

Transitioning from Profiler's UI to Extended Events



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What This Module Covers



How to create an Extended Events session based on a Trace definition

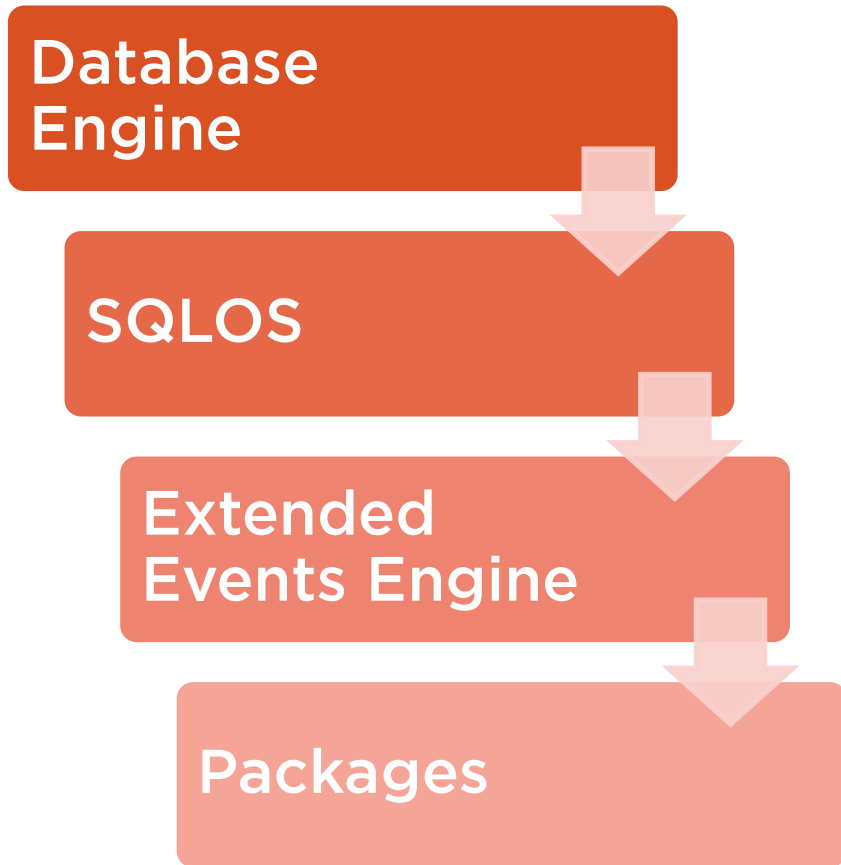
Establish foundation of Extended Events

Review settings for event sessions

Step through Extended Events life cycle

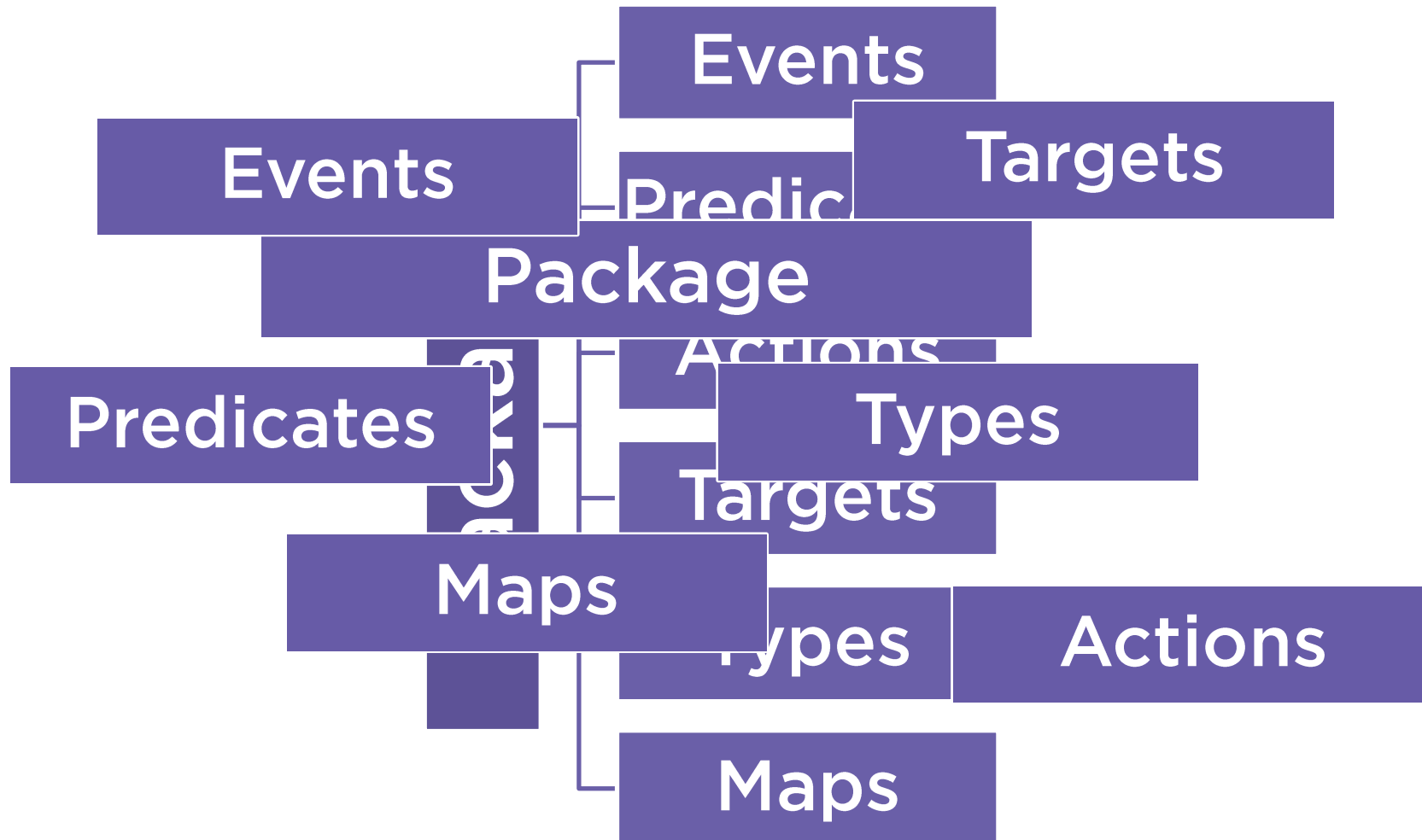


Extended Events Engine



The Extended Events Engine is a collection of services and objects that it manages, and is an interaction point for other SQL Server processes

Extended Events Objects



Demo



Making the Leap from Profiler/Trace to Extended Events



Events

An event
corresponds to a
well-known point in
the code

Data File Auto Grow

Sort Warning

Object: Created

SP: StmtCompleted

Lock: Acquired

SQL: StmtRecompile

Deadlock graph



Event Comparison

Trace

SP: StmtCompleted

SQL: StmtRecompile

Data File Auto Grow

Deadlock graph

Audit: Login

Extended Events

sp_statement_completed

sql_statement_recompile

database_file_size_changed*

xml_deadlock_report

~~login~~



Changes in Events by SQL Server Version

SQL Server Version	Events in Trace	Events in XE
2008 SP3	180	253
2008R2 SP2	180	262
2012 SP1	180	625*
2014 SP1 CU5	180	872
2016 RC3	180	1303



Considerations for Events



Events have a default payload – a set of data elements that are always returned by an event and cannot be altered*



Predicates: Filter out the Fluff

A predicate is a
filter

Predicates
support short-
circuit evaluation

Predicates can
operate on event
payload data or
global predicate
source



Considerations for Predicates



If you filter on an element that is not part of the default payload, the Engine has to first collect that information before it can perform predicate evaluation

Actions: When Event Data Isn't Enough

An action is an additional operation performed when the event fires

- *Collect* the database ID
- *Collect* the session ID
- *Create* a mini dump for the current thread

An action executes *only* when the event fires, therefore the predicate must evaluate to true first



Considerations for Actions



Think carefully about what actions are really necessary and relevant

Some actions have serious side effects

Other actions can have high overhead based on the event and how frequently it fires

Targets

Targets consume the events
and they store the data in
either raw or aggregate
format

