From Petabytes ($10^{15}$) to Yottabytes ($10^{24}$), & Before 2020!

*Steve Barber, CEO*
*June 27, 2012*

# Safe Harbor Statement – Forward Looking Statements

*The following information contains, or may be deemed to contain, "forward-looking statements" (as defined in the U.S. Private Securities Litigation Reform Act of 1995) which reflect our current views with respect to future events and financial performance.  We use words such as "anticipates," "believes," "plans," "expects," "future,"' "intends," "may," "will," "should," "estimates," "predicts," "potential," "continue" and similar expressions to identify these forward-looking statements. All forward-looking statements address matters that involve risks and uncertainties.  Accordingly, you should not rely on forward-looking statements, as there are or will be important factors that could cause our actual results, as well as those of the markets we serve, levels of activity, performance, achievements and prospects to differ materially from the results predicted or implied by these forward-looking statements. These risks, uncertainties and other factors include, among others, those identified in "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in the company's 20-F filed with the SEC.  Xyratex Ltd. undertakes no obligation to publicly update or review any forward-looking statements, whether as a result of new information, future developments or otherwise.*

**The digital universe will grow from**
**1.8 to 7.9 zettabytes**
from 2011 – 2015

**The amount of available storage crosses**
**1ZB in 2011 and is 3.3ZB in 2015**

**> 90%** of the information in the digital universe is unstructured

# Access to Vast Amounts of Stored Digital Data

Over **one billion** web pages
**350,000** iPhone apps
Over **100,000** Android apps
**10,500** radio stations
**5,500** magazines
More than **300** TV networks

