

Data Saturday Stockholm

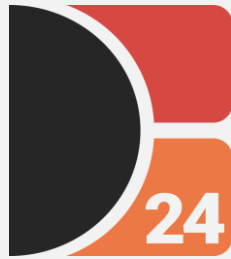
Unveiling the
magic of CI/CD for
SQL Server using
GitHub Actions



Kevin Chant & Sander Stad



REBTECH



solarwinds 



dbWatch

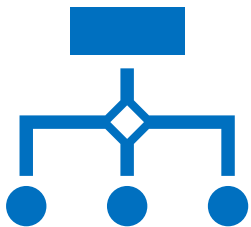


redgate

devart

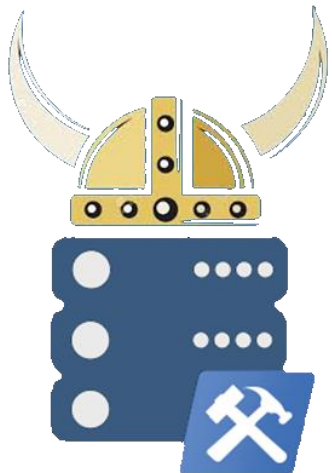

Snabbfoting

For the next 50 minutes





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Kevin Chant

- DE Manager for Avanade Netherlands
- Worked in IT since Windows 95
- Experience in various sectors
- Various certifications, dual-category MVP



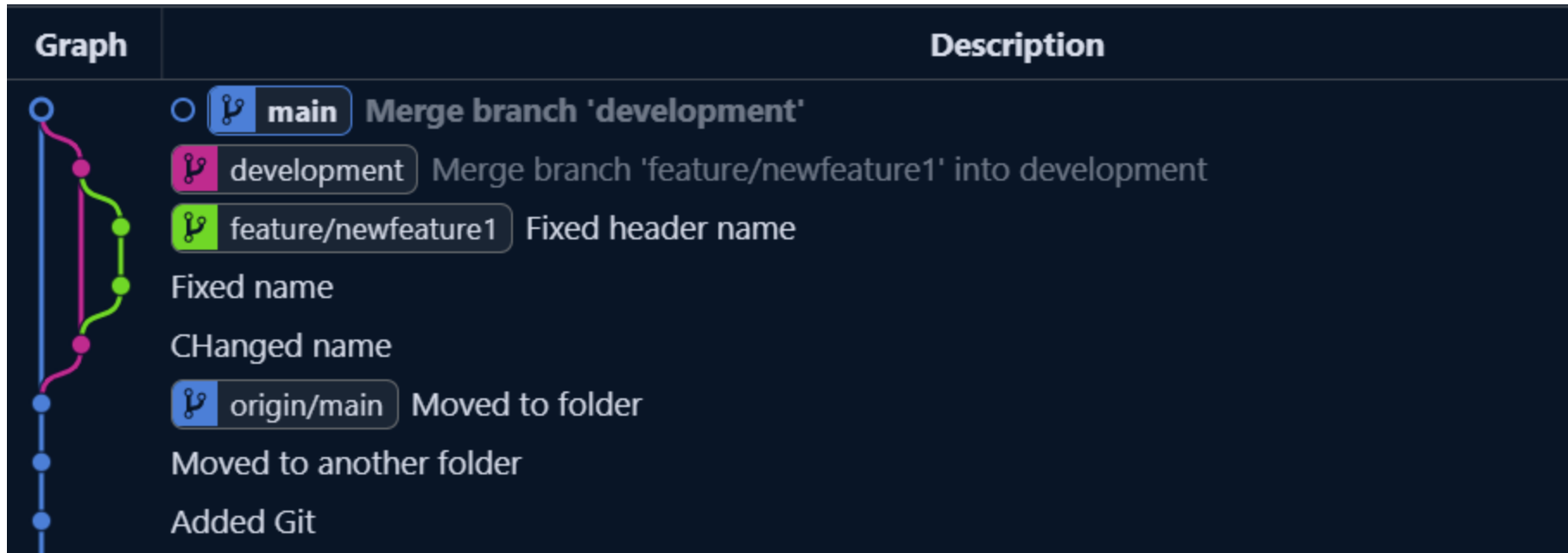
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- Blog: <https://www.KevinRChant.com>
- GitHub: <https://github.com/kevchant>



