Mozart Mansion

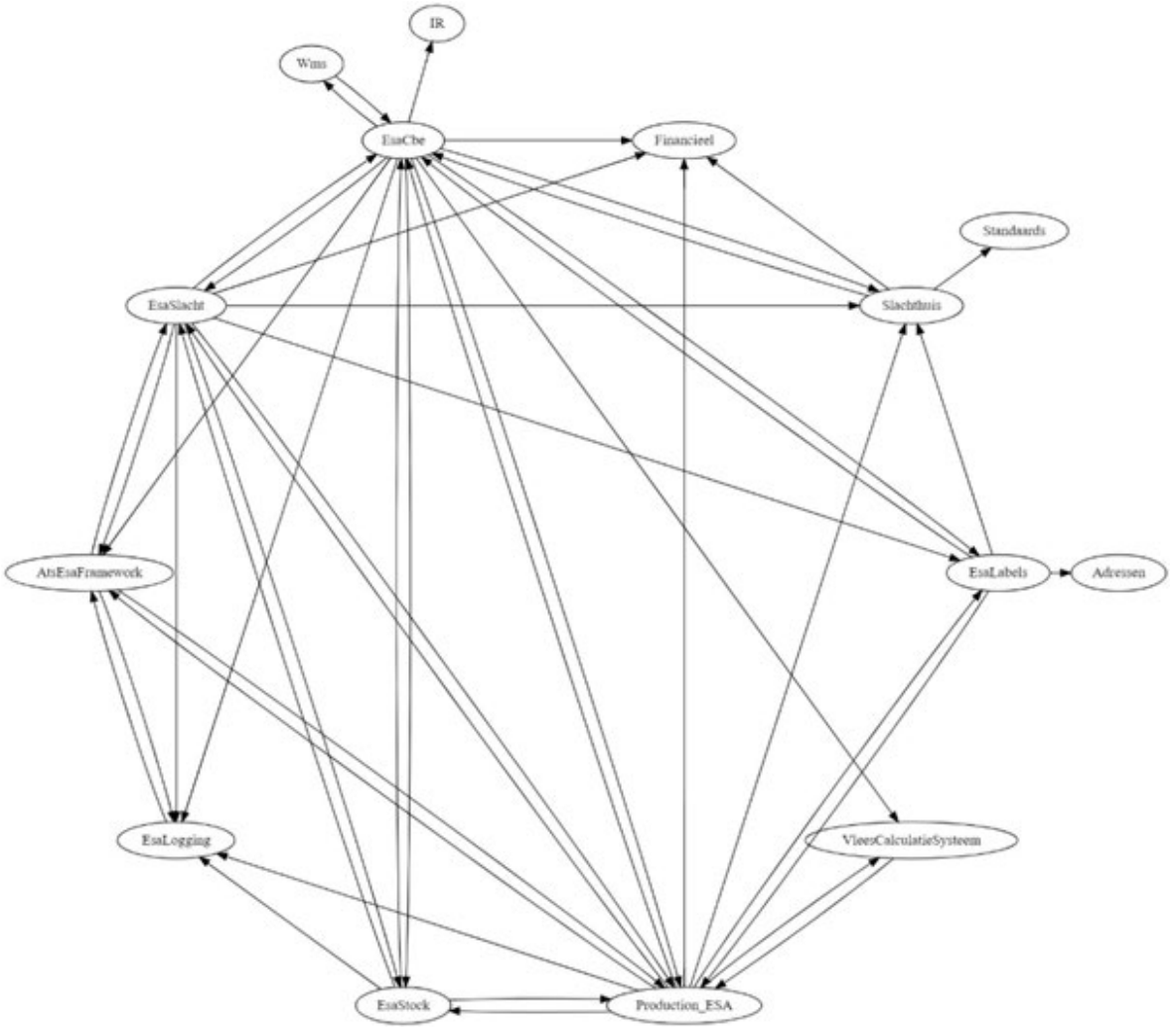
dataMinds Connect 2024

October 8th 2024 *13:30 – 14:30*

Database DevOps... CJ/CD: Continuous Journey Continuous Disaster?

Tonie
Huizer

Database DevOps – the challenge



Database DevOps – the challenge

Thank you, partners

element 61
experience & expertise

Cloubis

Microsoft

MICROPOLE BELUX

PLAINSIGHT

Adapt and Enable

Tabular Editor

delaware

datashift

u2u

cegeka

EpicData.

LACO

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Act informed

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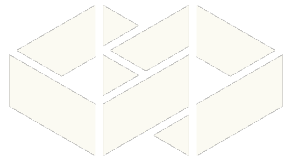
KOHERA

MONIN
Database Managed Services

inetum realdolmen
Positive digital flow

TriFinance
BEYOND ADVISORY



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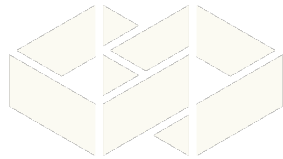
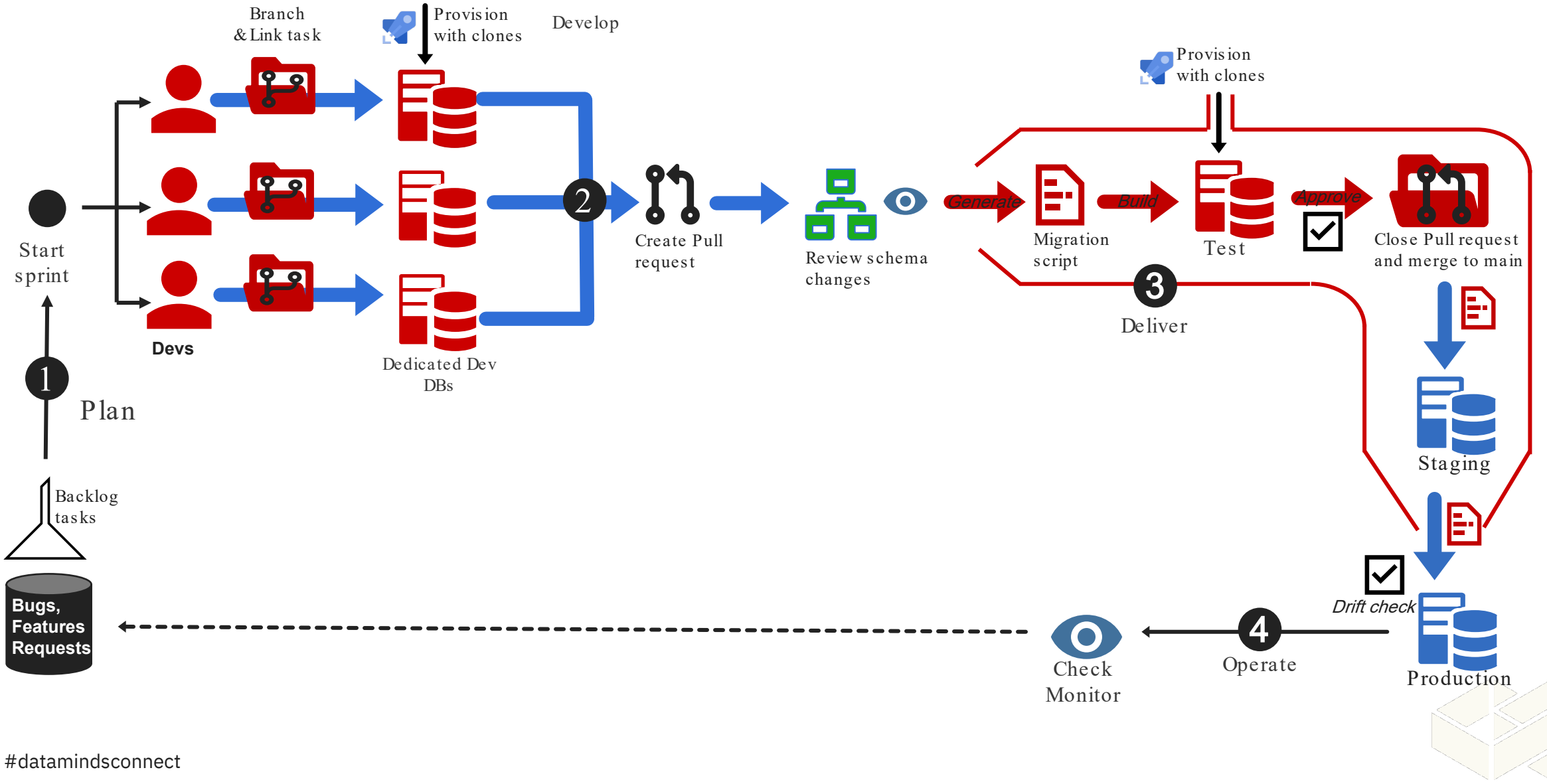
What to expect of todays session

