

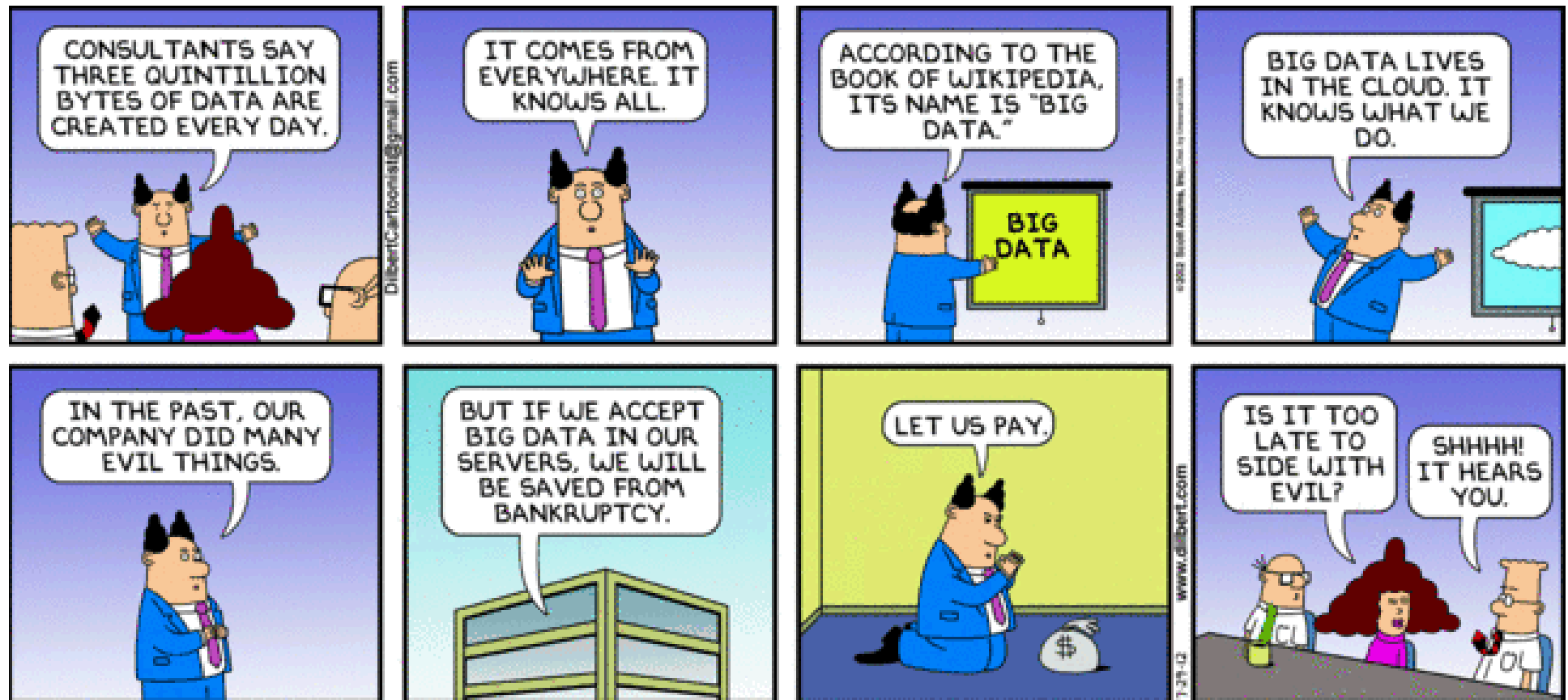
How the oil and gas industry can gain value from Big Data?



Arild Kristensen
Nordic Sales Manager, Big Data Analytics

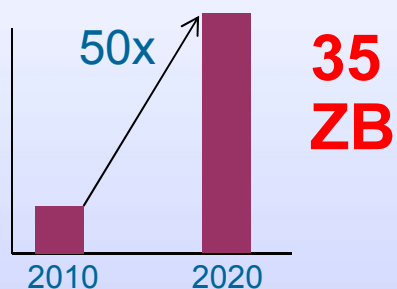
arild.kristensen@no.ibm.com, tlf. +4790532591

