

# Can You Get Predictable Performances from SQL Server?

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# Summary



Performances differ per server

A new release can change everything

It is difficult to get predictable performances

We need to stress test the database

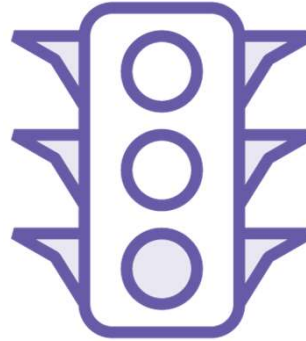
We need to simulate a production server as much as possible



# Why Are Database Performances Not Predictable?



**Production surprise**  
It was so fast on the  
development server!



**Load**  
We have real users  
here



**Volume**  
We have real data  
here



# Should We Trust the Server Anyway?



**Centralized**  
Is our database the  
bottleneck?



**Trust the server**  
It can handle some  
load



**Take care of it**  
It is worth the effort



## To Keep in Mind

Check your queries for performance

No table scan

Think about concurrency

Load test before release

Monitor your production server



# SQL Server: Introduction to Query Store

by Erin Stellato

One of the most highly anticipated new features in SQL Server 2016 is Query Store. It's been referred to as the "flight recorder" for SQL Server because it tracks query information, namely query plans and run-time statistics.

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Course Overview



1m 42s



Introduction



13m 18s



Defining Query Store



25m 38s



Implementing Query Store



45m 18s



Course author



Erin Stellato

Erin Stellato is a Principal Consultant with SQLskills and a SQL Server MVP. She has worked as a SQL Server professional since 2003 and her interests include Internals, Performance Tuning, High...

Course info

Level Beginner

Rating ★★★★★ (37)

My rating ★★★★★

Duration 3h 2m

Released 31 Jan 2017

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# SQL Server 2014 DMV Diagnostic Queries - Part 3

by Glenn Berry

Learn how to easily query SQL Server for database-level information to help identify and solve performance problems. This course is applicable to anyone who is responsible for SQL Server databases, with all topics also applicable to SQL Server...



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## Introduction

- Database performance issues are immediately noticeable
  - Can quickly affect multiple applications or your entire organization
  - You can't just reboot the database server and hope that fixes the problem

## Summary

- These DMV/DMO queries can help you detect most database-level performance issues

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Introduction



10m 20s



Database-Level Performance Queries Part 1



29m 8s



Database-Level Performance Queries Part 2



28m 57s



### Course author



Glenn Berry

Glenn works as a Principal Consultant at SQLskills.com. He has been a SQL Server MVP since 2007, and he is also an Adjunct Faculty member at University College - University of Denver. He is the...

### Course info

Level Intermediate

Rating ★★★★★ (83)

My rating ★★★★★

Duration 1h 8m

Released 2 Feb 2015

### Share course



# SQL Server: Performance Troubleshooting Using Wait Statistics

by Paul Randal

Learn how to begin troubleshooting SQL Server performance problems, applicable for developers and DBAs from SQL Server 2005 onwards



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Introduction



15m 9s



SQL Server Threading Model



35m 10s



Waits



43m 17s



Latches and Spinlocks



33m 12s



Expand all

## Course author



Paul Randal

Paul is the CEO of SQLskills.com, a Microsoft Regional Director and a SQL Server MVP. He worked on the SQL Server Storage Engine team at Microsoft from 1999 to 2007. Among other things, he wrote...

## Course info

Level Intermediate

Rating ★★★★★ (424)

