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A day in the life of a Db2 for z/OS schema

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IBM Champion 2024

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Agenda

- Introduction
- “… the times they are a changin …” (B. Dylan)
- Schema development then, now and tomorrow
- Technology overview
- What could a day look like…
- Questions

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Let me quickly introduce myself

- Toine Michielse, born in The Netherlands
  - Db2 programmer, DBA,
    System Engineer, Architect
- Worked for many years for IBM
  as Db2 for z/OS Lab Advocate
- Came to Madrid from Switzerland
  - Busy learning Spanish (and padel)

My passions:

Db2, data,
mainframe
modernization

Paragliding

Playing drums
with “Ciencia
Urbana”

“the times they are a changin”

(Bob Dylan)

1964

Trivia question:

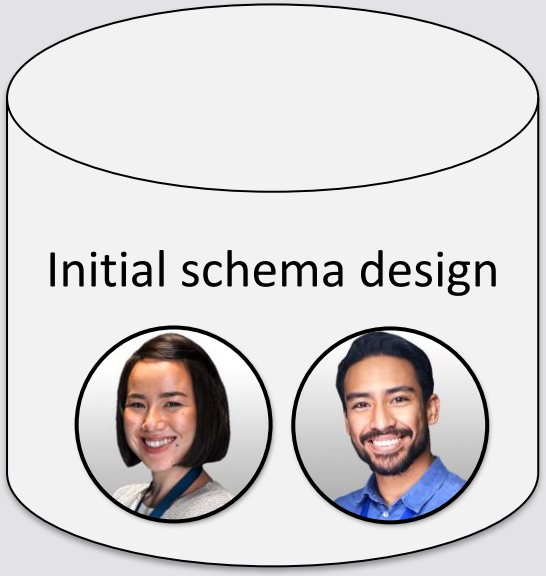
What else happened in the year this song was released?

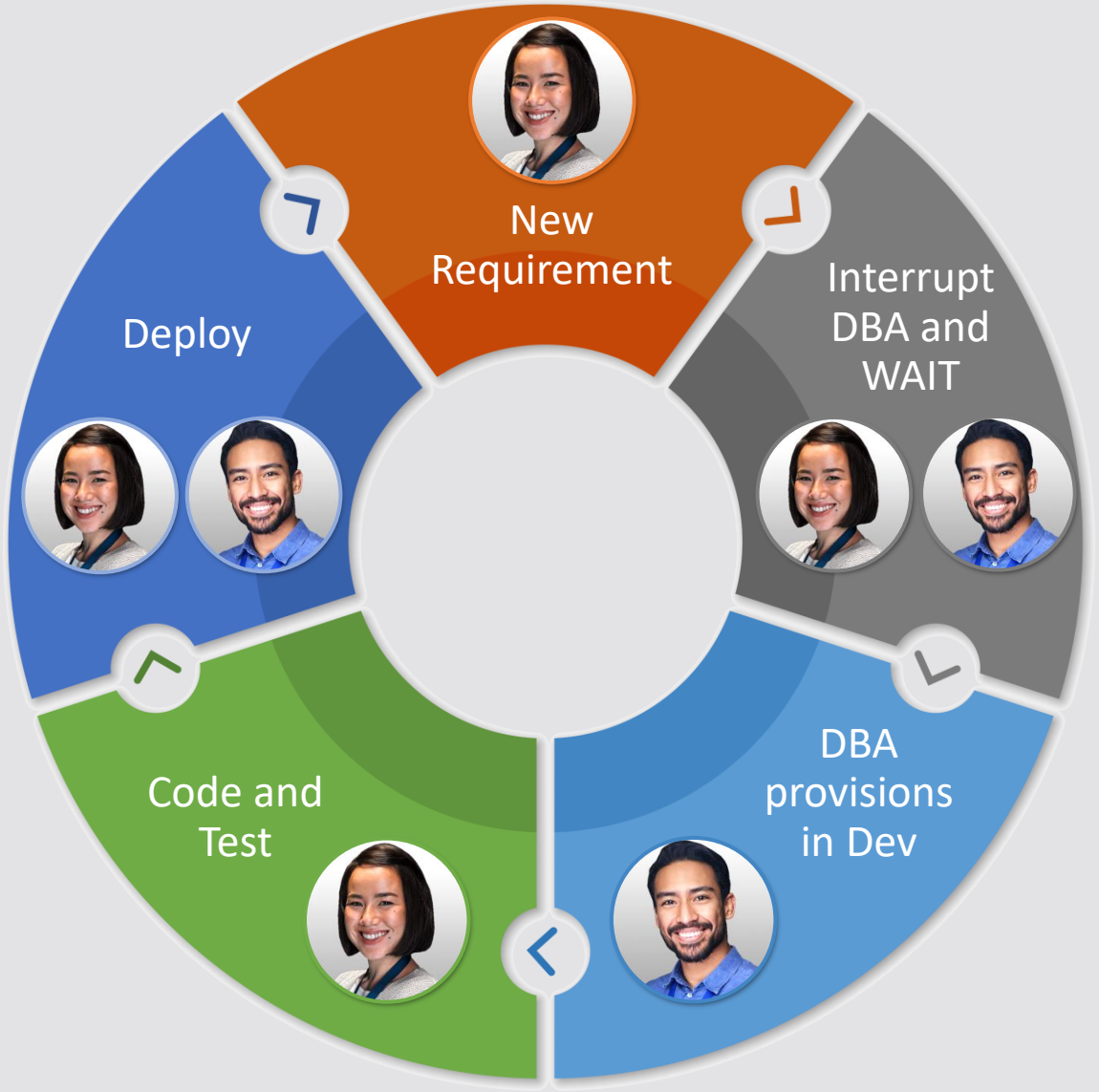
I couldn’t have said it better than Bob Dylan

“Come gather ‘round people
Wherever you roam
And admit that the waters
Around you have grown
And accept it that soon
You'll be drenched to the bone
If your time to you is worth savin’
And you better start swimmin’
Or you'll sink like a stone