**710 COMPUTERS SOLD**

**232 COMPUTERS GOT INFECTED BY MALWARE**

**555 OF THEM WITH (intel)**

**2,6 MILLION CD'S 1,820 TB OF DATA CREATED**

**450 Windows 7 CDs SOLD**

**12 WEBSITES GOT HACKED 416 ATTEMPTS**

**1,400 DISCS ARE RENTED ON ONLINE MOVIE RENTAL SERVICE** redbox

**180+ BY MOBILE** ebaY

**81 iPad SOLD**

**925 iPhone 4 s SOLD**

**950+ PURCHASES ON** ebaY

**$10,000 BY MOBILE**

**$219,000 OF TOTAL PAYMENTS** PayPal

**in 60 seconds**

**11 XBOX 360 CONSOLES SOLD**

**18 amazon.com kindle fire**

**SOLD**

**1,100 ACRES OF LAND FARMED IN FARMVILLE**

**103 BlackBerry SOLD**

**38 tons E-WASTE GENERATED**

**4,000 USB DEVICES SOLD**

**2,500 INK CARTRIDGES SOLD**

**2,100 foursquare CHECK-INS**

**$75,000 ADDED TO Google REVENUES**

**2 MILLION INTERNET USERS WATCHED PORN ONLINE**

**11 MILLION CONVERSATIONS ON INSTANT MESSENGERS**

compiled & designed by:
**GO-Globe.com**

5

Ter@tec xyratex
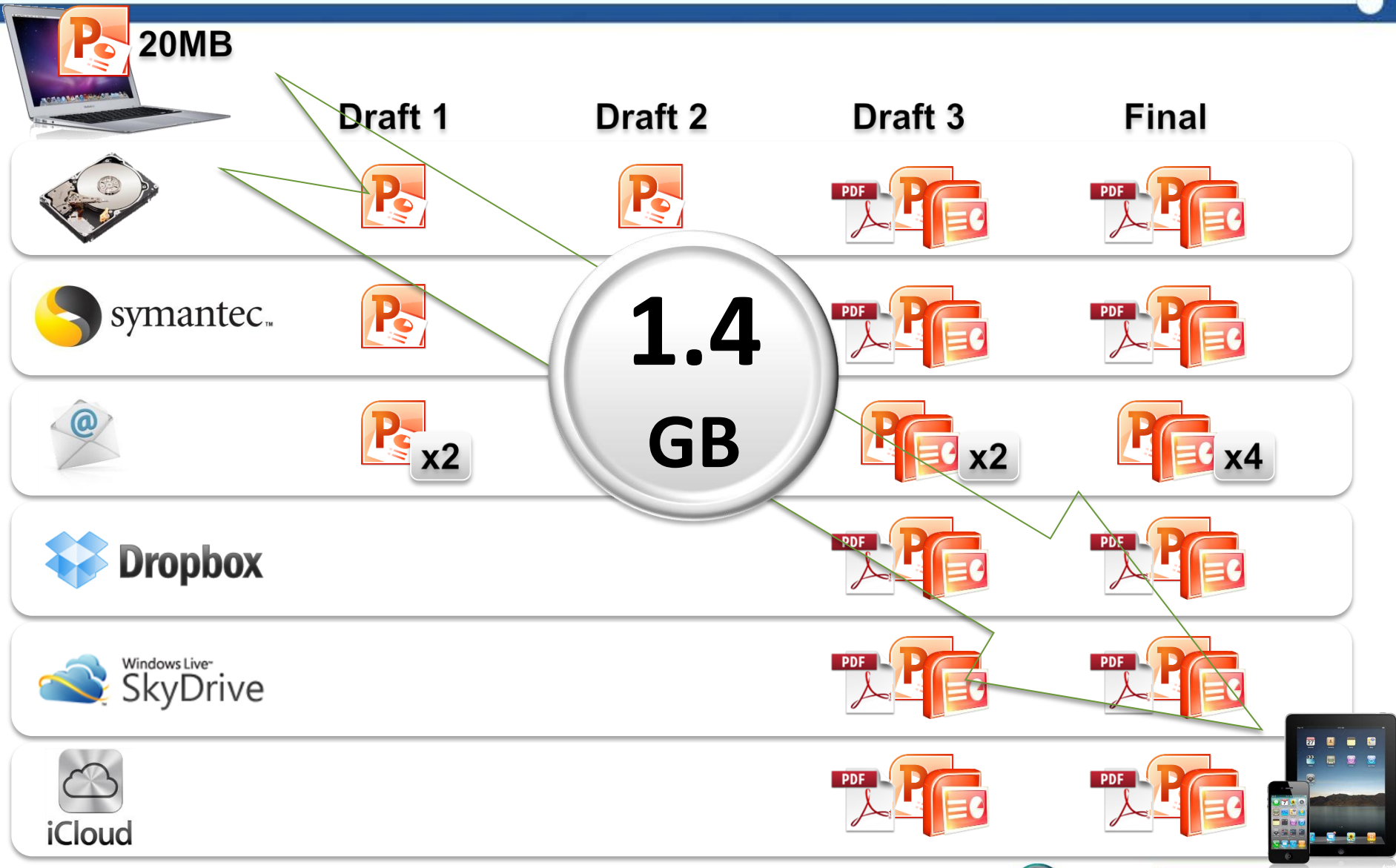
# Square Kilometre Radio Telescope Array



*Will generate 960 PB/day of raw data – nearly 1 Exabyte per day*

# Global Data Center IP Traffic: Already in the Zettabyte Era !

**By 2015 :**

- Wired data movement will reach 1.3 zettabytes per annum

- 3 billion people will be using Internet

- Asia Pacific region expected to consume ~40.5 exabytes per month of data

- IP traffic over data center networks will reach 4.8 zettabytes a year, and cloud computing will account for one-third of it

- World will own 18.9Bn internet connected devices by 2016.

Exabytes per Month

29% CAGR

110 EB
94 EB
77 EB
59 EB
44 EB
31 EB

2011   2012   2013   2014   2015   2016
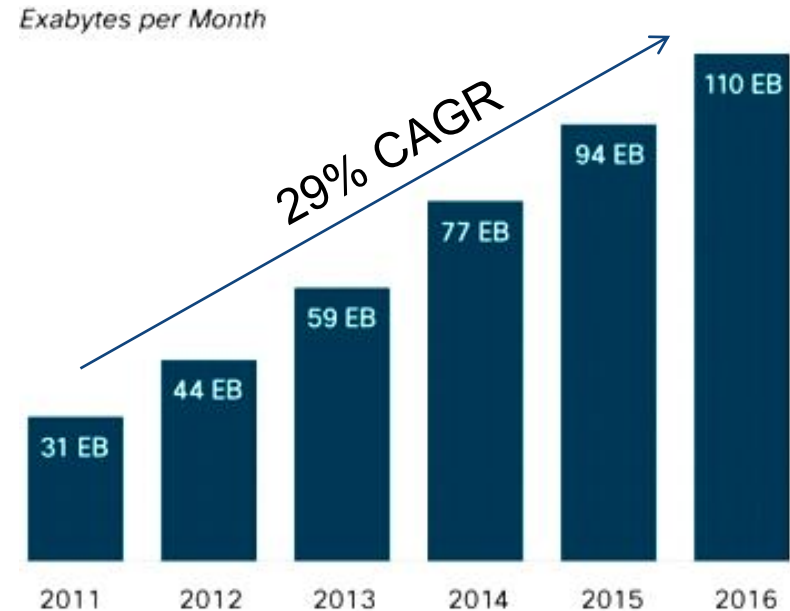
Source: Cisco VNI Global Forecast, 2011-2016