Dilbert on Big Data



The characteristics of big data

Cost efficiently processing the growing **Volume**



Responding to the increasing **Velocity**



30 Billion
RFID
sensors and
counting

Collectively Analyzing the broadening **Variety**



80% of the
world's data is
unstructured



Establishing the **Veracity** of big data sources

1 in 3 business leaders don't trust the information they use to make decisions

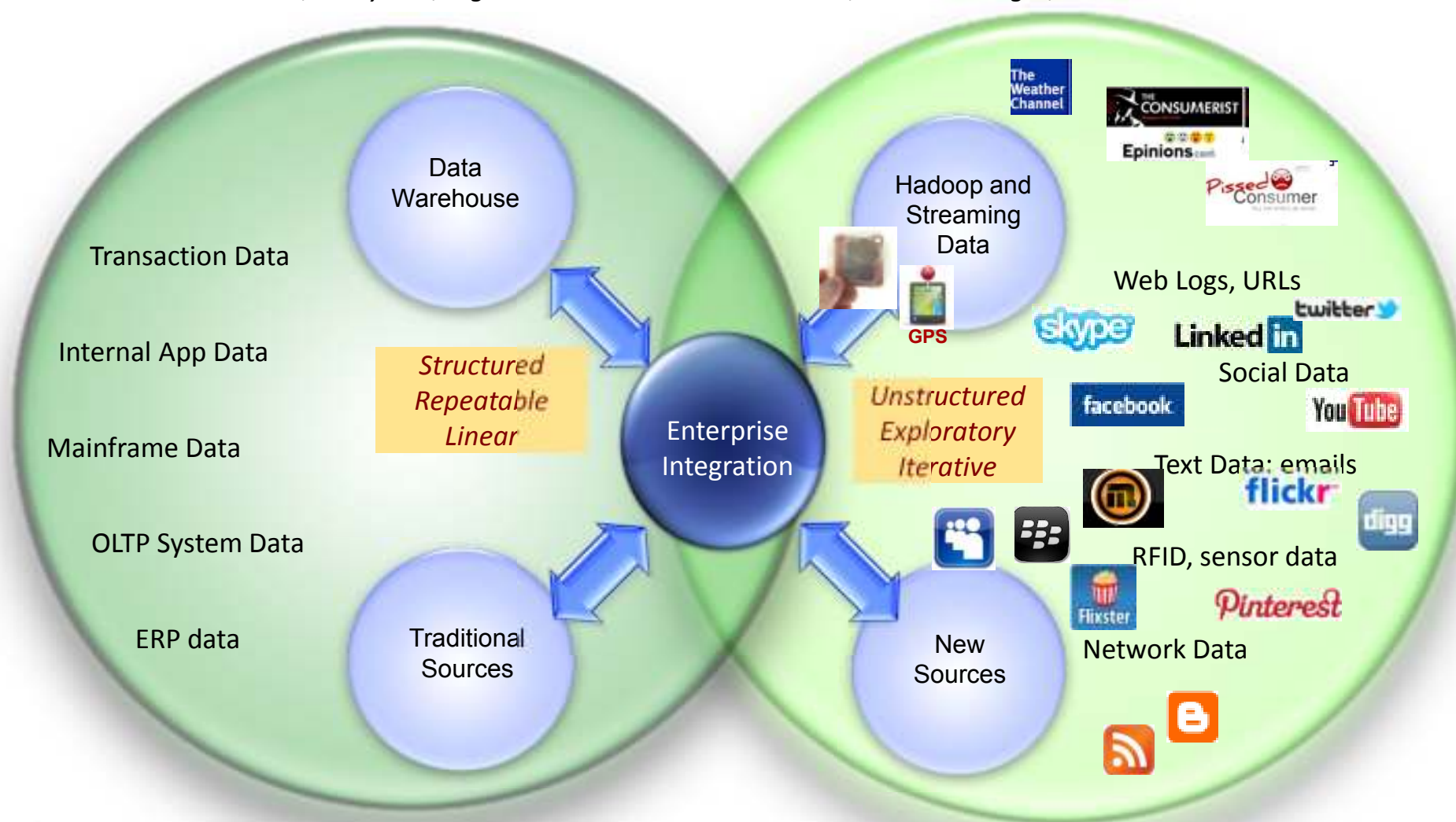
Analytics is expanding from enterprise data to big data, creating new opportunities for competitive advantage

Traditional Approach

Structured, analytical, logical

New Approach

Creative, holistic thought, intuition



The 5 Big Data Use Cases



Big Data Exploration

Find, visualize, understand all big data to improve business knowledge



Enhanced 360° View of the Customer

Achieve a true unified view, incorporating internal and external sources



Security/Intelligence Extension

Lower risk, detect fraud and monitor cyber security in real-time



Operations Analysis

Analyze a variety of machine data for improved business results



Data Warehouse Augmentation

Integrate big data and data warehouse capabilities to increase operational efficiency

Big Data Exploration: Needs



Find, visualize, understand all big data to improve business knowledge



Struggling to manage and extract value from the growing 3 V's of data in the enterprise



Inability to relate “raw” data collected from system logs, sensors, clickstreams, etc., with customer and line-of-business data managed in enterprise systems



Risk of exposing unsecure personally identifiable information (PII) and/or privileged data due to lack of information awareness