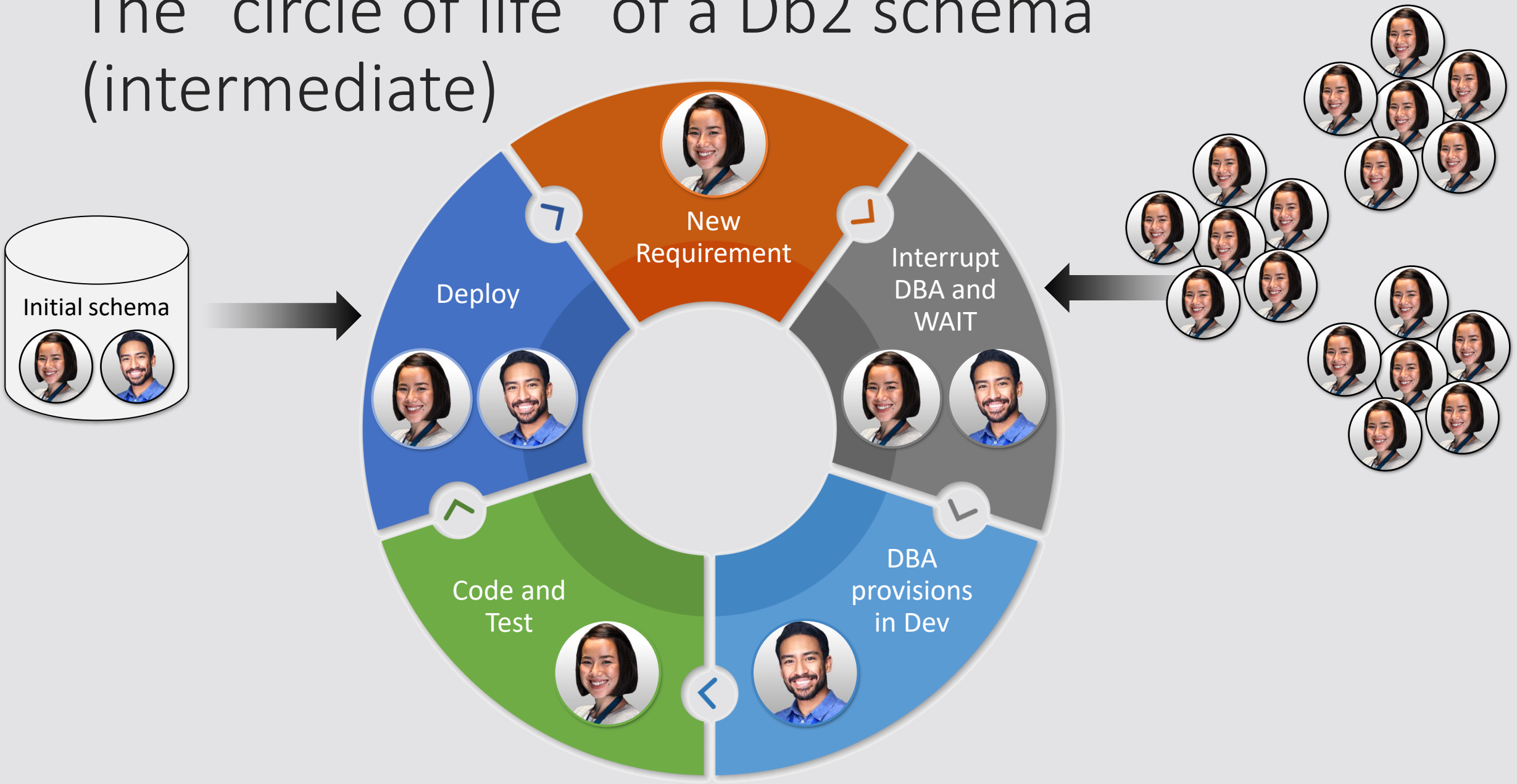
For the times they are a-changin’

The “circle of life” of a Db2 schema (ancient)

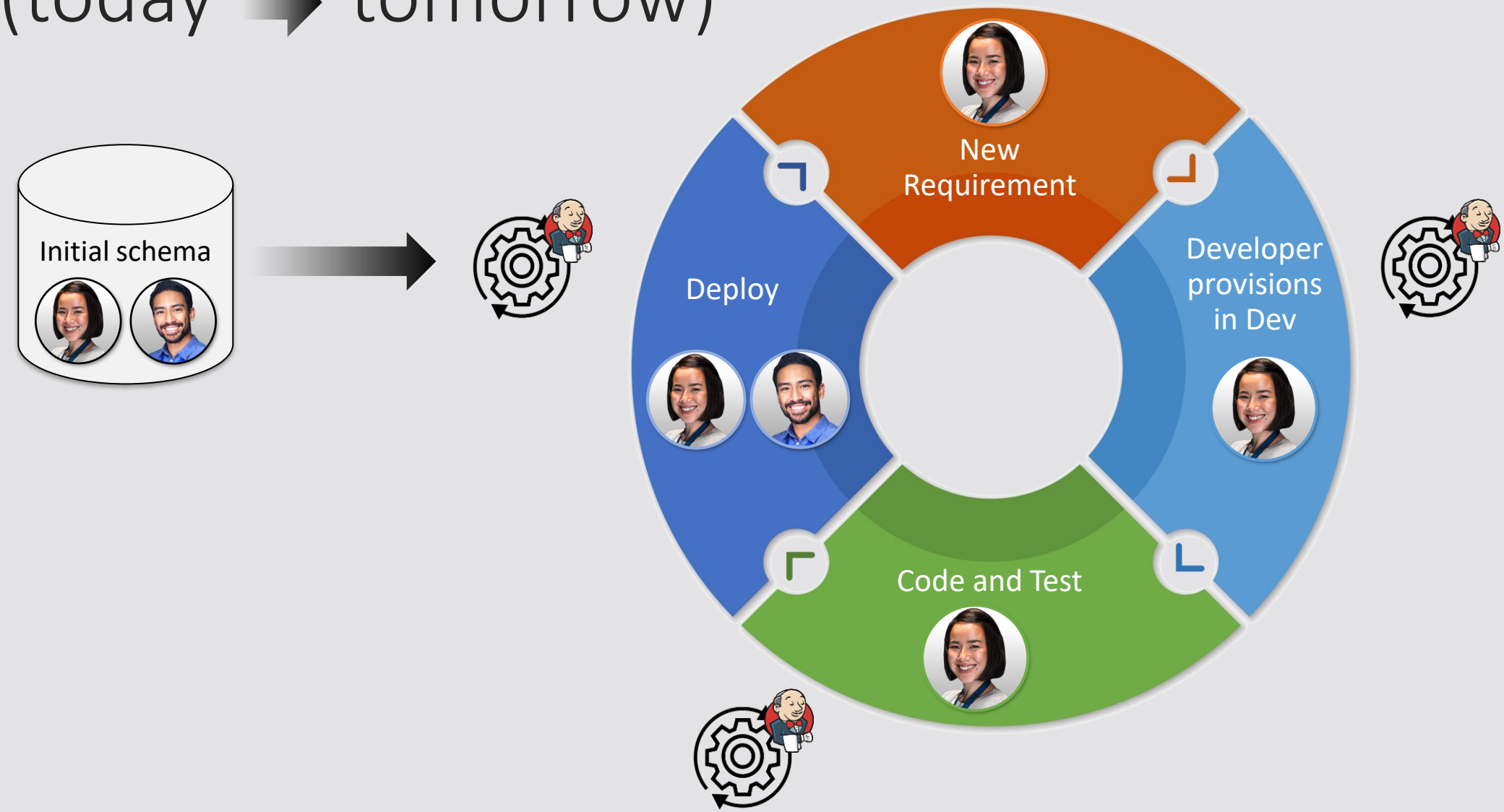




The “circle of life” of a Db2 schema (intermediate)



The “circle of life” of a Db2 schema (today ➡ tomorrow)