*1.3 Zettabytes per annum in 2016*

*Already at >1 Zettabyte per annum within Data Centers*

Ter@tec   xyratex

# Worldwide Enterprise Storage Forecast by $B and Capacity
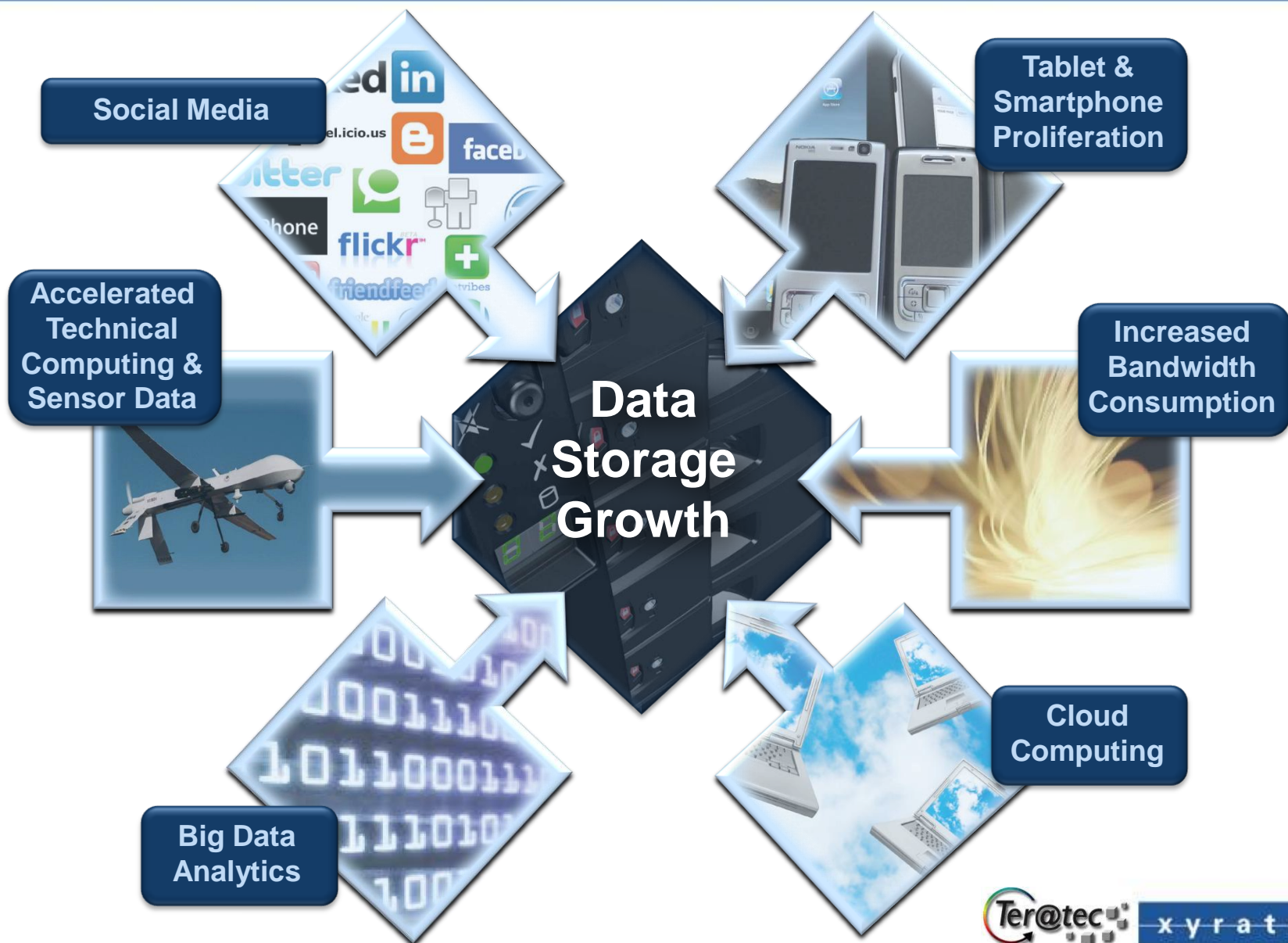
Source: IDC, May 2011
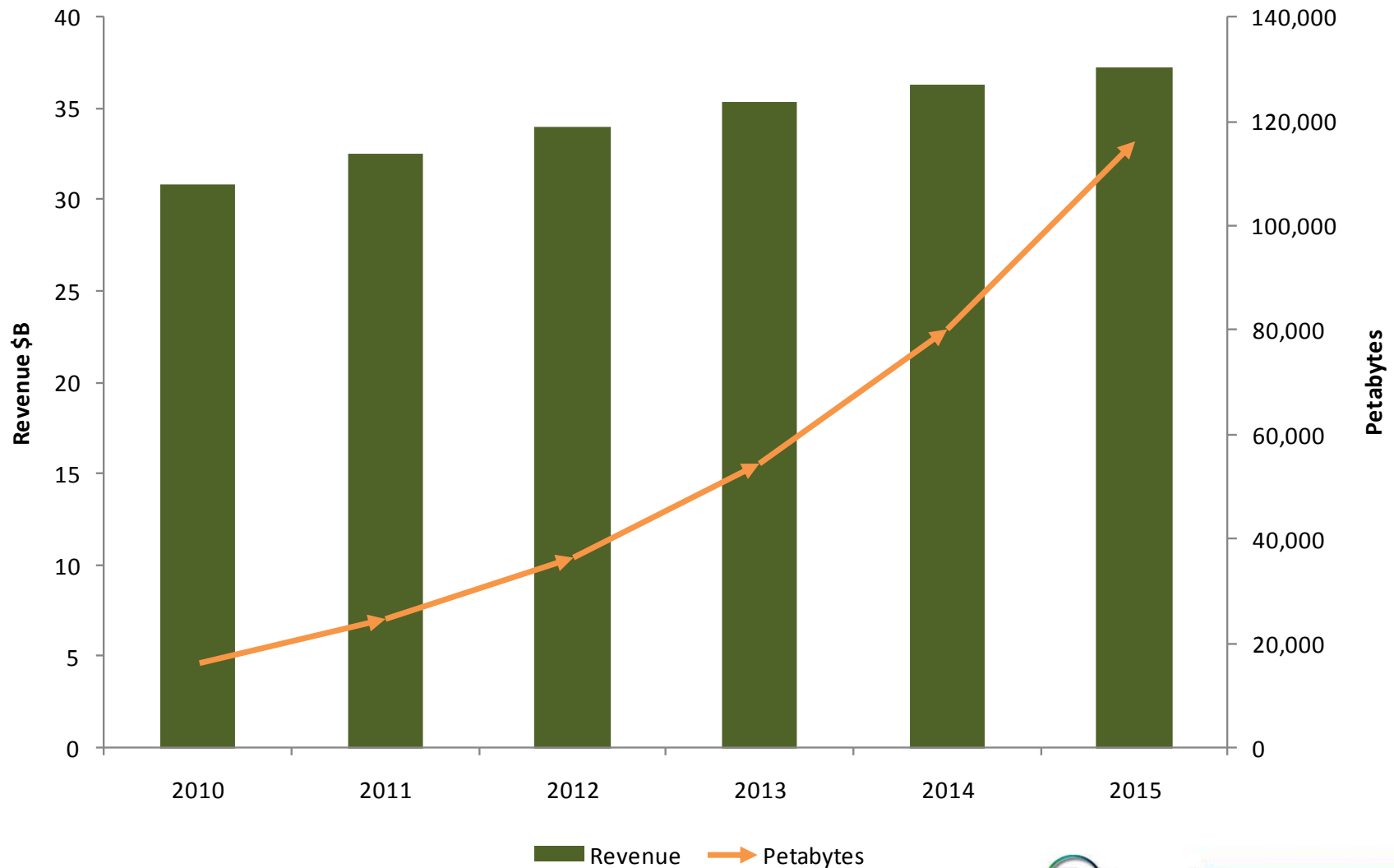
# Big Data Defined