- Event file
- Ring buffer
- Event counter
- Histogram
- Event pairing
- Event Tracing for Windows



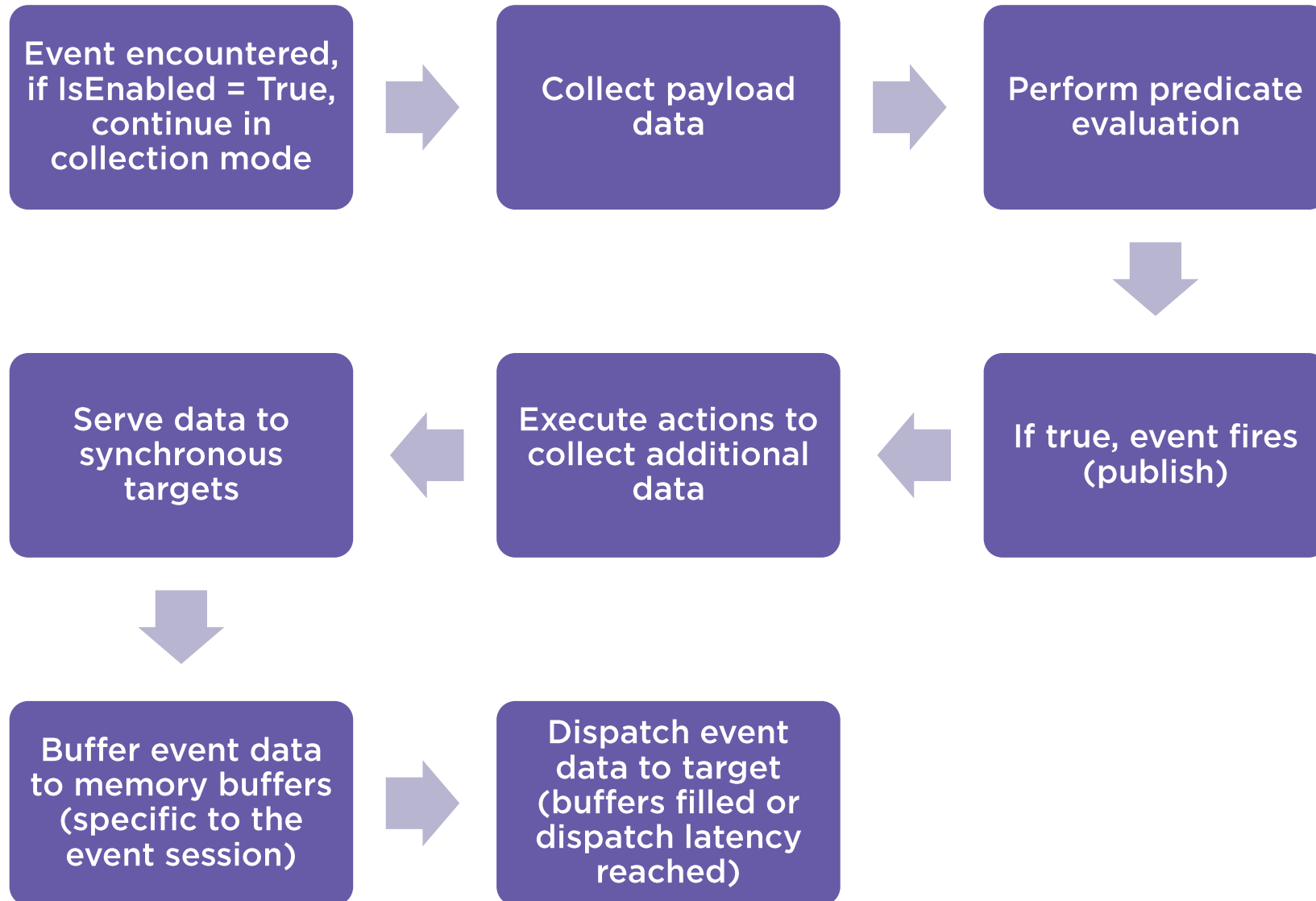
Considerations for Targets



Only the event file target stores data permanently

All other targets are memory-resident, and only store data while the event session is running