One way to dissect relevant IT processes

Creation

Analyze requirements, Code and build

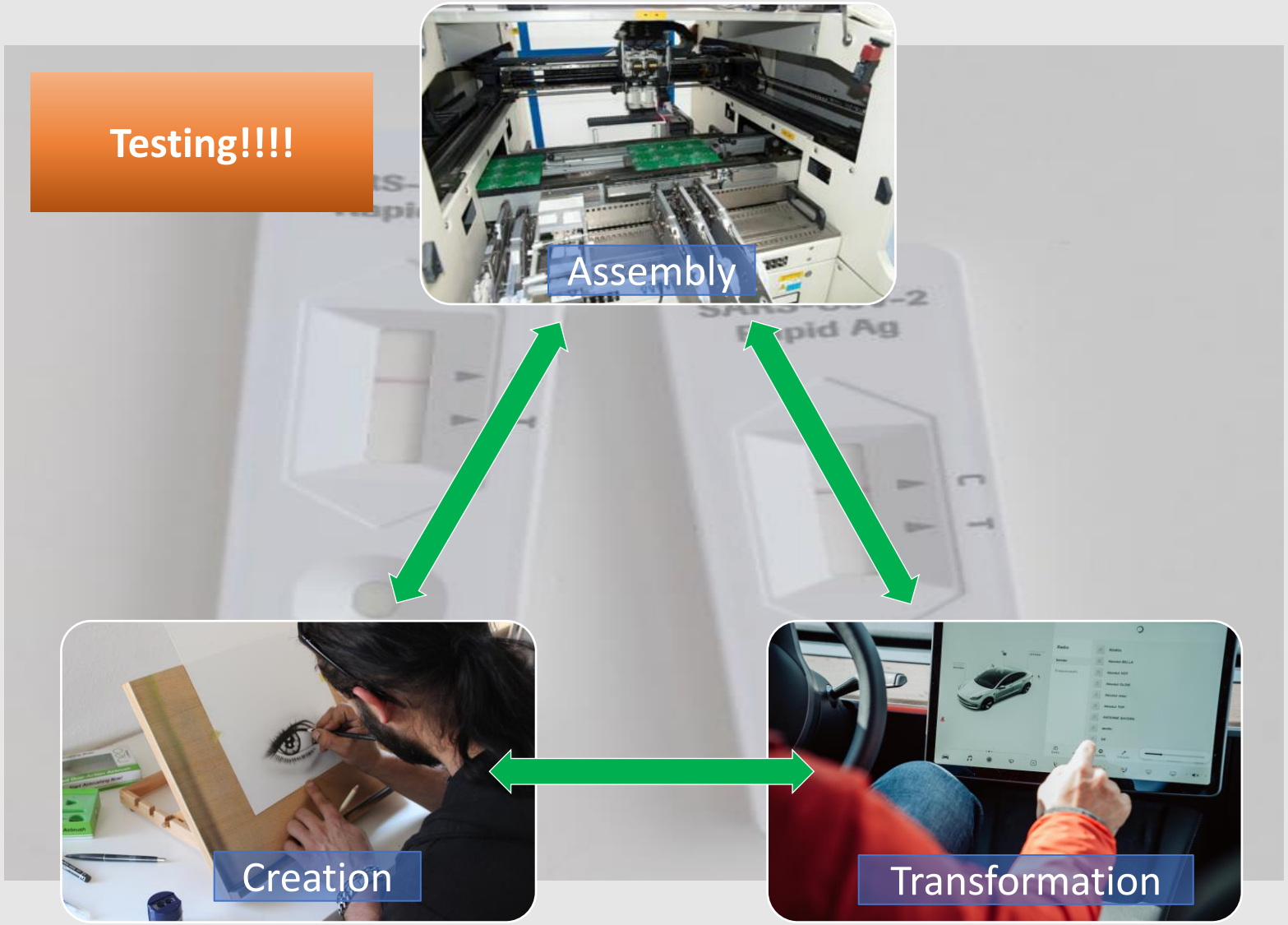
Assembly and transportation

Construct and make the new and verified artifacts available elsewhere

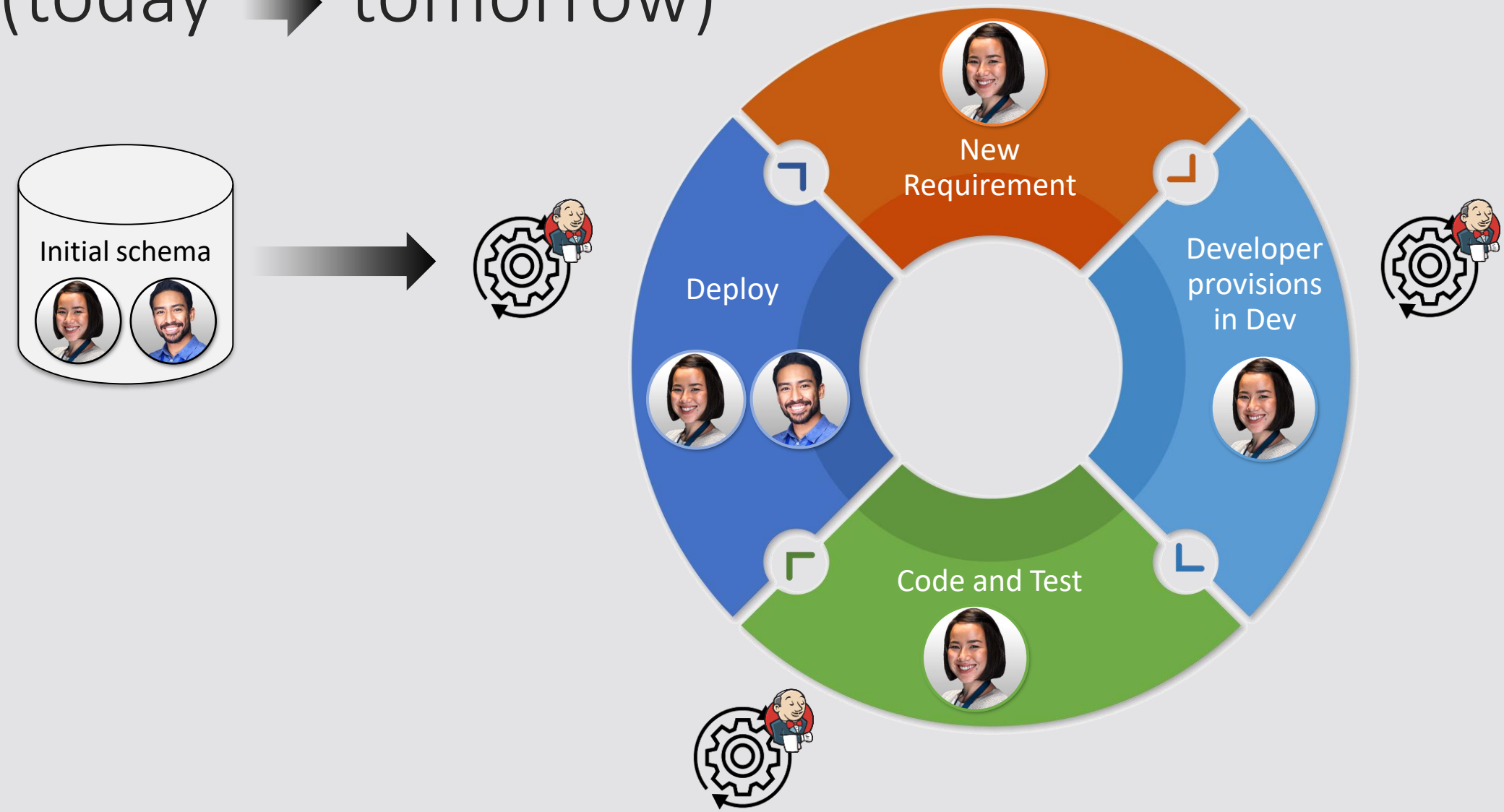
Transformation

Introduce changes in behavior.

