Hitachi Data Systems
HITACHI
Inspire the Next
BIG DATA &
SOCIAL INNOVATION
KENNETH THOMAS, CLIENT MANAGER
ELIABLE TRUSTED CHANGE EXPERTISE AGILIT
OMPETITIVE RESULTS INNOVATE CONNECTE
ATA UNSTRUCTURED INFORMATION GLOBA

# MAKING THE RIGHT DECISSION AT THE RIGHT PLACE AT THE RIGHT TIME

HITACHI
Inspire the Next

A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be.

*Wayne Gretzky*

# THE DATA MULTIPLIER EFFECT AT WORK

HITACHI
Inspire the Next

**BUSINESS DRIVEN** **HUMAN DRIVEN** **MACHINE DRIVEN**

**LARGE SYNOPTIC SURVEY TELESCOPE (LSST):**
Galaxy map
3200 MP
30,000 pics
3000 TBs daily

**4-ENGINE BOEING JET:**
25,000 flights
1920TB daily

**TWITTER**:
200M users
90M "tweets"
8 TB daily

**NEW YORK STOCK EXCHANGE**:
2.7 billion shares
1TB daily

**WHAT DOES 24 HOURS OF DATA LOOK LIKE?**

# WHAT IS BIG DATA?

## VOLUME

**Large** amounts of data.

## VELOCITY

Needs to be analyzed **quickly.**

## VARIETY

**Different types** of structured and unstructured data.

## Key questions enterprises are asking about Big Data:

How to store and protect big data?

How to backup and restore big data?

How to organize and catalog the data that you have backed up?

How to keep costs low while ensuring that all the critical data is available when you need it?

## WHAT ARE THE VOLUMES OF DATA THAT WE ARE SEEING TODAY?

**30 billion pieces of content** were added to Facebook this past month by 600 million plus users.

zynga

**Zynga processes 1 petabyte of content** for players every day; a volume of data that is unmatched in the social game industry.

YouTube

**More than 2 billion videos** were watched on YouTube... yesterday.

LOL!

The average teenager sends **4,762 text messages** per month.

**32 billion searches** were performed last month... on Twitter.

Source: Gartner

**Everyday business and consumer life creates 2.5 quintillion bytes of data per day.**

**90% of the data in the world today has been created in the last two years alone.**

Source: IBM

## WHAT DOES THE FUTURE LOOK LIKE?

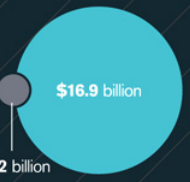
Worldwide IP traffic will **quadruple by 2015.**

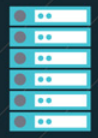
By 2015, nearly **3 billion people**

will be online, pushing the data created and shared to nearly **8 zettabytes.**

## HOW IS THE MARKET FOR BIG DATA SOLUTIONS EVOLVING?

A new IDC study says the market for big technology and services will grow from $3.2 billion in 2010 to $16.9 billion in 2015. **That's a growth of 40%** CAGR.



**58% of respondents expect their companies to increase spending on server backup solutions and other big data-related initiatives within the next three years.**

Source: Economist Business Unit

**2/3rds** of surveyed businesses in North America said big data will become a concern for them within the next five years.

Source: Economist Business Unit

Asigra.