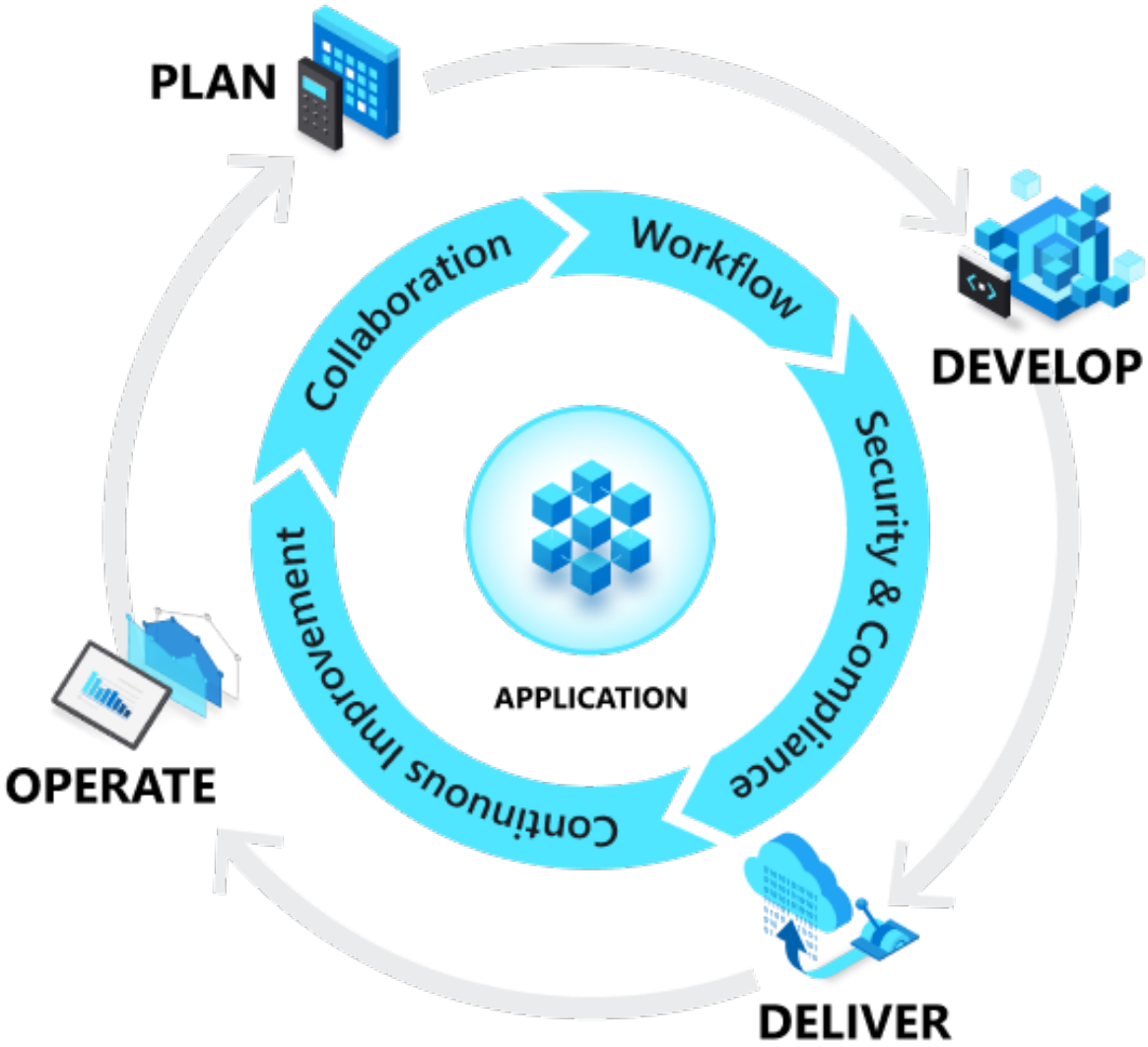
- Transforming to DevOps, CJ/CD?
- The 4 DevOps phases walk through
- Room for discussion & questions



Database DevOps – the end goal



DevOps



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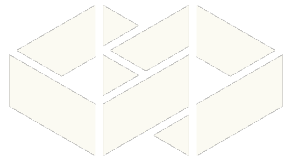
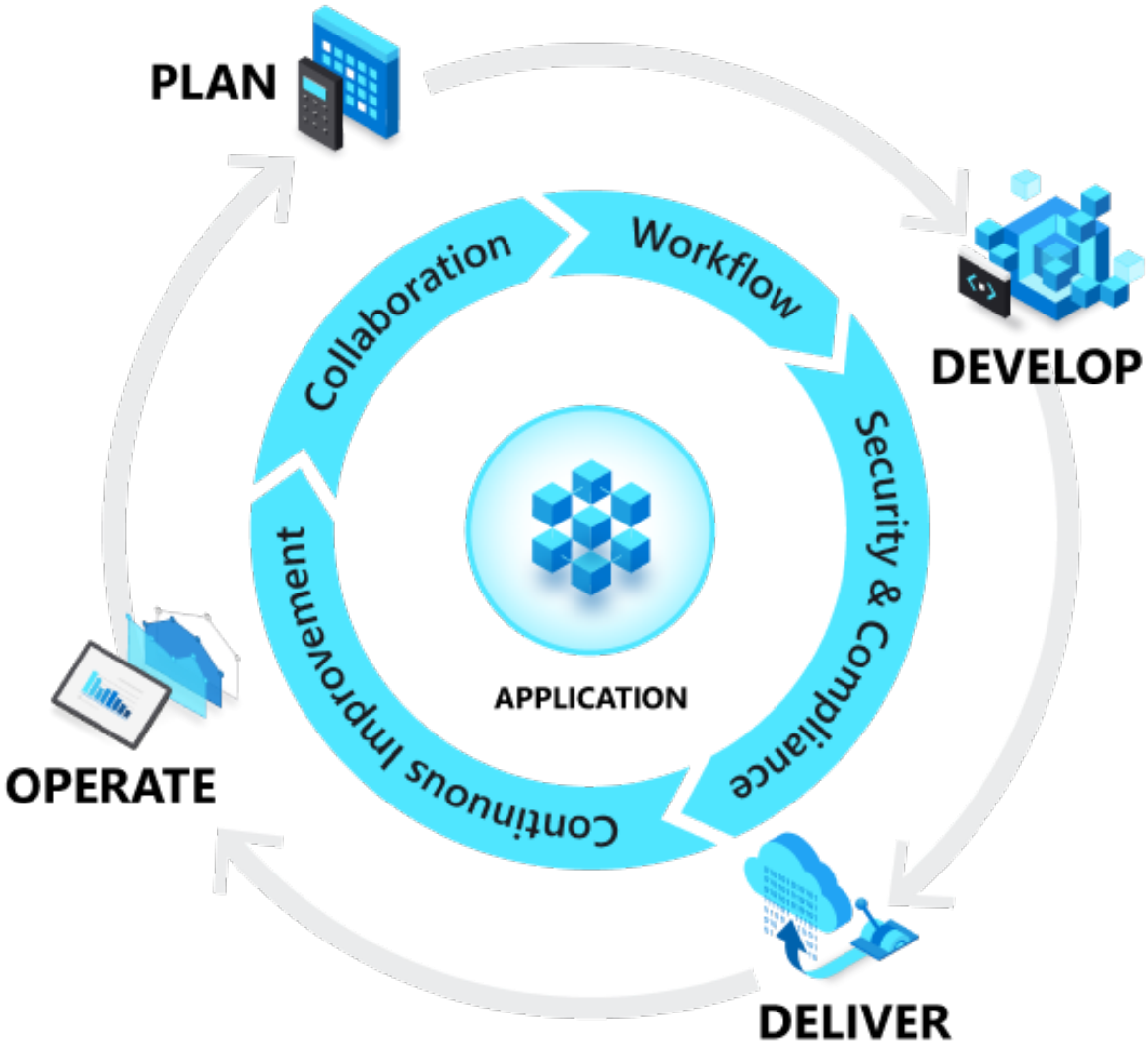
“DevOps is the union of people, process, and products to enable continuous delivery of value to our end users.”

- Donovan Brown, Microsoft




Teams
Physical team rooms
Cross discipline
10-12 people
Self managing
Clear charter and goals
Intact for 12-18 months
Own features in production
Own deployment of features
TECHDAYS

DevOps



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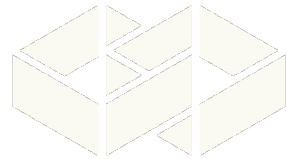
Plan DevOps practices

- Create backlogs
- Use Kanban boards
- Visualize progress with dashboards
- Manage Agile software development with Scrum



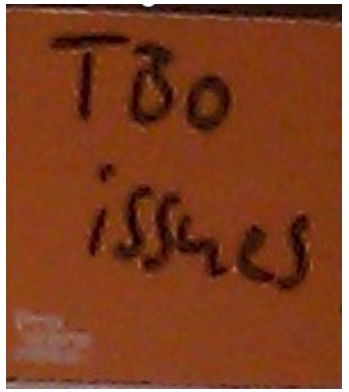
Attempts to plan with boards & sprints

Working in sprints didn’t work

Why?