- Configuration
- Bug fixing
- Requirement change



The “circle of life” of a Db2 schema (today ➡ tomorrow)

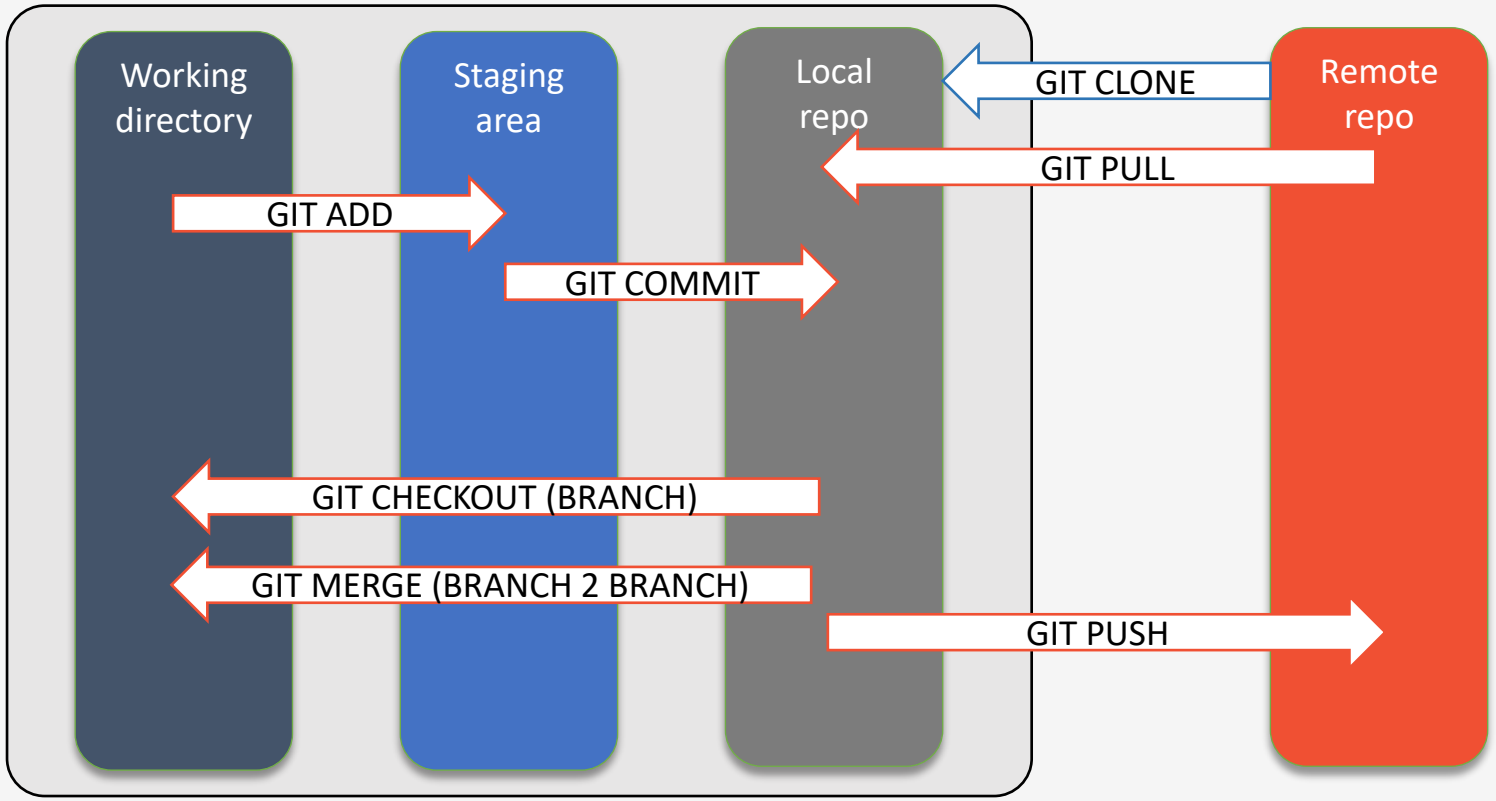


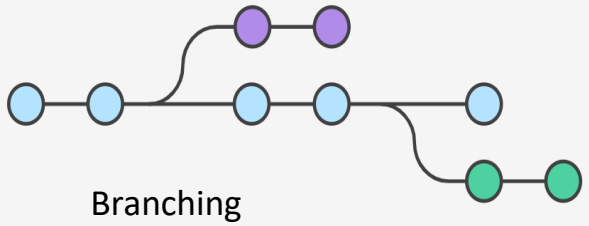
Technologies

A quick overview

Source code management (GIT)

- Function: provide version control
  - Enables teams to easily work on the same code base concurrently
- Git is **open source**, widely used, distributed architecture, off platform
  - Great capabilities for release building, integration with MF based SCM available

