



Data Storage Innovation Conference IBM - Optimizing Data Insights

Achieving a Software Defined Cognitive Infrastructure for Oceans of Data

Michelle Tidwell, IBM Storage, Program Director
Global Offering Manager



Agenda

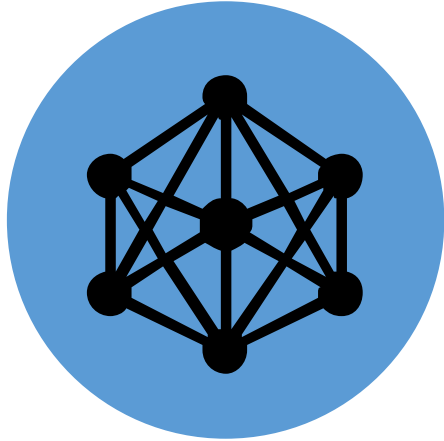


- Trends and Challenges Clients Face Today
- Technologies we can Offer to Help Clients
- What Happens When Machines Become Cognitive

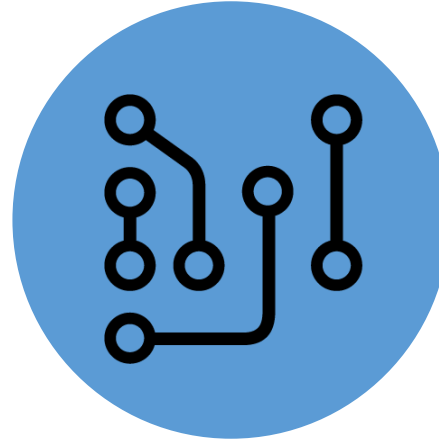


Business and Data in a Cognitive World

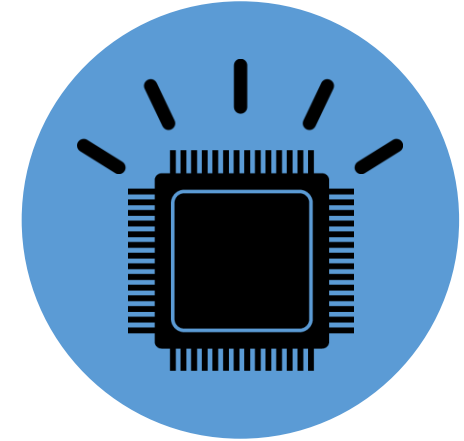
Gain Competitive Advantage Harnessing Your Oceans of Data



**Data is transforming
industries & professions**



**The world is being
reinvented in code**



**Computing is entering
a new Cognitive Era**

Where code goes, where data flows, cognition will follow.



The digital world is generating oceans of data.

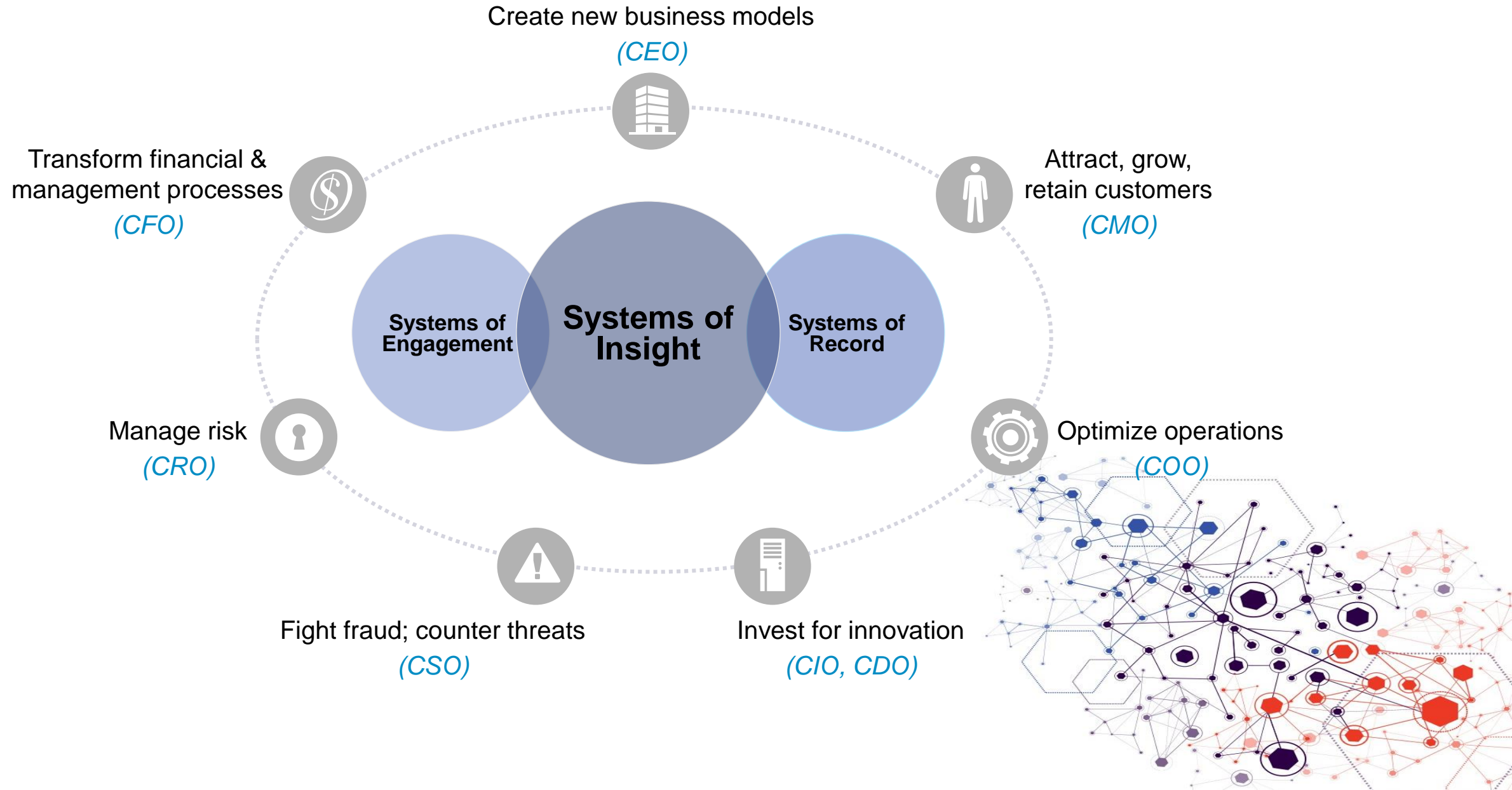
To realize the benefits of cognitive, businesses must extract insights trapped in oceans of data.