Branch strategies



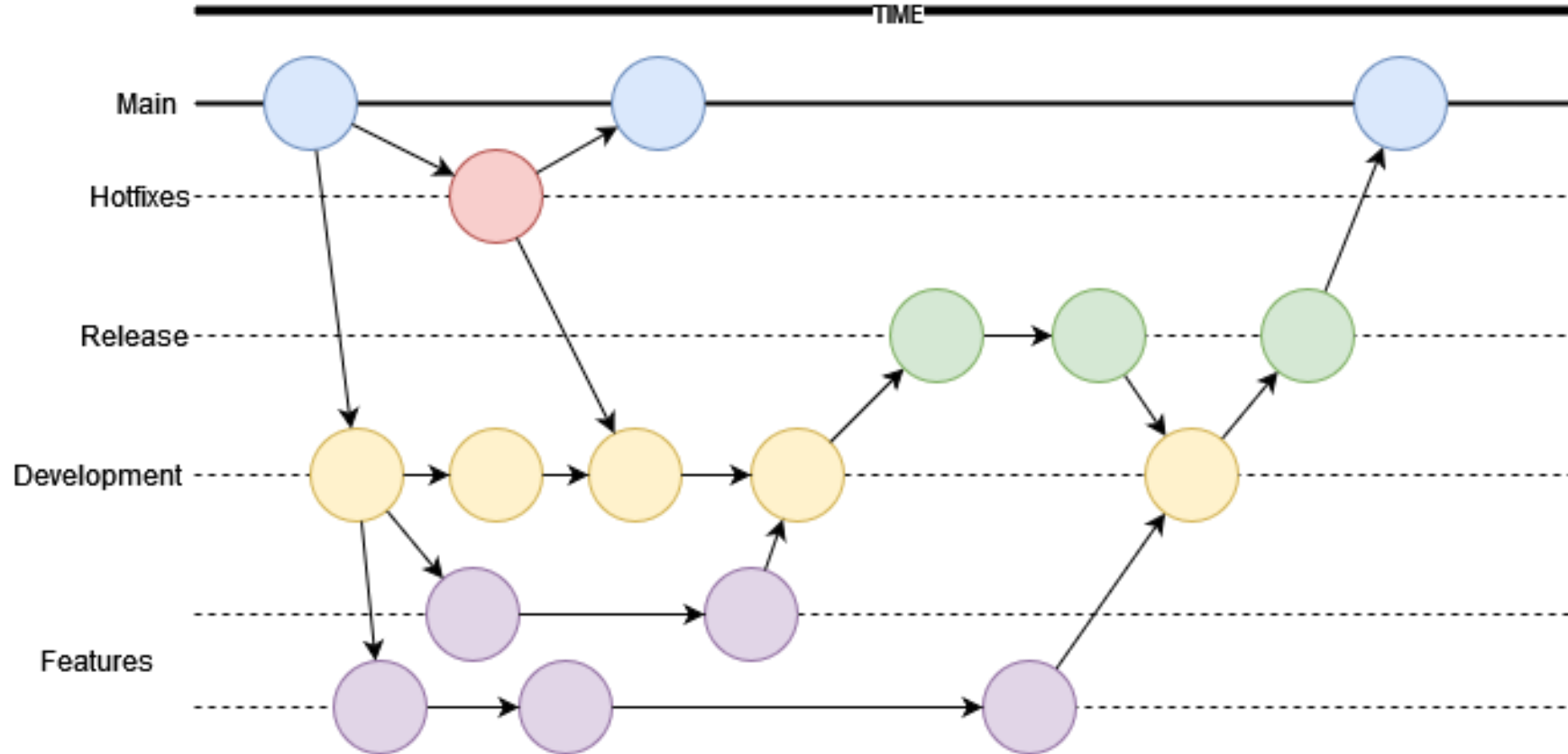
What are branches?



