

# A MASTERS PASSPORT TO EXTENDED EVENTS

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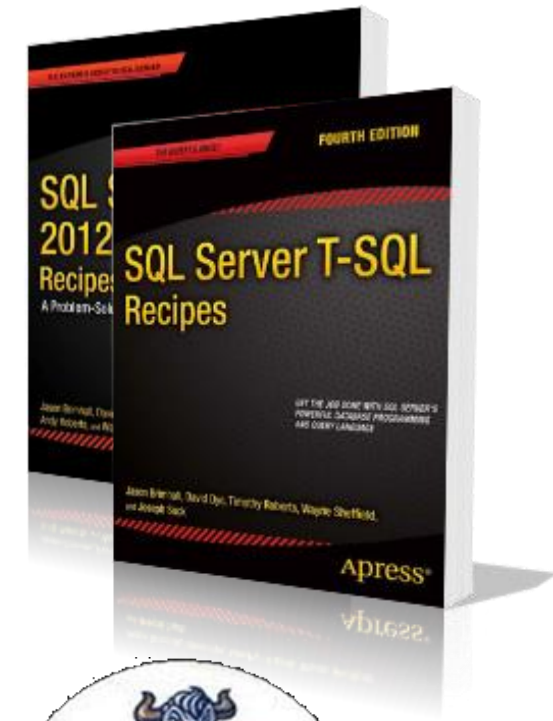
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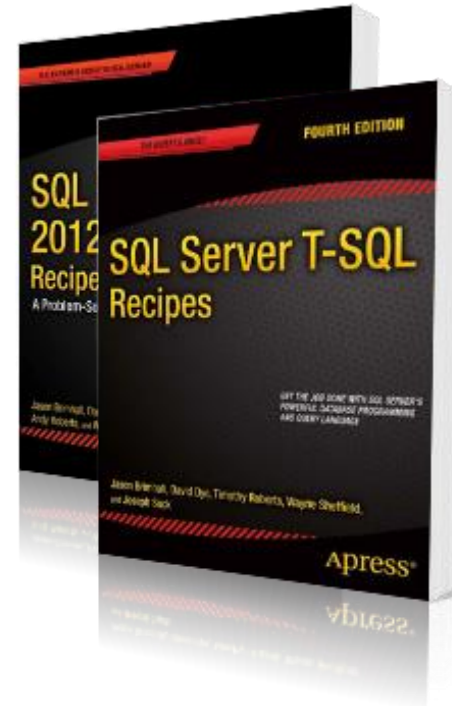
# Who the heck is this guy?



Microsoft®  
SQL Server®

6.5 – present  
(1998-now)

**Microsoft**  
CERTIFIED  
*Master*



**redgate**  
friend of Red Gate 2014

WE'RE SPEAKING

**Insert Photo Here**

*Do you really want another picture  
of us?*



**PASS**  
SUMMIT 2015

JOIN ME AGAIN  
OCTOBER 27-30:

- Jason – Compression
- Wayne – SSMS Tips & Tricks
-

- **Tuesday, October 27, 2015**
- **Seattle, Washington**
- **Venue is being negotiated**
- **4 Microsoft Certified Masters presenting all day long**
- **Stay tuned for more details.**

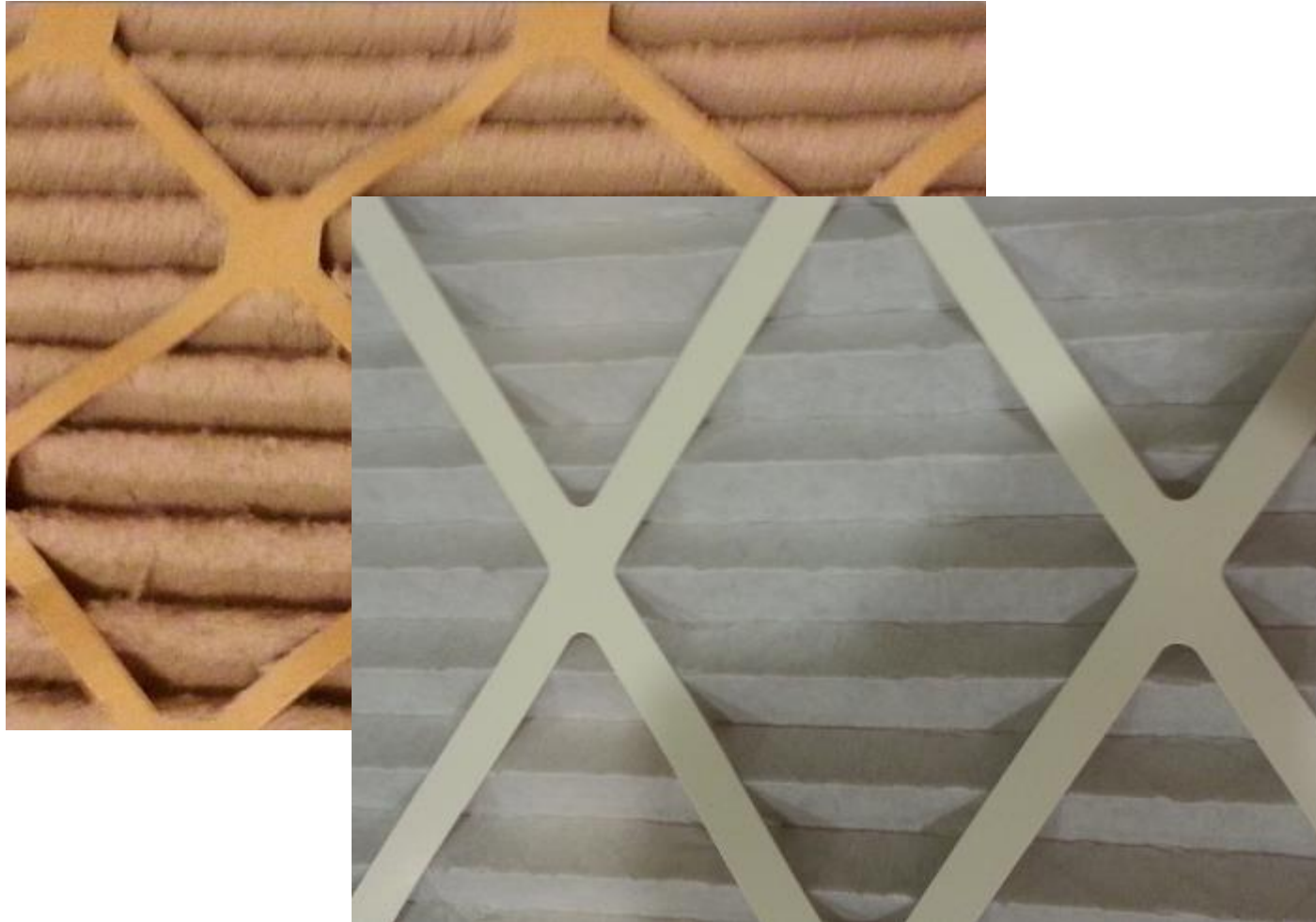
- **What are Extended Events (XE, XEvents)**
- **Metadata**
  - **DMVs**
  - **Packages, events, channels, actions**
  - **Targets, predicates, maps, sessions**
- **Security**
- **Create sessions**
  - **Script / DDL**
  - **GUI**