My rating ★★★★★

Duration 4h 31m

Released 28 Jun 2012

## Share course

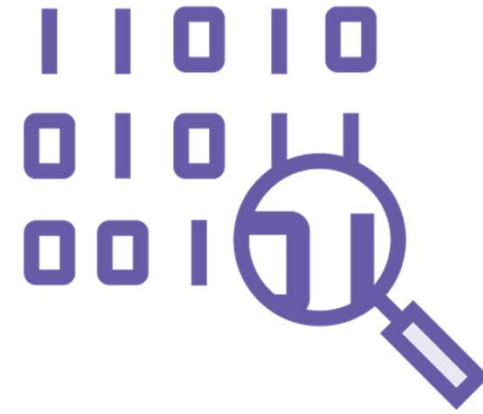




# You Can See It!



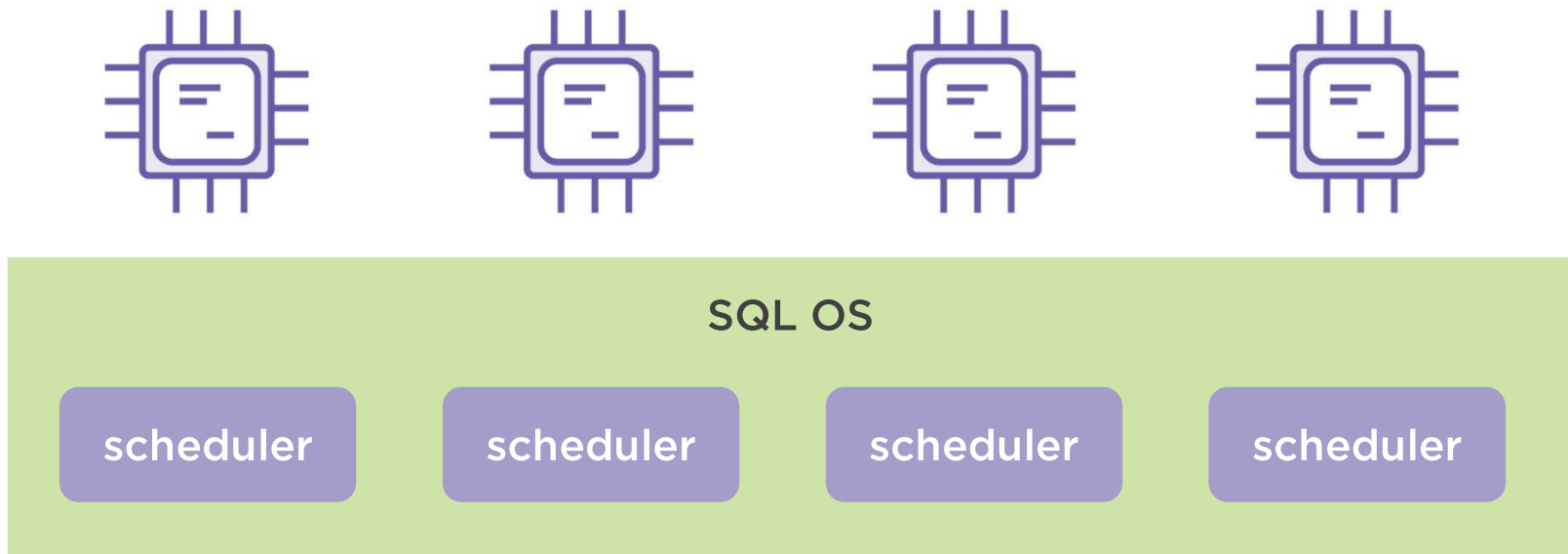
**Diagnostics**  
**SQL Server is not a black box**



