How Big Data and Data Center Infrastructure Management are impacting each other

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***Big data** is high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making*

Key Statistics > Facts & Trends

- **Investments on Rise** - Gartner survey reveals that 64 Percent of organizations have invested or plan to invest in Big Data in 2013
  - Percentage of companies investing more than $10 million is expected to rise from 19% in 2013 to 50% in 2016. Additionally, the number of organizations investing $50 million or more is projected to increase from 6% in 2013 to 14% in 2016
- **Elephantine amounts of data - T**hat is hard to store, and harder to process. Amount of global digital information created & shared – from documents to pictures to tweets – grew 9x in five years to nearly 2 zeta bytes in 2011 and is expected to grow to 8 zeta bytes by 2015, per IDC
- **Industries leading big data investments** in 2013 are media and communications, banking, and services
- **Big Data Market growth-** IDC expects the Big Data technology and services market to grow from $3.2 billion in 2010 to $16.9 billion in 2015 with a CAGR of 39.4%
- Big Data is moving from a focus on individual projects to an influence on enterprises' strategic information architecture. Organizations moving from single enterprise data warehouse to "logical" enterprise data warehouse

Challenge or Opportunity?

- **Information Strategy** – harness the power of information assets. Big data is causing enterprises to find new ways to leverage information sources to drive growth
- **Harnessing Big Data** - Despite a wealth of data, decision-making today is harder, not easier. You need to draw more insight from your big data analytics or large and complex datasets. You need to predict future customer behaviors, trends and outcomes
- **Enterprise Information Management** - Information is everywhere – volume, variety, velocity – and it keeps growing. You need to manage access to growing extreme information management requirements and drive innovation in rapid information processing
- **Storage, Privacy and Security –** how and where to store the data, ensuring the security of data and how to analyze and understand it given its size and computational capacity available.
- **Tools and Techniques –** Availability of tools and techniques to handle large volume, velocity and variety of data
- **Resource availability** - Shortage of qualified resources who can handle the challenges of big data

*PAC, Big Data Worldwide 2012

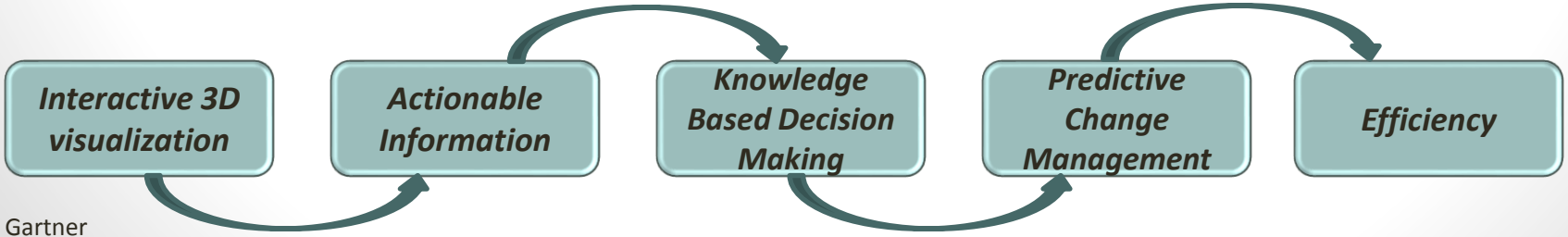
Data center infrastructure management (DCIM) *tools monitor, measure, manage and/or control data center utilization and energy consumption of all IT-related equipment (such as servers, storage and network switches) and facility infrastructure components (such as power distribution units [PDUs] and computer room air conditioners**

Key Statistics > Facts & Trends

- **Total addressable DCIM market** will reach $1.7 Billion by 2016*
- **Market Penetration** - Gartner predicts that DCIM will become mainstream, growing from 1% penetration of data centers in 2010 to 60% in 2014
- **Challenged posed by Big data** - Amount of data is doubling every year, according to IDC digital universe will grow 50 folds by 2020 reaching a volume of 40 zettabytes
    - Big Data contributes to need for increase in storage capacity, computational power, network and facilities
- **Adoption of cloud computing and virtualization** creates a very dynamic application environment, which dramatically increases data center complexity and requires a holistic tool to manage it
- Data center has evolved into highly dynamic entity, new strategy for dealing with infrastructure gap is to adopt holistic management capabilities with a complete view of asset management as well as environment state