Examples of Branching models

- GitFlow
- Trunk-based Development (GitHub Flow, Microsoft Release Flow)
- Gitlab Flow

Git Flow example



Git Flow Pros and Cons

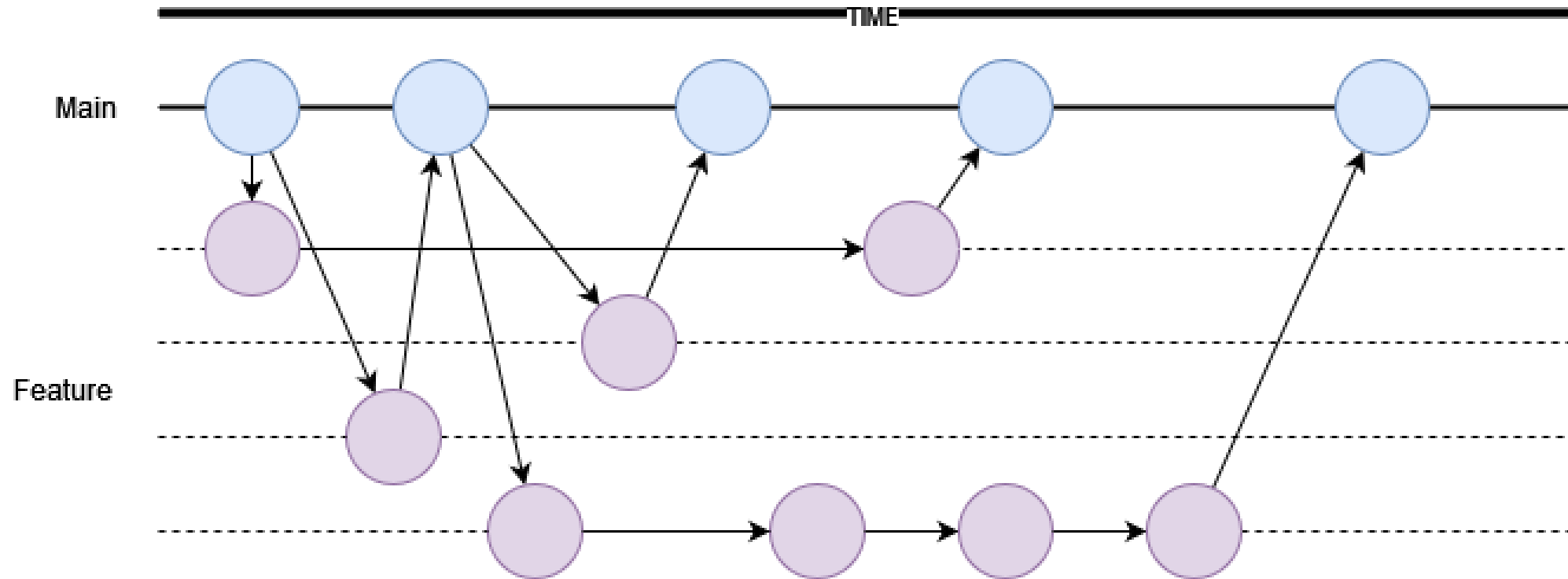
Pros

- Complete set of rules for all branches
- Very thorough and detailed version control
- Easy to scale because it simplifies parallel processing
- It's easy to switch between development and other branches especially with CI/CD

Cons

- Complex and complicates because of many branches
- The methodology conflicts with the Agile methodology

