Tools to Performance tuning

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Getting Started

- **Tools to explore**
  - SSMS
  - Performance Dashboard
  - DTA
  - PAL
  - Wait Stats
  - DMV and more

SQL Server Management Studio

- **Out of box features of SSMS**
  - Standard Reports
  - Activity Monitor

SSMS – Performance Tuning Dashboard

- **Available for SQL Server 2012 version**

- http://www.microsoft.com/en-us/download/details.aspx?id=29063

- Powerful set of tools

SSMS – Error Logs

- **Used for Troubleshooting**
  - Very useful information are sent
  - Will have VLF values if high
  - Will have Memory and CPU values during restart

SQL Server Best Practices Analyzer

- **Available for previous versions and for SQL Server 2012**

- http://www.microsoft.com/en-us/download/details.aspx?id=29302

Database Tuning Advisor

- Purely based on Profiler Workload collected
- Use this like a guidelines for tuning
- Evaluate the recommendations
- Don’t run them directly on production environments

PerfMon

- Available on all the server and client machines
- Create a template to use
- Import them and then use in your environments

PAL Tool

- **Extension to the usage of PerfMon**
- **Create the threshold**
- **Analyze and use this like guidance tool**
- **Available from CodePlex**
- http://pal.codeplex.com/

SQL Space Map

- **Utility for identifying SQL Space utilization on database**
- **Gives a visual map and handy tool**

- http://sqlspacemap.codeplex.com/

SQL Server Profiler

- Profiler a handy tool to use
- Tracks the statements fired into SQL Server
- Can be used as workload for DTA
- Can be used to capture and rerun a load on different environments

Extended Events

- One of the hidden Gems of SQL Server
- Will be the future direction as Profiler phases out
- Collects events and has various options to log and monitor SQL Server

- Refer SQL Server BOL for more details

Wait Stats

- Avoid troubleshooting the “wrong” bottleneck
- Quick look at potential bottleneck
- Easiest method to retrieve from database
- Excellent “Pre-diagnosis”
  - **Before going deep into DMV, Execution Plans, Performance Counters**

*** 80% - 20% rule**

Wait Stats Use Case Scenario

- Troubleshoot a performance
  - **Issues report by end-user**
- Application with lots of problems
  - **Difficult to reach root cause**
- Benchmarking Scenario
  - **Performance Benchmarking**
- Identifying Trends
- Prevention of the future problems

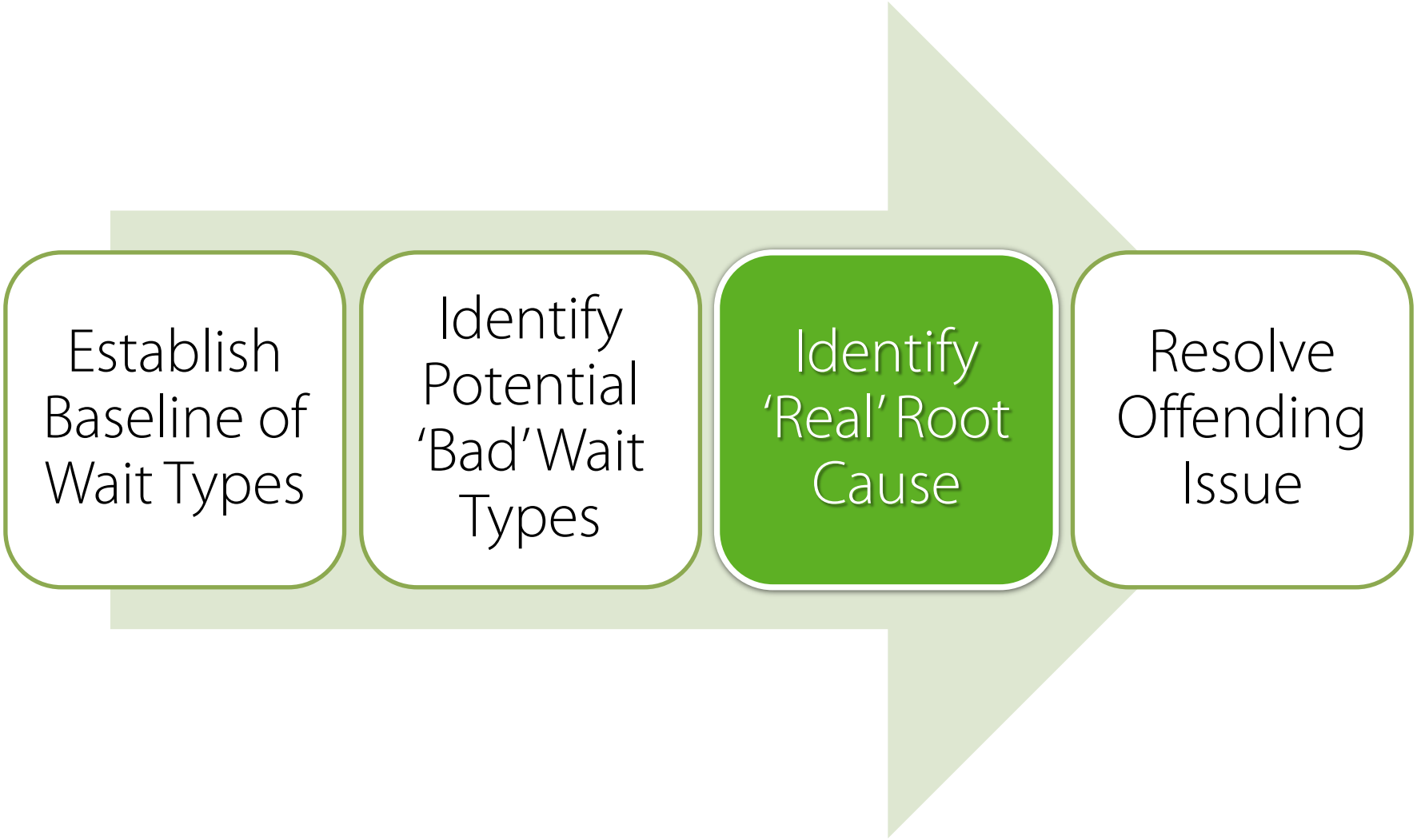
*** 80% - 20% rule**

Wait Stats Action Plan

- Establish Baseline of Wait Types
- Identify Potential 'Bad' Wait Types
- Resolve Offending Issue
- Re-Establish Baseline of Wait Types
- Continue this Process till Baseline Achieved
- There are few Harmless Wait Types
- There will be always few TOP Wait Types

*** 80% - 20% rule**

Where is the Problem?



Dynamic Management Views (DMVs)

- Return Server State Information
- Monitor the Health of a Server
- Diagnose Problems
- Tune Performance
- Resets when server or servic

*** 80% - 20% rule**

Summary

- **Tools to explore**
  - SSMS
  - Performance Dashboard
  - DTA
  - PAL
  - Wait Stats
  - DMV and mroe

Remember: SQL Server Optimizer usually opts for most efficient execution plan.

Remember: 80%-20% Rule. There are always special cases.