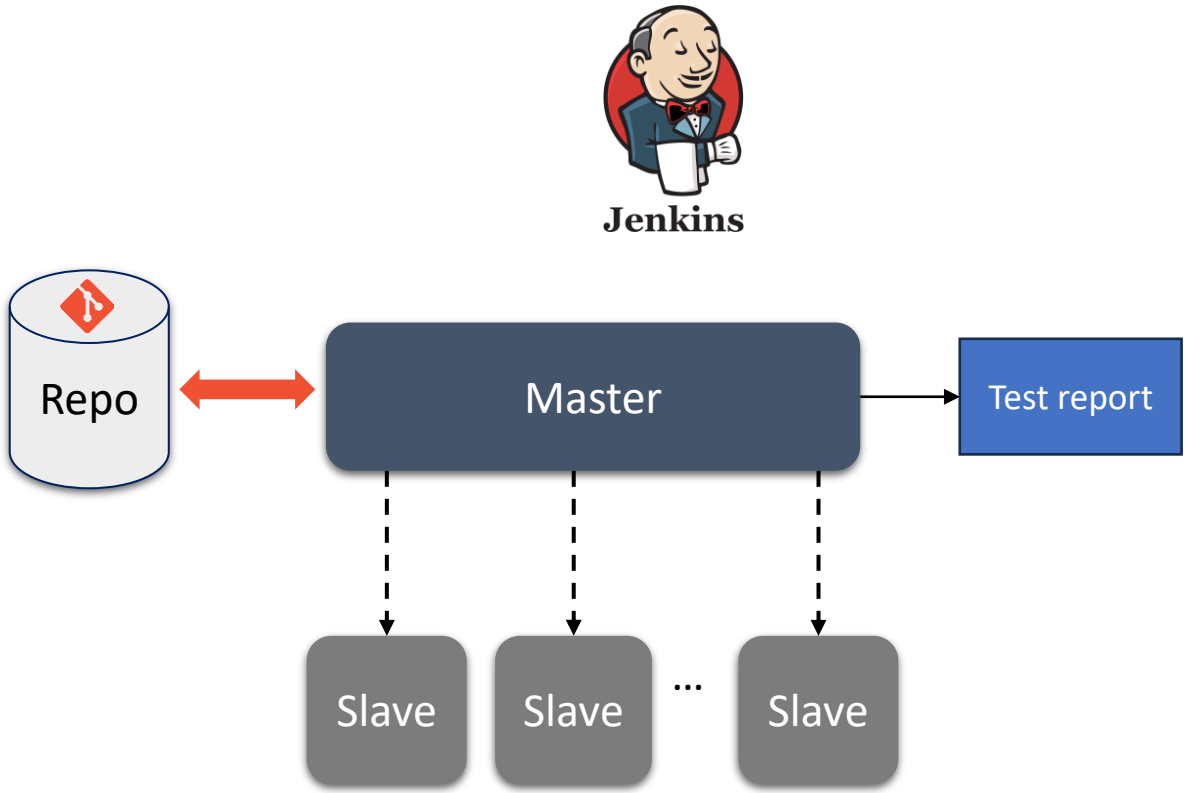




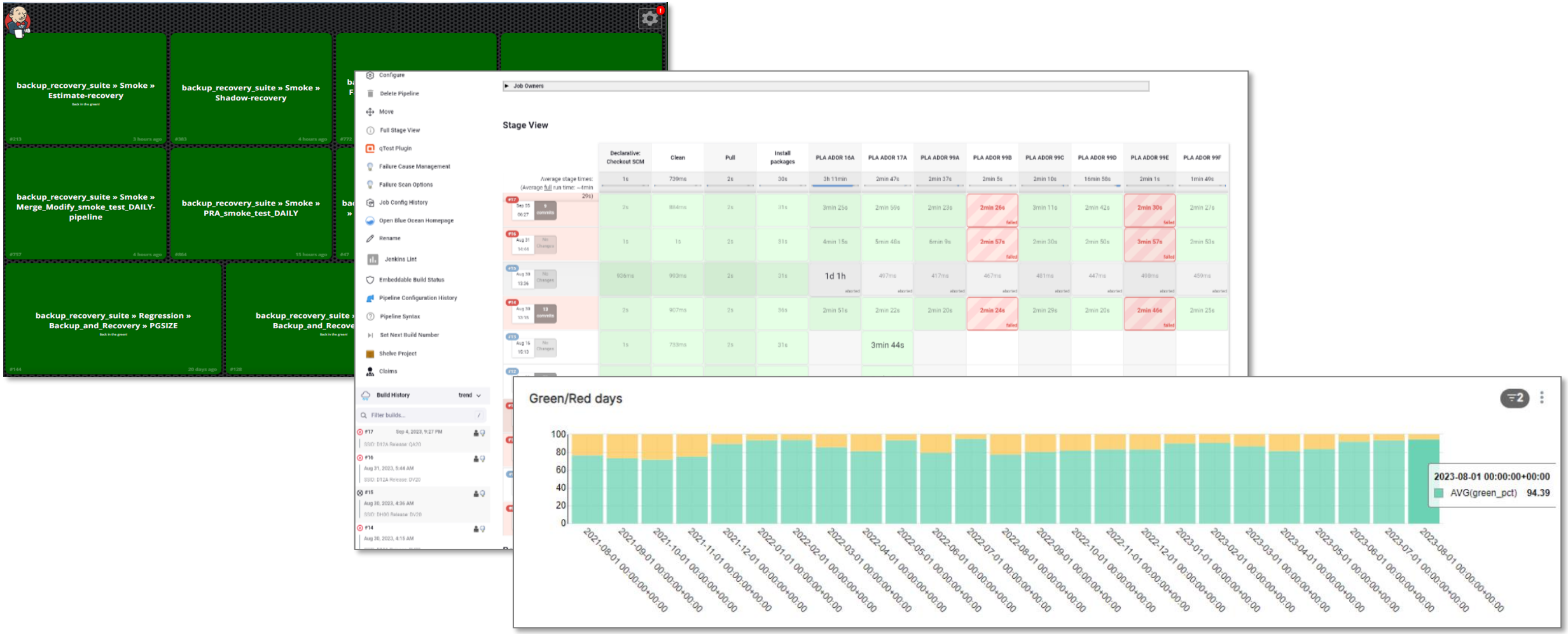
Branching

Process orchestration (Jenkins)

- Function: automated process execution
  - Jenkins is **open source**, widely used, distributed architecture, off platform
  - Repeatable actions can be easily executed
    - “the butler” getting tasks done according to your order
  - Known for pipelines consisting of one or more consecutive steps (stages)
    - Highly extendable. Large selection of extensions available
  - Strong integration with
    - Git(hub)
    - ServiceNow, Jira, Email, Slack etc., …



Sample reports



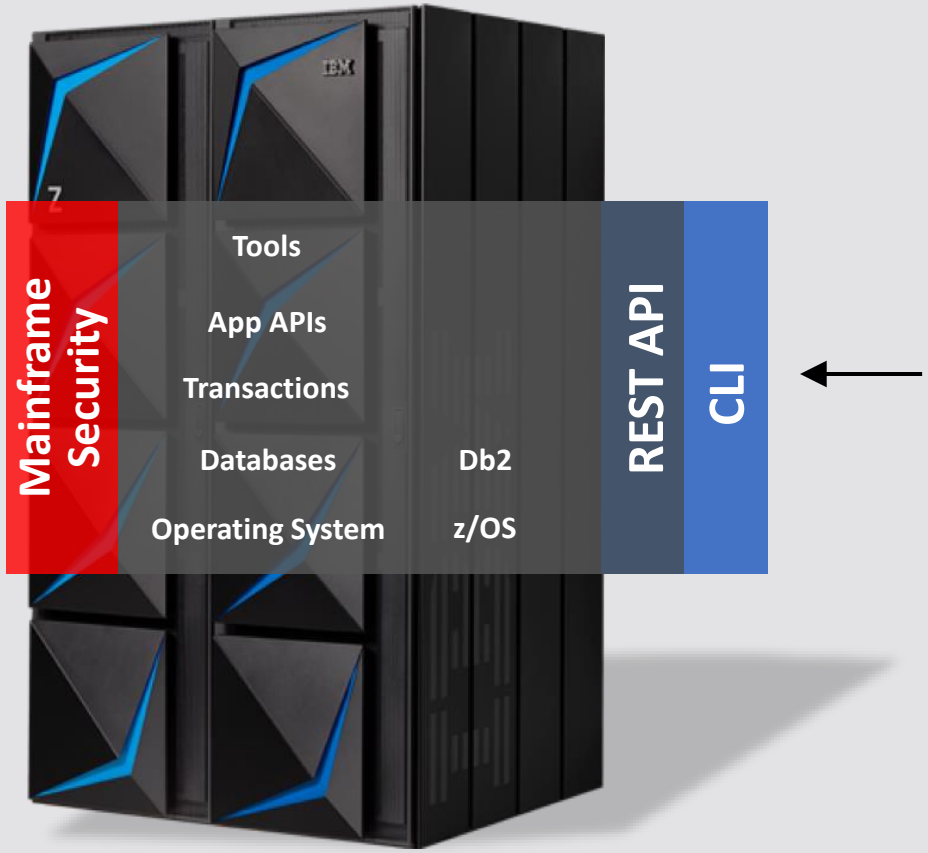
Process orchestration (z/OSMF)