# IN THE BEGINNING…

HITACHI
Inspire the Next

**The first HDD (hard disk drive) System**

**4.4 MB usable capacity**

**1200 RPM**

**50x 24 inch (60 cm) platters**

**2150 Lbs (975kg)**

**$35,000 annual leasing fee**

**1 TB = 238.312 units**

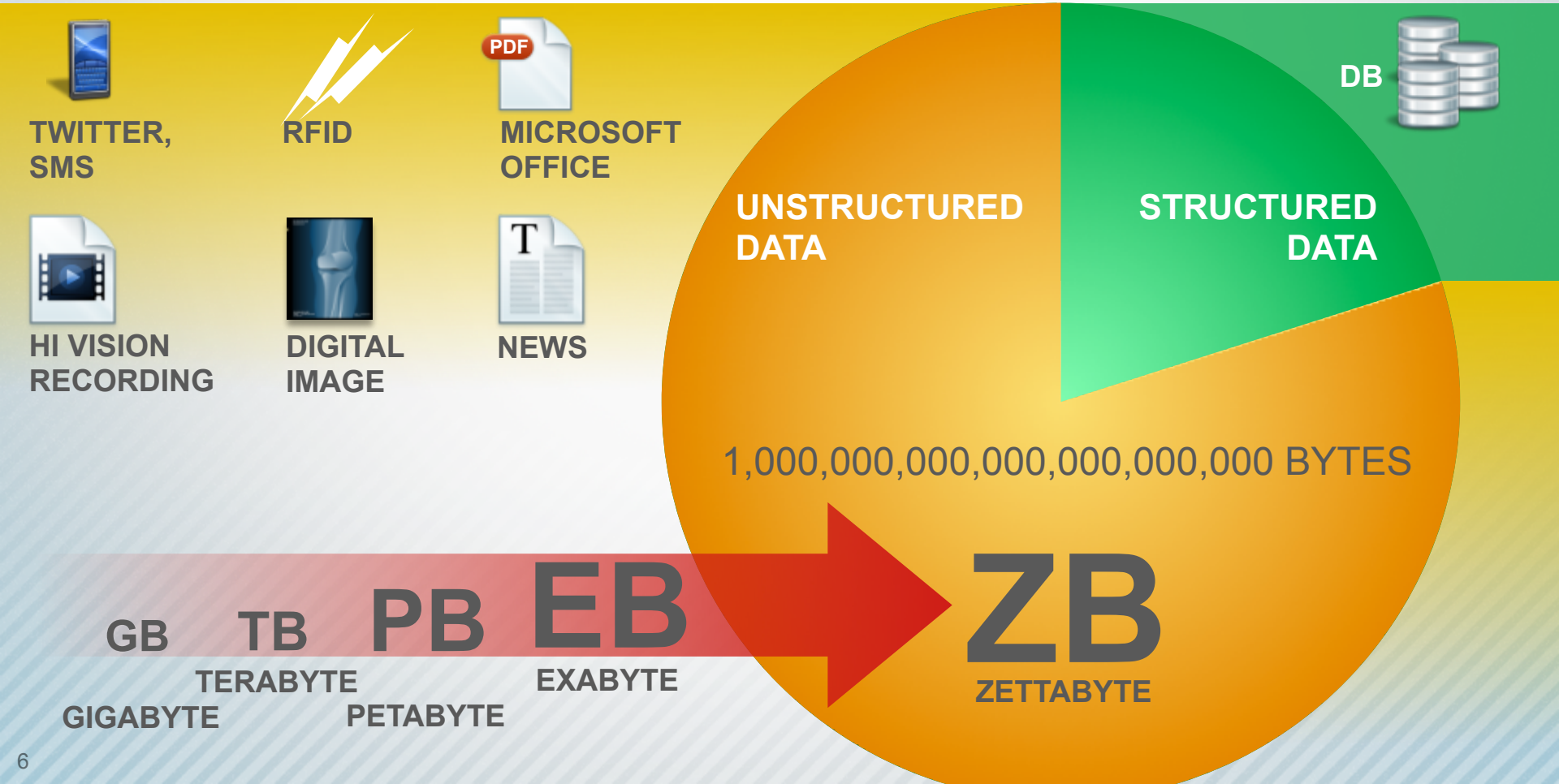
**1 TB = 4 290 Boeing 767 Planes**

**8,5 Billion USD/TB**

# INCREASING DATA VOLUMES AND DIVERSIFICATION

HITACHI
Inspire the Next

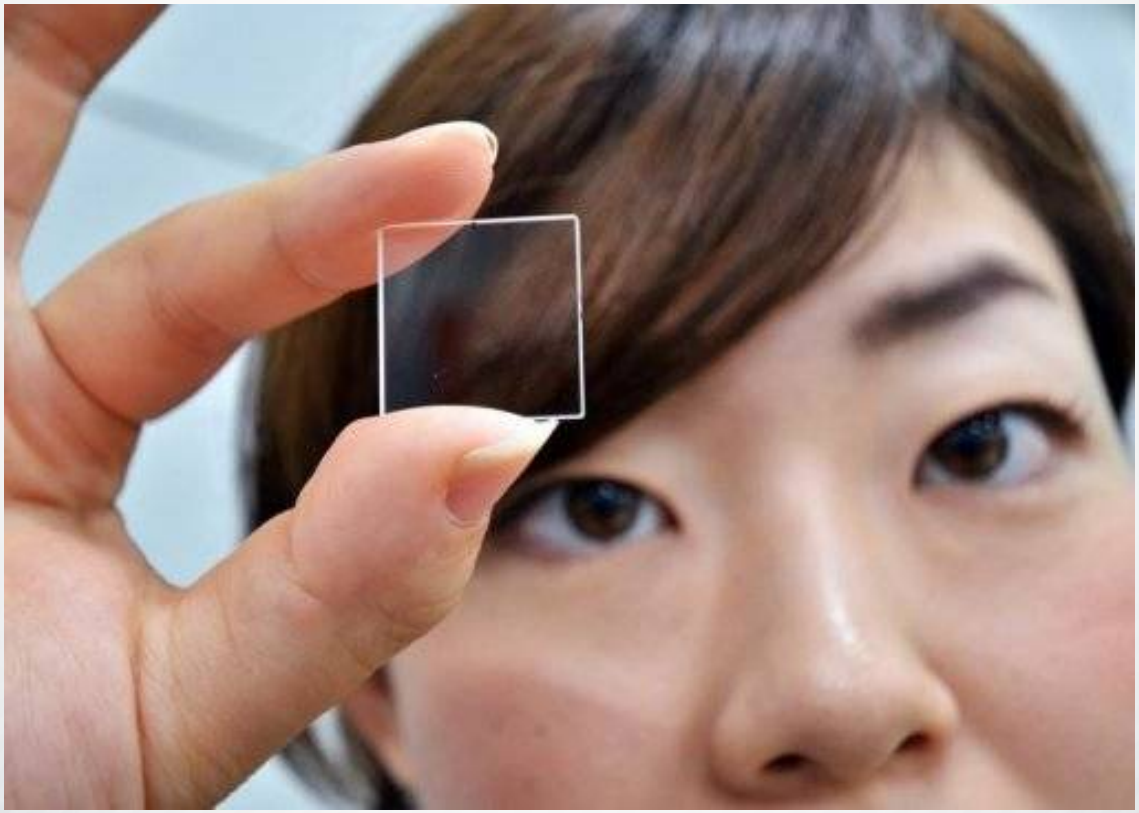