A **new** generation of technologies and architectures, designed to **economically** extract **value** from very large **volumes** of a wide **variety** of data, by enabling high **velocity** capture, discovery and/or analysis

| Terabytes | **Data Volume** | Petabytes+ |
| Structured | **Data Variety** | Unstructured |
| Batch | **Data Velocity** | Streaming |
| $ | **Value** | $$$$$ |

*Source: IDC, "Moving Beyond Defining Big Data", May 10, 2012*
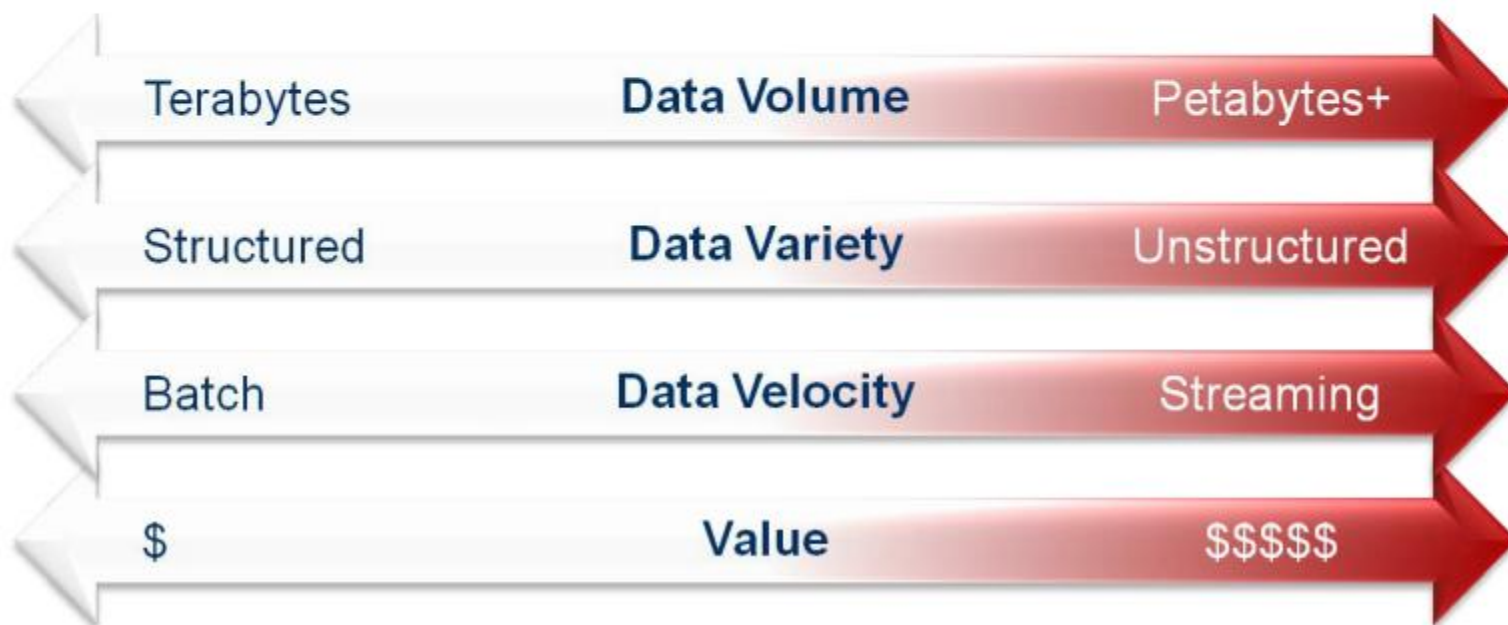
# Macro Themes Driving Storage Demand

# In Summary

- ***New Users & New Devices*** are generating vast amounts of new data across many formats

- ***New Applications*** are changing consumption models and creating demand for high performance data storage

- ***New Delivery*** options are reducing cost of storing and retrieving your data

- ***New Business Models*** are forcing IT departments to revisit their approach

Responding To This Growth

# A Leading Provider of Data Storage Technology

- **> 4,000** Petabytes of storage shipped in 2011

- **Largest OEM** Disk Storage System provider[1]

## *Enterprise Data Storage Solutions*

- **~ 50%** of w/w disk drives are produced utilizing Xyratex Technology[2]