GitHub Flow example



GitHub Flow Pros and Cons

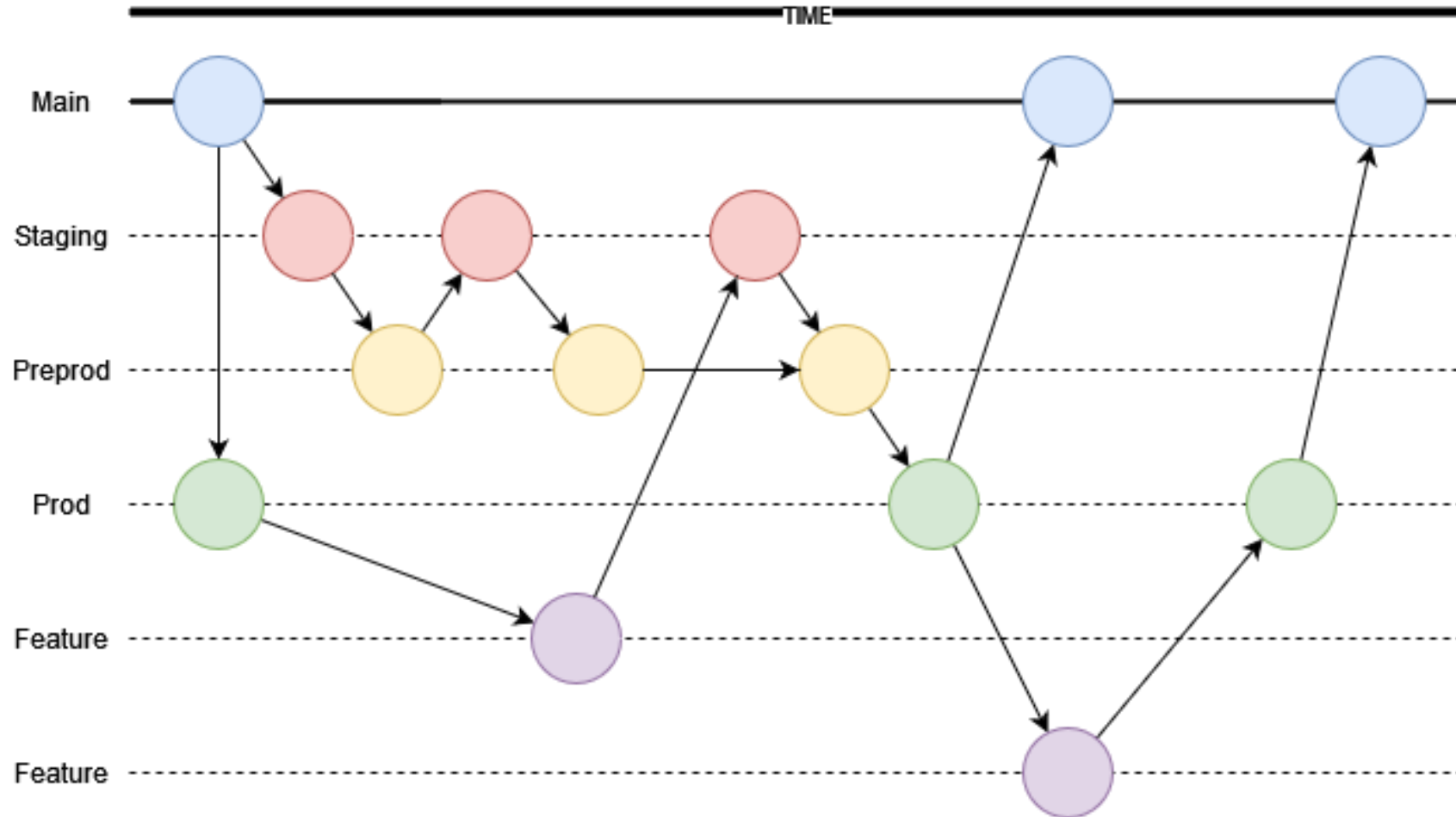
Pros

- Clear and simple collaboration
- Makes is easier for teams to quickly make changes
- Continuous deployment is a must. Features stay in a branch until a release is made

Cons

- Speed comes at a cost, and you see that it is not well organized
- May make it harder to manage the overall development process
- This may work well for software teams, but sometimes you need larger releases
- Harder to test multiple features together before deployment
- Main branch function both as the development and production branch

GitLab Flow example



GitLab Flow Pros and Cons

Pros

- Everything is tested in all environments
- You always know what lives in production
- There is only one-way merges, downstream

Cons

- You have to assume the main branch is free of errors
- There is no release validation to test
- Hotfixing in production requires you to merge the feature branch with all the other branches as well
- Kevin has something to add to this.