DCIM – *Future for data center infrastructure*

- **DCIM is about enterprise** - scale to manage hundreds of thousands of assets sitting in the world's largest global IT infrastructure environments not just Data center
- **DCIM is about managing not just monitoring** – provide a holistic system for management. Data collected from various sources is integrated, analyzed and distributed to optimize performance
- **Increased Reliability** of Data Center. Optimize the balance between capacity and availability
- **Real Time Reporting** - Without a real-time reporting system, operators may find it a challenge to make informed decisions
- **Reduction in Carbon Footprint -** clear picture of power makes it possible to report on and reduce the associated carbon footprint
- **Easy To embrace new technology** - easier to embrace new technologies, such as virtualization, cloud and modular computing, which are dependent on IT and facilities availability



* Gartner

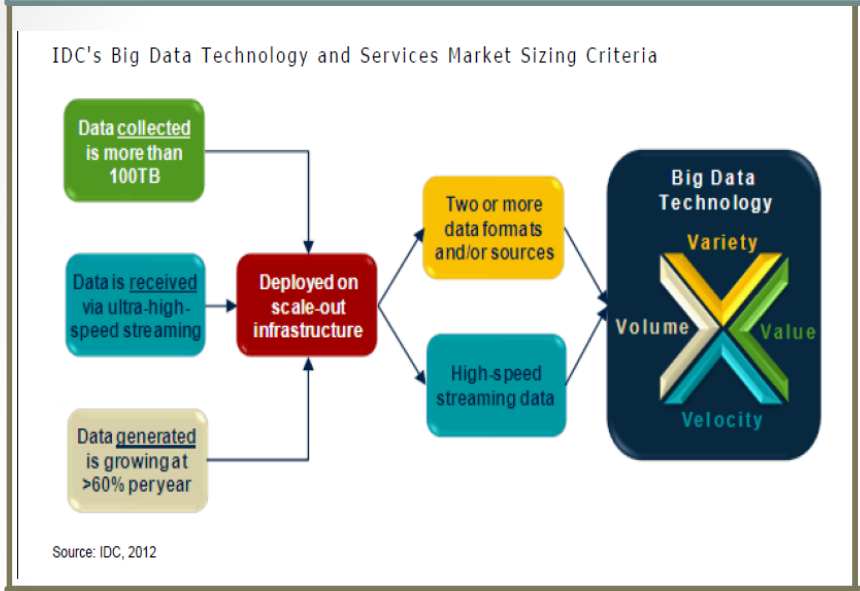
Big Data means the massive amounts of data "locked" inside data centers, buried across the infrastructure, when leveraged properly by Data Center Infrastructure Management (DCIM) tools, this data can turn into management information – the relevant, usable knowledge that today's decision-makers are craving for

