets to Achieve Reliability and Scalability

# Building a Big data Platform

End goal is to easily integrate your big data with your enterprise data to allow you to conduct deep analytics on the combined data set.

## Acquire Big Data

- Data streams of higher velocity and higher variety
- Predictable latency in both capturing data and in executing short, simple queries
- Be able to handle very high transaction volumes, often in a distributed environment
- Support flexible, dynamic data structures.

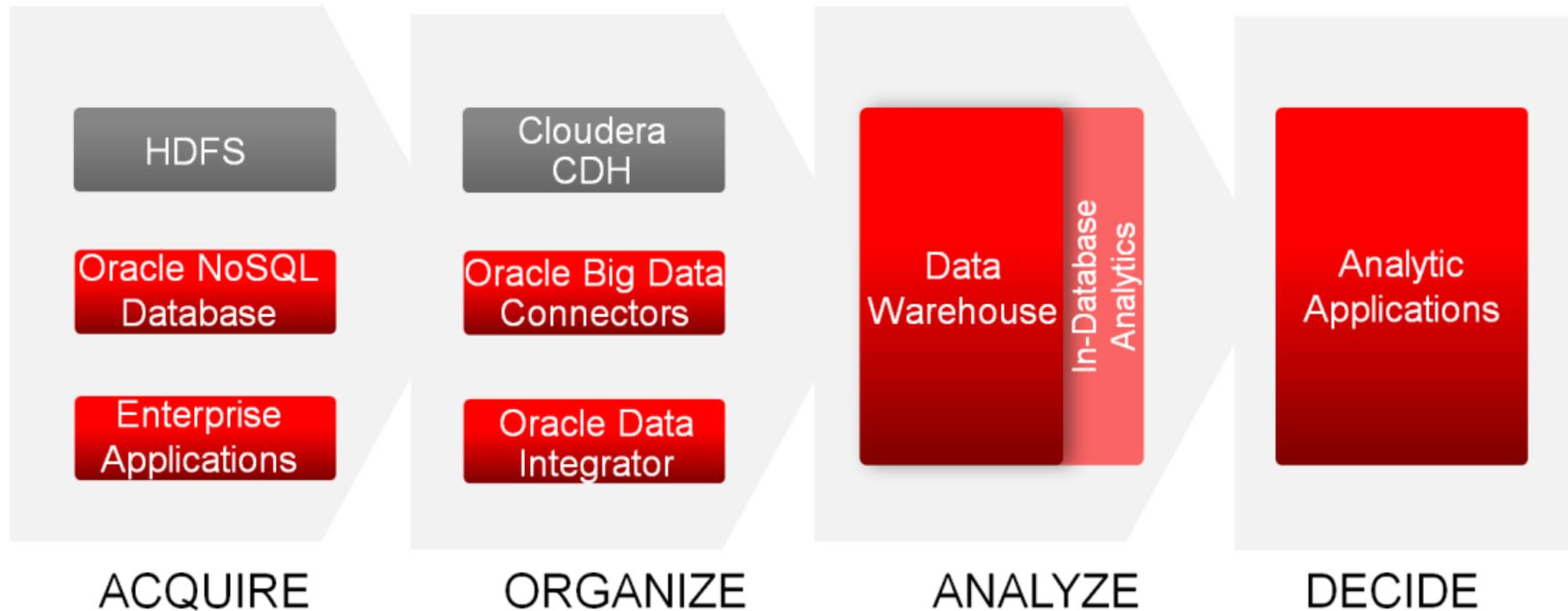
## Organize Big Data

- Organizing data is called data integration.
- Tendency to organize data at its initial destination location, thus saving both time and money
- Process and manipulate data in the original storage location
- Support very high throughput (often in batch) to deal with large data processing steps
- Handle a large variety of data formats, from unstructured to structured.

## Analyze Big Data

- Analysis may also be done in a distributed environment,
- Support deeper analytics such as statistical analysis and data mining, on a wider variety of data types stored in diverse systems
- Scale to extreme data volumes; deliver faster response times driven by changes in behavior
- Automate decisions based on analytical models.
- Integrate analysis on the combination of big data and traditional enterprise data.