- From petabyte and exabyte to an era of zettabyte
- People generated and machine generated
- 80% of all data is unstructured



# PERMANENT QUARTZ GLASS STORAGE DATA

HITACHI
Inspire the Next

## HITACHI TO UNVEIL DATA STORAGE THAT LAST 100 MILLION YEARS IN 2015

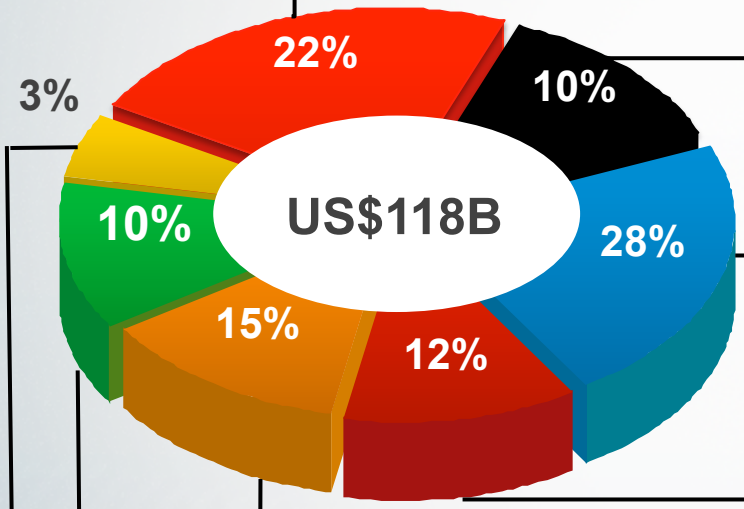


Hitachi said the new technology will be suitable for storing "historically important items such as cultural artifacts and public documents, as well as data that individuals want to leave for posterity."