- Team was too big
- No fixed iteration path

- Little involvement of the stakeholders
- Unrefined backlog items
- No links or integration



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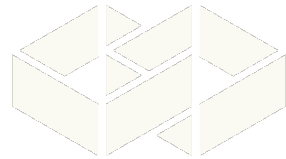
Demo

This time it worked

For 149 sprints in a row (and counting)

- ✓ Team split up per end-customer
- ✓ Focus and involvement of the stakeholder
- ✓ Training in scrum methodology
- ✓ Better integration of tools
- ✓ Mandatory linking development to work



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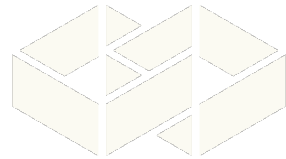
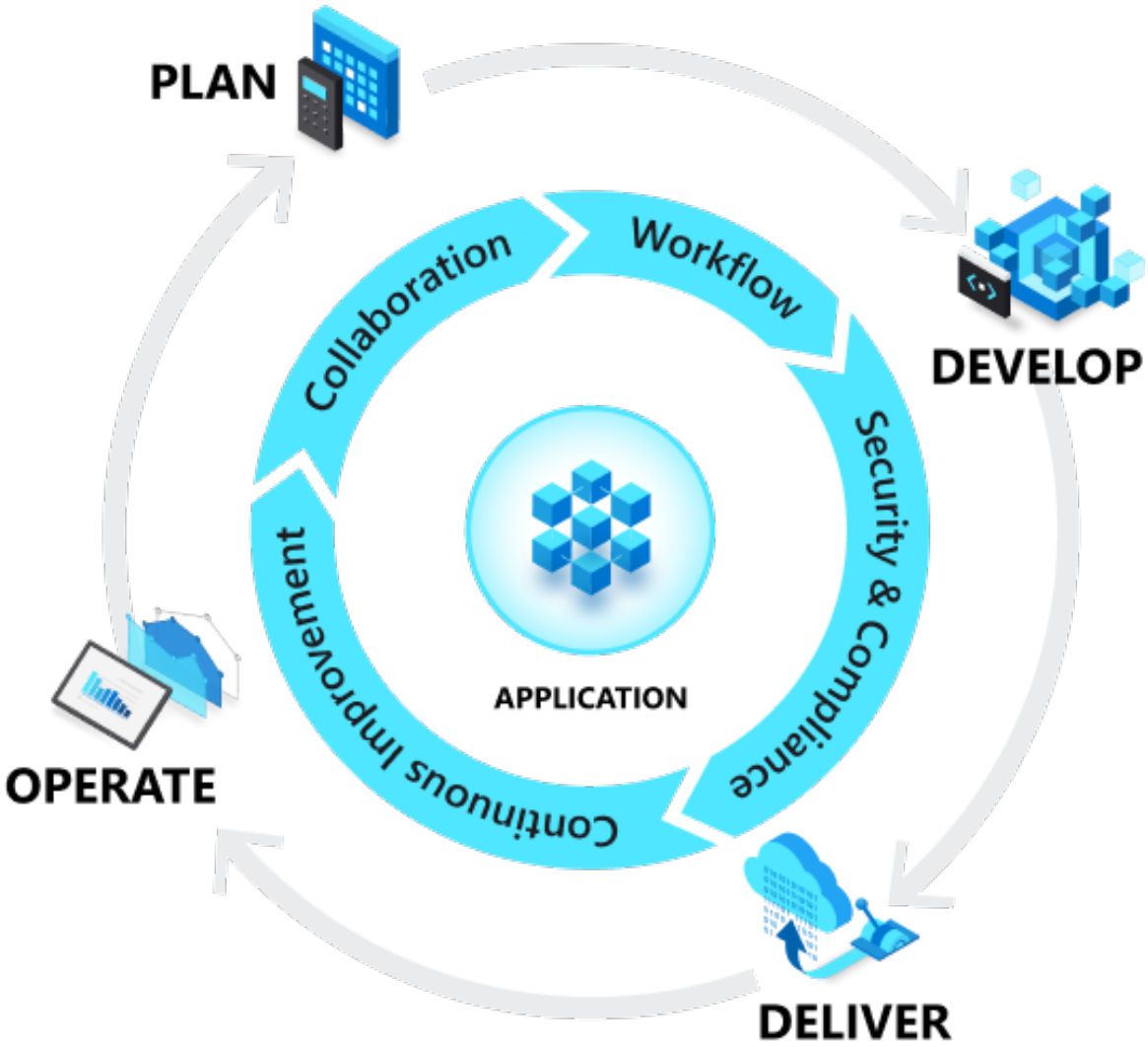


DevOps



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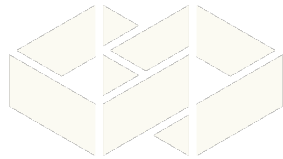
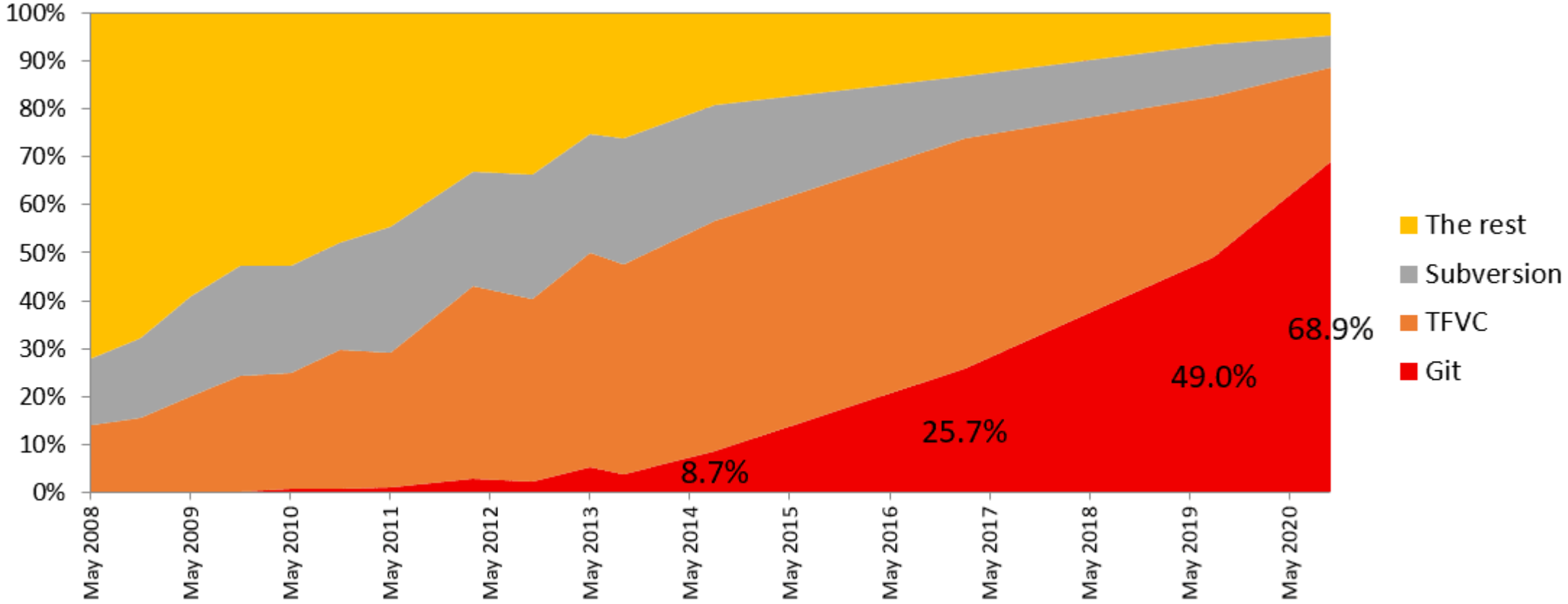
Develop DevOps practices

- Choose a VCS to collaborate and work in parallel
- Automate repetitive tasks
- Turn code into immutable artifacts