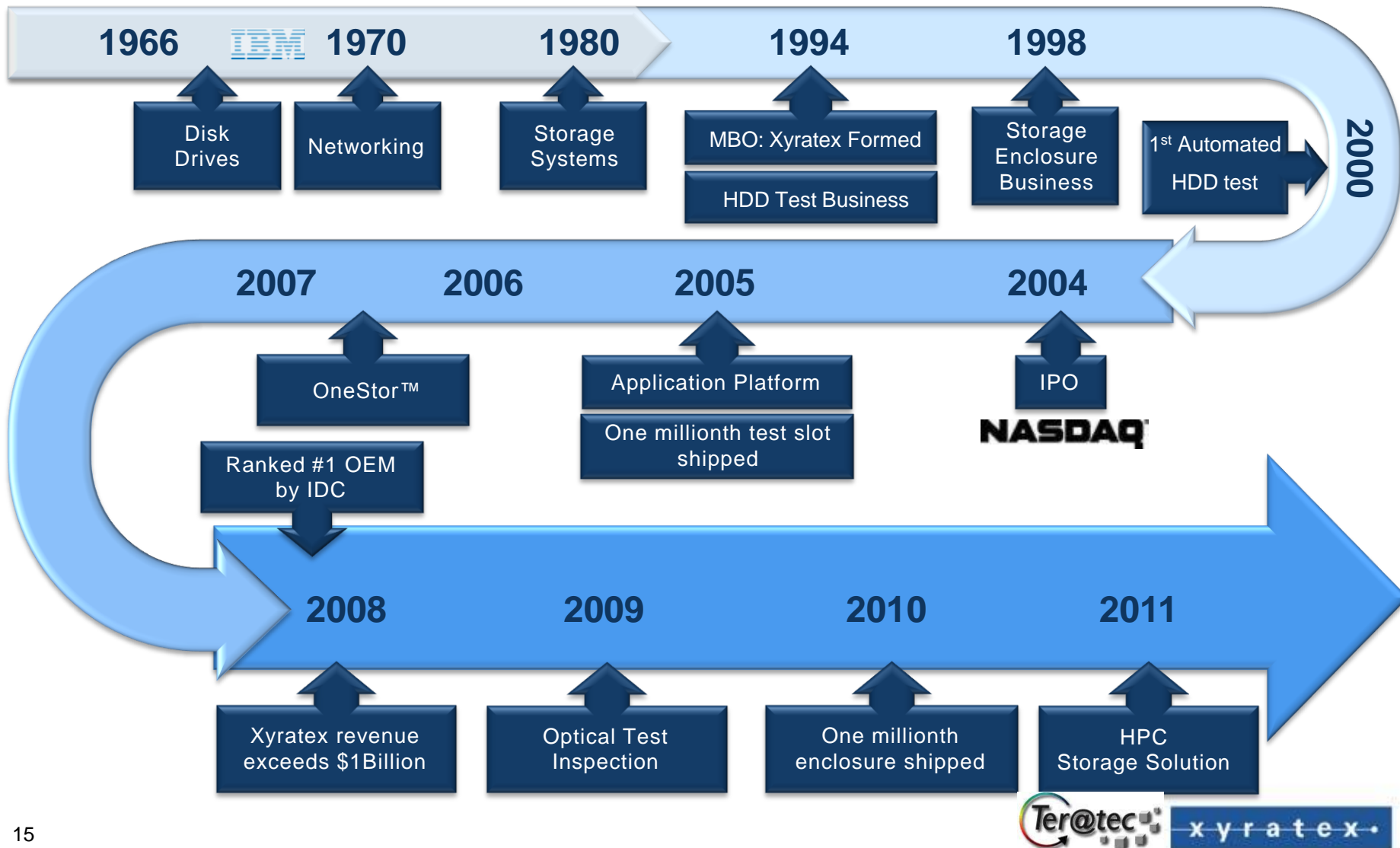- **Largest independent** supplier of Disk Drive Capital Equipment
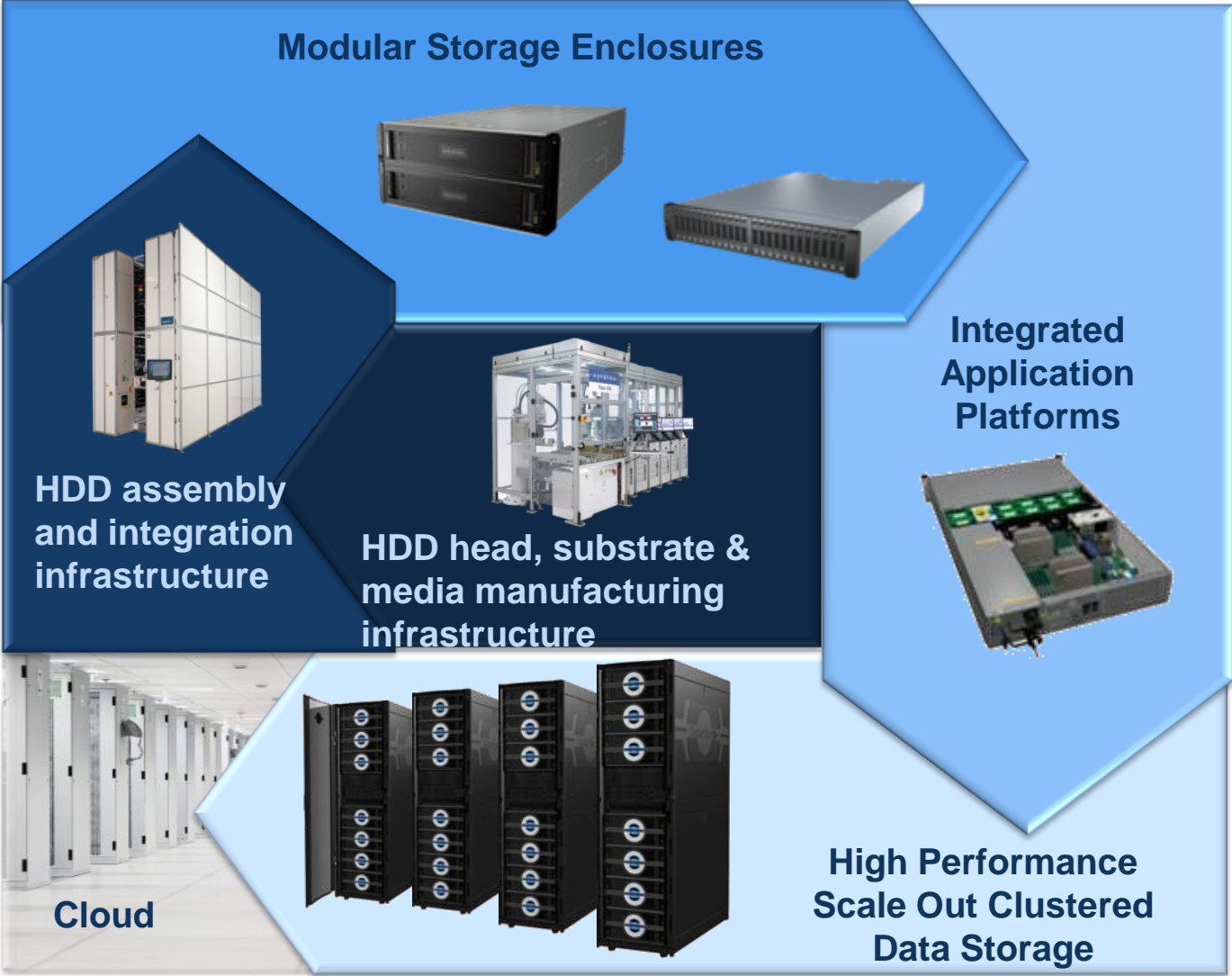
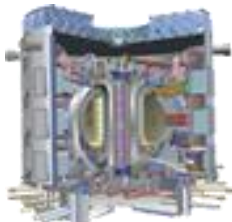## *HDD Capital Equipment Solutions*