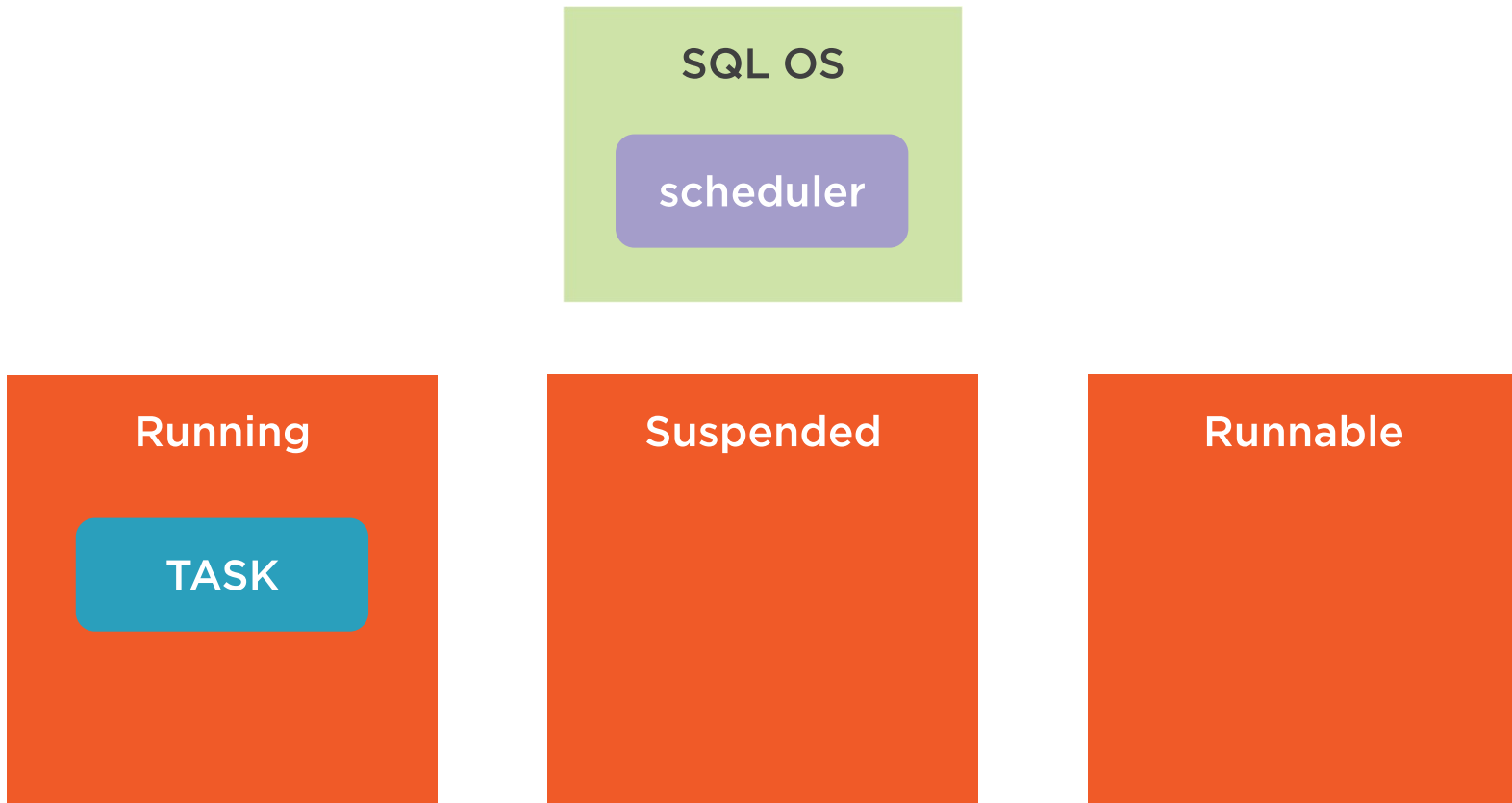
**Search for it**  
**You can see almost everything**



# Schedulers in SQL OS



# Thread States



# SQL Server: Performance Troubleshooting Using Wait Statistics

by Paul Randal

Learn how to begin troubleshooting SQL Server performance problems, applicable for developers and DBAs from SQL Server 2005 onwards

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## Summary

- SQL Server performs its own thread scheduling
- Thread pools have a maximum number of threads and a...

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15m 9s



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35m 10s



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43m 17s



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Level Intermediate

Rating ★★★★★ (424)

My rating ★★★★★

Duration 4h 31m

Released 28 Jun 2012

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How Can You  
See Waits on  
the Server?