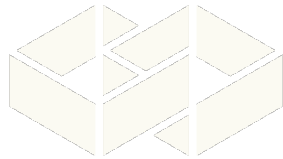


SVN and TFVC didn’t do the job



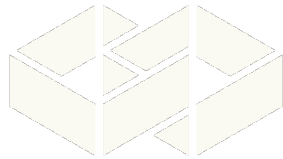
Switching to git

- Migrate a VCS
- Adopt a branching strategy
- Create a branch naming convention

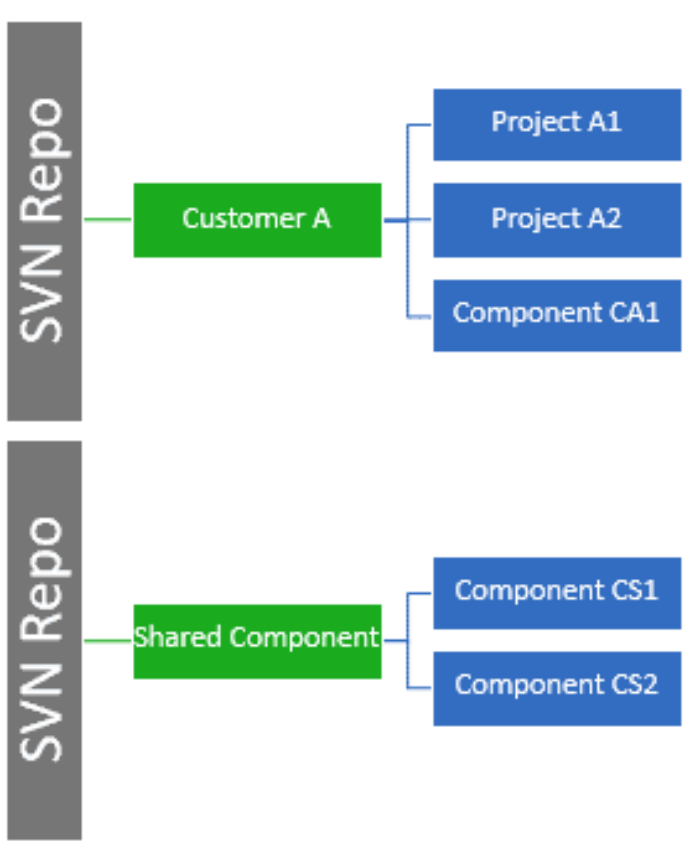


Migrate a VCS

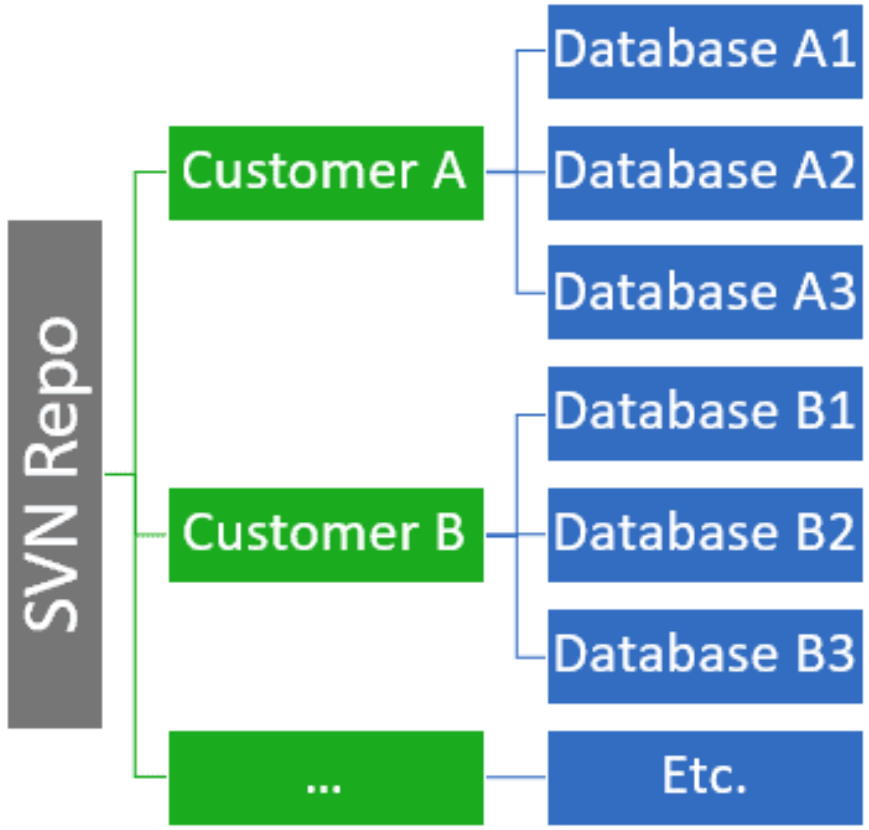
- Functional
  - Split up the big repo per customer / project
  - Separate the components
- Technical
  - SVN → Git → TFVC → Git



Migrate a VCS (old situation)



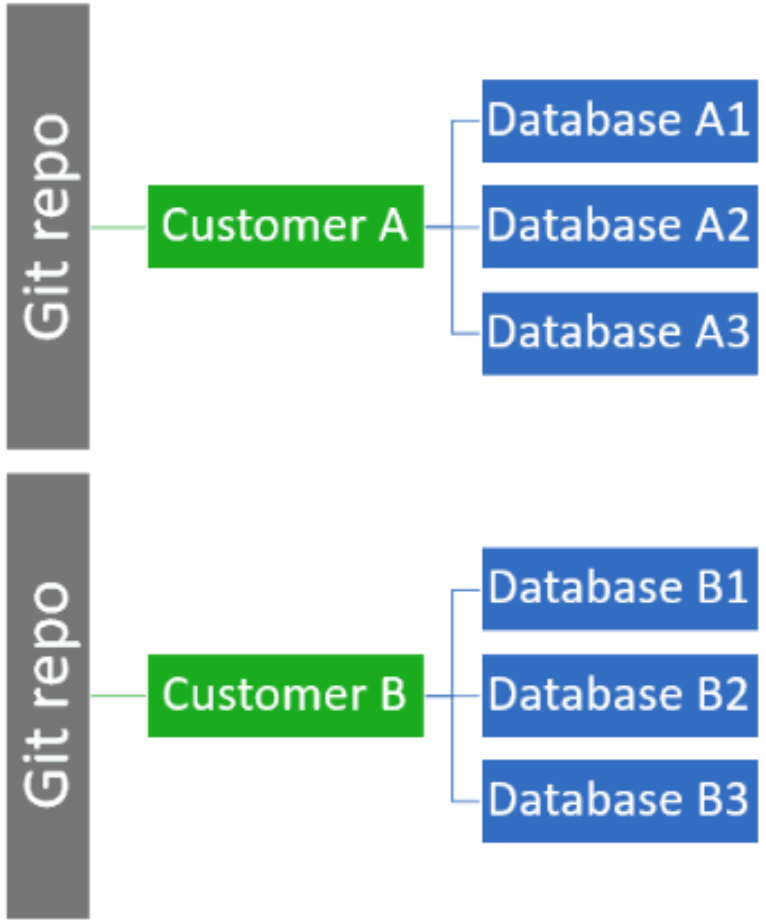
Application source code



Database source code

Migrate a VCS (new situation)