# HITACHI, LTD. INDUSTRY SEGMENTS

HITACHI
Inspire the Next

FOUNDED IN 1910




- Information & Telecommunication Systems
- Electronic Devices
- Power and Industrial Systems
- Digital Media and Consumer Products
- High Functional Materials &Components
- Logistics, Services and Others
- Financial Services

**#38 in the 2012 FORTUNE® Global 500**

# HITACHI – BIG DATA DRIVES SOCIAL INNOVATION

HITACHI
Inspire the Next

## THE FUTURE OF BIG DATA

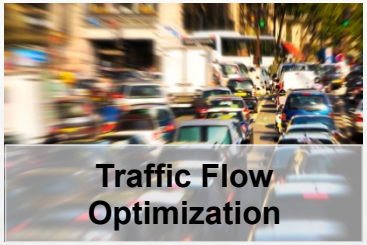
Machine data is in our DNA

We think more like users

# BIG DATA IS EVERYWHERE

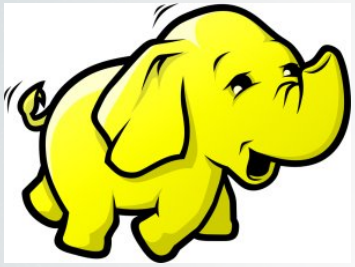
HITACHI
Inspire the Next

## Every industry, every geo, companies big and small



# BIG DATA PARTNERSHIPS

HITACHI
Inspire the Next



INFORMATICA®
The Data Integration Company™

+ableau SOFTWARE

cloudera

pentaho™
open source business intelligence™

SAP

Hitachi Consulting

Datameer
Powerfully Simple™

# HITACHI'S STRENGTHS IN BIG DATA

HITACHI
Inspire the Next

**Hitachi Transportation Bullet Trains**

- Track/train sensors
- Keep trains on schedule
- Proactive maintenance

**Hitachi Power Power Stations**

- Telemetry from seismic sensors
- Time series data

**Hitachi Construction Excavators**

- Operational data from sensors
- Insight for fleet managers

**Hitachi Storage Array Products**

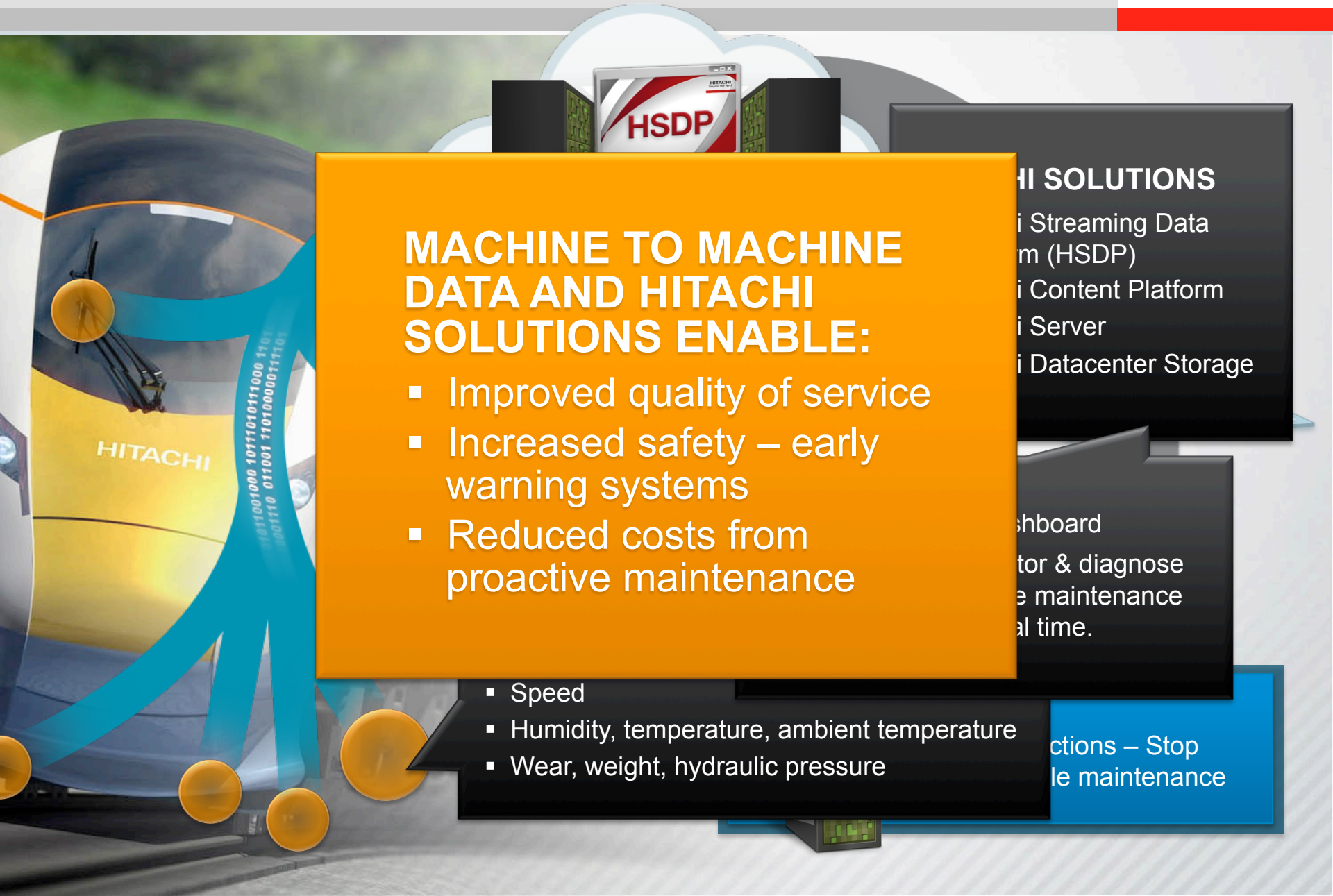
- Insight to operational status
- Hi-Track proactive maintenance
- Product analytics and telematics

