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Database Source Control Adoption Challenges and Opportunities

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About Me

- Founder/Principal Consultant, Kingfisher Technologies
- 23 years in IT
  SQL since 2000
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What We'll Cover

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- Challenges
- Opportunities
- How Red Gate can help

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Before You Begin…

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- Make a plan
  - What are your goals?
  - Who is responsible?
  - How will the repository be organized?

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Before You Begin…

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- Get buy-in
  - Management
  - Company leadership
  - Developers

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Challenge: Model for development-tier databases

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- Two models
  - Shared
  - Dedicated

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Challenge:
Model for development-tier databases

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- Shared
  - Common for small shops, new teams
  - Multiple developers could be updating same copy of code
  - Easier to control data

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Challenge:
Model for development-tier databases

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- Dedicated
  - Developers work on separate copies of code
    - Better for source control
    - Introduces merging (and merge conflicts)
  - Multiple copies of data/code to keep in sync
  - May also introduce issues with data security

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Opportunity:
Full history of database changes

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- Accountable and auditable
- Allows database to be easily reverted
  - Bad release
  - Troubleshooting
- Prevents loss of code in case of catastrophic database corruption

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Opportunity:
Associate DB Changes w/ App Changes

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- Developers already use source control with application code
- Provides holistic view of application releases

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Challenge: Non-standard DB Development Practices

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- Processes must be standardized for source control/continuous integration to work well
- Management may have to enforce standards through performance reviews

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Challenge: Time

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- Significant time can be required for startup
  - Time required to define policies
  - Time required to implement
- Slows down development process initially
- Time required for repository maintenance
- Management must support additional time (it usually does)

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Challenge:
"We've always done it this way…"

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- *None of us like change*
- Developers will see source control as taking extra time in their already busy schedules
- Some developers may be used to having full access to databases… even in production

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Opportunity:
Streamline DB Development Processes

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- Time saved by new process increases over time
- Continuous integration further reduces time requirements
- Streamlining reduces chances for errors during release

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Opportunity: Securing Production Code/Data

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- Increasingly required
  - Regulation (Legal or contractual)
  - Auditors
  - Management
- If all code is in source control, process can guarantee that production code/data is not/has not been changed

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Other Challenges and Opportunities

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- Different source control systems in different development teams
- Separation of duties (DBAs vs Developers)
- Multiple concurrent projects – Branching and merging

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Making it all work together

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- Until last few years, SQL Server source control had to be created by hand
- Microsoft support has been lacking
  - Management Studio does not natively support source control
  - Visual Studio does not natively support SQL Server before “Data Dude”/SSDT (VS 2010)

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Making it all work together

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- Microsoft now provides some database source control
- Third-parties (including Red Gate) now offer easy-to-use tools to enable source control

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Making it all work together

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- Red Gate tools (bit.ly/sqlcd)
  - SQL Source Control/SQL Connect
  - Octopus Deploy
  - Integration with best-of-breed Continuous Integration tools
  - SQL Lighthouse (bit.ly/sqllh)
  - SQL Release (bit.ly/sqlrel)

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Summary

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- There are significant challenges to implementing source control
- Management support is critical
- Significant opportunities exist once source control has been implemented
- Third-party tools can make it much easier!

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Any Questions?

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Feel free to contact me!

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