Supercharging
Backups and Restores
(For Fun and Profit!)

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SQL Saturday Madison 2017

About Bob Pusateri

Microsoft
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Specialties / Focus Areas / Passions:

- Performance Tuning & Troubleshooting
- Very Large Databases
- SQL Server Storage Engine

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Why Tune? – Backups Don't Block!

- Backups **do** consume I/O

- Backups grow relative to DB size

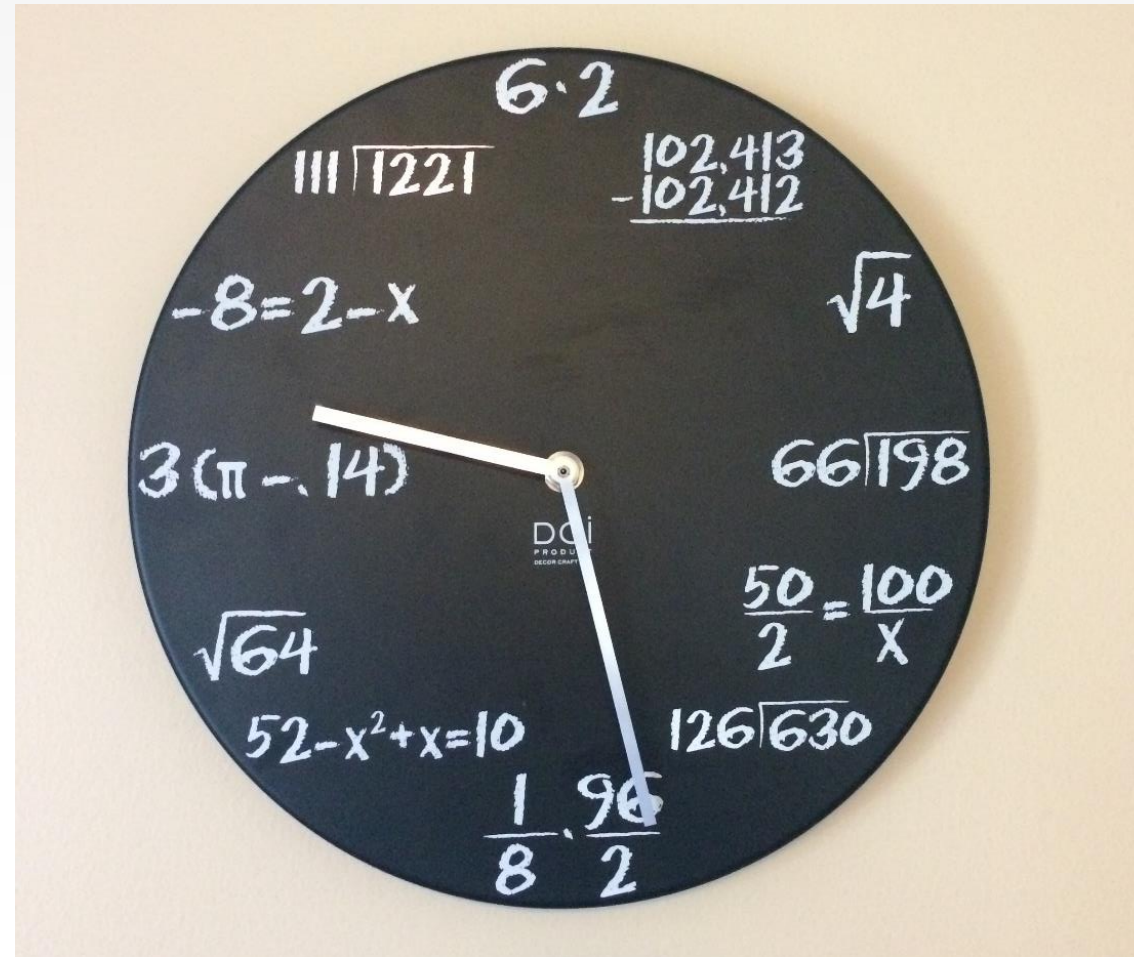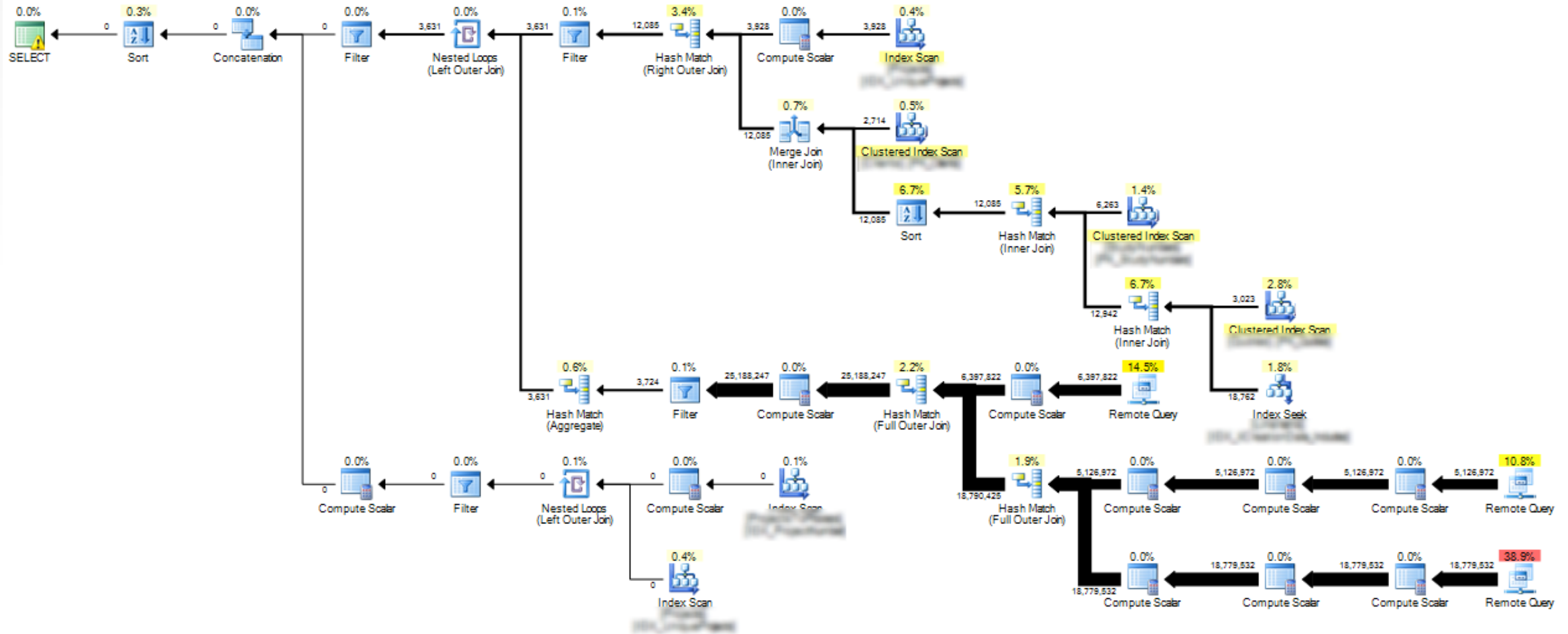- Backups change how the T-Log behaves