**Cloud**

**Big Data Analytics**

# TRANSPORTATION – SMARTER BUSINESS SERVICE MODEL FOR RAILWAYS

HITACHI
Inspire the Next




## MACHINE TO MACHINE DATA AND HITACHI SOLUTIONS ENABLE:

- Improved quality of service
- Increased safety – early warning systems
- Reduced costs from proactive maintenance

# COUNTER MEASURES AGAINST EARTHQUAKES

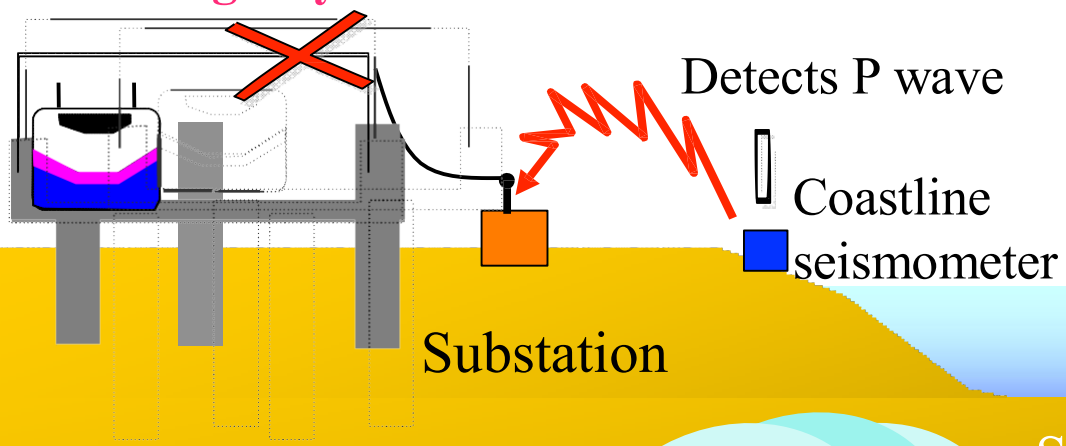
HITACHI
Inspire the Next

## *"Early Earthquake Detection System"*

When the coastline seismometer detects a primary wave

**Power shutdown**

**Emergency brakes**




DTwo trains running at approx. 270km/h (170mph) through the Sendai area were exposed to strong shaking from the earthquake.

DThe power supply to these train was cut 9 to 12 seconds before the first vibrations arrived, and their emergency brakes were applied.

