Managing Backup and Recovery in Today's Agile, Complex and Heterogeneous Data Centers

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Abstract

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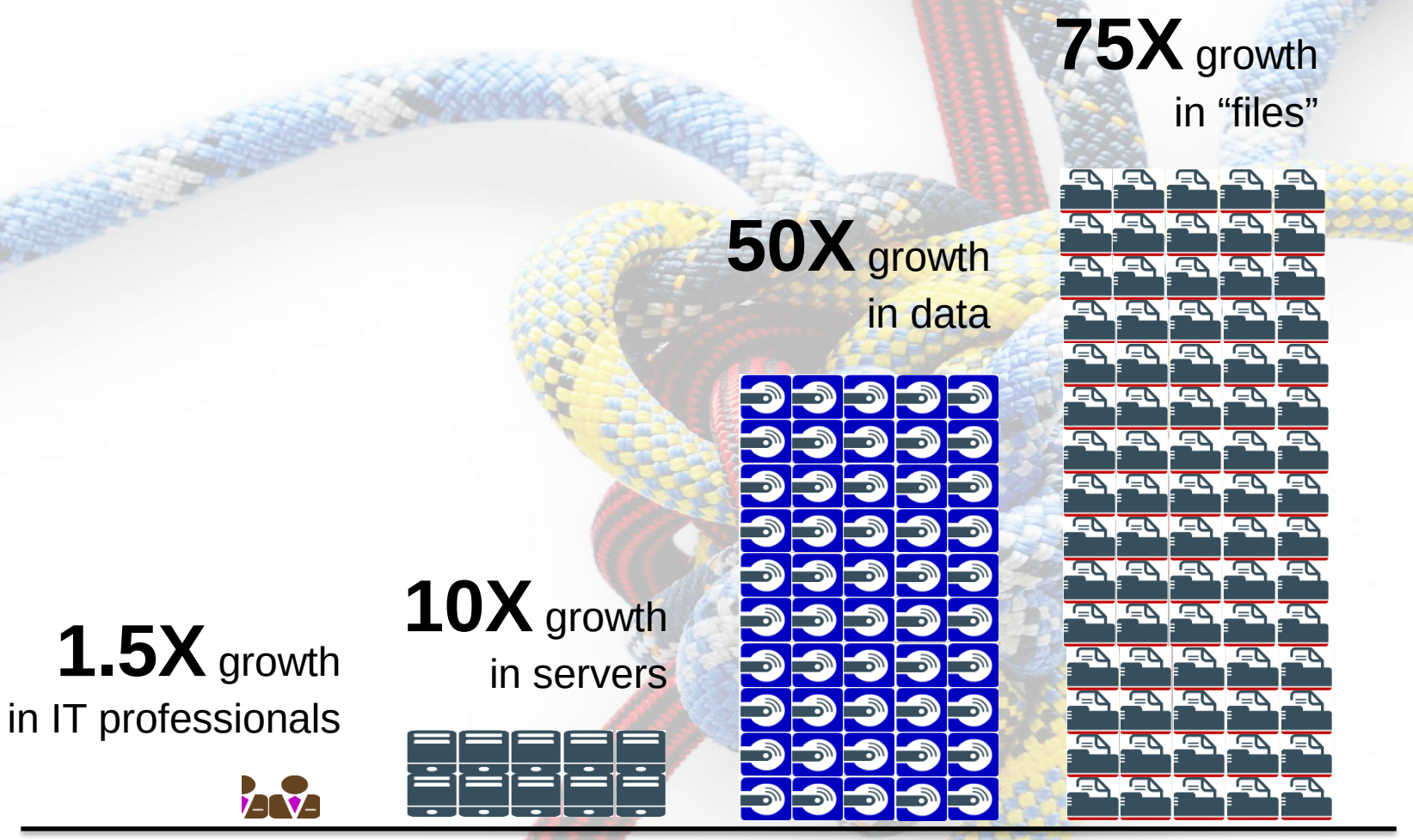
- For IT professionals tasked with data protection, the goal is the same today as it always has been: secure mission-critical environments and the data housed within them. While the end goal remains the same, the means to get there has changed drastically in large part due to the emergence of cloud computing, virtualization and hybrid environments.
- In this session we will outline how companies can evolve their backup and recovery strategies to accommodate today's agile, complex and heterogeneous data center environments. We will examine on-premise, virtual and cloud-based backup and recovery, and advise how companies can identify the best approach to fit their business requirements.

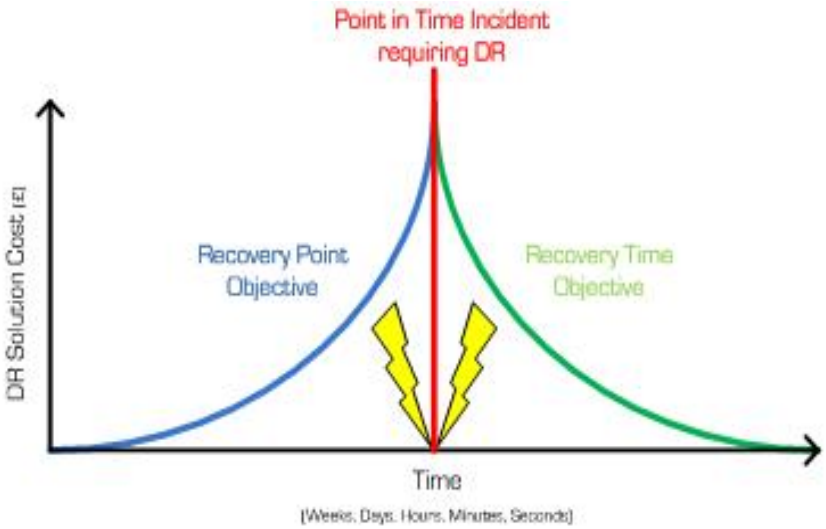
Over the Next Decade…



[Source: The 2011 IDC Digital Universe Study]

