



# “Moves Like Jagger”

## Upgrading to SQL Server 2012

Mark Broadbent

# About



Mark Broadbent

“Possibly the hardest drinking DBA on the planet”

Tweet as **retracement**

Blog: [\*\*tenbulls.co.uk\*\*](http://tenbulls.co.uk)

Cambridgeshire SQLUG Leader [\*\*sqlcambs.org.uk\*\*](http://sqlcambs.org.uk)

Presented at SQLBits, SQL Rally, PASS Summit

Awarded Microsoft Community Contributor Award 2011

MCITP DB Dev and DBA for SQL 2008

MCITP DBA 2005 and MCDBA SQL 2000

MCAD (C# .NET) and MCSE+I

# Introduction

- Upgrade path
- Preparing and reporting for upgrade
- Upgrade strategies
- Measuring success
- Advanced scenarios

# But first... why upgrade to 2012?

- New Features
- Move to 64-bit
- New Hardware
- Mainstream Support
- Virtualization
- Consolidation



# “My Favourite” New Features

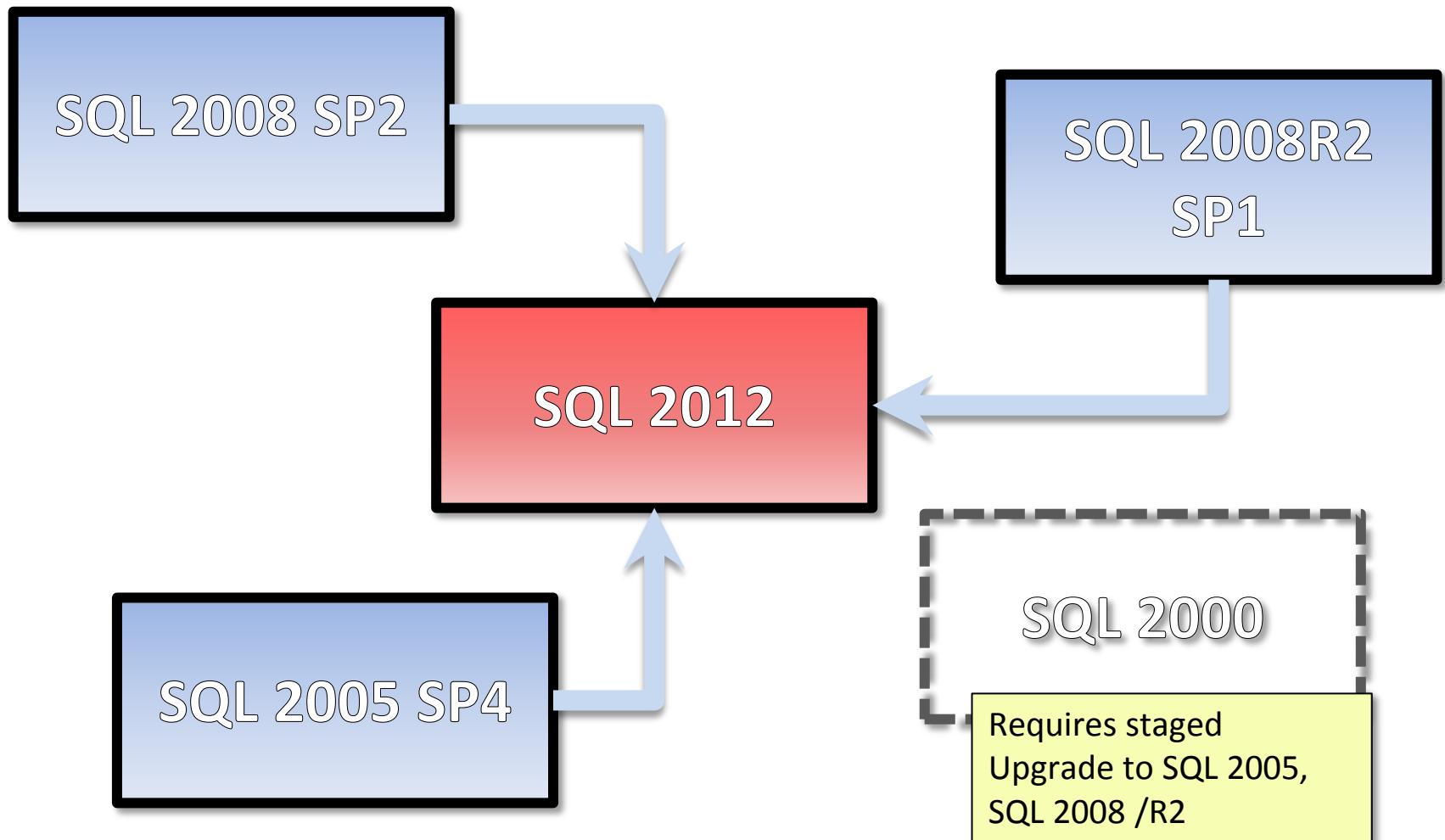
- Failover Clustering enhancements
  - Local TempDB
  - Multi-subnet clustering
- AlwaysOn Availability Groups
- Contained Databases
- ServerCore support