- **A general event handling system.**
  - **It is highly configurable**
  - **Enables collecting data to troubleshoot a performance problem.**
  - **Why use it?**
    - **Lightweight**
    - **Troubleshoot deadlocks, cpu, memory issues amongst other things.**
    - **Can correlate with Event Tracing for Windows (ETW)**

- **Code it like they stole it**
- **Code it like they rented it**

# MONOLOGUE



- **What's Air Filters got to do with anything?**
  - **Profiler**
  - **XE**
- **Comparison By Jason Strate**
- **<http://bit.ly/StrateXEPerf>**

- **Intro to the DMVs**
- **Components of XE**





- **Registered in XE Engine and contain information about XE objects**
  - **SQL 2008 has 4**
  - **SQL 2012 has 9**
  - **SQL 2014 has 12**



- **Signify to whom an event may be of interest**
  - **Admin**
    - Typically signal an error that generally has a defined solution
  - **Analytic**
    - Geared toward performance investigations
  - **Debug – typically used by CSS**
  - **Operational – similar to admin**



- **An Event is a specific point where something of interest occurred inside the Database Engine**
  - **SQL 2008 has 253 events**
  - **SQL 2012 has 446**
  - **SQL 2014 has 872 (~95.5% increase)**
  - **SQL 2016 (CTP 2.1) ~1100**



- **Metadata concerning the event in “table” format.**



- **Bound to events within an Event Session and perform a specified task**
  - **SQL 2008 has 35 actions**
  - **SQL 2012 has 43 actions**
  - **SQL 2014 has 48 actions**





## • Destination of the Event Session

Target Description	2008/R2	2012	2014	2016
ETW	etw_classic_sync_target	etw_classic_sync_target	etw_classic_sync_target	etw_classic_sync_target
Event Data Aggregator	synchronous_bucketizer asynchronous_bucketizer	histogram	histogram	histogram
File	asynchronous_file_target	event_file	event_file	event_file
Event Pairing	pair_matching	pair_matching	pair_matching	pair_matching
Memory	ring_buffer	ring_buffer	ring_buffer	ring_buffer
Counter	synchronous_event_counter	event_counter	event_counter	event_counter



- **Tables that provide lookup values**
- **Values are the key/value pairs for each map defined in the system.**



- **Provide a filtering mechanism to XE**
- **Very Important in XE**
  - **Can short-circuit an Event**
- **Two Types**
  - **Comparison**
  - **State Data**



- **Sessions are a collection of events, actions, predicates, and targets**
- **DML**
  - **Create / Alter / Drop**



- **Manage a Session via Script**
- **Manage a Session via GUI**





- **Enabled by default**
- **XE Session to track**
  - **Locks**
  - **Deadlocks**
  - **Latches**
  - **Ring\_buffer**
  - **Wait stats**
  - **CLR (in 2012)**
  - **c:\Program Files\Microsoft SQL  
Server\<InstanceDesignator>\MSSQL\Install\utables.sql**



TO...	PERMISSION NEEDED
Query Catalog Views	VIEW SERVER STATE
Query DMVs	VIEW SERVER STATE
Read target data (session data)	VIEW SERVER STATE
Create XE session	ALTER EVENT SESSION



# CONVERTING TRACES TO XE

## SAMPLE XEVENT SESSIONS



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