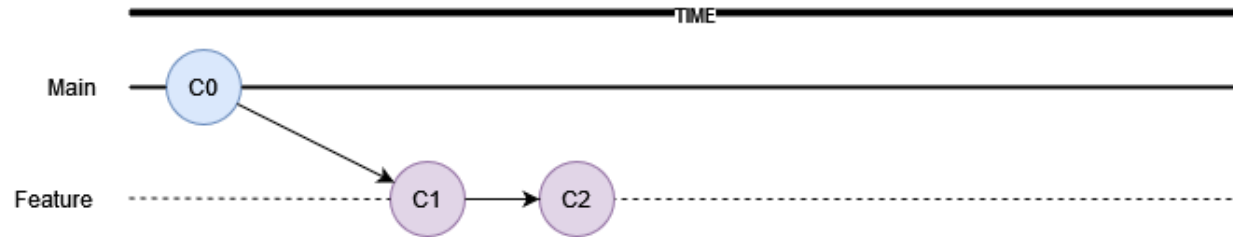
Popular merge strategies

- Merge with fast forward
- Merge with no fast forward
- Squash
- Rebase

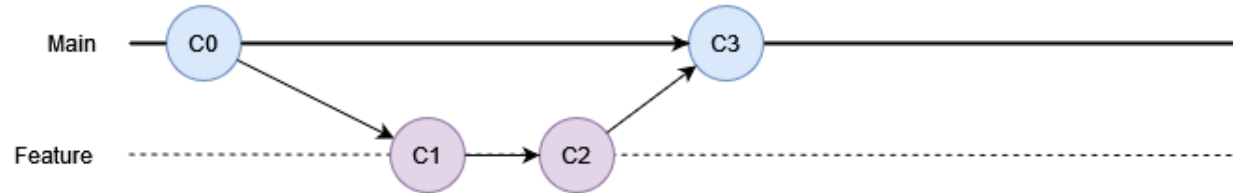


Merge strategies: Merge (no fast forward and fast forward)