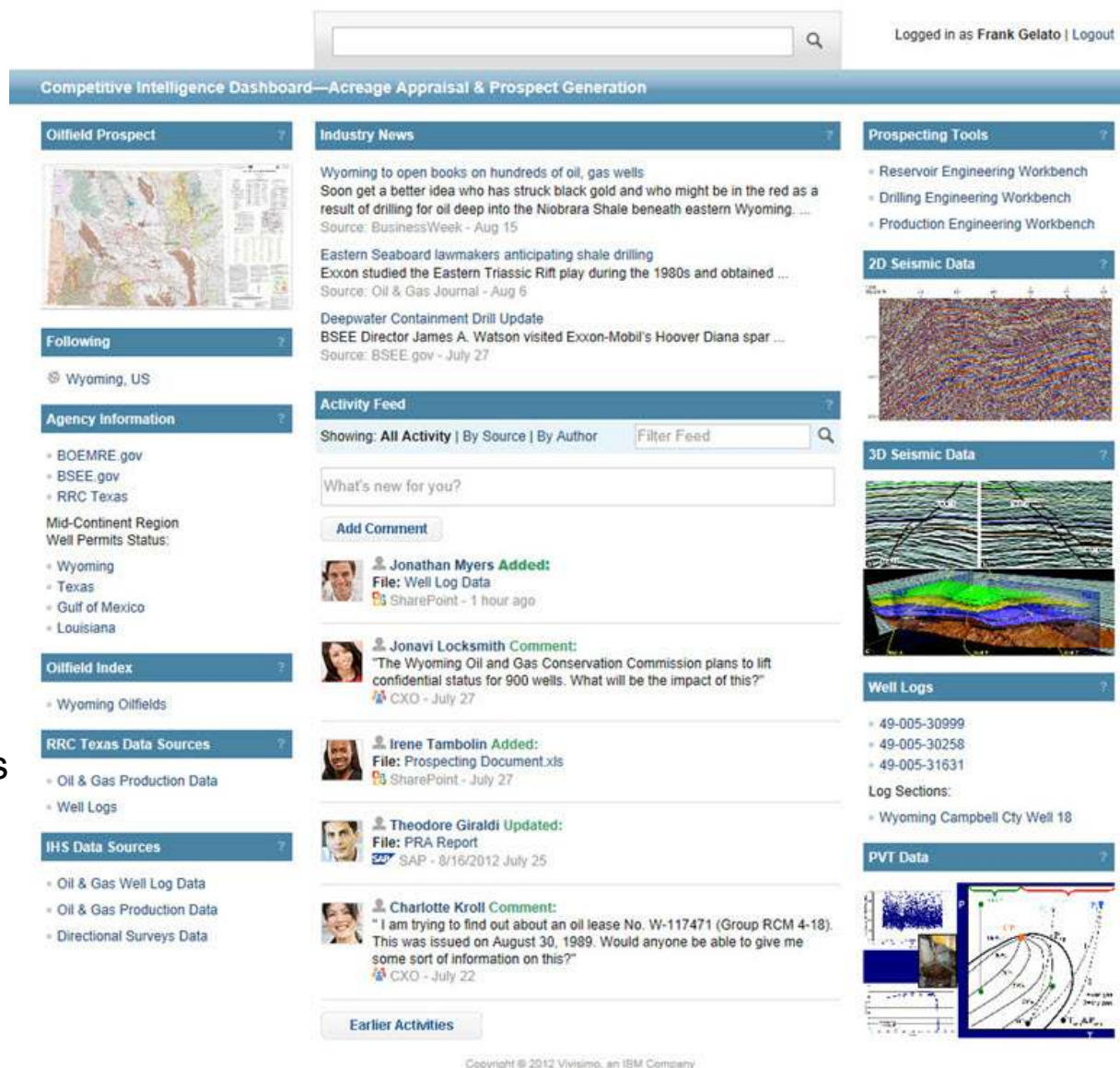
Acerage Appraisal - Competitive Intelligence

Search & Visualization

- Best in class information search/navigation across multitude of sources
- Powerful, versatile framework for providing an automated on-the-glass cockpit for role-based, context-relevant collaboration.

Value

- Determine where best to acquire acreage and drill wells
- Optimize budget and avoid spending more than the deal is worth
- Win against competitors competing for the best leases



Enhanced 360° View of the Customer/Product



Achieve a true unified view of any entity, incorporating internal and external sources



Need a deeper understanding of customer



Desire to increase customer loyalty and satisfaction



Challenged getting the right information to the right people to provide customers what they need to solve problems, cross-sell & up-sell

Enhanced 360° View of the Customer/Product:



Security/Intelligence Extension: Needs



Security/Intelligence Extension enhances traditional security solutions by analyzing all types and sources of under-leveraged data



Analyze vast stores of under-leveraged data



Enhanced Intelligence & Surveillance Insight

Analyze data-in-motion & at rest to:

- Find associations
- Uncover patterns and facts
- Maintain currency of information



Protect networks from hackers & foreign attacks



Real-time Cyber Attack Prediction & Mitigation

Analyze network traffic to:

- Discover new threats early
- Detect known complex threats
- Take action in real-time