Businesses that get insights from their data outperform competitors by 2X in the marketplace.

Oceans of data need be efficiently stored, managed, protected, and delivered with speed to the right applications at the right time.



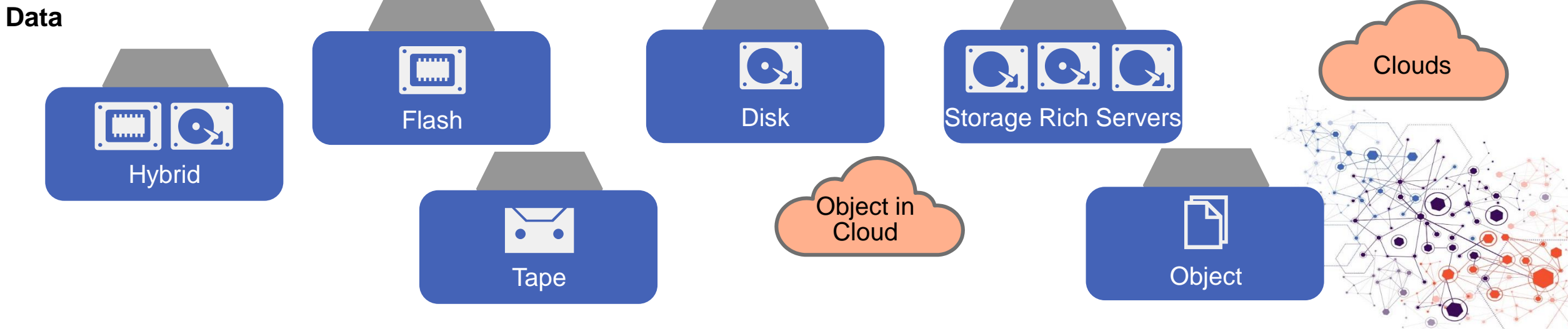
IT Challenges for Today's Cognitive Business



IT Struggles to Unite Growing and Complex Silos



- Are the applications in the right place?
- Is the data where it is needed?
- Is the data trapped?
- Is the data safe?
- Can we meet the business SLA?