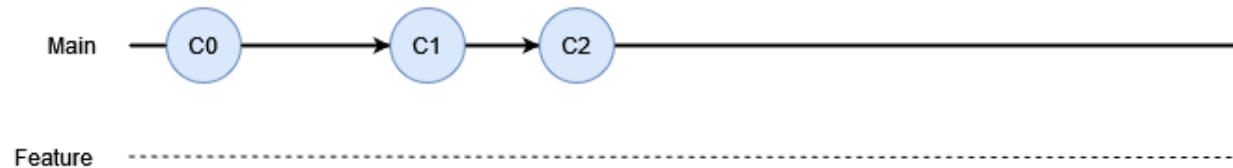
Before merge



After merge no fast forward

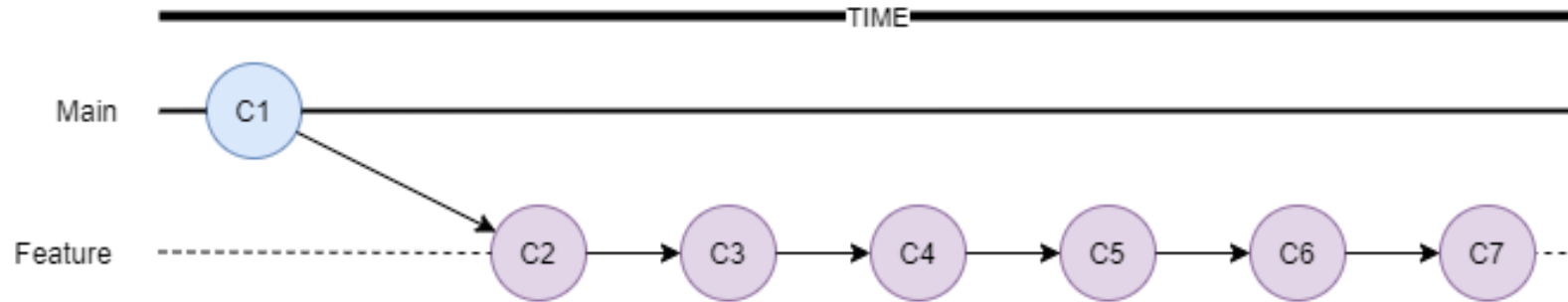


After merge fast forward

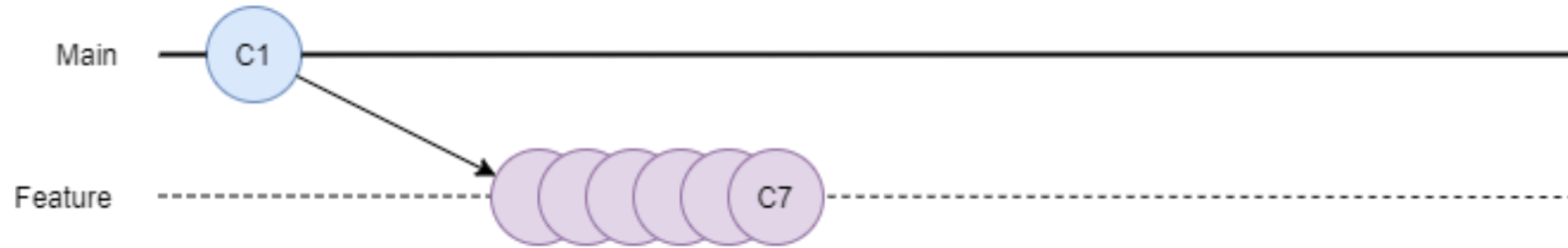


Merge strategies: Squash

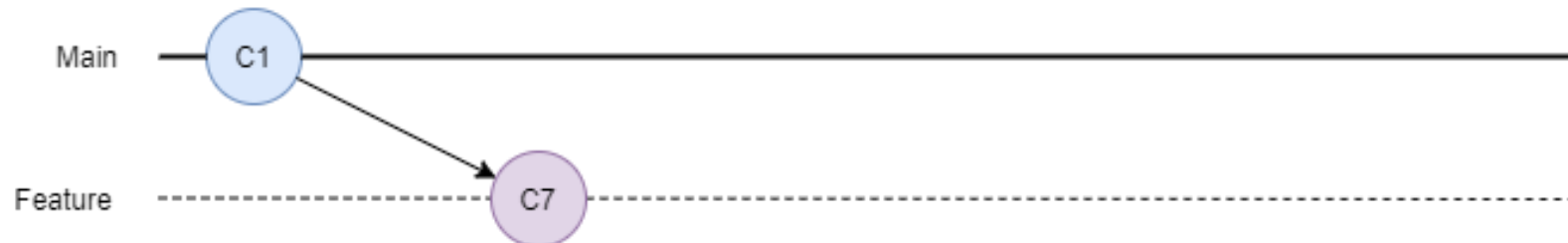
Before squash



During squash

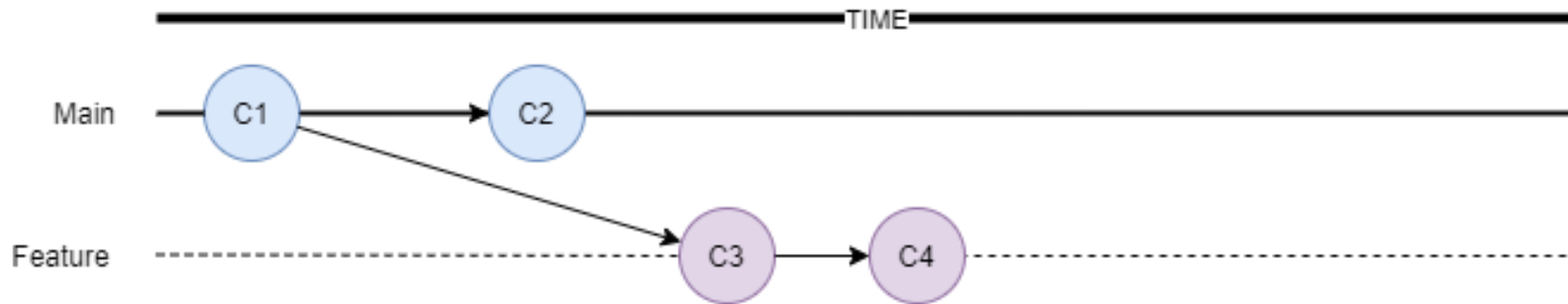


After squash

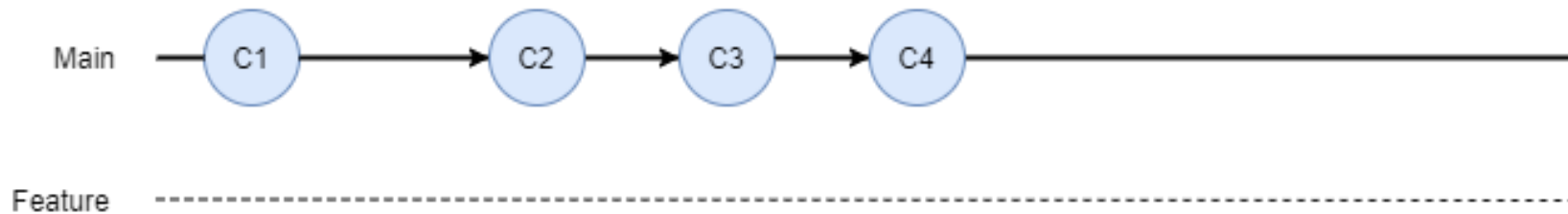


Merge strategies: Rebase

Before rebase



After rebase



Common applications for Git

- Git SCM for Windows/Linux (required)
- Git GUI for Windows
- Visual Studio (& code)
- Azure Data Studio

- Demos



GitHub Runners

- Deal with all processing
- Runs on Windows, Ubuntu or MacOS
- GitHub or self-hosted
- GitHub-hosted image same as Azure Pipeline Agents
- Windows & Linux run on Standard_DS2_v2 images
- macOS images always run in US