DThe largest vibration came to these trains approx. 70 seconds after their emergency brakes were applied. By then, it is supposed that the trains had reached a speed of about 100km/h (63mph)

# THE INTERNET OF THINGS !

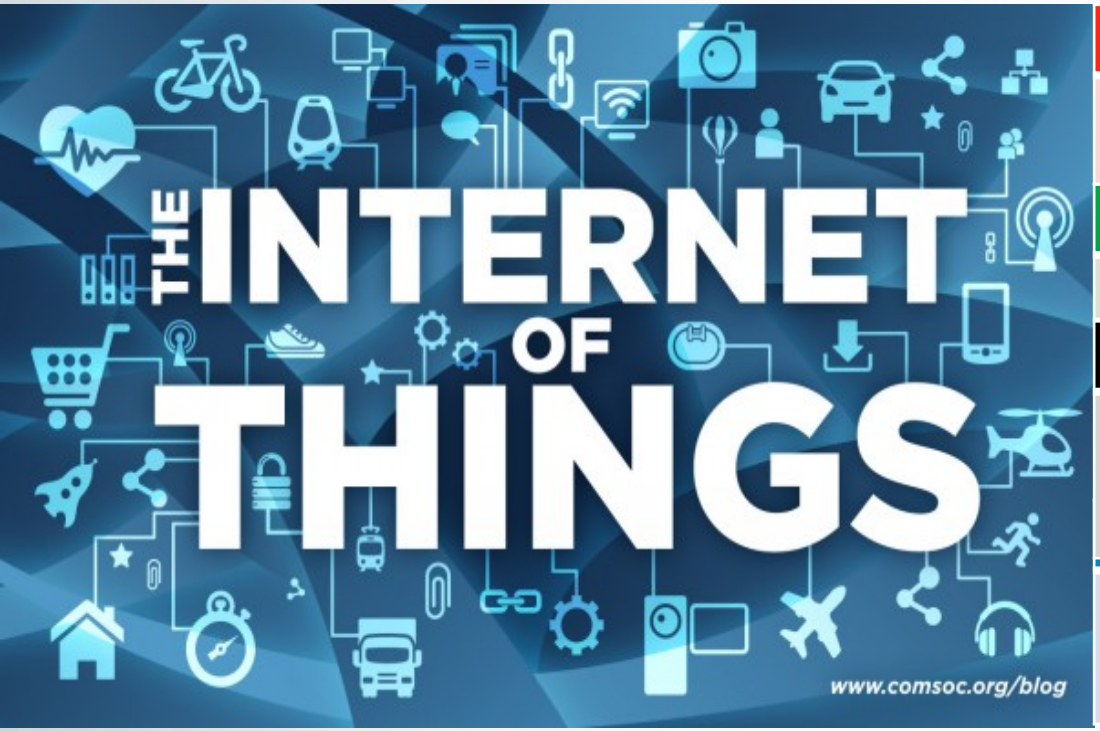
HITACHI
Inspire the Next

The Internet of Things (IoT) in which every physical object can have some form of connection to the internet. – *GigaOM Pro*

**THE INTERNET OF THINGS IS THE FUTURE OF BIG DATA!**

# THE INTERNET OF THINGS

HITACHI
Inspire the Next




**1. Pervasive connectivity**

- Dynamic network of interconnected machines and people

**2. Intelligent Machines**

- Embedded intelligence

**3. Machine Data**

- Volume, variety and velocity
- Data overload! 2.5 quintillion bytes a day ($10^{18}$)

- Deep domain expertise
- Predictive analytics, pattern analysis, machine learning

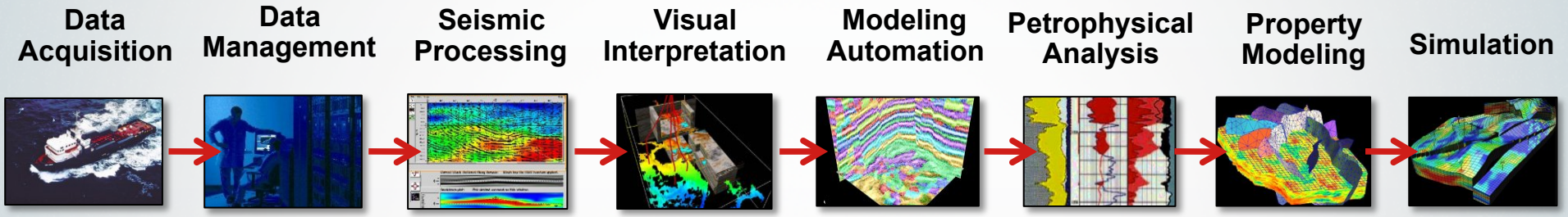
## By 2020

- 50 billion machines will be connected
- 42% of all data will be generated by machines
- Spend on industrial Internet technology will reach $514B