Wait and queues performance tuning

Extended Events

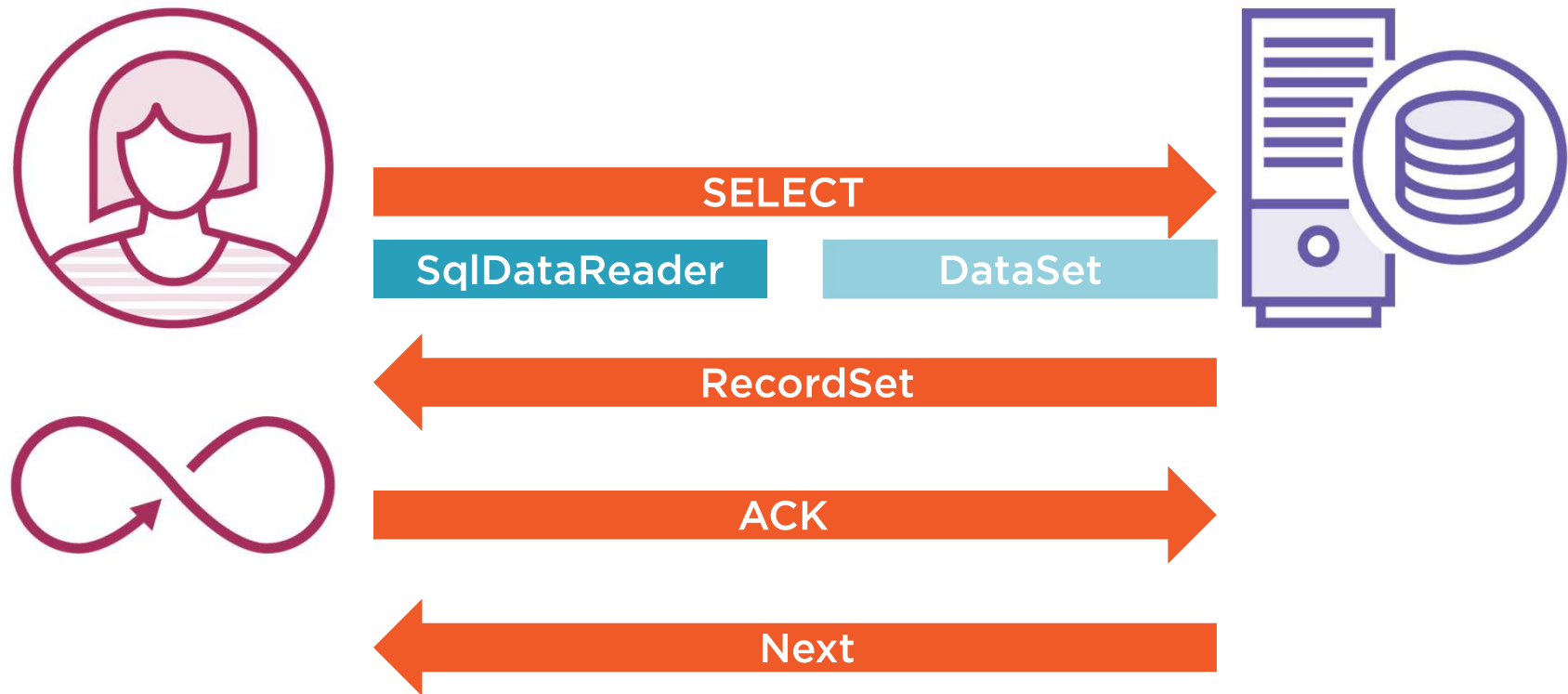
`sys.dm_os_waiting_tasks`

`sys.dm_os_wait_stats`

Wait statistics, or please tell me where it hurts, Paul Randal



# ASYNC\_NETWORK\_IO



# Visual Studio 2010 Database Projects

by Robert Cain

Learn how to use Visual Studio Database Projects to manage your database code, reverse engineer an existing database, create realistic test data, even unit test your T-SQL

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## Summary

- Multiple deployment options
- Deployed a simple database
- Debugged and deployed a complex database.

Course author



Robert Cain

Robert C. Cain (arcanecode.com) is a Microsoft MVP, MCTS Certified in BI, and is the owner of Arcane Training and Consulting, LLC. He is also a course author for Pluralsight, team member at...

Course info

Level Intermediate

Rating ★★★★★ (108)

My rating ★★★★★

Duration 1h 49m

Released 6 Jan 2011

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- ▶ Creating and Refactoring
- ▶ Deployment Options
- ▶ Data and Schema Comparisons, Pre and Post Deployment Scripts
- ▶ Data Generation



24m 56s



20m 1s



22m 58s



18m 21s



# RML Utilities

CSS team

Replay Markup Language

Analysis

Reporting

Stress

Replay





# OSTRESS

Run a workload or replay a trace

.sql, .trc, .xel

Case-sensitive parameters

No space between parameter and value

n – number of connections

r – number of iterations



## SQL Trace Architecture (2)

# SQL Server: Collecting and Analyzing Trace Data

by Jonathan Kehayias

Learn how to collect trace data and use it to help with tasks like troubleshooting performance and workload benchmarking, applicable for developers and DBAs from SQL Server 2005 onwards



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Introduction



5m 17s



SQL Trace Architecture



9m 54s



Using SQL Server Profiler



43m 47s



Server-Side Trace



28m 48s



### Course author



Jonathan Kehayias

Jonathan Kehayias is a Principal Consultant with SQLskills. He is the youngest person ever to achieve the Microsoft Certified Master - SQL Server 2008 certification and has been a SQL Server MVP...

### Course info

Level Intermediate

Rating ★★★★★ (130)

My rating ★★★★★

Duration 3h 52m

Released 30 Jul 2012

### Share course



# Conclusion



Think like SQL



A RDBMS is not  
just a store



You can make it fast



SQL Server has a lot  
of diagnosis tools



Beware of the data  
model



Stress test!



# Colors