# Mainstream Support

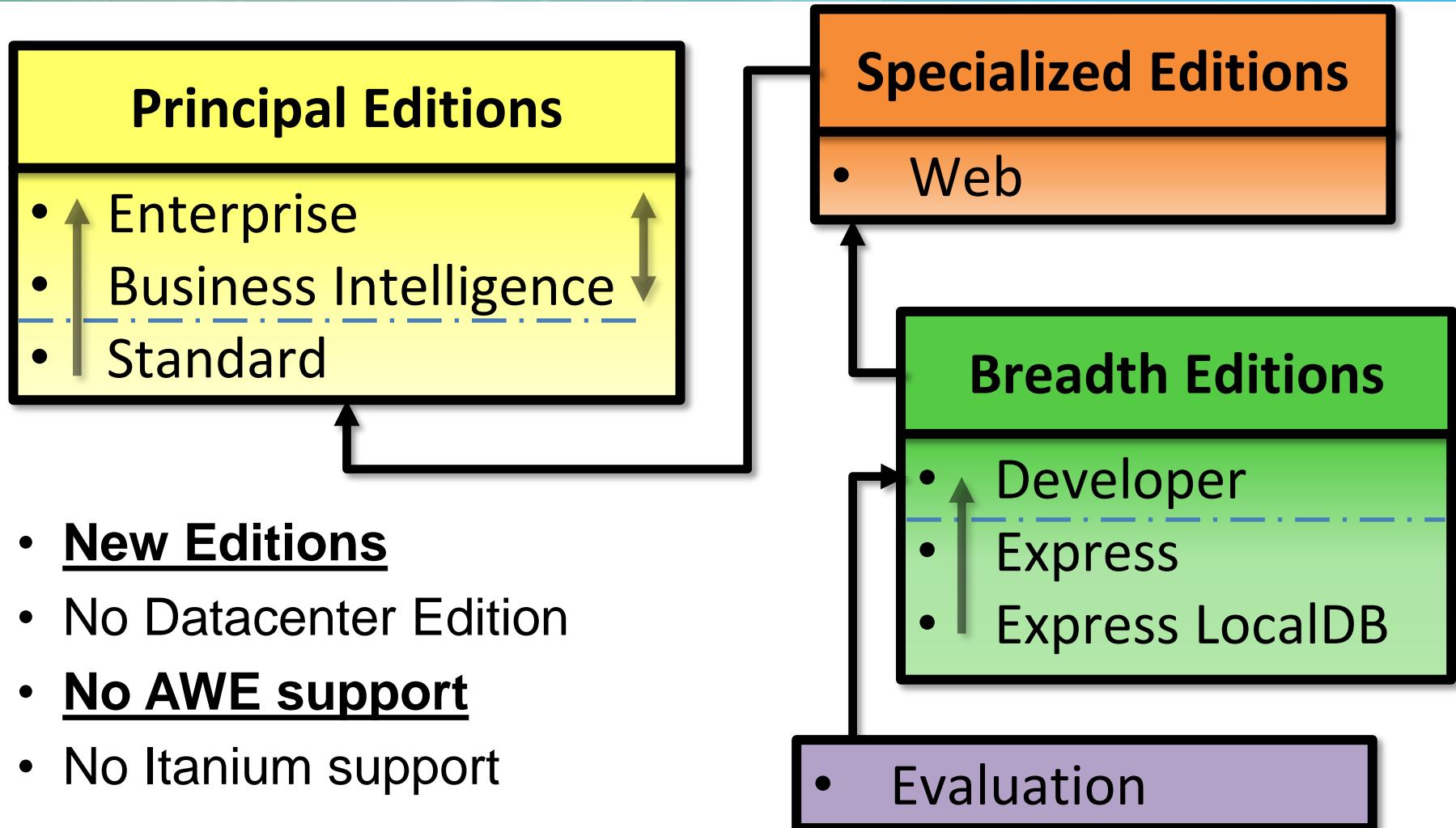
Product	Mainstream Support End	Extended Support End	Service Pack Support End
Windows 2003	2010-07-13	2015-07-14	2009-04-14
Windows 2003R2	2010-07-13	2015-07-14	2009-04-14
Windows 2008	2013-07-09	2018-07-10	2011-07-12
Windows 2008R2	2013-07-09	2018-07-10	2013-04-09
SQL 2005	2011-04-12	2016-04-12	2007-07-10
SQL 2008	2014-01-14	2019-01-08	2010-04-13
SQL 2008R2	2014-01-14	2019-01-08	2012-07-10