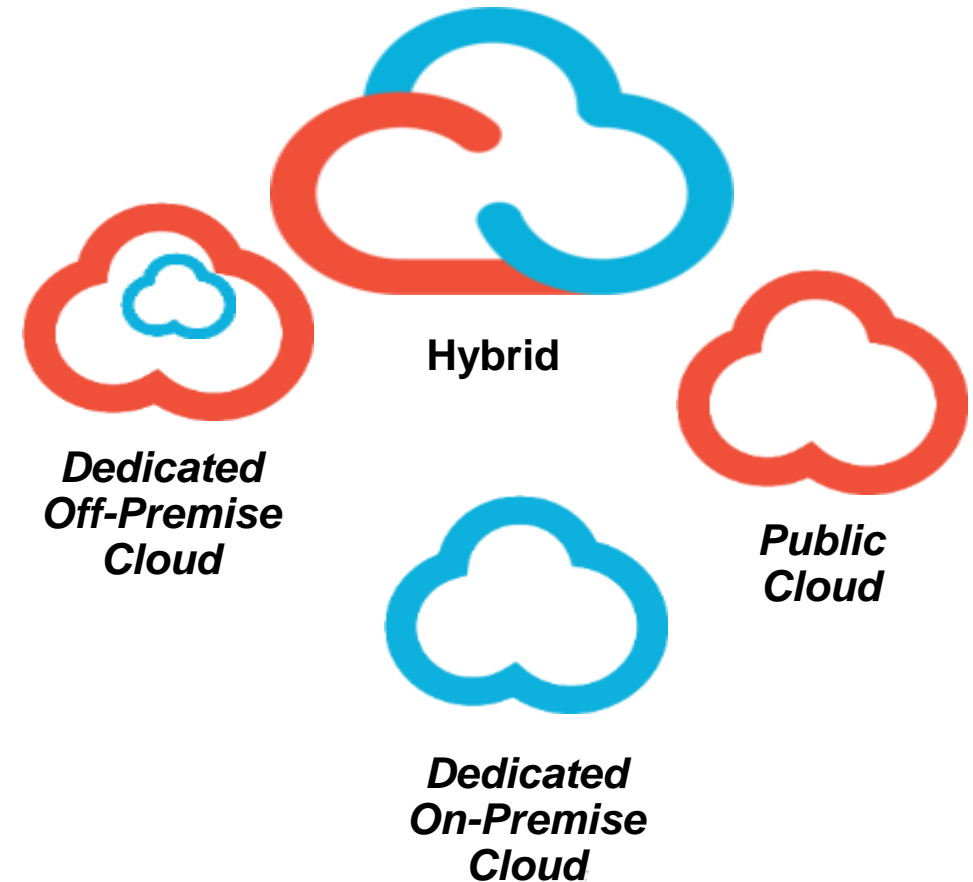


From both analyst predictions and client surveys, there is a movement to Hybrid Cloud



Cloud Futurescape for 2016*

- Diversified IT - By 2018, 65% of companies' IT assets are off-site in colocation, hosting, and cloud datacenters while 1/3 of IT "staff" are employees of third-party service providers
- 80% of IT Orgs will commit to Hybrid Cloud by 2017
- At least 50% of IT spend by 2018 will be Cloud based
- By 2018 65% of IT assets will off site, located or co-located at Service Providers



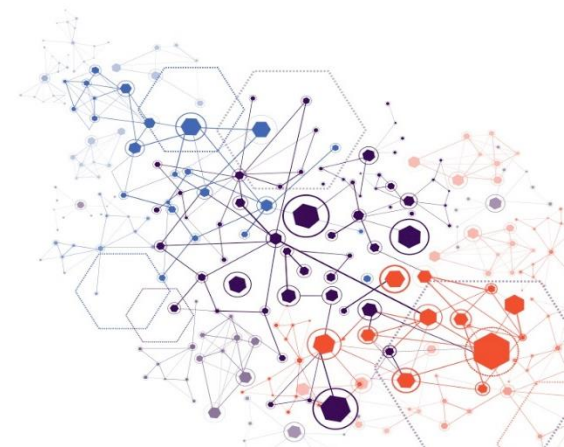
Source: IDC 2016 Predictions



Agenda



- Trends and Challenges Clients Face Today
- **Technologies we can Offer to Help Clients**
- What Happens When Machines Become Cognitive



IBM Storage and Software Defined Computing Enables a Cognitive Business Now



**Respond to Business
Pressures**

**Support Data-Aware
Applications**

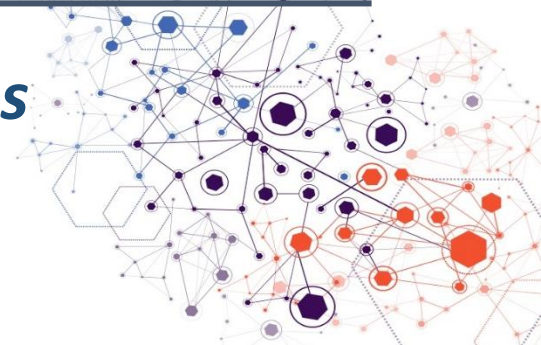


**Control and Manage
Data Growth**

**Enable Hybrid
Cloud Platforms**



***With IBM Storage Our Clients Harness Their Oceans
of Data and Gain a Real Competitive Advantage***



Solving Business Challenges with a Unified SDI Vision



New
Workloads

OLTP

Analytics

Open Source
Frameworks

Hadoop/
Big Data

DevOps

Software
Defined
Infrastructure

Resource Management
Protect investment in existing resources
Data placement on-demand & by policy

