

MapReduce Use Cases

MapReduce Use Cases

- Manufacturing**
- Financial Services**
- Retail**
- Life Science**
- Energy**

MapReduce in Manufacturing

Automotive Industry

1. Vehicle Model and Option Validation

Complex M/R algorithms can be applied to:

- Building the base vehicle configuration data
- Evaluating multiple models
- Defining and validating which vehicle options can be installed on a vehicle
- Which options to use to ensure compatibility
- There are also restrictions associated with a valid build of a vehicle



2. Vehicle Mass Analysis

- Algorithms such as “What if analysis”
- Vehicle mass analysis
- Design concepts under multiple load conditions can be tested through digital prototyping and optimization tools.

MapReduce in Manufacturing

Automotive Industry

3. Emission Reporting

There are complex calculations on:

- Vehicle pollution generated on a given trip
 - (carbon monoxide, NOx, hydrocarbons, CO2)
- Monthly CO2 emissions and carbon footprint



4. Warranty Claim Analysis

Analyzing customer satisfaction surveys

Warranty claims is very important to bring quality into the vehicle design.

The data dealt here would be structured and unstructured

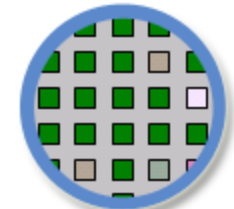
M/R could be a good approach for implementing the applications for those analysis.

MapReduce in Manufacturing Semiconductor Industry

Yield Analysis

Software applications used to process and analyze huge volume of measurement data collected from various semiconductor metrology devices.

The goal of the analysis is to identify and trouble-shoot system errors and design flaws in order to improve the yield.

A circular icon containing a table with the following content:

Metric Failure	
Lot ID	
YWLT24139	
YWLT24139	
YWLT24139	

MapReduce in Financial Services

Fraud Detection

- Traditional algorithms based on sampling not sufficient to capture rare events and prevent fraud.
- Need for better prediction and fraud prevention with greater capabilities to analyze large volume of data
- MapReduce framework is effective for the Pattern recognition applications, often used in fraud detection



MapReduce allows the bank to recognize unusual Trading activity and to flag it for human review. Hadoop allows the bank to spot and prevent suspect trading activity.

Asset Management

- Millions of instruments, hundreds millions of records
- Need to do broker volume analysis, sector level metrics, trade activities analysis, trade cost analysis

Data source and data store consolidation

- Mortgage, cards, banking transactions, call centres, trading desks, etc.
- To keep historical data longer, have consistent data mining, governance practices

ETL consolidation (Like CBB for risk calculation)

- Many ETL tools are used in the banks, e.g., Informatica, AbInitio, Oracle, SAS
- Low costs, high scalability

High performance data analytic

- Need a scalable, better-performing, cost effective way of analyzing data
- Need a tool to analyze data without knowing the structure up-front





Running R language applications for various statistical correlations

IPO Pricing by understanding market sentiment based on external discussions about the company on the web

MapReduce in Retail


Your Recent History [\(What's this?\)](#)

Recently Viewed Items


-  [Kindle Fire, Full Color 7" Multi-touch Display, Wi-Fi](#) by Amazon
-  [Three-Person Camping Dome Tent 7 Feet X 7 Feet One T...](#) by Leberna
-  [HP TouchPad Wi-Fi 16 GB 9.7-Inch Tablet Computer](#) by HP
-  [HTC Multifunction Audio Adapter for HTC Touc...](#) by HTC

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GSI Super Quality Motorcycle...
★★★★☆ (36)
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Horizontal Leather Case with Belt...
★★★★☆ (79)
\$0.01
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Reusable Screen Protector for HTC...
★★★★☆ (49)
\$0.83
[Fix this recommendation](#)



Extended High Capacity 2200mah...
★★★★☆ (95)
\$7.27
[Fix this recommendation](#)

- **Web log analytics**

Analyzing consumer purchasing data to identify buying behaviors and look for patterns to help design targeted marketing promotional programs.

- **Improving Customer Experience and improving Relevance of Offers**

- **Point of sale transaction analysis**

- **Providing more relevant Search results**

MapReduce in Life Science

Next generation sequencing (NGS) analysis

Next gen sequencing analysis has been generating large amounts of data – Terabytes every day.