Improve human activity-based intelligence

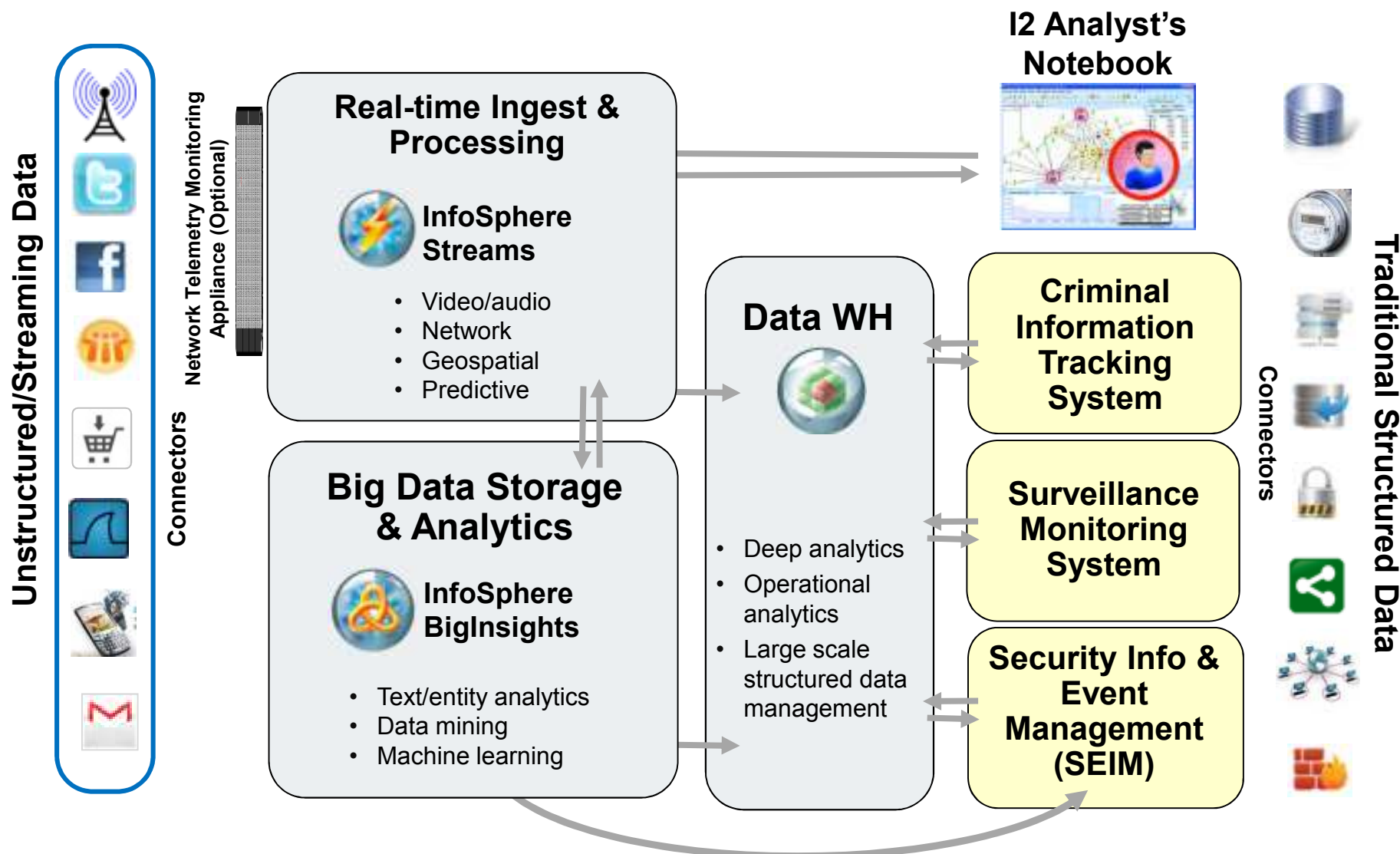


Crime prediction & protection

Analyze Telco & social data to:

- Gather criminal evidence
- Prevent criminal activities
- Proactively apprehend criminals

Security/Intelligence Extension



Operations Analysis: Needs



Because of the complexity and rapid growth of machine data, many companies make decisions on a small fraction of the information available to them

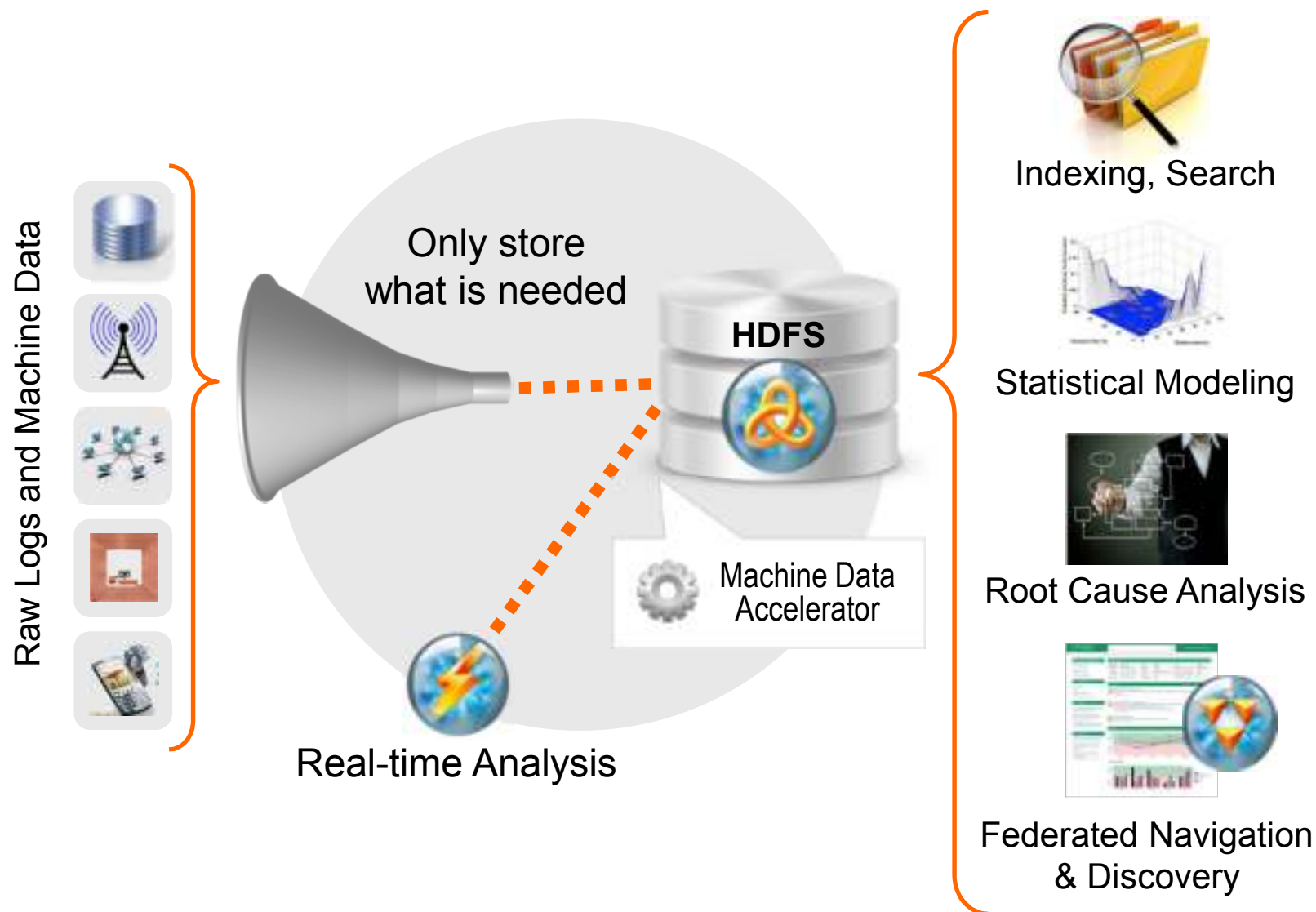
The ability to analyze machine data and combine it with enterprise data for a full view can enable organizations to:



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10.1.1.2	08:00:27:00:00:01	1/24	Switch	Huawei
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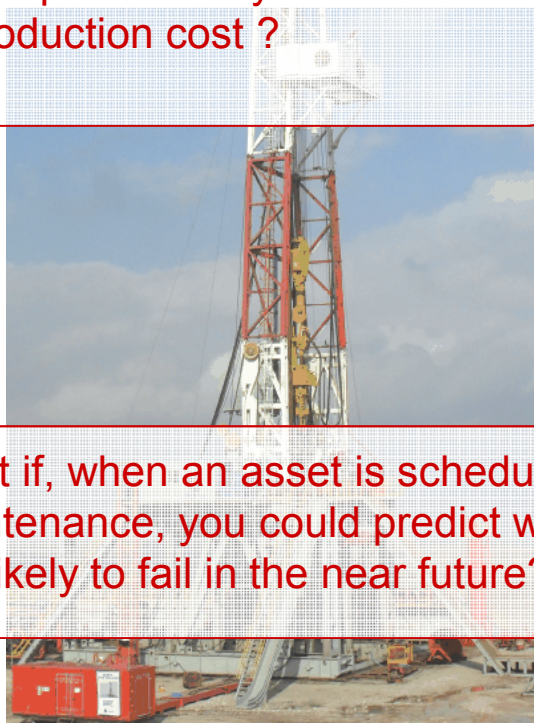
- Gain real-time visibility into operations, customer experience, transactions and behavior
- Proactively plan to increase operational efficiency
- Identify and investigate security threats and anomalies
- Monitor end-to-end infrastructure to proactively avoid service degradation or outages

Operations Analysis: Value & Diagram



New Operations Insights with Big Data Analytics

What if you could optimize well production yield and lower production cost ?



What if you could discover patterns in maintenance operations over time that could point to opportunities for improvements?

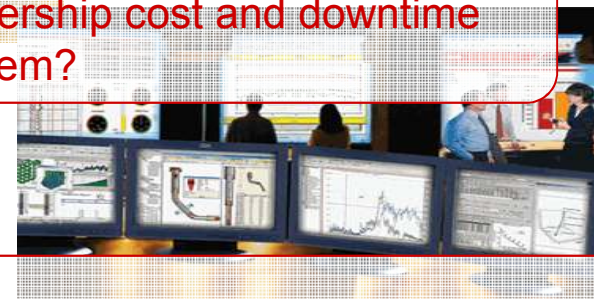


What if you could identify the characteristics that tend to increase ownership cost and downtime over the life of a system?

What if, when an asset is scheduled for maintenance, you could predict what parts are likely to fail in the near future?



What if you could achieve a more sustained increase in production with a more coordinated effort among monitoring facilities?



What if you could quickly mine the thousands of logs that describe the maintenance performed on systems and determine what important observations are being logged by the maintenance team?





Vestas optimizes capital investments based on 2.5 Petabytes of information

Need

- Model the weather to optimize placement of turbines, maximizing power generation and longevity

Benefits

- Reduce time required to identify placement of turbine from weeks to hours
- Reduces IT footprint and costs, and decreases energy consumption by 40 % -- while increasing computational power
- Incorporate 2.5 PB of structured and semi-structured information flows. Data volume expected to grow to 6 PB

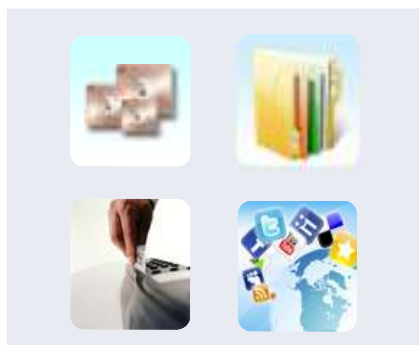


Vestas

Data Warehouse Augmentation: Needs



Integrate big data and data warehouse capabilities to increase operational efficiency



Need to leverage variety of data

- Structured, unstructured, and streaming data sources required for deep analysis
- Low latency requirements (hours—not weeks or months)
- Required query access to data