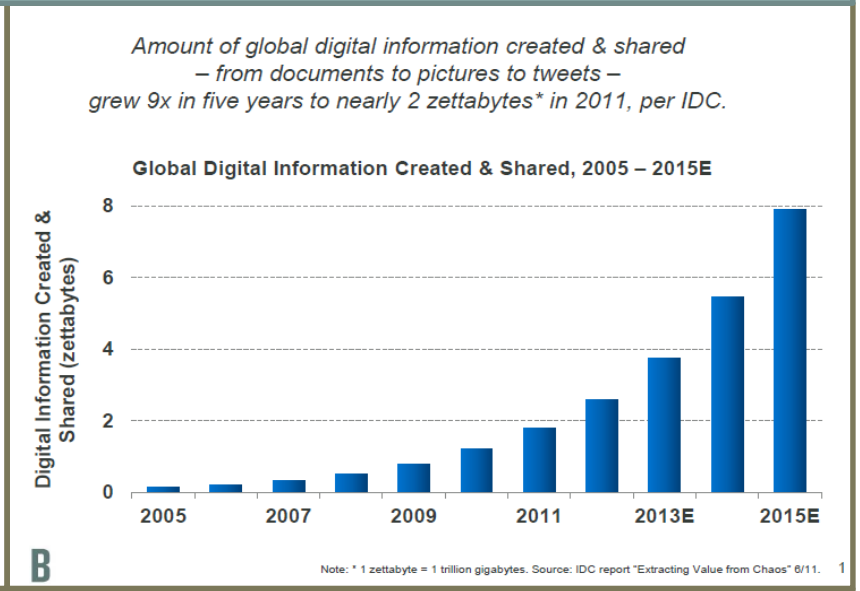
Insights & Conclusion

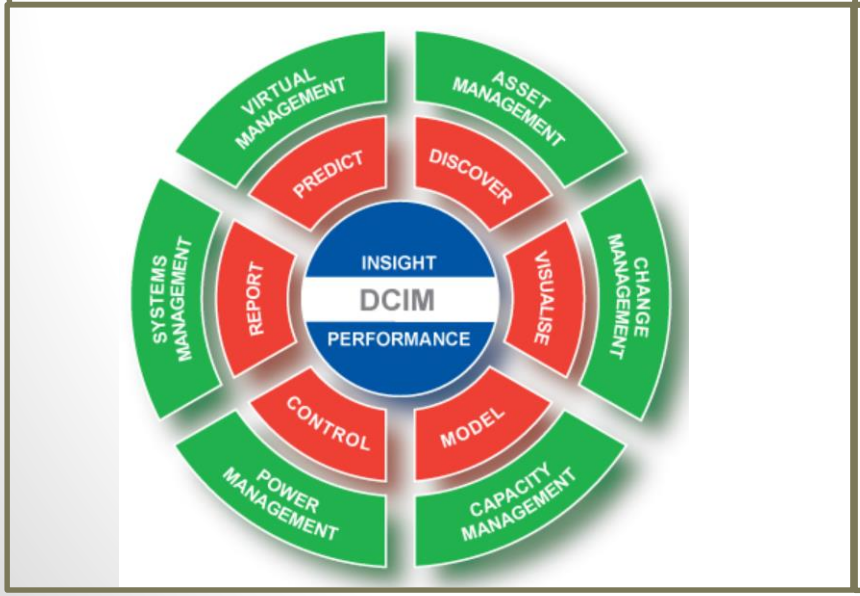
- **Growth in Data & Expectations from IT** - The pace of change in the data continues to accelerate and at the same time, organizations are demanding more from IT. The ever-growing stores of data collected, equate to more storage requirements as well as faster and more agile servers and networking equipment to process and transmit the information
- **Big Data and analytics** have the potential to dramatically improve business by providing insights about market, customer behavior & demographics, improving efficiency by refining internal operations and streamlining supply chain. This has put increased demands on network infrastructure and potentially speed up the time scale of migration to higher speed technologies
- **Big Data drives DC Technologies** - Big Data drives the need for better and holistic Data Center technologies that can handle Big Data and provide meaningful insights from the collected data.
- **DCIM for Big Data** - DCIM is the only viable way of unlocking the data sitting in the physical infrastructure. DCIM can play the role of a game changer for Big Data by making data –
  - **Understandable** – collected and made visible in a way that makes it meaningful
  - **Relevant** – enriched with the context of space, connectivity, and Time to provide a holistic understanding of the entire interconnected physical ecosystem
  - **Interconnected** – presented in relationship rather than in silos, creating rich new layers of meaning
  - **Actionable** – presented within a single holistic management framework so it can be instantly acted upon to drive transformational change
- **Enterprise Data Warehouse** - Big Data is moving from a focus on individual projects to an influence on enterprises' strategic information architecture. Dealing with data volume, variety, velocity and complexity is forcing changes to traditional approaches. of a single enterprise data warehouse containing all information needed for decisions to multiple systems tied together with data services and metadata, which will become the "logical" enterprise data warehouse

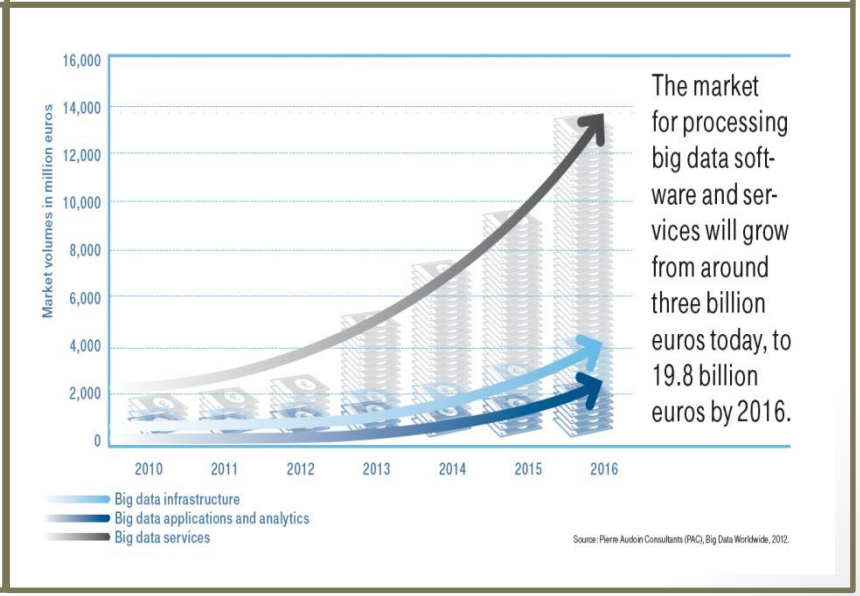
Enormous growth in Big Data and challenges (storage, cost, carbon footprint, capacity utilization & data analysis) organizations are facing in implementing big data and using it for decision making, is driving them to adopt DCIM tools for Data Center's to fully utilize the benefits of Big Data

Graphical Reference









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