The Big Picture



Event Session Options – General



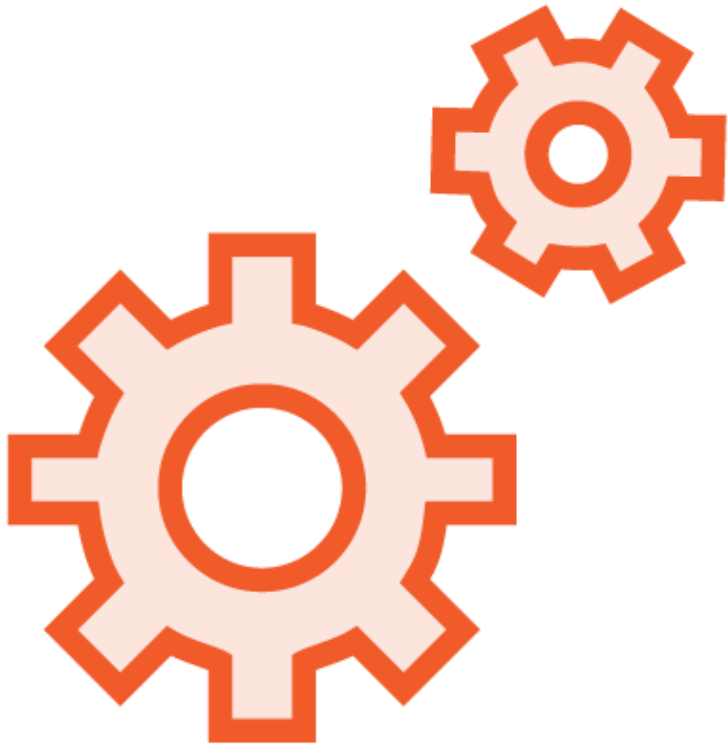
STARTUP_STATE

- Starts the event session automatically

TRACK_CAUSALITY

- Attaches a GUID and sequence number to events

Event Session Options – Advanced



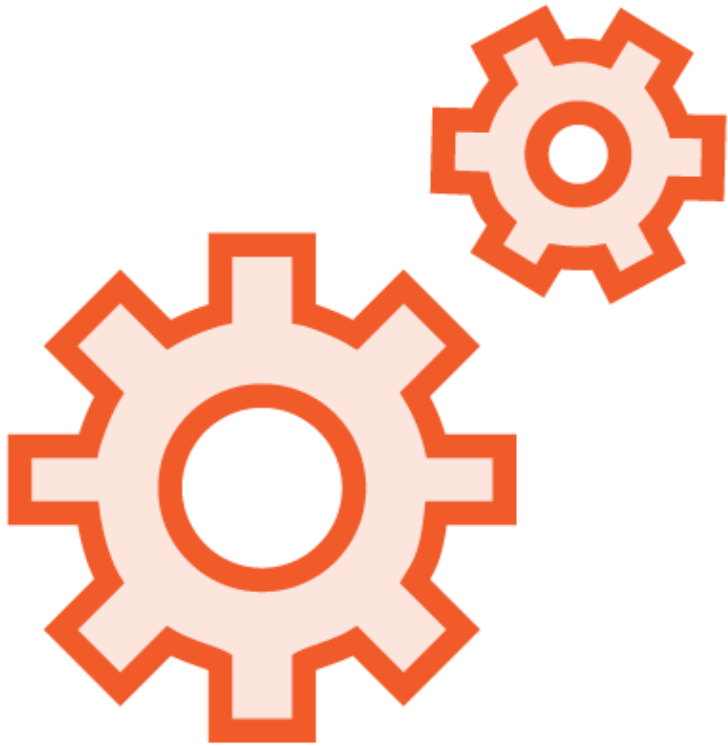
EVENT_RETENTION_MODE

- Determines the level of event loss

MAX_DISPATCH_LATENCY

- Affects how quickly events get to the target

Event Session Options – Advanced



MAX_MEMORY

- Not the actual maximum memory for the event session

MEMORY_PARTITION_MODE

- Determines the number of memory buffers for the event session

MAX_EVENT_SIZE

- Based on event definitions

What This Module Covered



How to convert an existing trace to an Extended Events session

Basic components of Extended Events

Extended Events life cycle

Event session settings