- Function: automated process execution
  - z/OSMF is mainframe only
  - Current usage includes software installation and maintenance
- Jenkins like process control
- Can be integrated in distributed processes using Zowe cli
  - Integrating non-mainframe process … that is not what it is designed for

Ansible

- Please check out the session “Get Cozy with Ansible” by Denis Tronin
- While it is very valuable for infrastructure maintenance as well as program build etc., I personally feel that Ansible is more means to perform tasks then an alternative for orchestration
- To be complete ... excellent for:
  - “infrastructure as code”
  - More difficult for the integration that I am looking for
- **I’d like to be proven wrong**

Integrate … The magic word



OPEN MAINFRAME PROJECT Zowe

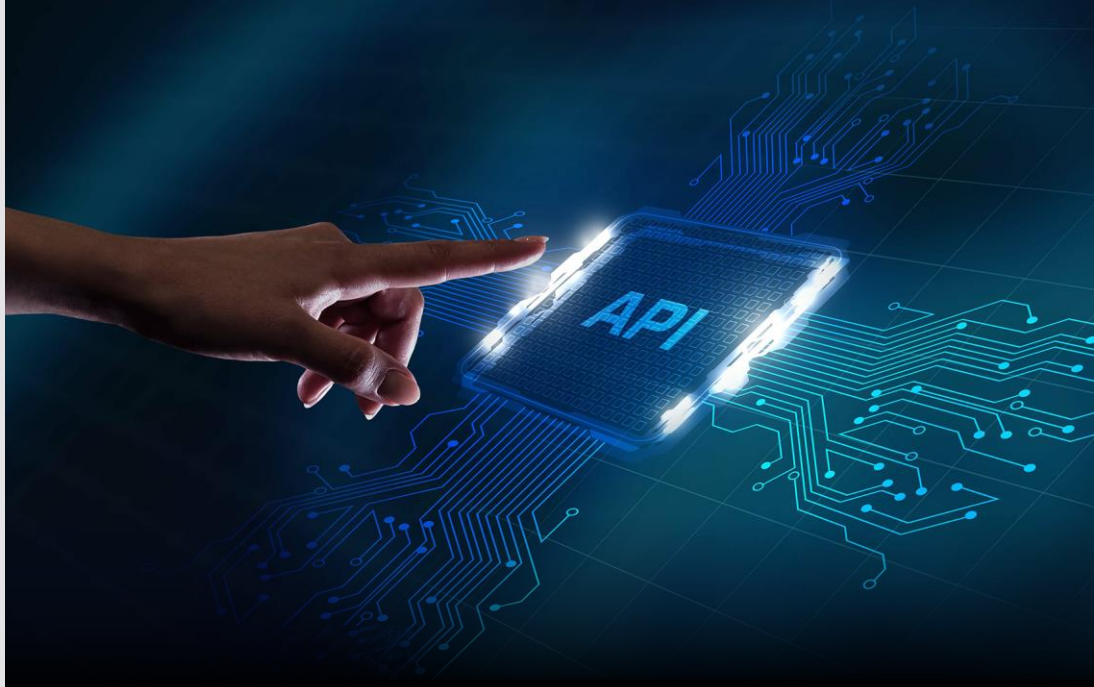
NEXT GEN DEVELOPER

MODERN DEVOPS TOOLS

Jenkins · Jest · GitHub · Gradle · python · node · IntelliJ IDEA · Selenium · APACHE JMeter™ · Gulp

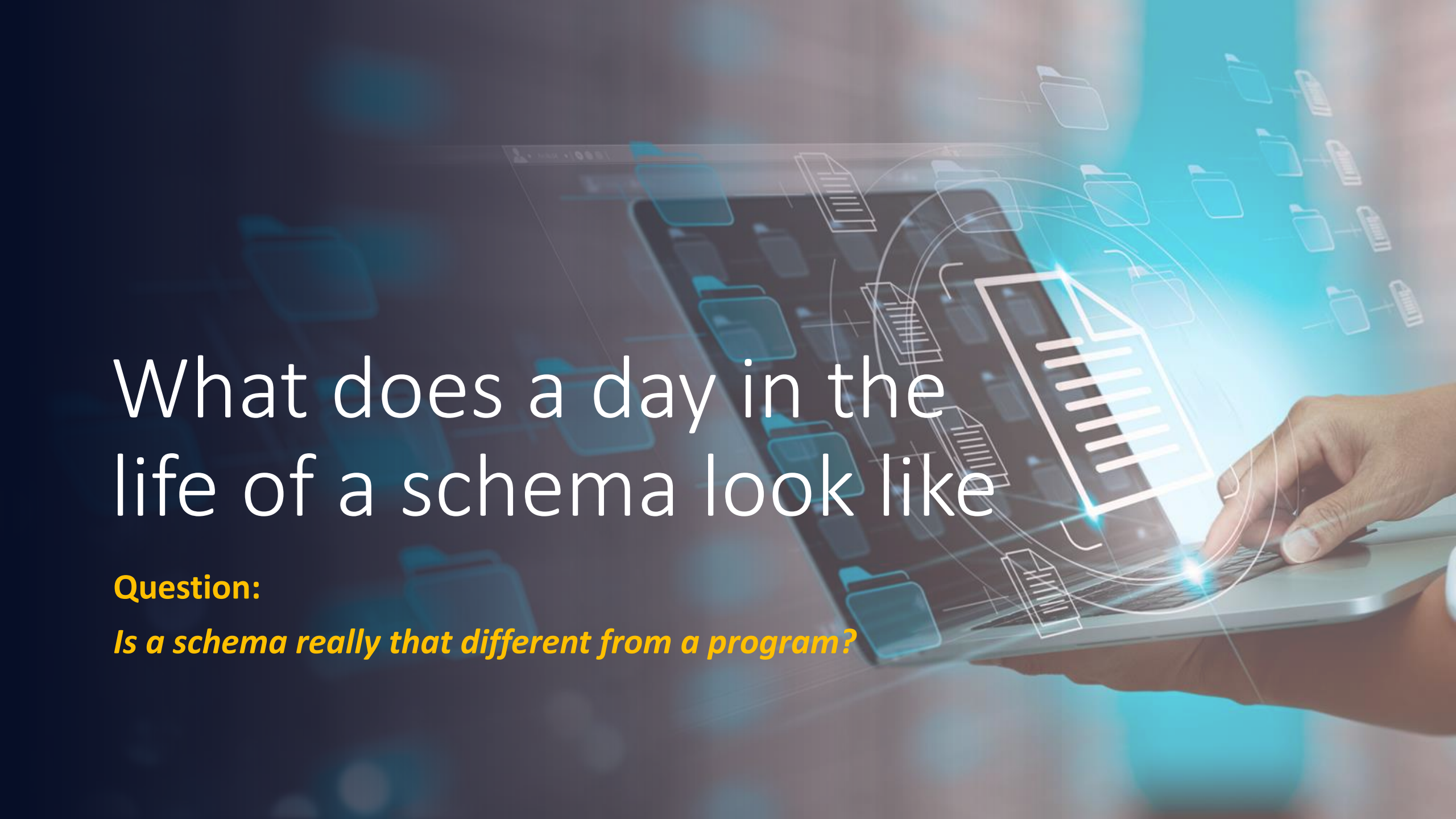
… One more thing … API

- I use the term liberally
- Ideally, there are REST API's available for direct consumption
  - Remember there is always Zowe …
  - More and more product services can be invoked directly



"An application programming interface (API) is a way for two or more computer programs to communicate with each other. It is a type of software interface, offering a service to other pieces of software."