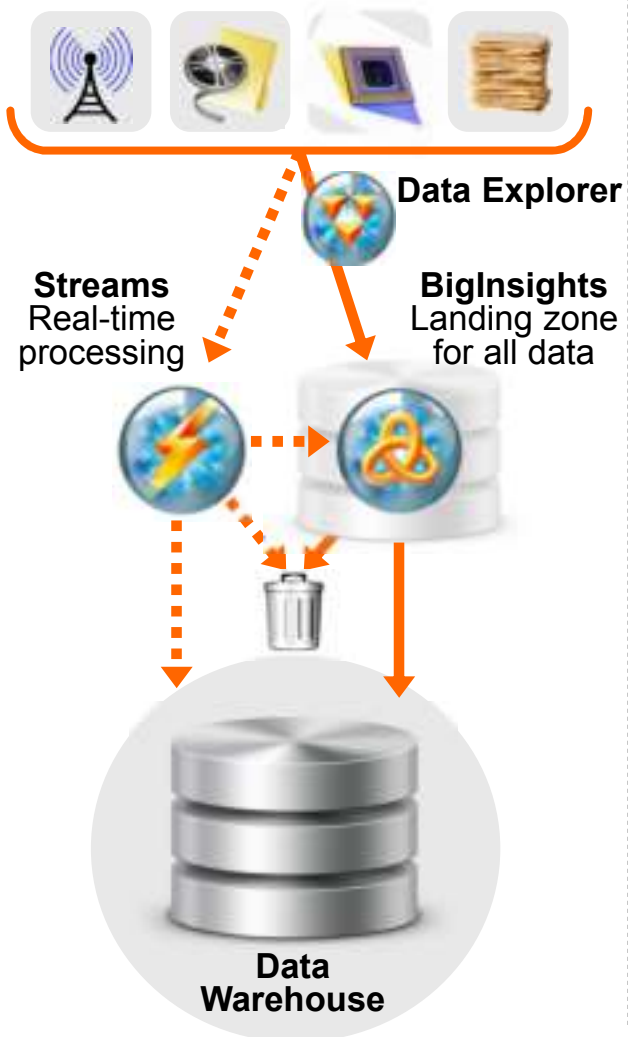


Optimize warehouse infrastructure

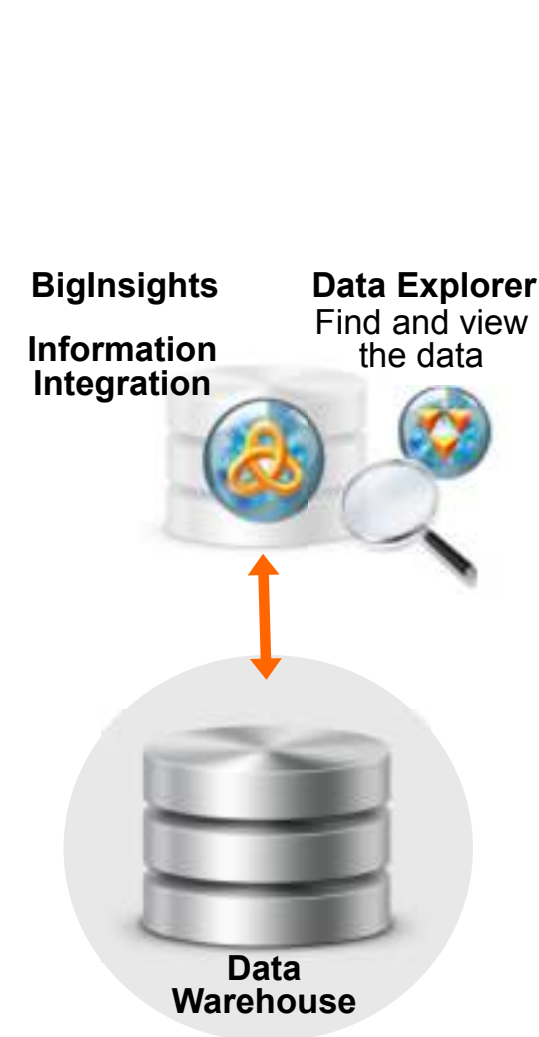
- Optimized storage, maintenance and licensing costs by migrating rarely used data to Hadoop
- Reduced storage costs through smart processing of streaming data
- Improved warehouse performance by determining what data to feed into it

