

# Designing IBM System Storage Solutions for Microsoft Exchange Server 2010

David Hartman, IBM

sEA01

IBM Storage

## Edge2012

Expect More from Your Storage

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#IBMEDGE



# A little about me...

- **Own the technical relationship between IBM System Storage™ & Microsoft. Responsible for:**
  - Driving technical enablement, i.e. feature support (SMI-S, VSS, ODX)
  - Creating technical collateral (ESRP, whitepapers, Redguides)
  - Creating joint solutions such as the Hyper-V Fast Track & SQL Server Data Warehouse reference architectures
  - HW & staffing at the Microsoft campus & the IBM Center for Microsoft Technologies
  - Defining technical goals and areas of collaboration between the companies
- **With IBM since 2004**
- **20+ years hands-on IT from startups to enterprise**
  - Still have nightmares from on call pager duty



# What's in a name?

- Unfortunately, not affiliated with:



- But tormented as a kid thanks to:



# I've created some collateral...

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Document Number	Document Title	Last Update	Doc Author or Owner
<a href="#">WP101002</a>	IBM® System Storage™ DS4700 Express 8000 Mailbox Exchange Server 2007 Storage Solution	04/16/2007	David Hartman
<a href="#">WP100998</a>	IBM System Storage DS4800 8K-User Solution for Microsoft Exchange Server 2007 - Storage	04/10/2007	David Hartman
<a href="#">WP101009</a>	IBM System Storage TSM solution for Exchange Server 2003	04/24/2007	David Hartman
<a href="#">WP100979</a>	IBM System Storage DS4500 Solution for Microsoft Exchange Server - Storage	03/06/2007	David Hartman
<a href="#">WP101358</a>	Best Practices for Installing and Configuring a DS5000™ Storage Subsystem with the Hyper-V™ Role	06/30/2010	David Hartman
<a href="#">WP101702</a>	IBM XIV® Storage System Model 2810 40,000 Mailbox Resiliency Exchange 2010 Storage Solution	06/20/2010	David Hartman
<a href="#">WP101677</a>	IBM System Storage™ DS3950 28,000 Mailbox Exchange 2007 Storage Solution	04/29/2010	David Hartman
<a href="#">PRS3882</a>	IBM XIV® Storage System Model 2810 40,000 Mailbox Resiliency Exchange 2010 Storage Solution	12/21/2009	David Hartman
<a href="#">WP101547</a>	IBM XIV® Storage System 16,000 Mailbox Cluster Continuous Replication Exchange 2007 SP1 Storage Solution	12/17/2009	David Hartman
<a href="#">WP101524</a>	IBM Business Intelligence Solutions with Microsoft® SQL Server 2008®	08/12/2009	David Hartman
<a href="#">WP101500</a>	Microsoft Hyper-V Mixed Workload Performance with the IBM DS5000 Storage Subsystem	06/22/2009	David Hartman
<a href="#">WP101402</a>	Installing and Configuring Tivoli® Storage Manager 5.5.1 from IBM® with Microsoft® Exchange 2007	01/12/2009	David Hartman
<a href="#">WP101399</a>	Protecting Exchange Server 2007 with Microsoft Data Protection Manager 2007 & IBM DS3200 Storage Subsystems	12/24/2008	David Hartman
<a href="#">TD104819</a>	Integrating the IBM System Storage™ DS5000 with Microsoft®	11/07/2008	David Hartman



# Session Objectives

- **At the conclusion of this session, participants should be able to:**
  - Intelligently discuss the key architectural design concepts of Microsoft Exchange Server 2010
  - Understand Exchange performance characteristics and how they affect storage design and underlying hardware
  - Be able to map IBM's System Storage™ solutions to applicable Exchange scalability, performance and availability requirements
  - Adapt best-practices from real-world Exchange deployments that can help to control storage cost and ease management burdens
  - Understand work IBM has done to validate our products with Exchange, and where to go for additional resources



# Question: What was the first official version of Exchange, and when was it released?



# Design Drivers in Exchange Server 2010

## Large Mailboxes at Low Cost



- Exchange 2010 supports a range of storage options
  - Direct Attached Storage (DAS), Storage Area Network (SAN)
  - RAID and RAID-less (JBOD)
- Uses storage more efficiently and can lower storage costs
  - Larger, slower, lower-cost disks—SAS/SATA (Tier 2) Disks
- Maintains reliability and performance
  - Built-in Exchange 2010 Mailbox Resiliency features



# Storage Improvements

## New options with performance enhancements

Choose from a range of storage technologies that can reduce costs without sacrificing system availability



Storage Area  
Network (SAN)