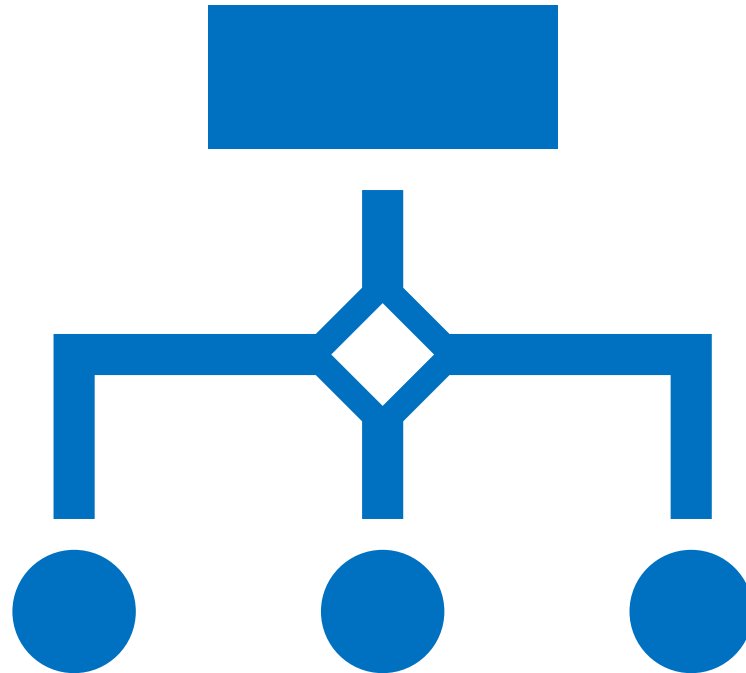


Optimal settings

- GitHub hosted useful for cloud
- Self-hosted for local deployments
- Always self-hosted for custom apps
- Avoid running as service on laptop
- Create runner at right level
- Enable long paths!!!



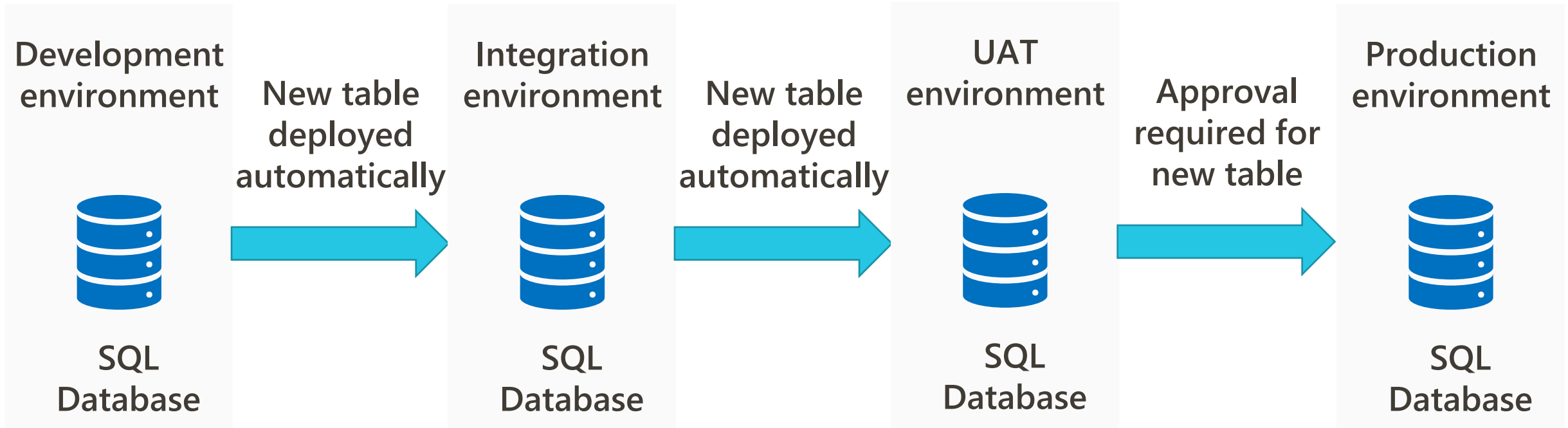
Configuring workflow for SQL Server deployments