Data Warehouse Augmentation

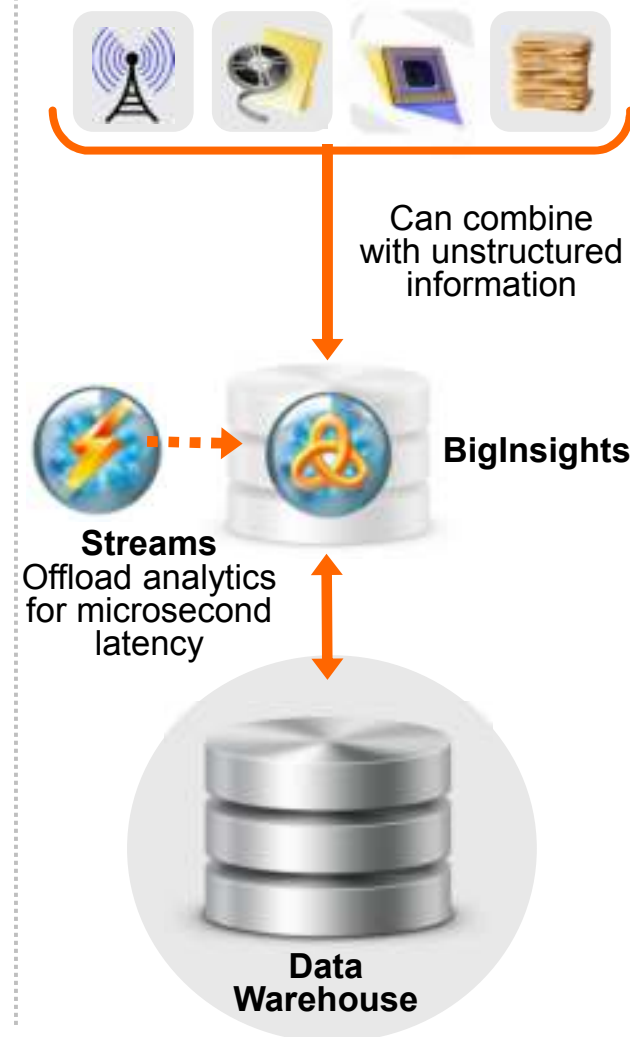
1 Pre-Processing Hub



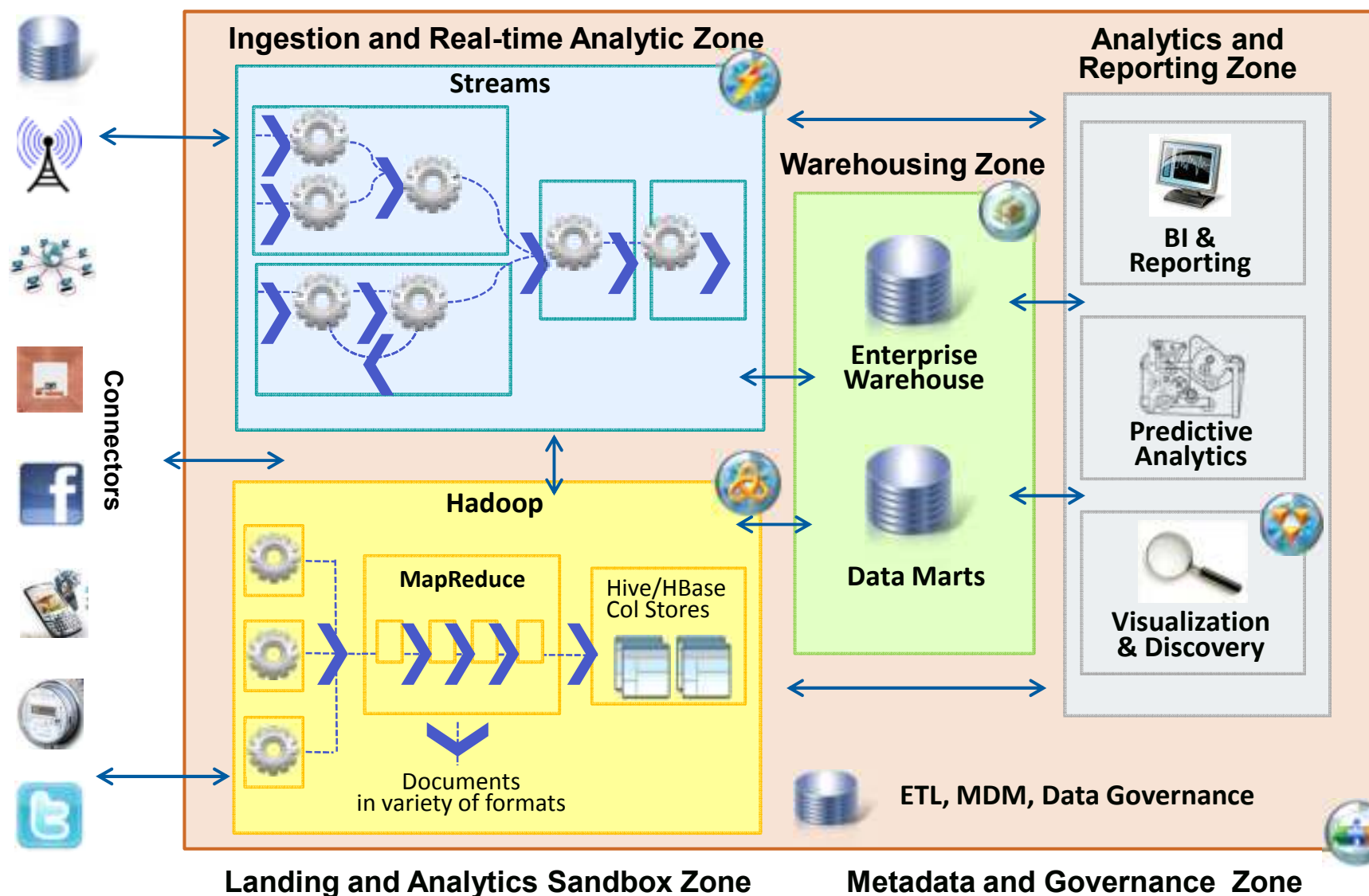
2 Query-able Archive



3 Exploratory Analysis

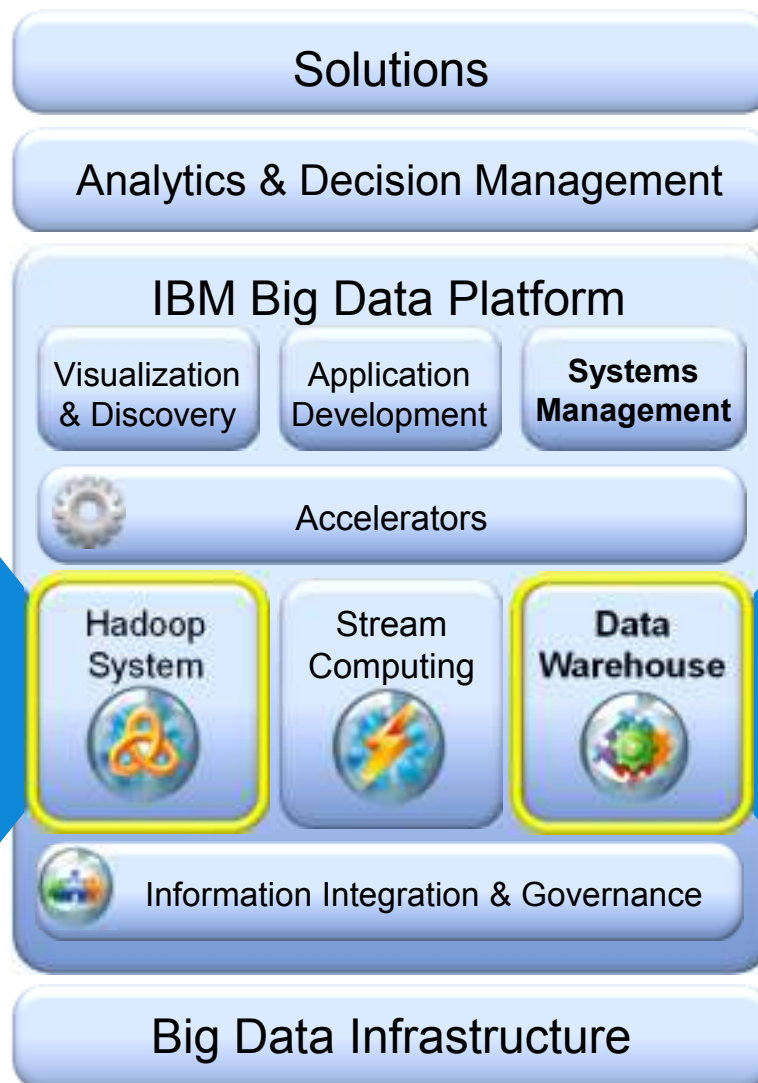


A sample of the big data platform in practice



Workload Optimized Solutions for all your analytic needs

*PureData
System for Hadoop*



*PureData
System for Analytics*



Results

Dataanalyse med turbo

Sparebank1 har valgt en løsning som drar analyse av enorme datasatt ned fra timer til minutter.

DAG-RUNE Z. VOLLEN

— Vi har et datavarehus basert på programvare fra SAS, og arbeidet med en ny informasjonsløsning som leverte analyser og visualiseringer. Men vi var ikke fornøyd med ytelsen. Vi hadde svært store datafiler som gjorde at datalastejobbene ikke lot seg gjøre. Dagfinn Røed, leder i Sparebank1 Forsikring, sier det.

Han gir eksempel på en analyse som tidligere tok 3-4 timer er nå ned til 1,5 minutt.

— Vi ønsker å gjøre analyse på datasett som består av flere forsikringsporteføljer. I dag lastes dette datasettet i «batch» på natten. framover ønsker vi å nærme oss sanntidsoppdatering innenfor del områder.

Prosjektet med bedre analyseverktøy var opprinnelig beregnet for skadeerstatnings-

delen av konsernet. Etterhvert er det utvidet med livsforsikringer, men det er et mål at alle virksomhetsfeltene i banken skal kunne ta dette i bruk.

— Når vi analyserer skadeforsikringsporteføljen er det snakk om svært mange detaljer som må inkluderes. Datagrunnlaget må kunne benyttes til alt fra hovedtrender til å analysere detaljer.

Det var en utfordring som Netezza minnet. Pure Data Systems for Analytics. Netezza kom til IBM etter et oppkjøp i 2010.

Hva er i et navn?

Løsningen er levert av IBM, og het fram til i høst IBM Netezza. Etter at navnet hadde fått seg en sving innom markedsavdelingen kom det stakkars produktet ut som IBM