Application source code

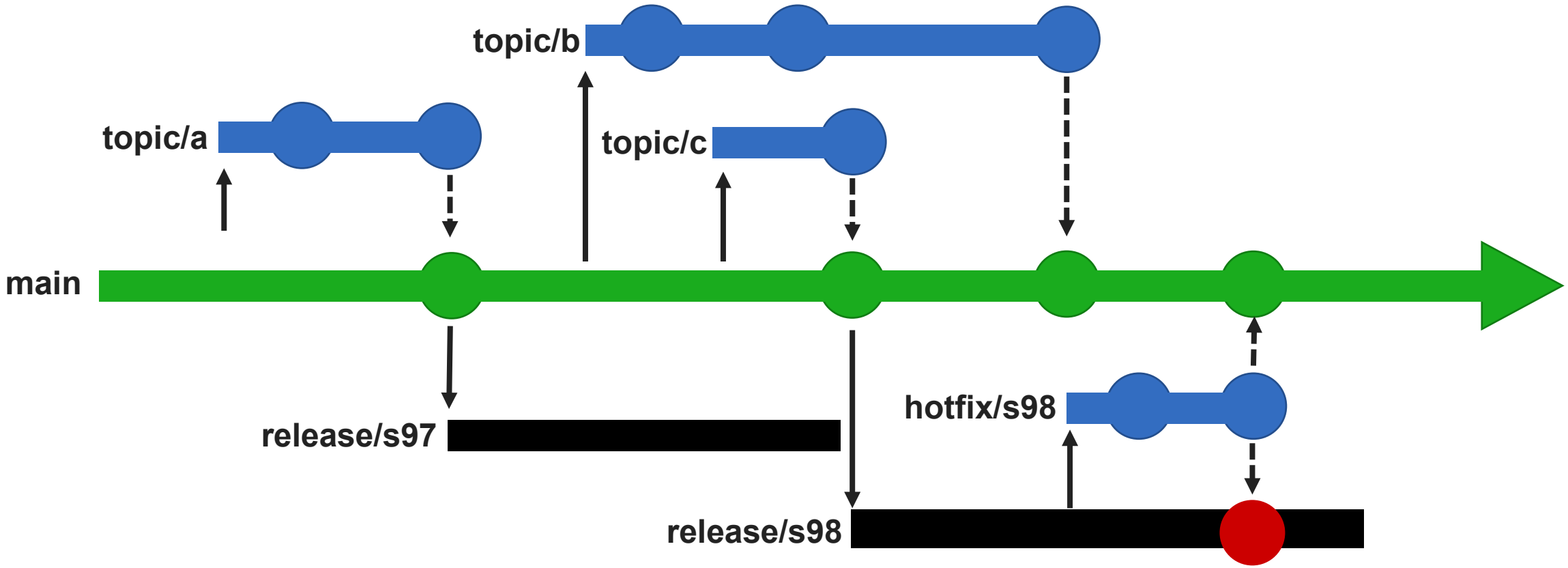


Database source code

Branching strategy

- Release flow
  - Short living topics
  - Main branch always in release state
  - Hotfix the release, cherry pick main

Release flow in action



Create a branch naming convention

Topic / hotfix

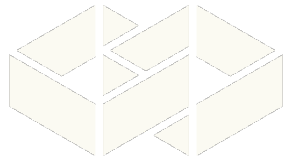
<branch category> /**<hot fixed release - >bug**<TicketId>-PascalCasingDescription

hotfix/s100-mms12220-FireFighting
topic/mms12345-MyDescription

Release branch

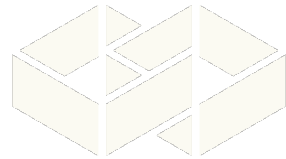
<branch category>/ **<unique identification>**

release/s100



Git compared to SVN / TFVC

- ✓ One repo per solution
- ✓ Parallel work with branching
- ✓ Less time managing version control
- ✓ Always visible what is released



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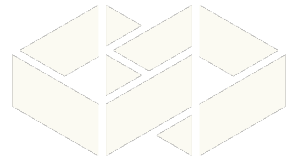
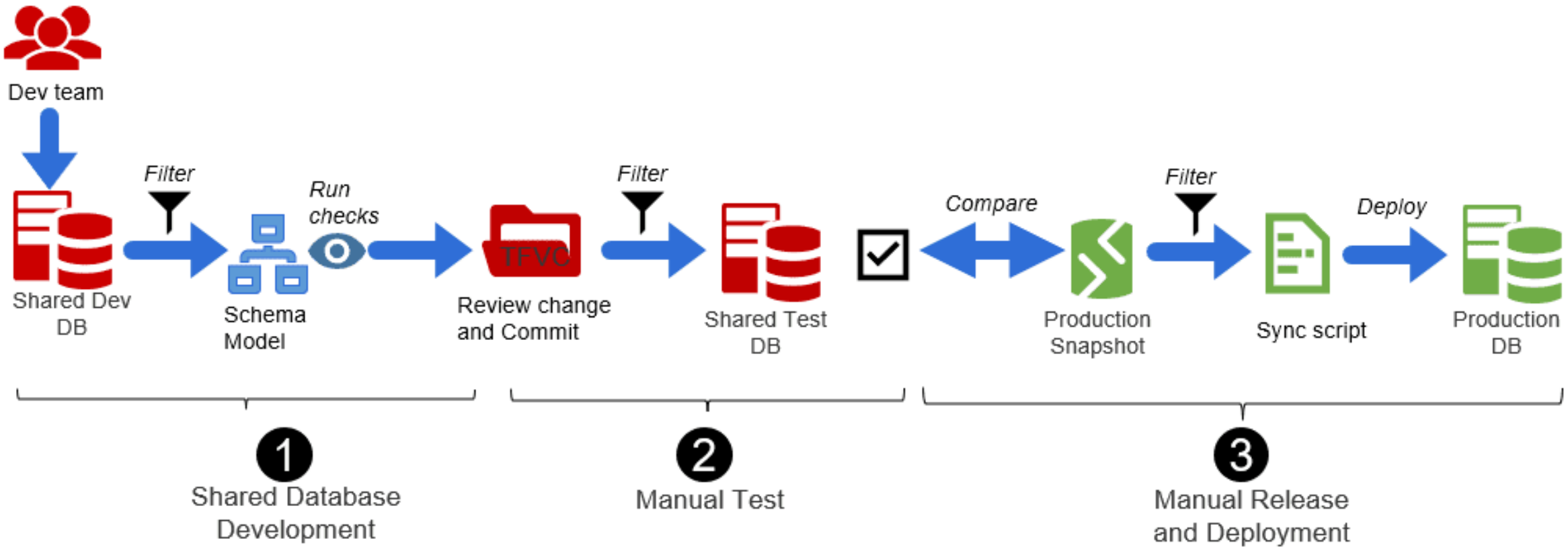
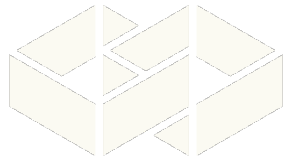


Manual, repetitive tasks



Automate repetitive tasks

- Standardize the process
- Use pipelines, but first...
  - Start local to automate
  - Use powershell but not inline
  - Use verbose logging



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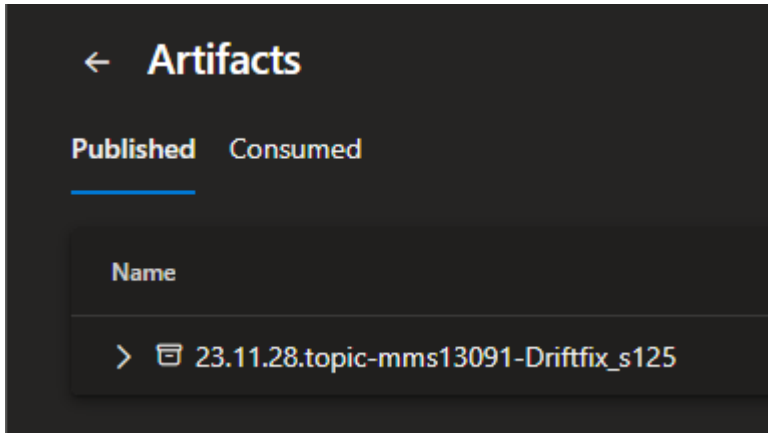
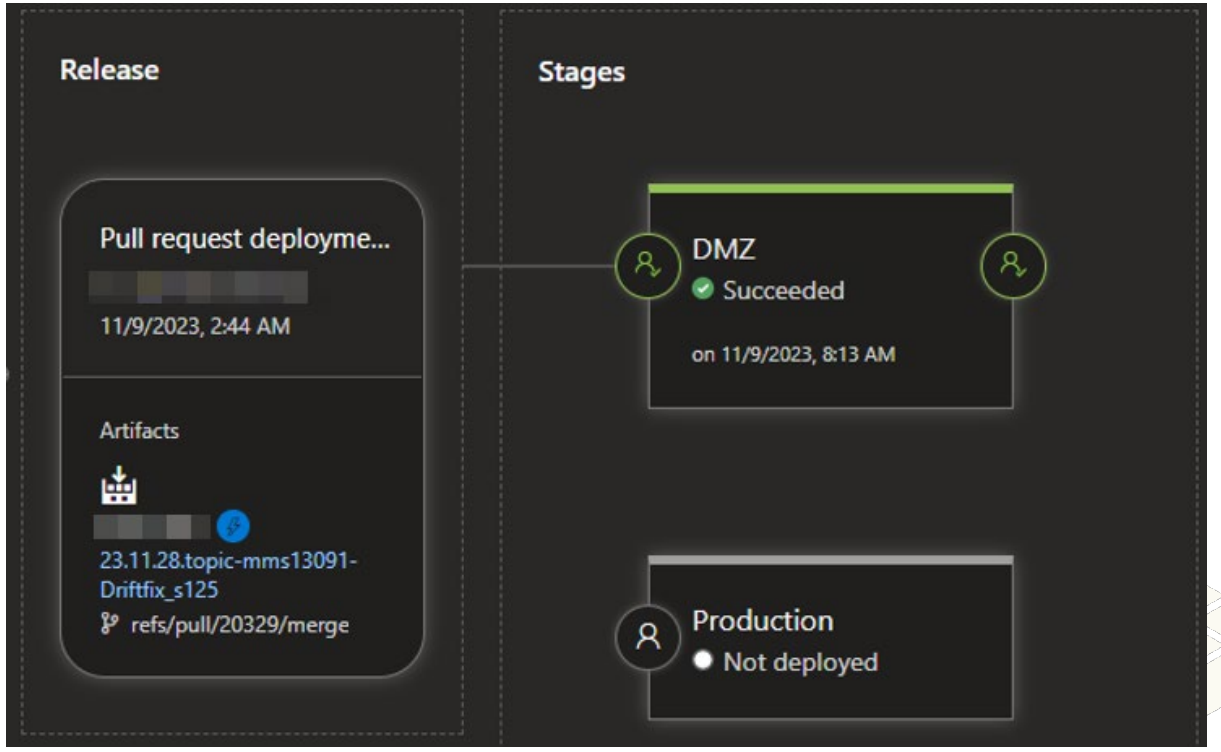
Demo