# Big Data Solution

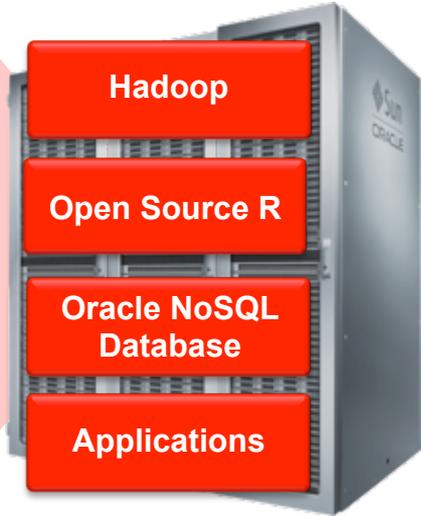


# Big Data Platform



## Oracle Big Data Appliance

Optimized for Hadoop, R, and NoSQL Processing



Stream

Acquire

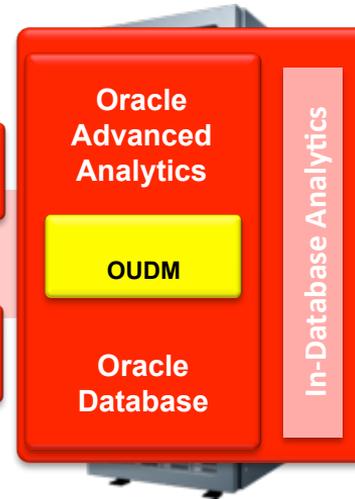
## Oracle Big Data Connectors



Organize

## Oracle Exadata

"System of Record"  
Optimized for DW/OLTP



Discover & Analyze

## Oracle Exalytics

Optimized for Analytics & In-Memory Workloads



# What is Fast Data ?

- Transformation enabled by a move to “Big Data.”
- Organizations are increasingly collecting vast quantities of real-time data.
- Most of the focus on Big Data so far has been on situations where the data being managed is basically fixed—it’s already been collected and stored in a Big Data database
- Fast data - the velocity side of Big Data - is a complimentary approach to big data
- Helps organizations get a jump on those business-critical decisions. Continuous access and processing of events and data in real-time for the purposes of gaining instant awareness and instant action.



# Fueling the Demand for Velocity Solutions



New  
Services



Better Customer  
Experience



Improved  
Efficiency



Higher Quality  
In Operations

1. Increased volumes of data become commonplace across many industry sectors, the value of applying a fast data strategy as an end-to-end solution has become more apparent.
2. Customer touch points are increasing - demand for instantaneous responsiveness as well as improved customer experiences. Fast data means getting the most current information to customers, customer service representatives, and business analysts in a timely manner.
3. Internet of things (IoT). There are more devices than ever before and now more connectivity of all of this information that we can take advantage of in real-time.

## Are You Running your Business Fast Enough?



New Services



Better Customer Experience



Improved Efficiency



Higher Quality In Operations

To build new services –organizations need to have direct insights into their data. For example: building a location based offer requires a collection of real-time information, geo-spatial technologies, as well as marketing data.

To improve customer experience –companies need instant access to customer information, claims transactions, support information, social media metrics

To improve efficiencies – This could be hardware offloading costs, or improved asset utilization by faster data processing.

To develop higher quality in operations –one needs to look at using operational data for an advantage. For example, by collecting events fast and eliminating latencies for reporting companies can shorten their supply chain cycles while reducing gaps in key business processes.

## Filter and Correlate

Use predefined rules to filter and correlate data.



## Move and Transform.

Capture data (structured or unstructured) and immediately move information where it is needed in the right format to best support decision making.

## Analyze.

Discover what's possible for real-time analysis.

## Act.

Support both automated decision-making as well as more complex, human based interactions, such as business process management.

# SUMMARY



Enterprises must learn  
to understand

to leverage Companies that have  
soon, so learned to

of data leverage To derive real business  
genera understand value from big data,  
signs of must analyze you r

sources of to ca

By using a well designed Data Management platform, enterprises can acquire, organize and analyze all their enterprise data – including structured and unstructured – to make the most informed decisions.

# Questions





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