Optimized
Data

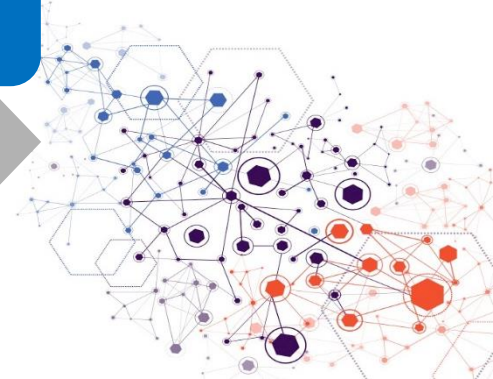
Flash

Hybrid

Tape

Object

On / Off premises – Hybrid Cloud



IBM Spectrum Storage Family

Proven Technology, Open Standards, Modular Adoption



Family of Storage Management and Optimization Software



Control



Protect



Archive



Virtualize



Accelerate



Scale



Any
Storage



FlashSystem



Private, Public
or Hybrid Cloud



IBM Spectrum Control

Analytics-driven hybrid cloud data management to reduce costs by up to 73%



IBM Spectrum Protect

Optimized hybrid cloud data protection to reduce backup costs by up to 53 percent



IBM Spectrum Archive

Fast data retention that reduces TCO for active archive data by up to 90%



IBM Spectrum Virtualize

Virtualization of mixed block environments stores up to 5x more data



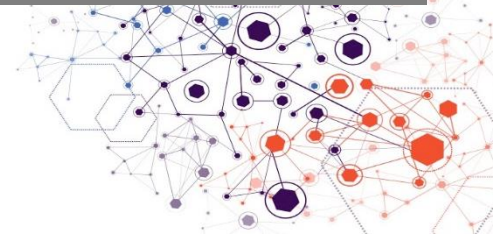
IBM Spectrum Accelerate

Enterprise block storage for hybrid cloud deployed in minutes instead of months

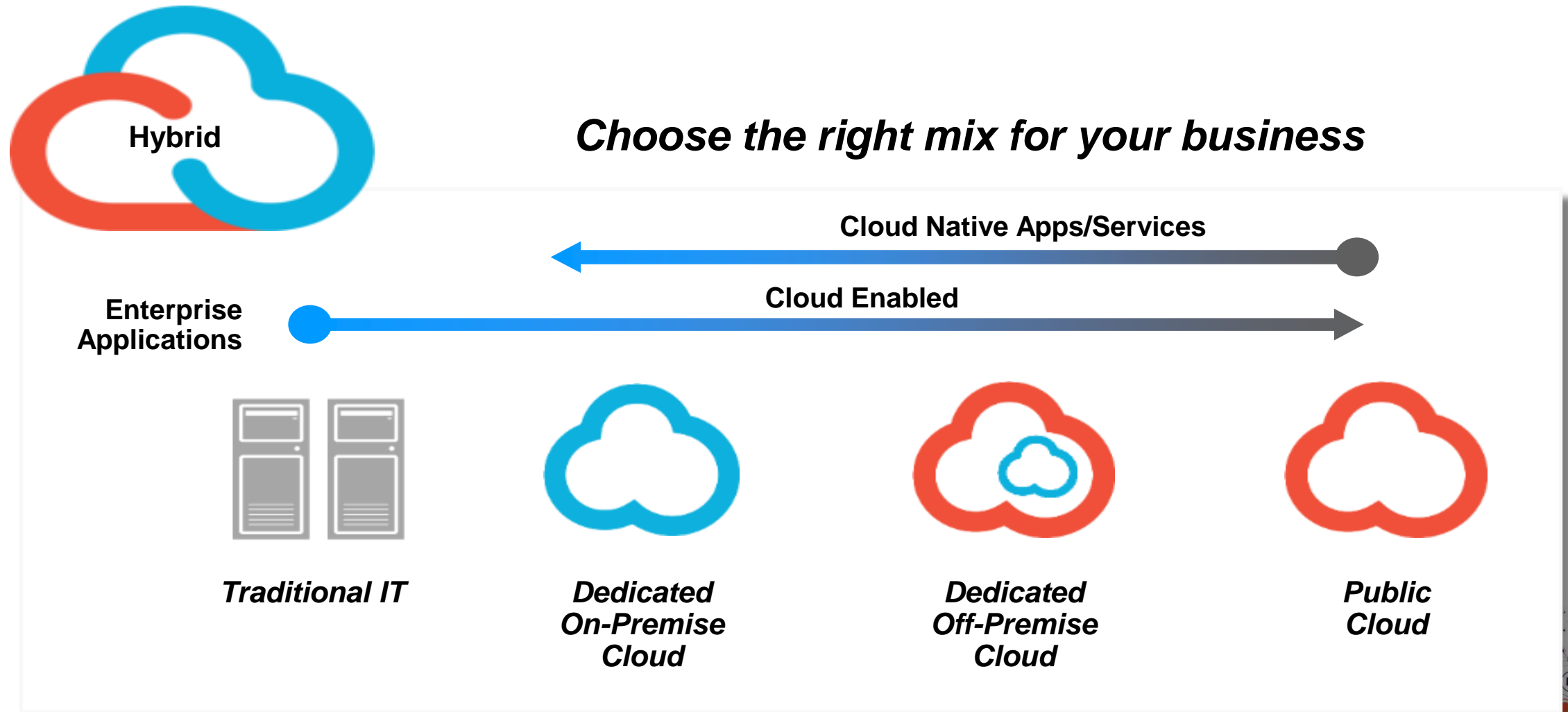


IBM Spectrum Scale

High-performance, highly scalable hybrid cloud storage for unstructured data driving cognitive applications



Our perspective regarding hybrid is broad



IBM Spectrum Scale and Cleversafe

Intelligent data placement for hybrid cloud



on-premises



Single namespace



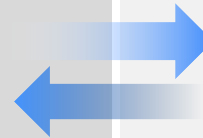
Auto-tiering & migration



off-premises



Transparent
Cloud Tiering



Why are Clients moving to Object Storage ?