-- Source: Wikipedia

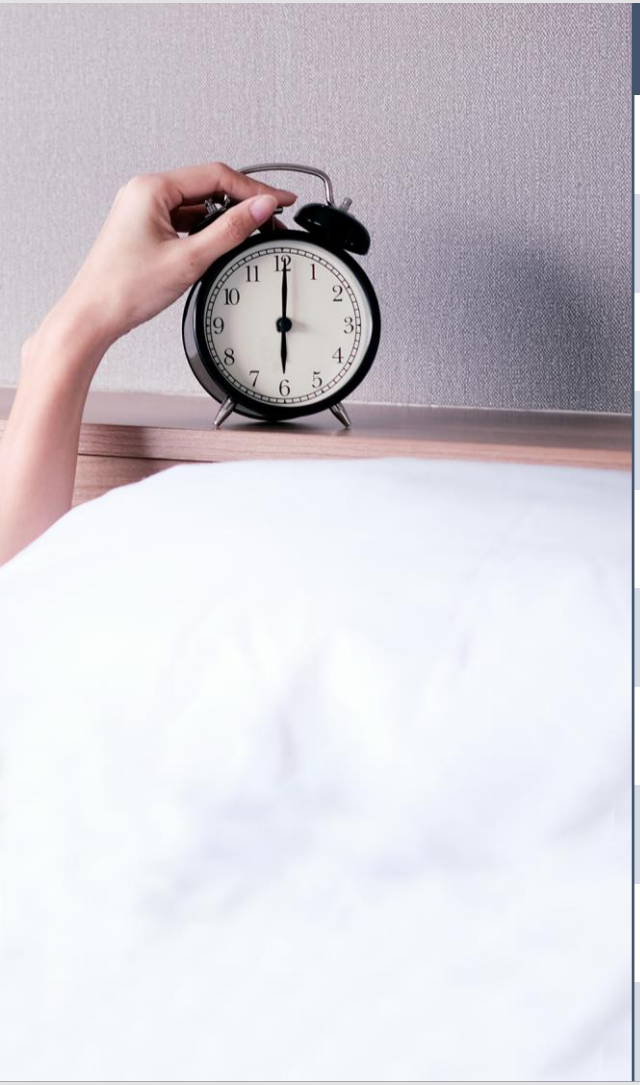


What does a day in the life of a schema look like

Question:

Is a schema really that different from a program?

The day starts … Developer view



Time mol	Activity	Remarks
08.00	Coffee ☺	
08:15	Standup meeting to discuss today's activities	
08:45	Analyze time …	"I need a new column + index"
10:00	Daily consultancy meeting with Dba	Here's how you do it
11:00	Self-provision schema and data	(semi) Automated Action 1
11:01	Pre-change test (functional)	(semi) Automated Action 2
11:10	Implement schema changes as discussed + deploy	(semi) Automated Action 3
11:11	Code the change and new test data	
13:00	Post-change test (functional)	(semi) Automated action 4
15:00	Commit today's work	Manual action by developer

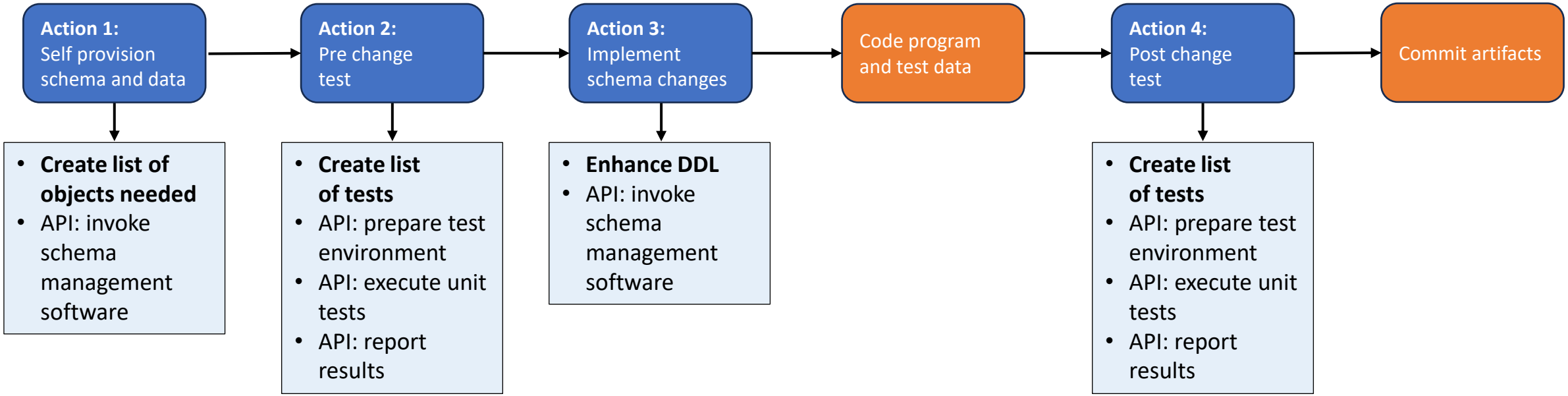
The day starts … Dba view

Time mol	Activity	Remarks
08.00	Coffee ☺	
08:15	Standup meeting to hear about today's activities	
08:45	More coffee (with donuts) ☺	
10:00	Daily consultancy meeting with Dba	Discuss results of yesterday's analysis
11:00	Analyze previous days reports from system testing	(with more coffee)
	Design and create solutions. Optimize, build more and better automation	
14:00	Commit purely Schema level improvements	→ For tomorrow's meeting
15:00	Handle any requests coming out of schema change integration	
16:00	Prepare for tomorrow's consulting meeting with developers	

