Enabling the Disruptive Thinkers in Your Organization

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What is a disruptive technology?

• Clayton Christensen, “Disruptive Technologies: Catching the Wave”
• New technology disrupts...
• Old technology diminishes...
What is a Disruptive User?
What is “Big Data” really?

- By 2020 the Digital Universe will hold 40 Zettabytes
- In 2012 68% of information was created and consumed by individuals...
- More information is being created *about* individuals than they are creating themselves

*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 analysis.*

*Source: IDC, The Digital Universe in 2020, December 2012*
What is “Big Data” really?

Predictive!

Data growth is not being driven by the need to restore the past... It’s all about predicting the future

- Correlation is King
- “What” more than “Why”
- No-delete data policies
- n = All
Correlation is King

• Running analytics against a data set in order to understand correlations

Trading “Why” for “What”

• N = All

• This is the use model driving the Digital Revolution, and our technologies must follow
Welcome to our world...
Deep Storage will be required to keep pace with the Digital Revolution:

Extremely low-cost, power efficient and high density storage that has some latency when retrieving data.

Accessed over REST interfaces and Web protocols where infrequently accessed data is stored and for which retrieval times of several minutes is suitable.
Attributes of Deep Storage

• Cloud Storage
  – Public
  – Private
• Object Store vs. File System
• Protection
Cloud Storage: Public & Private

- Next step in virtualization
- Simple data access
  - You use a gateway
  - HTTP or REST access to the user
- Easy expansion and contraction
- Boundaries:
  - Physical
  - Logical

NOTE: Need to work on positioning large data repositories and being owned vs. rented (private cloud)
Object Store vs. FileSystem

• Intent of File Systems
• Hierarchical vs. Flat
• Metadata
File Systems are “Nested”

- Invented 30 years ago
- Much overhead to:
  - Allow concurrent access
  - Allow read & write
  - Focus on “location” vs. “content”
- Great for real time sharing and editing or processing
- Limitations on scaling, indexing and searching
Object Stores are “Flat” vs. Hierarchical

Unlike files, objects are not stored in hierarchy
Each object has a unique object ID

- Physical location of the data no longer matters
- Objects can be moved across the storage pools among one or multiple tiers
- Data can be stored or copied within an Object Store thus eliminating the need to continually back it up
Metadata and physical data are separated

• Enables search, mining, and analytics of billions of objects without touching physical media
Enriched Metadata

File Name: CATSCANRLSMITH
Created by: Technician_BC
Created on: 03-14-2013
File Type: .SCAN

Object Store

Object ID: 24356
File Type: .SCAN
Patient Name: Ron L. Smith
Physician Name: Dr. Ling
Physician Notes: xxx.MP3
Procedure Date: 03-14-2013
Prior XRAYS: 00768, 00456
Prior SCANS: 24355, 24354
Retention Period: 50 years
Prognosis: Concussion
Custom Metadata: XXX
A few other cool things you get...

• Simple data access
  – You use a gateway
  – HTTP or REST access to the user
• Easy expansion and contraction
• Data Protection
Questions?

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