Market Overview

Object storage services were the starting point for cloud storage and were designed for high scalability, which could not be achieved with traditional enterprise storage technologies.

— Forrester

Common requirements met by object storage

- Ease of use
- Seamless, multi-dimensional scaling
- Lower cost of operations
- Metadata aware intelligence

Cloud providers launching archival-driven object storage services

- Moving aggressively to boost data archive environments



By 2020, **40%** of an enterprise's unstructured data will be stored in the public cloud, up from 5% today but only **10%** of it will be actively accessed.

— Gartner





Object storage is ideal for a spectrum of solutions.

From enterprise collaboration to active archives, Cleversafe solutions enable business transformation.



Content Repository

Entrust business-critical data to the most reliable and scalable storage platform.



Enterprise Collaboration

Fuel workplace productivity across the globe with secure, distributed access to valuable content.



Storage-as-a-Service

Deliver new levels of storage capacity and availability with carrier-grade data security to your user base.



Backup

Get easy, scalable backup and always-on data availability for dependable recovery and security at 80% lower infrastructure cost.



Archive

Keep content accessible with a scalable, reliable and secure long-term data archive.

Information Security is The Top Client Initiative



Worldwide study: 350 companies in 11 countries

- **\$3.79 million** is the average total cost of data breach
 - 23% increase since 2013
- **\$154** is the average cost per lost or stolen record
 - 12% increase since 2013

“... a mass information breach involved data belonging to up to 110 million individuals: a number far more extensive than originally believed.” — CNBC

Top-five most important IT priorities over the next 12 months.
(Percent of respondents, multiple responses accepted)



Sources: ESG Research Report, 2015 IT Spending Intentions Survey, February 2015.
Ponemon Institute for IBM, 2015 Cost of Data Breach Study: Global Analysis, May 2015.