<http://support.microsoft.com/lifecycle/#ServicePackSupport>

# Supported Upgrade Path



# Edition Hierarchy



# Edition Upgrade

SQL 2005/ 2008/ R2

- Enterprise
- Datacenter (R2 only)

- Standard

- Web (2008/R2 only)
- Workgroup

- Developer
- Express

SQL 2012

- Enterprise
- Business Intelligence

- Standard

- Web

- Developer
- Express
- Express LocalDB

Developer  
ONLY

Version upgrade to higher edition permitted unless stated otherwise

# DEMO: Performing Upgrade

# Preparing and Reporting for Upgrade

- Discover candidates for consolidation
- Document the candidates for upgrade
- Baseline existing candidates
- Load test new server
- Check new server configuration

# Capture...

Wait Stats

MAXDOP

Performance Trace

Server Shares

Application Load

LPIM

CPU count

Statement Execution time

NTFS Cluster Size

SQL Errorlogs

NTFS Security

Query Plans

RAID Stripe Size

Partition Alignment

NTFS Cluster Size

Instant File Initialization

# Discovery and Analysis Toolkit

PowerShell

Msinfo32.exe

WMI

TSQL

CPU-Z

Hardware Vendor Tools

System Center

fsutil

YOU

Performance Monitor

MAP Toolkit

Upgrade Assistant

Profiler

Upgrade Advisor

Distributed Replay

SQLStress

SQLIOSim

SQLIO

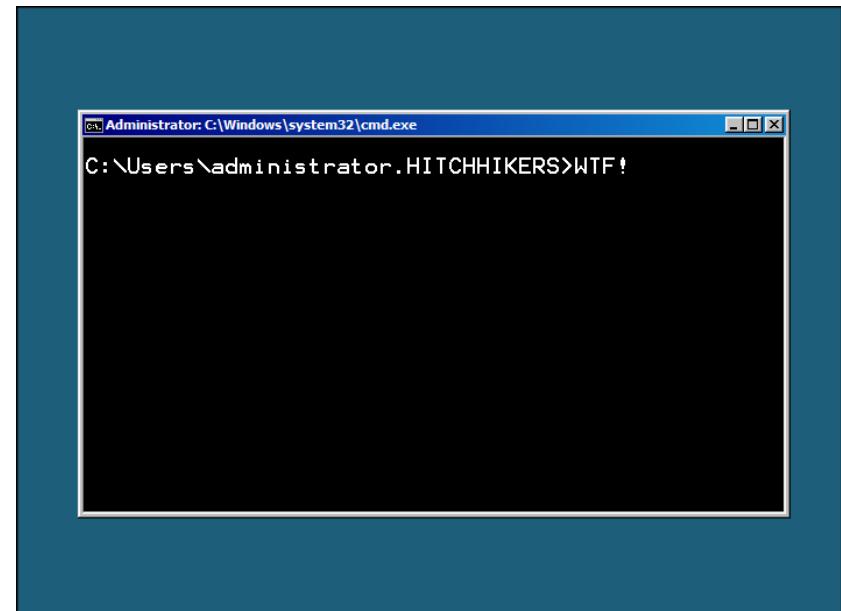
# Upgrade Strategies

- In place
  - Risky, and changing source data
  - Backout can be difficult, definite downtime
- Side by side
  - Risk to live instance
  - Connectivity considerations
- Migrate to new server
  - Less risk, backout easier and upgrade will require less downtime
  - Implement new features and remove deprecated ones

# DEMO: Reporting for Upgrade

# Moving to SQL on Server Core

- How to install or upgrade?
- Configuration and management
- Performance Monitoring
- Restrictions



# Moving to AlwaysOn

- Availability Groups
  - Should you use a Listener?
  - No MSDTC support –do you need it?
  - No Instance Level object failover
- Failover Clustering
  - Shared Storage
  - Validation
- Both
  - Windows Failover Cluster requirement
  - Node Weight

# Summary

- Understand the reason for upgrade before leaping
- Always look to consolidation candidates
- Ensure you analyse your upgrade targets & destinations
- Retain useful historical metrics for future issues
- Understand your upgrade path
- Implement new capabilities to your advantage
- Aim to minimize downtime and maximize availability
- Be prepared for failure
- This is your neck on the line, be prepared and be careful!
- Good luck ☺

# Thank you for listening!

Contact me via

- Twitter: **retracement**
- Email: [mark.broadbent@sqlcambs.org.uk](mailto:mark.broadbent@sqlcambs.org.uk)
- Blog: <http://tenbulls.co.uk>
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