

# **Overview of Database Tuning**

# Overview of Database Tuning

- Know environment
  - Determine transactional behavior
    - What code is called?
    - By Whom?
    - Which client application?
    - When?
      - average duration
      - resource consumption
    - How does it access database objects?

# Overview of Database Tuning

- Create Baselines
  - Determine 'normal' behavior **this week**
  - Things change...understand volatility

# Overview of Database Tuning

- Identify 'Heavy Weights'
  - Capture activity trace
    - Best tool: SQL Profiler by command script (not GUI)
    - Filter-out system activity
    - Capture relevant data (expand columns)
    - Copy into non-production server as table

# Overview of Database Tuning

- Identify 'Heavy Weights'
  - Evaluate activity trace
    - Look for READ activity
    - Do some math: reads \* number of times executed
    - Generate a Top 10 list by database and application

# Overview of Database Tuning

- Understand 'Heavy Weights'
  - Examine Execution Plan against a test server
    - Need to determine access methods
    - Scans versus seeks
    - Any recompilations?

# Overview of Database Tuning

- A poorly-designed database is a mess
  - Limited ability to fix bad-design
    - Hardware & indexes help only so far
  - Often-times best to start from scratch

# Overview of Database Tuning

- Become proficient on entire set of tools
  - Use each tool as it was intended
    - Including T-SQL code!!
    - Allows us to respond to issues quickly
- Be organized!
  - Build documentation
    - Log book of maintenance
    - Notes of conversations with customers
    - Diagrams



# Overview of Database Tuning

- Practice troubleshooting
  - Be creative in coming up with scenarios
    - Test each other
    - Helps learn about each application/database
    - Helps build teamwork
    - Helps know Service Level Agreement
    - Builds trust with customers

# Overview of Database Tuning

- Database Optimization never ends!
  - System changes over time
    - We need to understand and account for growth of data
    - Think 'haircut' or 'laundry'
  - Create baselines of 'normal' each week
    - We need to know our environment