# BIG DATA IN OIL & GAS

HITACHI
Inspire the Next

## ULTIMATE GOAL: REDUCE TIME TO OIL




**Upstream Oil&Gas:**

Schlumberger

HALLIBURTON

- Many interconnected, increasingly complex and rapidly changing workflows
- Exponential growth in the volume of data
- Computational demands increasing by orders of magnitude
- Manage complexity and increase efficiency

**Accelerate the TOTAL workflow**

# RETAIL – LEVERAGING LOYALTY PROGRAM FOR MORE REVENUE

HITACHI
Inspire the Next

Capture

Unstructured Data Repository ETL Process

Existing structured data from SAP (POS, CRM)

SAP HANA

Combine

WEB

Real-time data from customers and social media

MOBILE foursquare

**NEXT PHASE:**

Integrate video data to incorporate user behavior.

ITACHI INFRASTRUCTURE
ombine/Analyze

hadoop

HCP

ITACHI CONTENT PLATFORM

Analytics

Analyze buying preferences and customer loyalty

HSDP

HITACHI STREAMING DATA PLATFORM

Publish

Individualized marketing and retention programs

Decisions

# SECURITY – INTELLIGENCE TRACKING

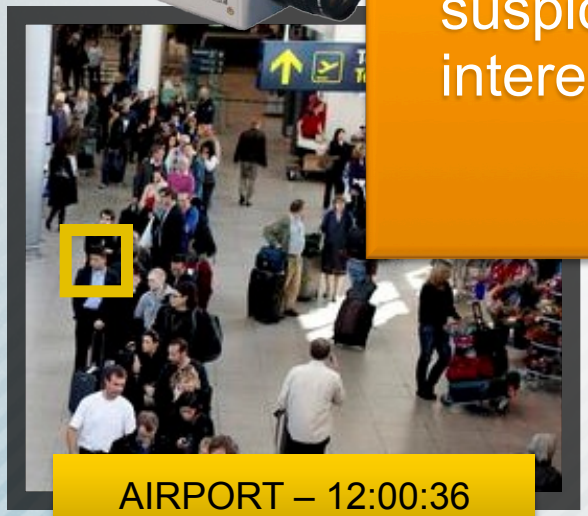
HITACHI
Inspire the Next

**HITACHI SOLUTIONS**

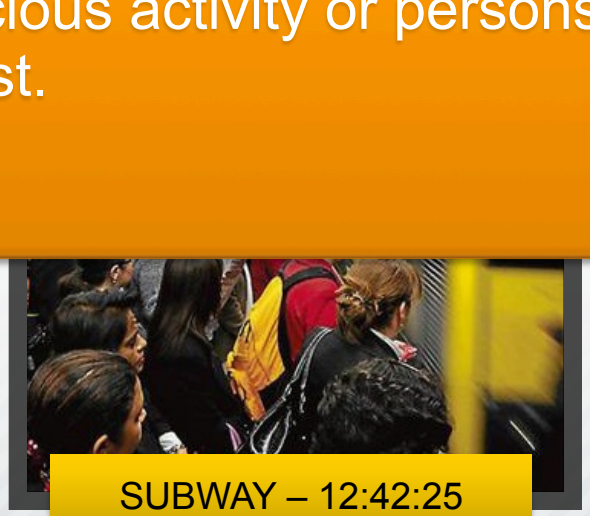
- Hitachi Streaming Data Platform (HSDP)
- Hitachi Facial Recognition IP/Software
- tent Platform
- er and Storage

## INTELLIGENCE TRACKING:

Real-time video analytics providing location-based information on suspicious activity or persons of interest.