[1] IDC Dec'11
[2] *Company estimates*

Our history gives us a unique and deep understanding of the storage market

**1966** IBM **1970**    **1980**    **1994**    **1998**    **2000**

Disk Drives

Networking

Storage Systems

MBO: Xyratex Formed

HDD Test Business

Storage Enclosure Business

1st Automated HDD test

**2007**    **2006**    **2005**    **2004**

OneStor™

Application Platform

One millionth test slot shipped

IPO

NASDAQ

Ranked #1 OEM by IDC

**2008**    **2009**    **2010**    **2011**

Xyratex revenue exceeds $1 Billion

Optical Test Inspection

One millionth enclosure shipped

HPC Storage Solution

Ter@tec    xyratex

# Portfolio and Expertise



Modular Storage Enclosures

Integrated Application Platforms

HDD assembly and integration infrastructure

HDD head, substrate & media manufacturing infrastructure

Cloud

High Performance Scale Out Clustered Data Storage

Ter@tec   xyratex·

# HPC: A tool to help solve big problems
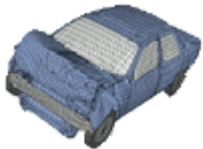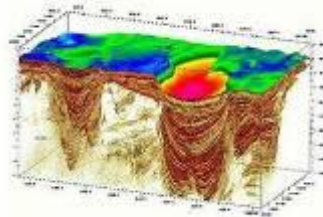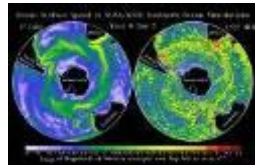
- **Government**
  - Defense
  - Economic Intelligence
  - National Research Centers
  - Weather prediction
  - Climate research, modeling and change
  - Ocean circulation

- **Oil & Gas**
  - Seismic: Imaging, 3D interpretation, Prestack data analysis
  - Reservoir modeling & simulation
  - Geophysics sites Data Center
  - Refinery Data Center

- **Automotive & Aerospace**
  - CAE: Fluid dynamics, Crash simulation
  - EDA: Simulation & Verification