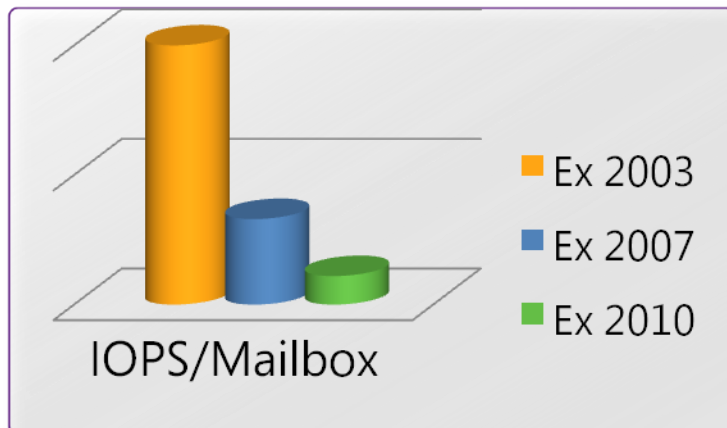
Direct Attached  
w/ SAS Disks



SATA Disks



JBOD  
(RAID-less)



Exchange 2010 storage enhancements

- **90% reduction in IOPS from Exchange Server 2003**
- **Smoother I/O patterns**
- **Resilience against corruption**





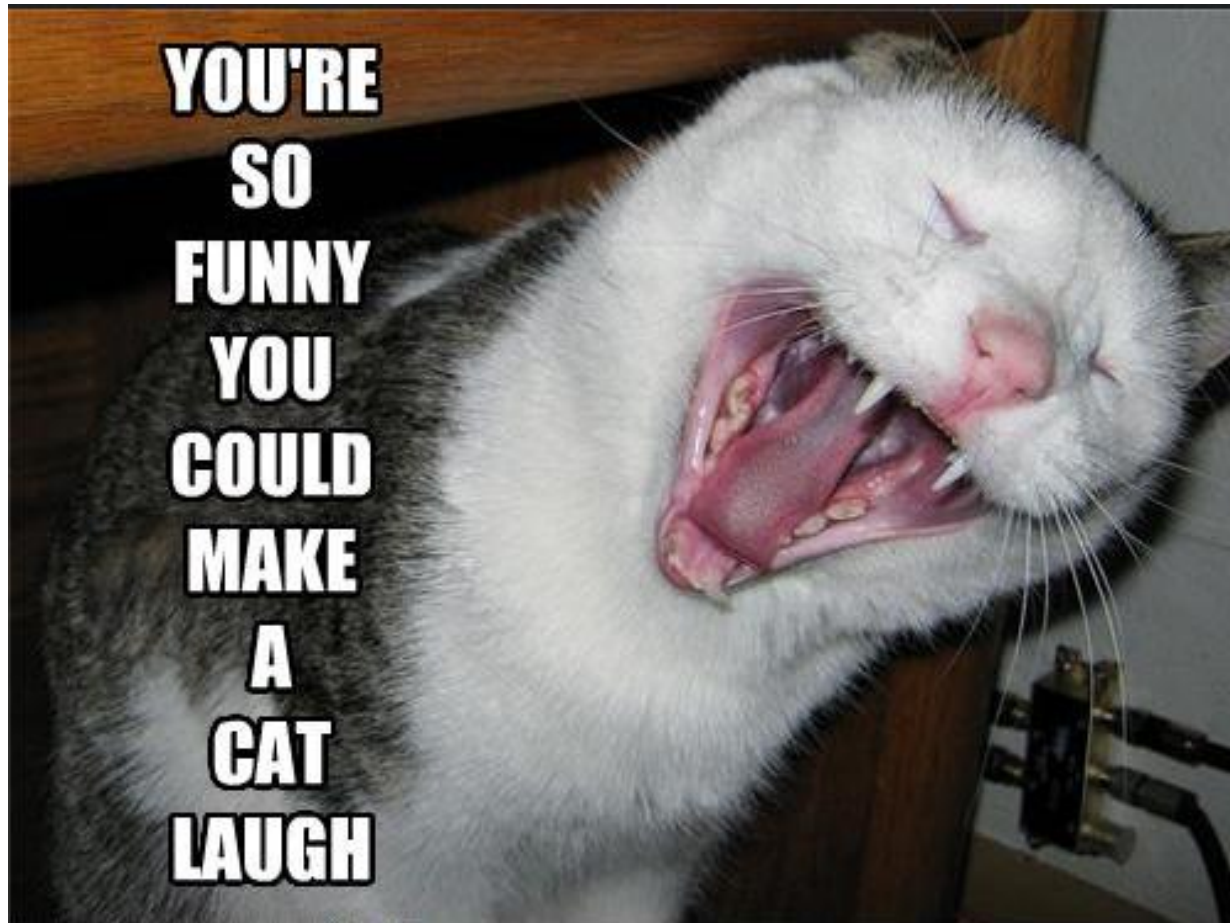
**It is hereby pronounced that:**



**“The SAN is dead!”**



**This messaging has been received well by enterprise customers...**



# XIV – The Exchange Team’s ‘problem child’

- As recently as Exchange Server 2007, XIV & the Exchange Team ‘buted heads’
  - What was that about log & database spindle isolation?
  - Cannot be physically achieved in a virtualized storage system
  - No ESRP’s for XIV?!
  - ‘Unsupported’ architecture?!
- After much animated dialog
  - Common sense prevailed in Redmond
  - Microsoft actually loves XIV (and the SVC/V7000 after their respective GUI updates)
- Exchange is actually one of XIV’s top workloads...