IBM Spectrum Virtualize

**Improving
Data Value**

**Accelerate data
Store more data
Reduce data cost**

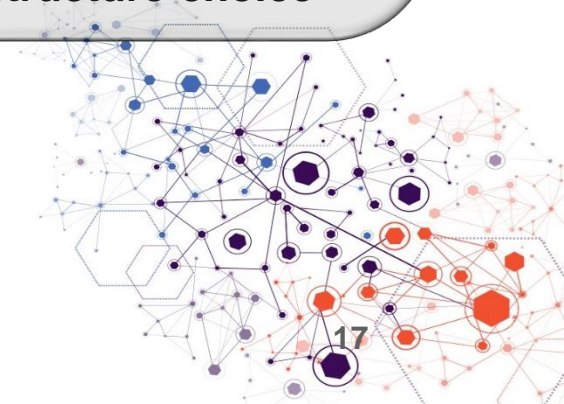
**Increasing
Data Security**

**Encrypt data
High availability data**

**Enhancing
Data Simplicity**

**Data strategy independent
of infrastructure choice**

#1 in Software Defined Storage



Key Attributes of a Data Architecture



Access

Gain new levels of meaningful visibility into data



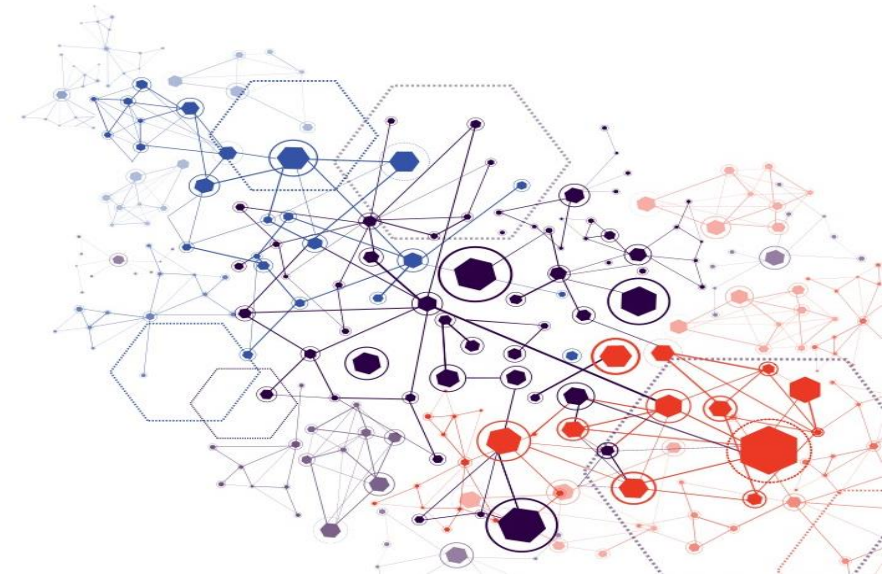
Speed

Accelerate insights in real time at the point of impact



Efficiency

**Deliver critical insights
with the best data economics**



FLASH EVERYWHERE

IBM FlashCore™ Technology Optimized

XIV Gen3



High End
Capacity
Optimized
Hybrid

FlashSystem
A9000



All flash array for cloud
service providers

- Best performance with full time data reduction
- Targeting VDI, Vmware, and hybrid cloud

FlashSystem
A9000R



All flash array for large
deployments

- Best performance with full time data reduction
- Targeting mixed workloads & hybrid cloud

FlashSystem
V9000



All flash array for
virtualizing the hybrid DC

- Best performance with storage services & selectable data reduction
- Targeting database/ analytics workloads

Storwize
V7000F



Mid-Range

Storwize
V5000F



Entry /
Mid-Range

DS8888



High End
Server
- Mainframe
- Power

FlashSystem 900



All flash array for application acceleration

- Extreme performance
- Targeting database acceleration & software-defined storage booster

SVC



Broadest Storage and Software Defined Portfolio



Storage Systems

Tier 0 Acceleration



FlashSystem

Enterprise Storage Systems



DS8880



XIV



FlashSystem
V9000

Midrange & Entry Storage Systems



Storwize V7000
Unified



Storwize
V7000



Storwize
V5000

Tape and Virtual Tape Systems



Virtualization
Engine TS7700



ProtectTIER
Deduplication

LTO7 Tape
Library and
Automation



LTO7 Tape
Drives for
Enterprise
Deployments

Software Defined Storage

IBM Spectrum Storage and Cleversafe

- IBM Spectrum Virtualize
- IBM Spectrum Protect
- IBM Spectrum Control
- IBM Spectrum Accelerate
- IBM Spectrum Scale
- IBM Spectrum Archive
- IBM Cleversafe

Software Defined

IBM Software Defined Computing

- Platform Symphony
- Platform LSF
- Platform Application Service Controller
- Platform Cluster Manager
- High Performance Cloud Services
- Platform MPI

Integrated Infrastructure Solutions



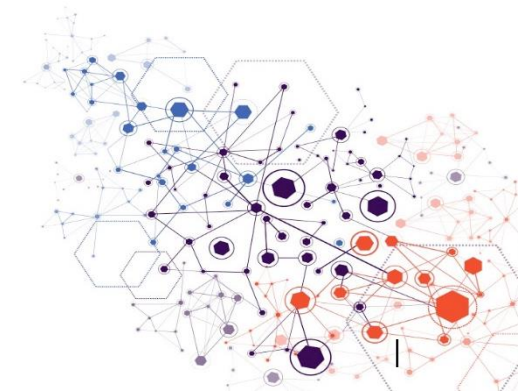
VersaStack



IBM Elastic
Storage
Server



PurePower



IBM Storage Awards and Accolades



IBM Storwize, XIV, DS8000
2012 - 2015

Magic Quadrant Leader:
General Purpose Arrays



IBM Cleversafe
2016

Market Leader
Scale-Out Object Storage
Software



IBM FlashSystem
2014

#1 in Units & Capacity Shipped
for Solid-State Arrays



IBM Spectrum Storage
2014 & 2015

#1 Software Defined Storage*



IBM Spectrum Control
Storage Insights
2015

Product of the Year Finalist:
Storage Management Tools



IBM Tape Library
2014 - 2016
Market Leader



IBM
2016
5-Star Storage Vendor



IBM DS8000
2010 - 2015
#1 Market Share
Mainframe Storage*



IBM Storwize V7000 with
IBM Spectrum Virtualize
2015 Tech Innovator Award –
Virtualization Category (Runner Up)



IBM Storage
2013, 2015
Winner: IBM Malaysia
Customer Care Award



IBM FlashSystem
2015-2016
Major Player: All-Flash Array
Marketscape



IBM Cleversafe
2016
#1 in Object Storage



IBM Spectrum Scale
2015
Product of the Year Finalist:
Storage System Software



WIKIBON

IBM
2015
#1 Market Share
Big Data



IBM Spectrum Protect
2011 - 2016
Magic Quadrant Leader



IBM FlashSystem
2015
France CRIP IT Innovation
Forum Winner: Cloud,
Infrastructure & Storage Category



IBM FlashSystem
900/V9000
2015

Top 10 Coolest Flash Products



IBM Storage
2013, 2015
Winner: IBM Singapore
Customer Care Award



IBM FlashSystem V9000
2015
Tech Innovator Award –
Storage Category (Runner Up)