RTO and RPO

- Recovery Time Objective (RTO):
  - Fancy definition (from Wikipedia): Duration of time and a service level within which a business process must be restored after a disaster (or disruption) in order to avoid unacceptable consequences associated with a break in business continuity
  - Simple definition: Acceptable length of time without service and data being available
- Recovery Point Objective (RPO):
  - Fancy definition (from Wikipedia): Maximum tolerable period in which data might be lost from an IT Service due to a Major Incident
  - Simple definition: How much data (past and present) must be restorable in the RTO



Consequences of outage (RTO impact)

- 93% of companies that lost their data center for 10 days or more
  - filed for bankruptcy within one year of the disaster
  - Source: National Archives & Records Administration in Washington
- 30% of all businesses that have a major fire and lose access to their servers/data
  - go out of business within a year
  - 70% fail within five years
  - Source: Home Office Computing Magazine

Consequences of data loss (RPO impact)

- 7 out of 10 small firms that experience a major data loss go out of business within a year
  - Source: DTI/Price Waterhouse Coopers
- 94% of companies suffering from a catastrophic data loss do not survive
  - 43% never reopen
  - 51% close within two years
  - Source: University of Texas study on catastrophic data loss
- 96% of all business workstations are not being backed up.
  - Source: Contingency Planning and Strategic Research Corporation

Magic Quadrant – Virtualization Infrastructure

[Source: Gartner Magic Quadrant for x86 Server Virtualization Infrastructure, June 2012, June 2013]

Growth of Virtualization infrastructure

- Majority of IT virtualization is VMware - 59%
  - Down from 76% in 2012
- MSFT Hyper-V up to 30%
- Key influencers of virtualization growth:
  - Infrastructure modernization
    - Improve resource utilization
    - Reduce costs
    - Improve energy efficiency
    - Improve speed of resource delivery
  - Cloud computing
    - 4% of all server VM's are running in cloud providers

[Source: Gartner Magic Quadrant for x86 Server Virtualization Infrastructure, June 2012, June 2013]

Considering your hybrid IT environment

- Few mid-market IT shops are 100% virtualized
- However, over 60% have some level of virtualization
- Top reasons for virtualization:
  - Server and storage consolidation
  - Hardware and infrastructure cost savings
    - Heating/cooling and power
  - IT Staff productivity

Protecting the hybrid? Don't forget…

- How many products are needed to protect your environment?
  - Multiple point solutions
  - Virtual/physical/applications
- Do you need to include tape?
  - Past investment protection
  - Offsite rotation
  - Long-term retention
- How important is failover?
  - Refer to your RTO
  - Virtual servers/hosts
  - Storage
- Is your data protection solution application aware?

Other Forces of Change

- Tighter Data Protection Requirements
  - Application-based RPO and RTO requirements
  - New Service Level Agreements (SLAs)
  - Archiving & long-term retention requirements
- Snapshots becoming common
- Big Data
  - Traditional backup tools may be inappropriate
- Cloud Computing & Cloud Storage
  - Cloud storage often includes data protection
- Primary Storage with Built-In Data Protection
  - Snapshots & versioning
  - Self healing

More Use of Snapshots

- Major improvement in RPO
  - Backup to disk improved RTO, but not RPO
- Can have side effects on applications
  - Performance
  - Disk space requirements
- Can present some challenges
  - Snapshots provide only logical data protection, not physical
  - Open file & consistency issues - if not application aware
  - Application aware agents can add cost, complexity, management

Snapshots in the DP Mix

- Used with traditional backup
  - Eliminates need for backup window
- Used with Near-CDP
  - Very common practice now for email, databases
- Used with Replication for Disaster Recovery
- Virtualization brings snapshot decisions
  - File system level vs. hypervisor level
  - Hypervisor level often adequate for unstructured data
  - Use application-aware snapshots for structured data

More use of Public Cloud

- Huge CAPEX benefits
  - Backup as part of the deal –
    - Software-as-a-Service (SAAS)
    - Cloud storage with HA & data protection
  - Significant savings for Disaster Recovery
  - Facilitates backup of remote sites

- WAN Latency may be acceptable for secondary storage
- When cloud is an alternative - Compare existing storage costs to cloud offering(s): $/GB/month

Being Careful about Cloud

- Blended systems with local backup plus cloud becoming common
  - Take advantage of cloud economies and flexibility

  But
  - Add another layer of management
- Cloud HA may require difficult cross-cloud mirroring
- DR may require restores to cloud PAAS
- Service provider risks
  - Be careful about SLAs
  - Never put all eggs in one basket

Management Challenges

- Moving targets
  - Transitioning to virtual infrastructure
    - May cause “shell game” for data protection admins
- Consolidation of storage functions
  - Primary with HA + snapshots & versioning – need for traditional backup
    - Can work without, if snapshots on a separate device or in cloud, but
    - Backup is often still needed
- More decisions on where to perform Data Protection
  - At source, local media server, hypervisor, or at cloud
- Changing responsibilities in governance
  - Primary + backup in one cloud service or one device – need to determine who has responsibility

While Accommodating Change - - Keep the Basics in View

- Know your business requirements
  - SLA's
  - RPO's & RTO's
  - Compliance regulations
  - IT staff core competencies
- Know your budget
- Know your IT topology – physical and virtual assets
- Have a data protection and disaster recovery plan
- Test to that plan

Attribution & Feedback

The SNIA Education Committee thanks the following individuals for their contributions to this Tutorial.

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