Build artifact & automate repetitive tasks

- ✓ Pipeline to generate immutable artifact
- ✓ Apply same artifact to all environments





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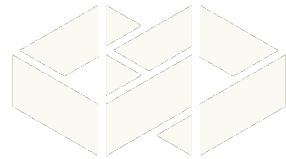
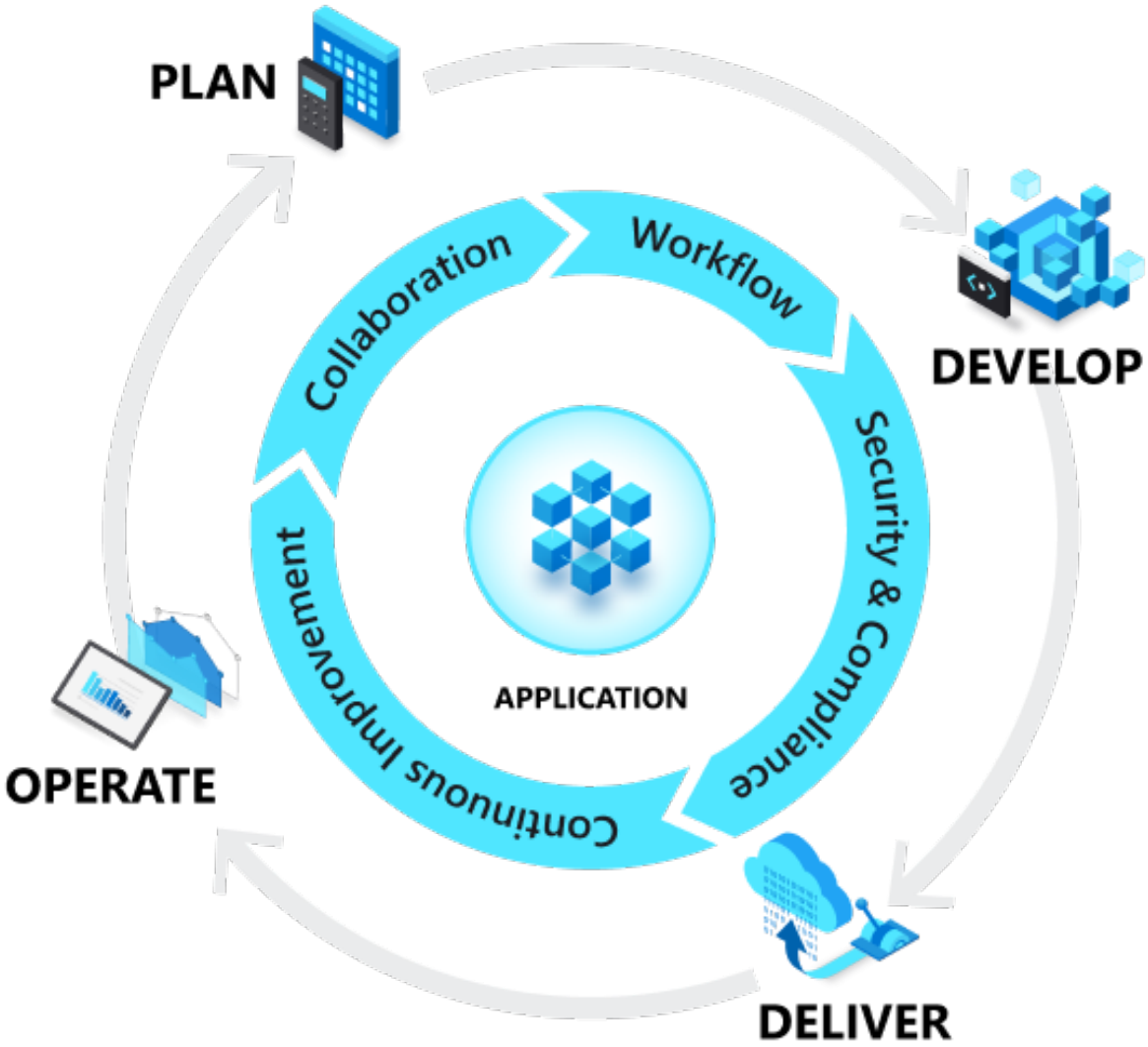


DevOps



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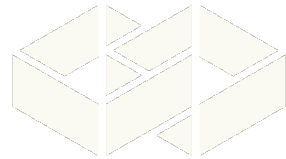
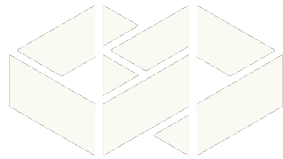
Deliver DevOps practices

- Automate delivery processes
- Use release pipelines with approvals
- Release artifacts to different environments



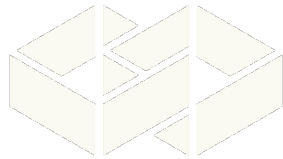
Previous deliver workflow

- Copy build from share
- Manual deploy database changes
- Manual alter app.config
- Informal approval
- **Shared** environment & **database**



Deliver workflow improvements

- Test in parallel, just like development
- Make use of personal disposable environments
- Implement Pull Request Release workflow



Introduction of automated database clones

- Using cloning technology is smart
- Automating this usage is even smarter
  - The creation, use but also the house keeping
- Personal instance but through the AzDo Process
  - Including “Database stashing”