IBM FlashSystem
2014 & 2015
Magic Quadrant Leader:
Solid State Arrays



IBM FlashSystem V9000
2015
Product of the Year Finalist:
All-Flash Systems



IBM FlashSystem
2014-2015
#1 Market Share*
Canada

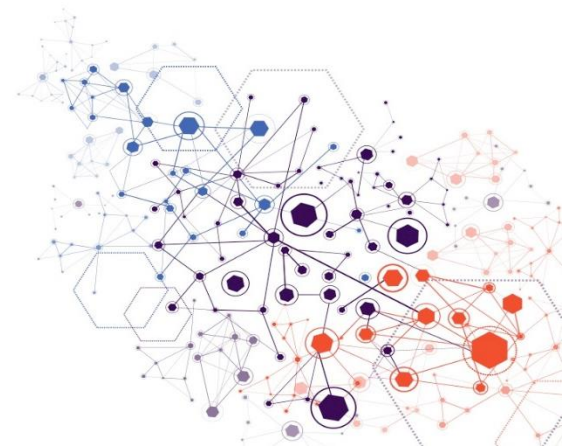


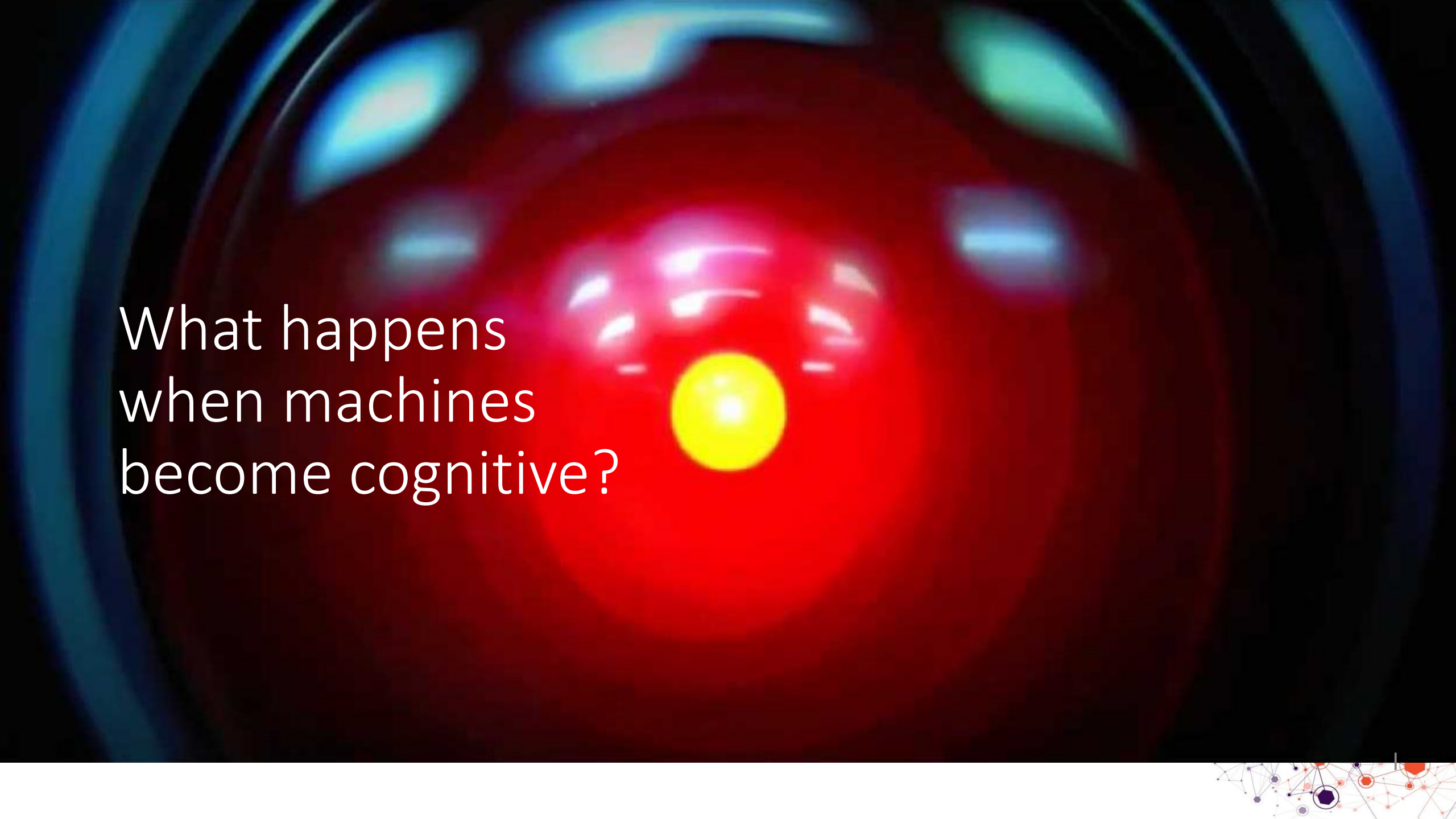
IBM
2015
#1 in Enterprise
Network Storage

Agenda



- Trends and Challenges Clients Face Today
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- What Happens when Machines Become Cognitive



The background of the slide is a dark, abstract composition. It features a series of concentric, glowing circles in shades of blue and red. At the center of these circles is a bright yellow dot. The overall effect is reminiscent of a tunnel or a deep space exploration, with light reflecting off the inner surfaces of the circles.