Deploying SQL Server using IaC methods

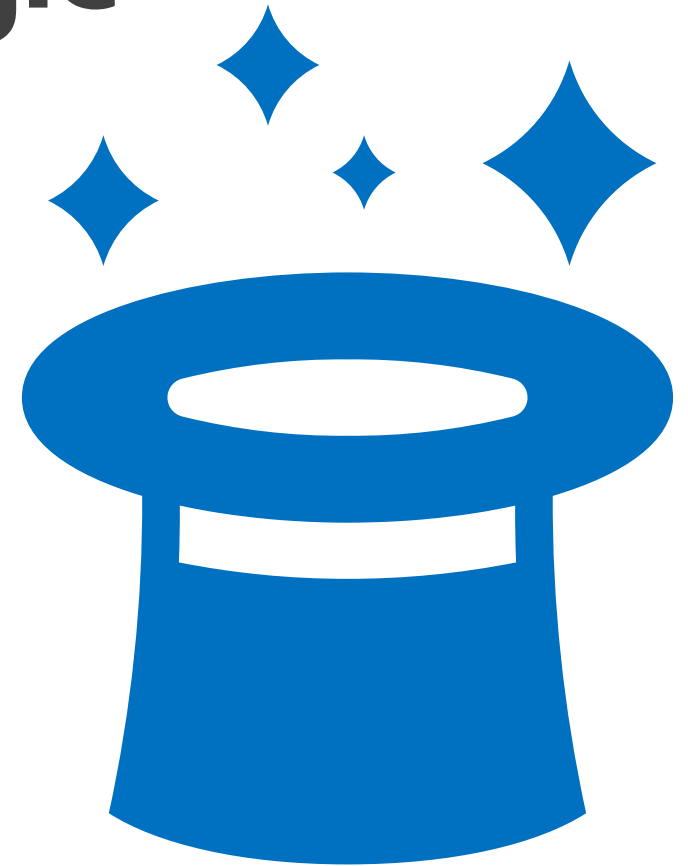
- ARM templates
- Bicep
- Terraform
- Pulumi

SQL Server Database pipeline



Deployment demos magic

- State-based deployment
 - In ADS
 - Database project
- Migration-based deployment



Keep your secrets secret

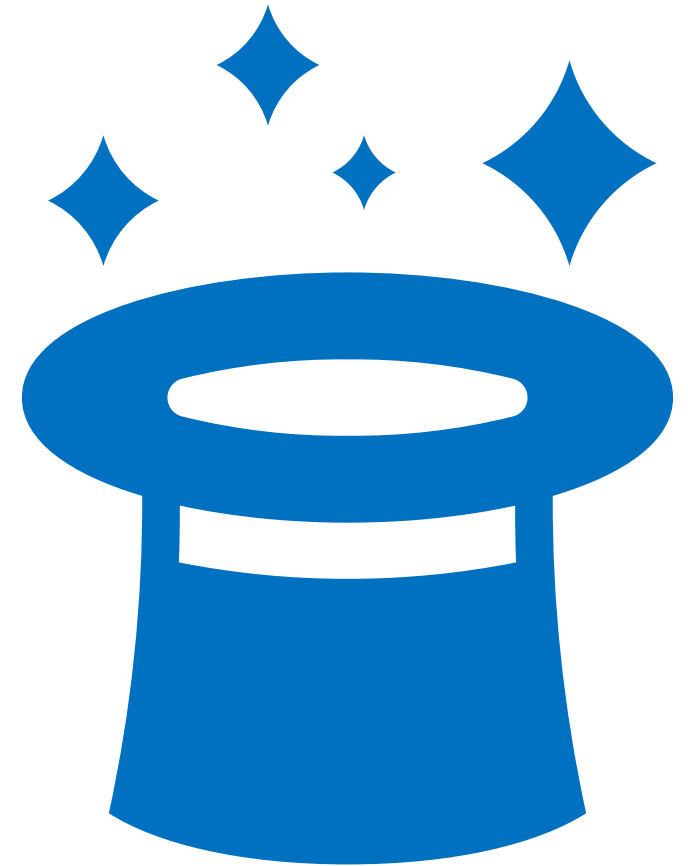


Unit testing

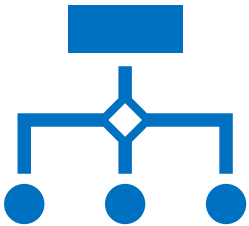


GitHub Actions Magic

- Actually, GitHub repos
- Three types
- Deployments and automation
- Various types of triggers
- GitHub script
- Power BI



To recap



Questions?





Thank You



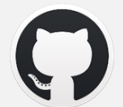
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