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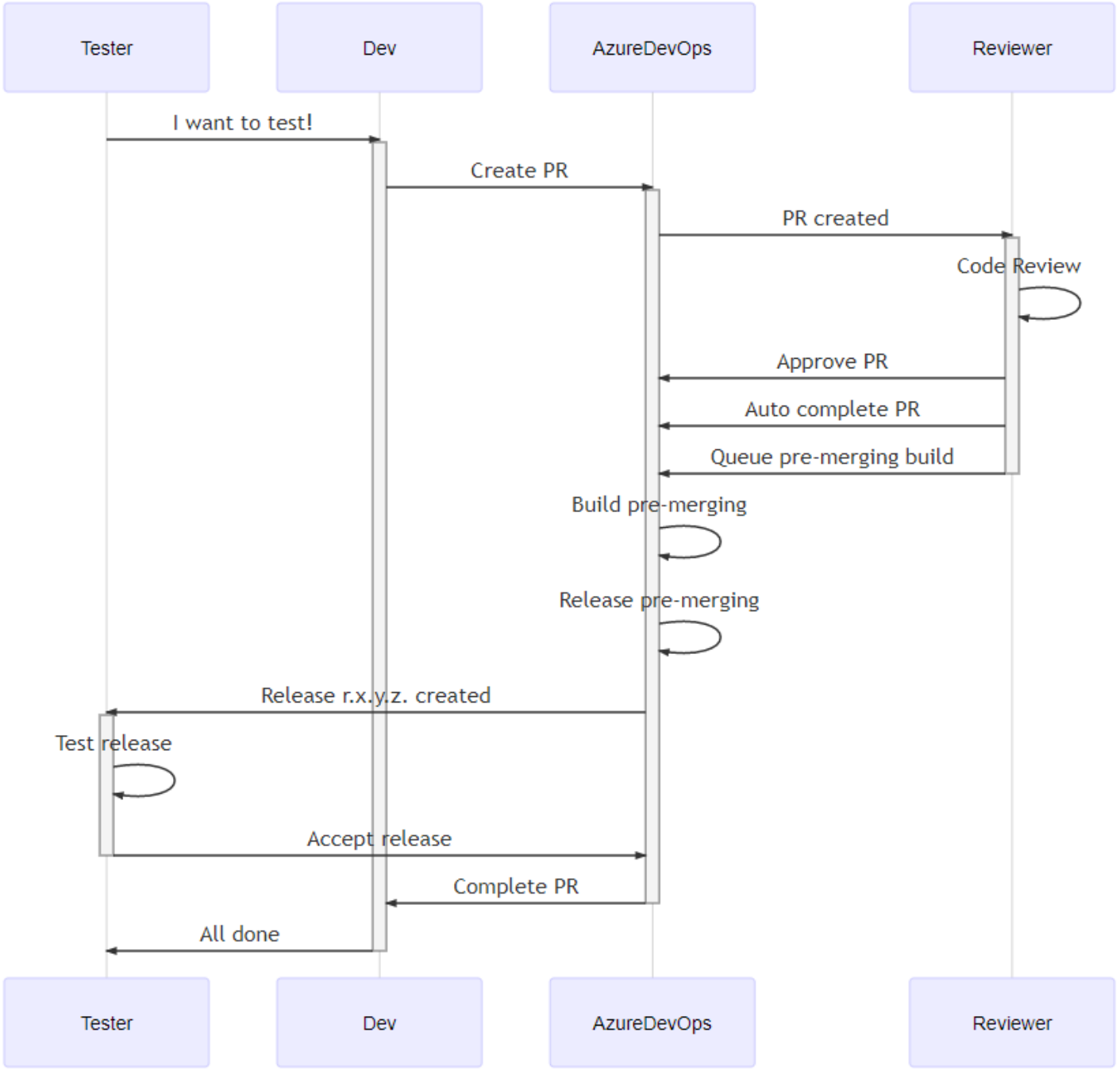
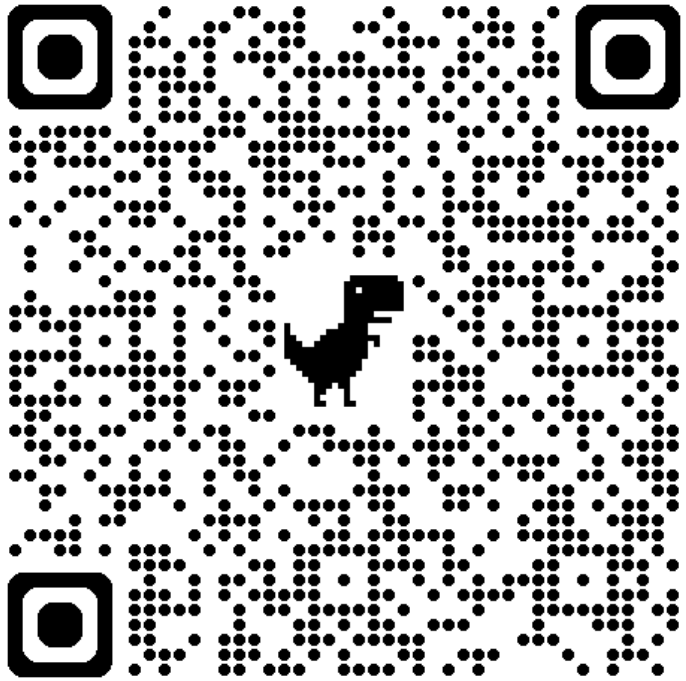
Demo


Tester
Dev
AzureDevOps
Reviewer
I want to test!
Create PR
PR created
Code Review
Approve PR
Auto complete PR
Queue pre-merging build
Build pre-merging
Release pre-merging
Release r.x.y.z. created
Test release
Accept release
Complete PR
All done
Tester
Dev
AzureDevOps
Reviewer

Manual vs Pull Request Release

- Release test are done on pre-merge build
  - More realistic testing
  - Prevent merge conflicts in master
- Less manual, more automation

  But please still communicate!



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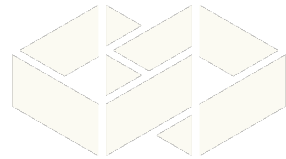

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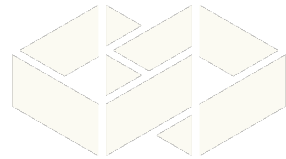
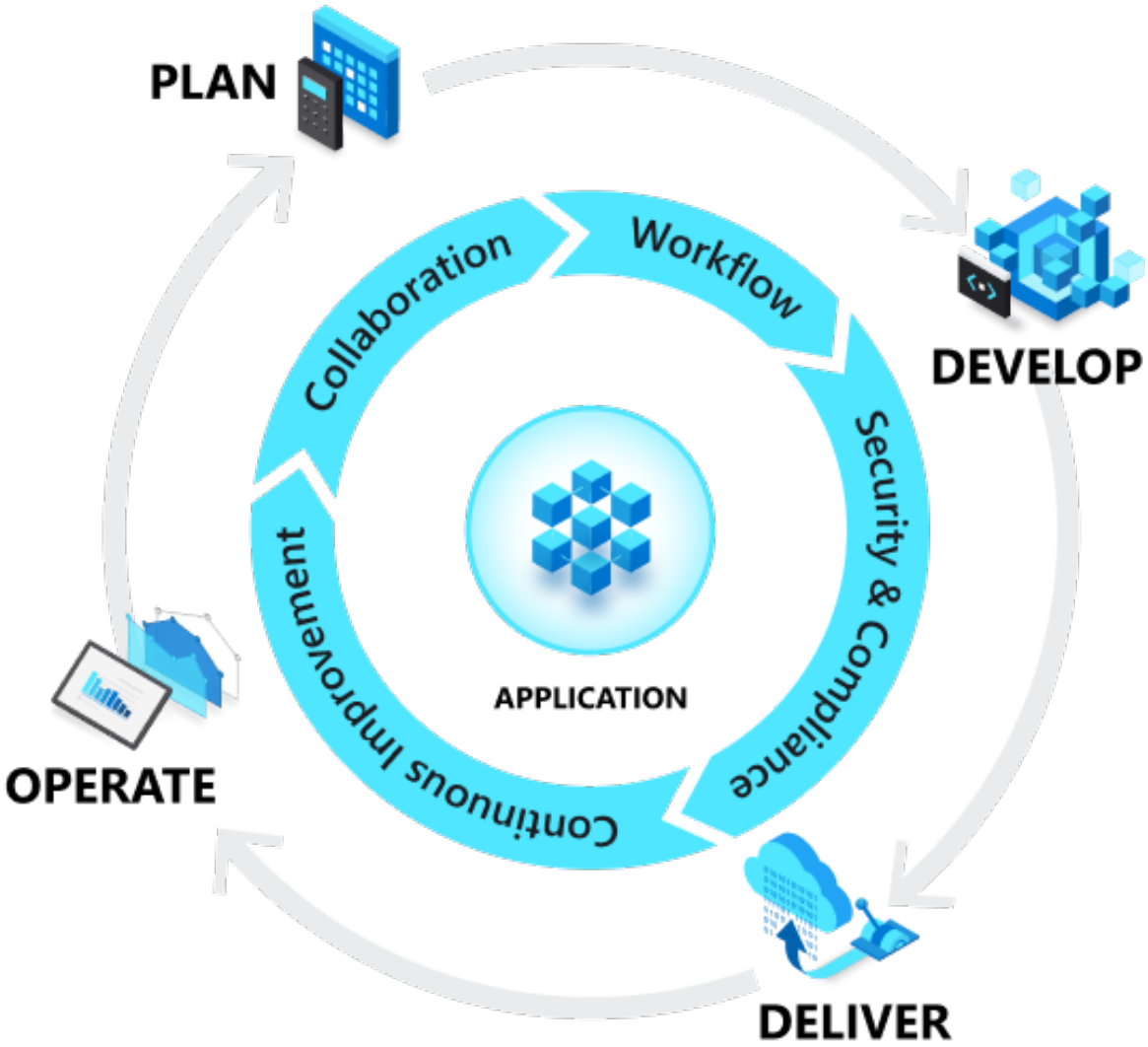


DevOps



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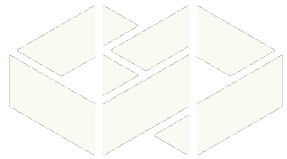
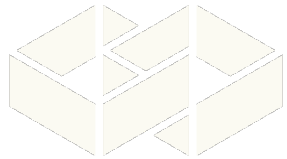
Operate DevOps practices

- Monitor & troubleshoot
- Securing knowledge



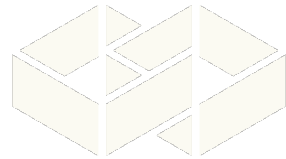
Troubleshoot

- What was changed?
- Who signed off for this?
- Where did the change come from?