- What about Restores?

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Faster Still is Better!

IT'S NOT A BACKUP UNTIL IT'S ON SEPARATE STORAGE!

Timing

Execution Plans

Backup Execution Plans

- Checkpoint

- Copy Pages

- Copy Log

Restore Execution Plans

- File Initialization
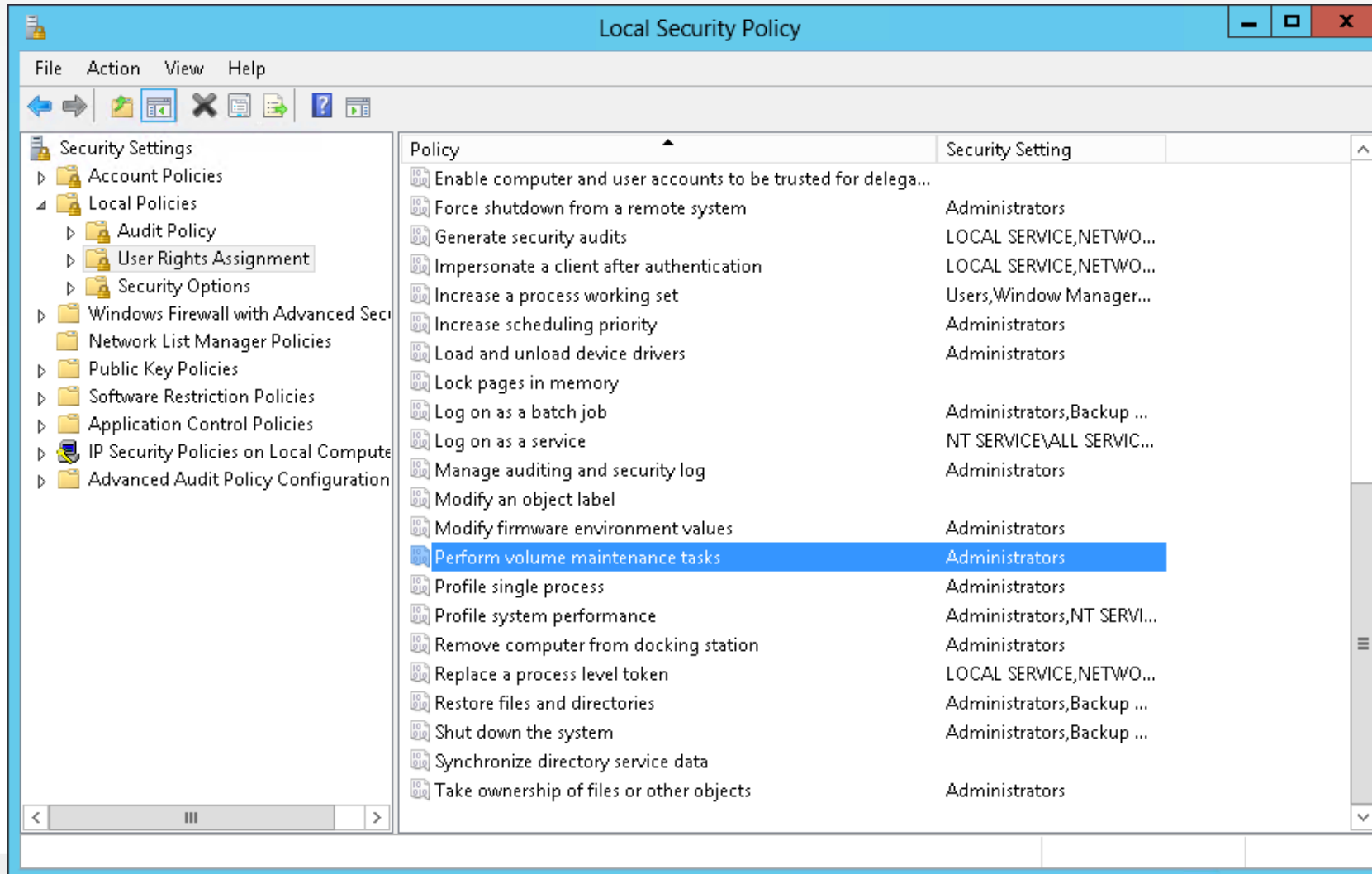
- Data Copy

- Roll forward (redo)

- Roll back (undo)

| Data Pages | Log |

Copy ———————————————→ Redo ———————————————→
                                          ← Undo

File Initialization

- "Zeroing out" Data & Log Files

- Can be made "instant" (Data Files Only)

File Initialization

File Initialization

Striping

Not Striped

Striped

.bak

Demos
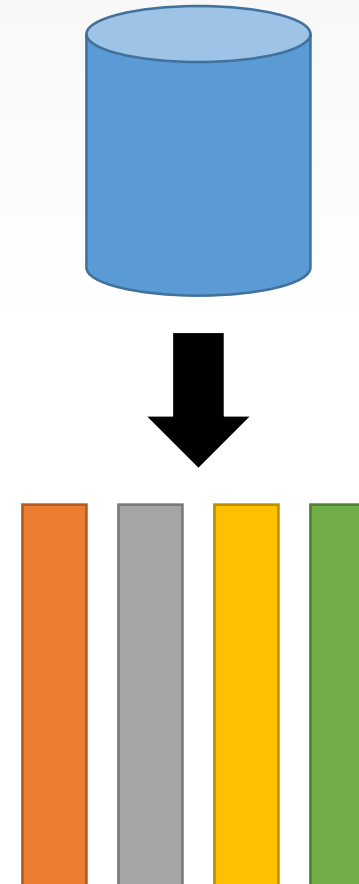
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Review

- ## Traceflags

  - 1806 – **Ignore** Instant File Initialization (even if it's enabled)
  - 3004 – Capture information about file zeroing
  - 3042 – Bypass pre-allocation and grow files incrementally
  - 3213 – Output backup buffer configuration
  - 3604 – Output to screen ("Messages" tab)
  - 3605 – Output to SQL Server error log

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Questions?

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Thanks for attending!