MapReduce can be used in:

- Genomic Walking
- Sequencer Mapping
- SNP Calling
- Copy Number Variation (CNV)

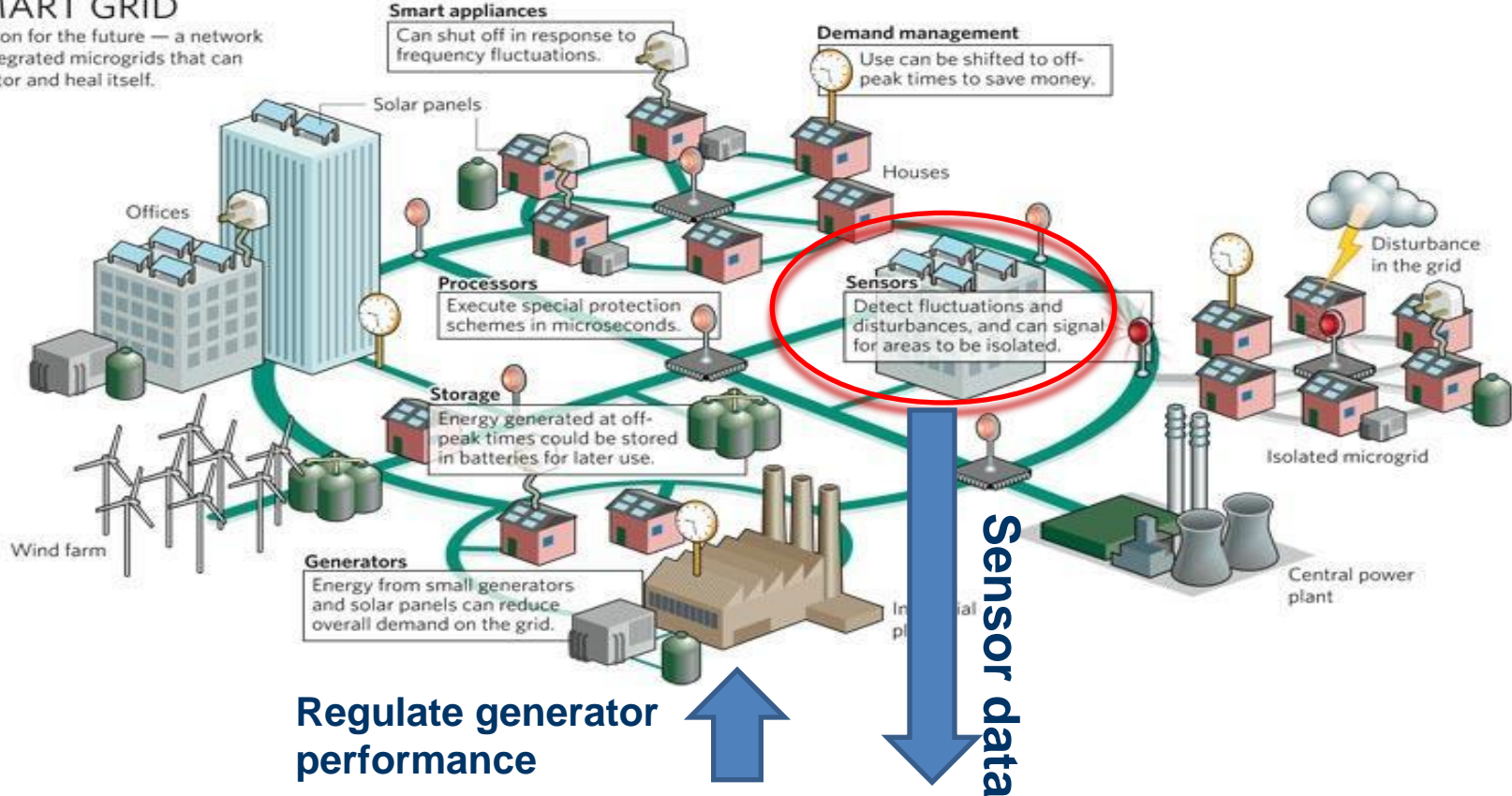


Pharmaceutical

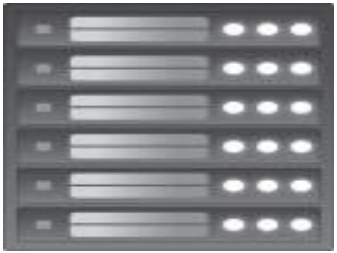
Hadoop is being used in basic clinical research such as pattern matching, text filtering etc.

MapReduce in Energy Smart Grid

SMART GRID
A vision for the future — a network of integrated microgrids that can monitor and heal itself.



Cluster running MapReduce to process large amounts of sensor data to monitor the performance of the generator



Thank you

Platform Computing

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