- **Finance**
  - Derivatives Pricing
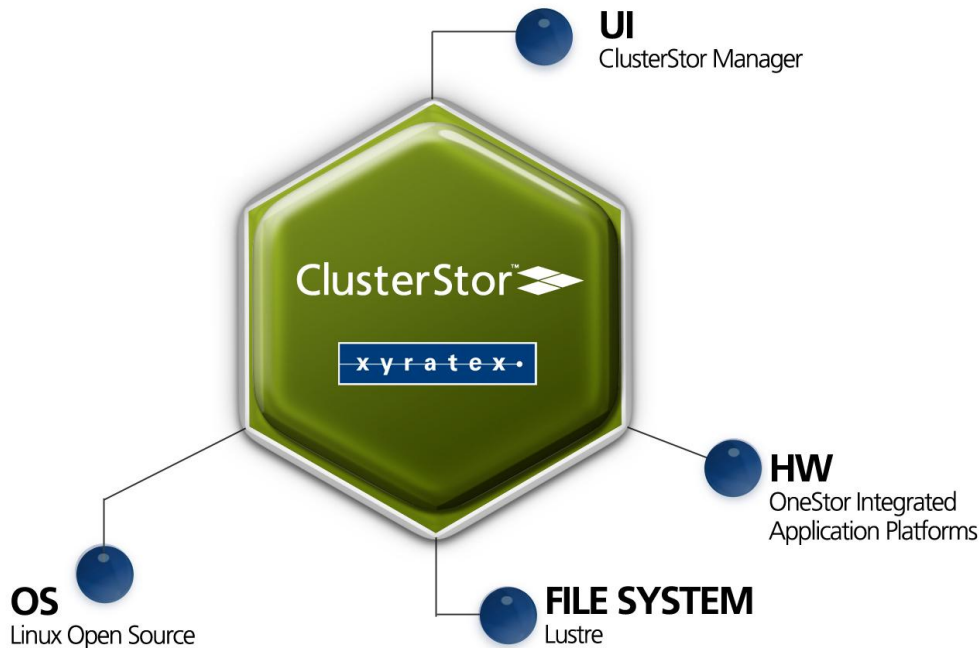  - Risk Analysis
  - Portfolio Optimization

# HPC History

- HPC scientific research driven by global nation-state competitive forces, agendas and goals

- HPC architectures have evolved:
    – Mainframe central computer architecture
    – Various symmetric-multiprocessing super computers
    – Linear scale-out processing via multi-core building blocks

- HPC pace of invention has not diminished

- HPC economics: Time to results provides competitive advantage and superior returns

# HPC Continued Evolution

- Successful HPC compute: highly efficient, clustered, integrated scale-out distributed compute architecture

- "HPC storage bottleneck" remains industry challenge
  – Legacy HPC storage not keeping pace with HPC compute

- Scale-out data storage architectures are being deployed to address performance and scalability requirements

- Exascale will require further innovation in HPC data storage architectures.

# ClusterStor – An Integrated Lustre® Storage Solution Engineered for high performance computing

**ClusterStor™ consolidates: controllers, storage, operating system, and the Lustre file system creating a new optimal scale-out storage**



**UI**
ClusterStor Manager

**HW**
OneStor Integrated
Application Platforms

**OS**
Linux Open Source

**FILE SYSTEM**
Lustre

**This fully realized solution provides the industry's best reliability, scalability, superior performance and ease of management.**

## THE BEST IN:

- *Performance*
- *Scale-Out Capability*
- *Capacity and Density Scaling*
- *Ease of Management*
- *Ease of Deployment*

# National Petascale Computing Facility

**BLUE WATERS**
SUSTAINED PETASCALE COMPUTING

**CRAY**

## ClusterStor – Powering In The Fastest Storage System in The World (Q3 2012)

| >1TB/second Aggregate Bandwidth | Xyratex CS-6000 System |
|---|---|
| Number of Racks: | 36 |
| Square Footage: | 644 ft$^2$ |
| Hard Drives: | 17,280 |
| Power: | ~0.443MW |
| Heat Dissipation (BTUs): | 1,165,600 |

*Exponentially less cost, space, cooling and power than the competition!*

NCSA

# What About Exascale?

- **Exascale is needed to support new HPC requirements:**
  - **Square Kilometre Radio Telescope Array will write 1 Exabyte per day**
    - **That's more than 10 TB/sec sustained!**
    - **You would need 100,000 disk drives**

- **Will require new approach to data management:**
  - **Traffic to disk cannot grow proportionally - storage doesn't follow Moore's law**
  - **Most believe a new file system isn't the answer**
  - **Object based with horizontal scaling?**

- **What are we doing:**
  - **Peter Braam is very active in the EIOW Consortium**
  - **Working with industry groups like OpenSFS & EOFS to define new approach**
  - **Investing in the development of a next generation storage software that will leverage open source components**

Conclusions

# In Summary

❑ *Data storage is growing at a (very) fast pace*

    ❑ *New Devices and Applications accelerating growth*

❑ *Cloud is providing new levels of scalability to IT*

❑ *New Delivery approaches are changing the economics of IT*

❑ *HPC is powering new science, analytics and research*

❑ *Data Analytics is leveraging HPC architectures to meet needs*

❑ *Exascale will force HPC architectures to evolve*

**xyratex**

**Thank You**