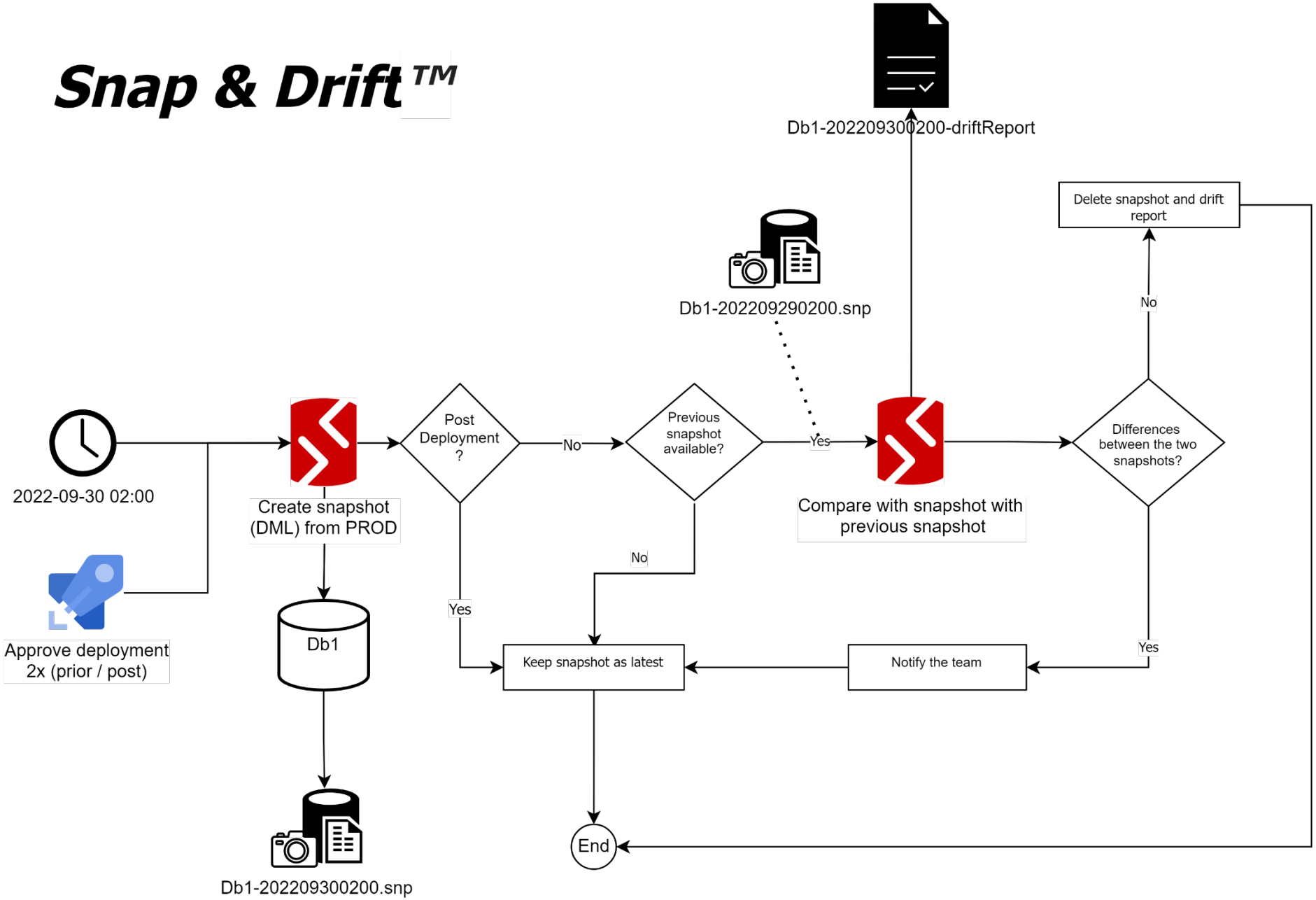


Monitor production databases

- Integrated in every deliver
- Nightly automated check
- Create work items on drift

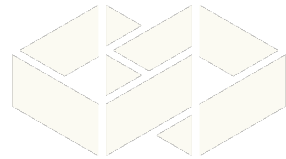


Snap & Drift™


Db1-202209300200-driftReport
Db1-202209290200.snp
Delete snapshot and drift report
No
2022-09-30 02:00
Create snapshot (DML) from PROD
Post Deployment ?
No
Previous snapshot available?
Yes
Compare with snapshot with previous snapshot
Differences between the two snapshots?
Approve deployment 2x (prior / post)
Db1
Yes
No
Keep snapshot as latest
Notify the team
Yes
End
Db1-202209300200.snp

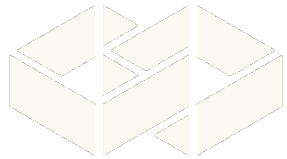
Troubleshoot

- ✓ What was changed?
- ✓ Who signed off for this?
- ✓ Where did the change come from?



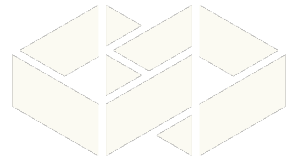
Operate DevOps practices

- ✓ Monitor & troubleshoot
- Securing knowledge



Share and securing knowledge

- Encourage documentation everywhere
- Linking ensures provenance
- SQL Extended properties (SQL Doc)
  - Convert to markdown (wiki) format
- Use Azure DevOps (Elastic)search



Operate DevOps practices

- ✓ Monitor & troubleshoot
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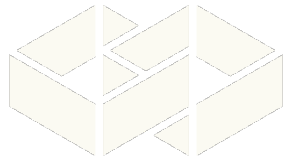
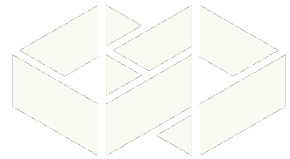


Key take aways

- People, process and tools (in that order)
- First do DevOps
- Only then Database DevOps can happen



Questions?

Session evaluation

Your feedback is important to us

Thank you, partners

element 61
experience & expertise

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PLAINSIGHT

Adapt and Enable

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cegeka

EpicData.

LACO

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lytix

bmatix
Act informed

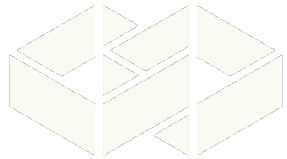
randstad digital

KOHERA

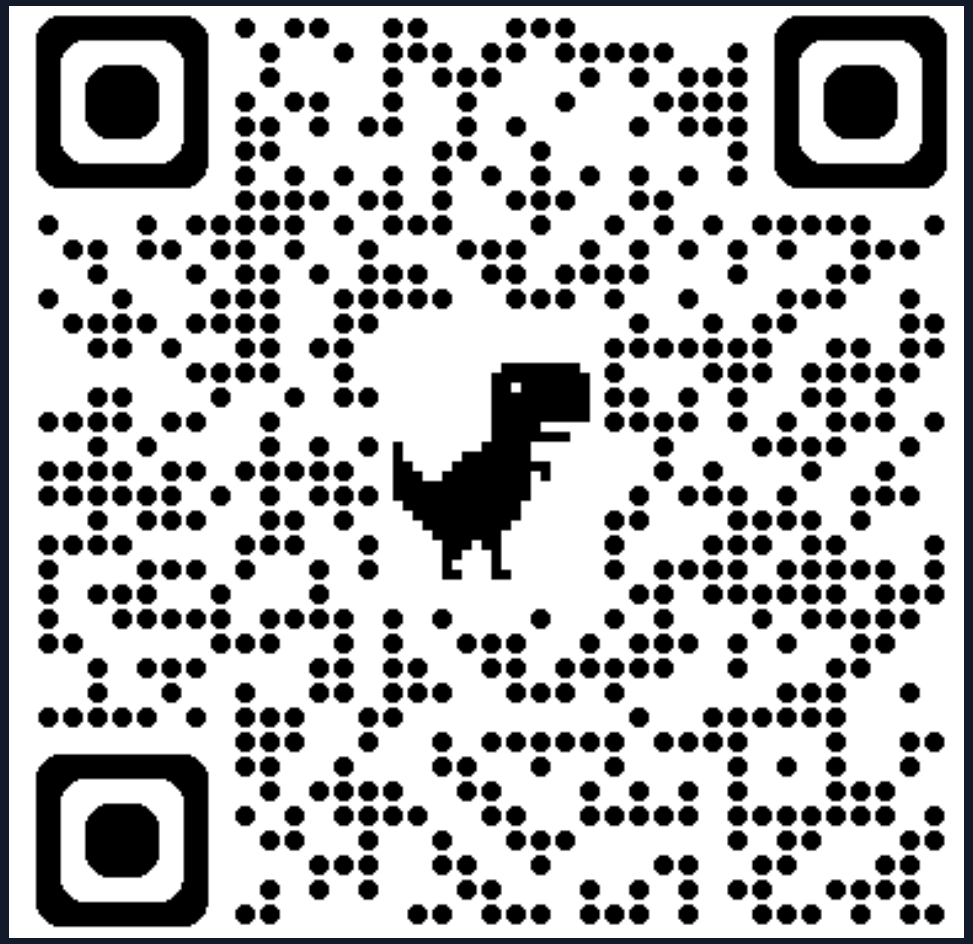
MONIN
Database Managed Services

inetum realdolmen
Positive digital flow

TriFinance
BEYOND ADVISORY



Thank you



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