What happens
when machines
become cognitive?



What happens
when machines
become cognitive?

Cognitive **Medicine** revolutionizing patient care

Real-time data helps doctors identify signs
of illness

Reduce power consumption **96%**,
cooling requirements **95%**
and rack space usage **98%**

IBM FlashSystem

MEMORIAL
HERMANN



What happens
when machines
become cognitive?

Cognitive Forecasting quenching thirst

Coca Cola Bottling Co.

150 million cases of product
per week

20x more forecasting
data processed

97% reduction in
processing time

IBM FlashSystem &
Spectrum Virtualize



What happens
when machines
become cognitive?

MD Anderson

Cognitive Treatment

personalized care

**Largest cancer center
in the United States**

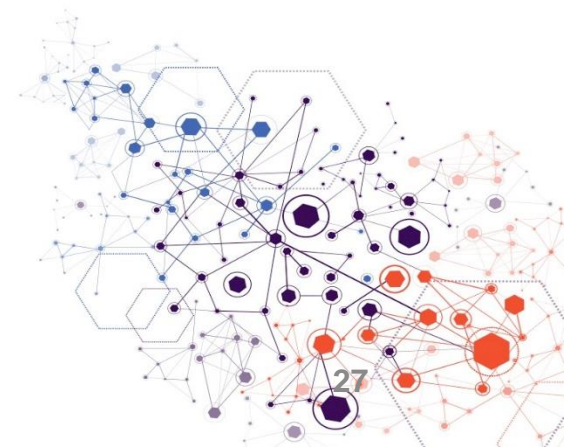
**Improved outcomes for cancer
patients by matching case histories
with best clinical trials**

IBM Spectrum Scale
and IBM Watson

MD Anderson
~~Cancer~~ Network™



- Business and data are entering a new Cognitive Era
- Clients need to not only be able to manage and store data at scale, but be able to gain insights from their data
- A flexible and unified Software Defined Storage Infrastructure can help clients solve their biggest business challenges
- With IBM Storage our clients can more effectively harness their *Oceans of Data* to realize a Cognitive advantage



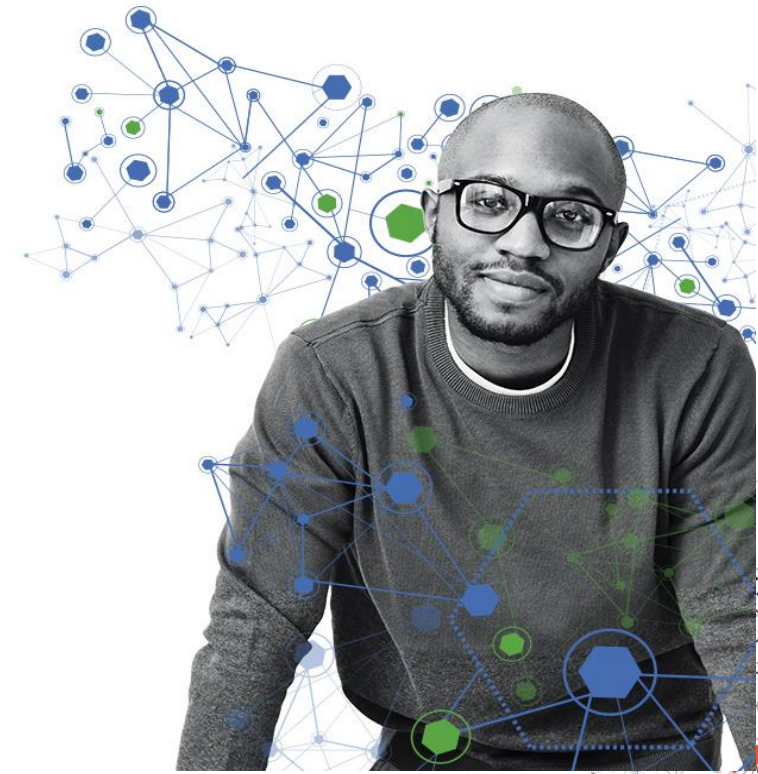
Next: Join us in the Expo Area



- Collaborate with colleagues and product experts. See live demos
- Connect with us online for demos, trials, analyst reports, references

[ibm.com/systems/storage/spectrum/](https://www.ibm.com/systems/storage/spectrum/)

<https://www.ibm.com/serviceengage.com/on-premises-solutions>



Thank You