AIRPORT – 12:00:36



SUBWAY – 12:42:25

SHOP CENTRE – 2:32:11

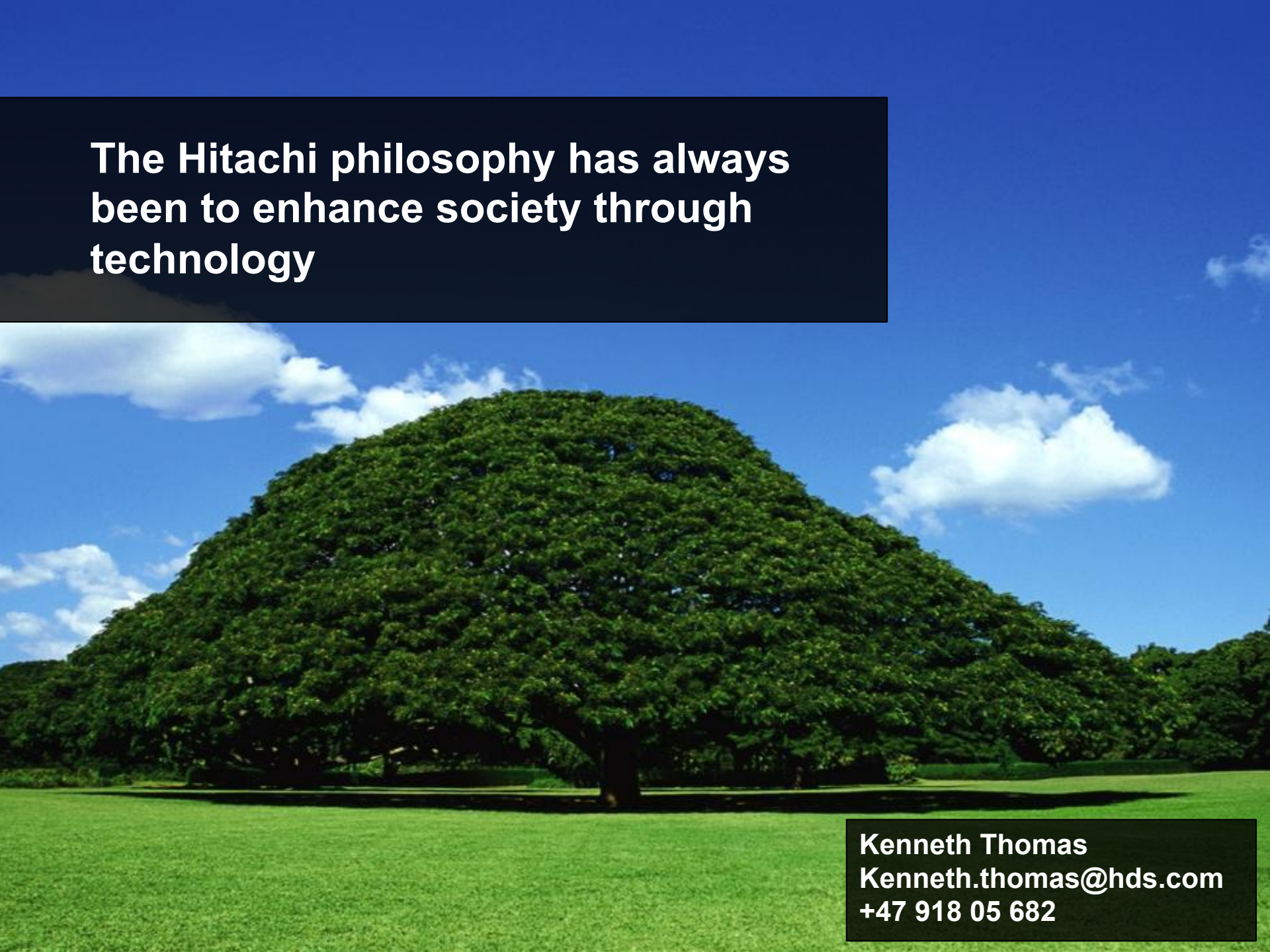
# SUMMARY

HITACHI
Inspire the Next

**It’s NOT “the Fast Eat the Slow” – It’s the Smart Eat the Dumb…**

**you don’t necessarily have to outrun your competition – but, you do have to outthink them**

# The Hitachi philosophy has always been to enhance society through technology



Kenneth Thomas
Kenneth.thomas@hds.com
+47 918 05 682