Pure Data Systems for Analytics. Netezza kom til IBM etter et oppkjøp i 2010.

— Løsningen er basert på serverblader fra IBM, spesiell programvare og en egen FPGA-brikke som er optimert for rask de-

komprimering og filtrering av data. Det er ingen indekser som må opprettes eller vedlikeholdes før spørringene kan kjøres.

lig for Netezza i IBM Norge. Han sier at selskapet på et tidspunkt etter oppkjøpet gikk tomt for selve serverboksene.

— Det er litt uventet for denne type analyseløsninger der det som regel har vært et spørsmål om programvare som vi i og for seg kan levere uten særlige grenser. Her er det en helhet av maskinvare og programvare som vi faktisk kan gå tom for.

Boksene selges ferdigoppsett med tre, seks eller ni blader, og de skalerer lineært. Med andre ord kan en kunde som trenger mer kapasitet handle den kapasiteten som

trengs. En hemmelighet bak yteevenen er at dataene kjøres direkte inn i analysebehandlingen fra datasettene. Det er ingen indekser som må opprettes eller vedlikeholdes før spørringene kan kjøres.

20 timer ned til 7 minutter

Vanlige batchjobber på 3-4 timer ned til 1.5 minutt

” Dette er ikke en Big Data-løsning. Pål Næss, Intelcom

DAG-RUNE.Z.VOLLEN@COMPUTERWORLD.NO

The Platform Advantage

- The platform enables starting small and growing without throwing away work
- Shared components and integration between systems lowers deployment cost, time and risk
- Key points of leverage
 - Accelerators built across multiple components to address common use cases
 - Pre-built integrations between the components using open connectors
 - Common analytic engines across components (i.e. text analytics)
 - Common metadata, integration design and governance across components