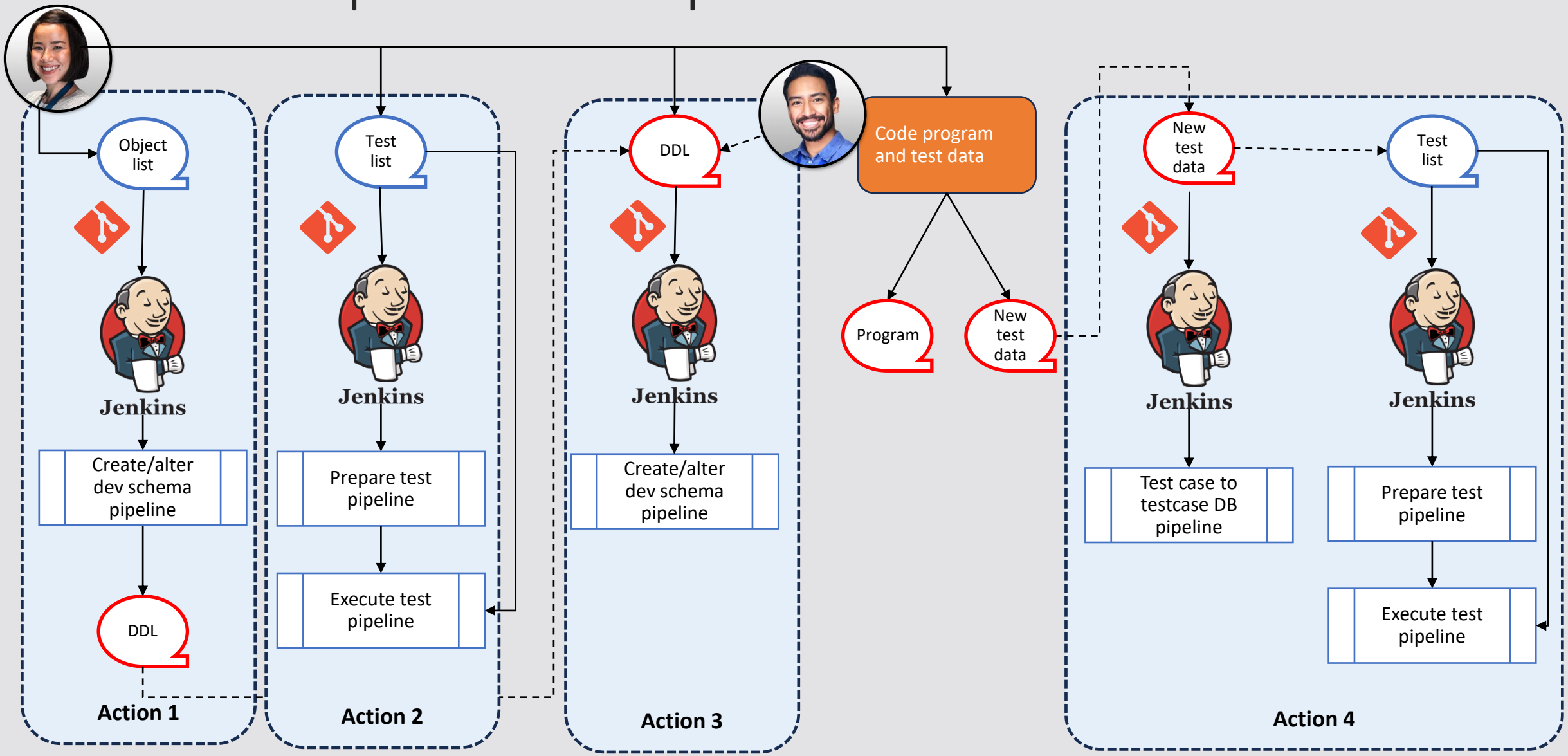
The day starts … System view

Time mol	Activity	Remarks
15:00	No coffee needed ☺	
15:10	Testing time	Kick of integration tests
15:15	Identify test cases based on committed programs	Automated Action 5
15:20	Prepare integration test environment and execute	Automated Action 6
16:00	Integrate **OK´d** changes into performance test environment	Automated Action 7
16:10	Drive the performance test	Automated Action 8
17:00	Integrate committed and positively tested changes	Automated Action 9
17:00	Prepare result dashboards and distribute reports	

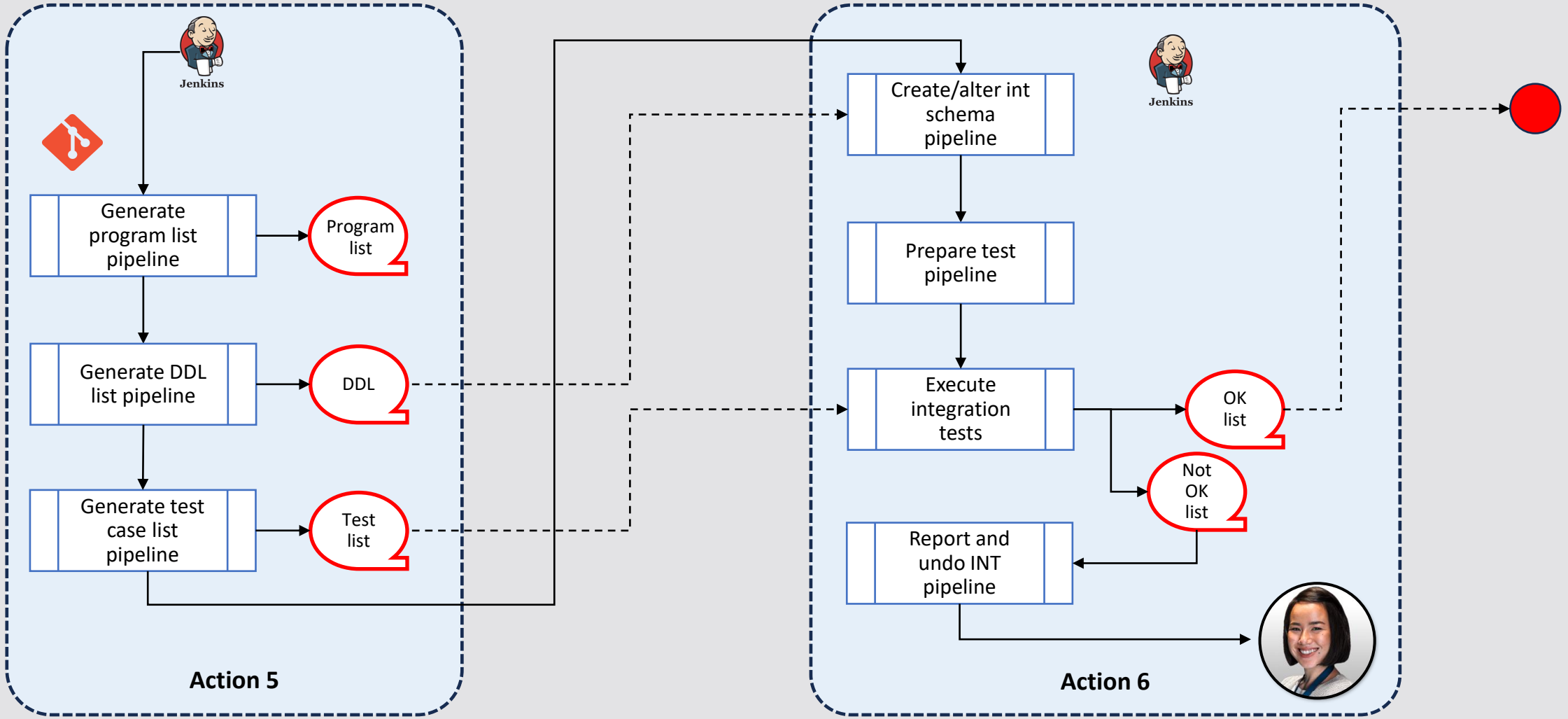
A little more detail: Developer view



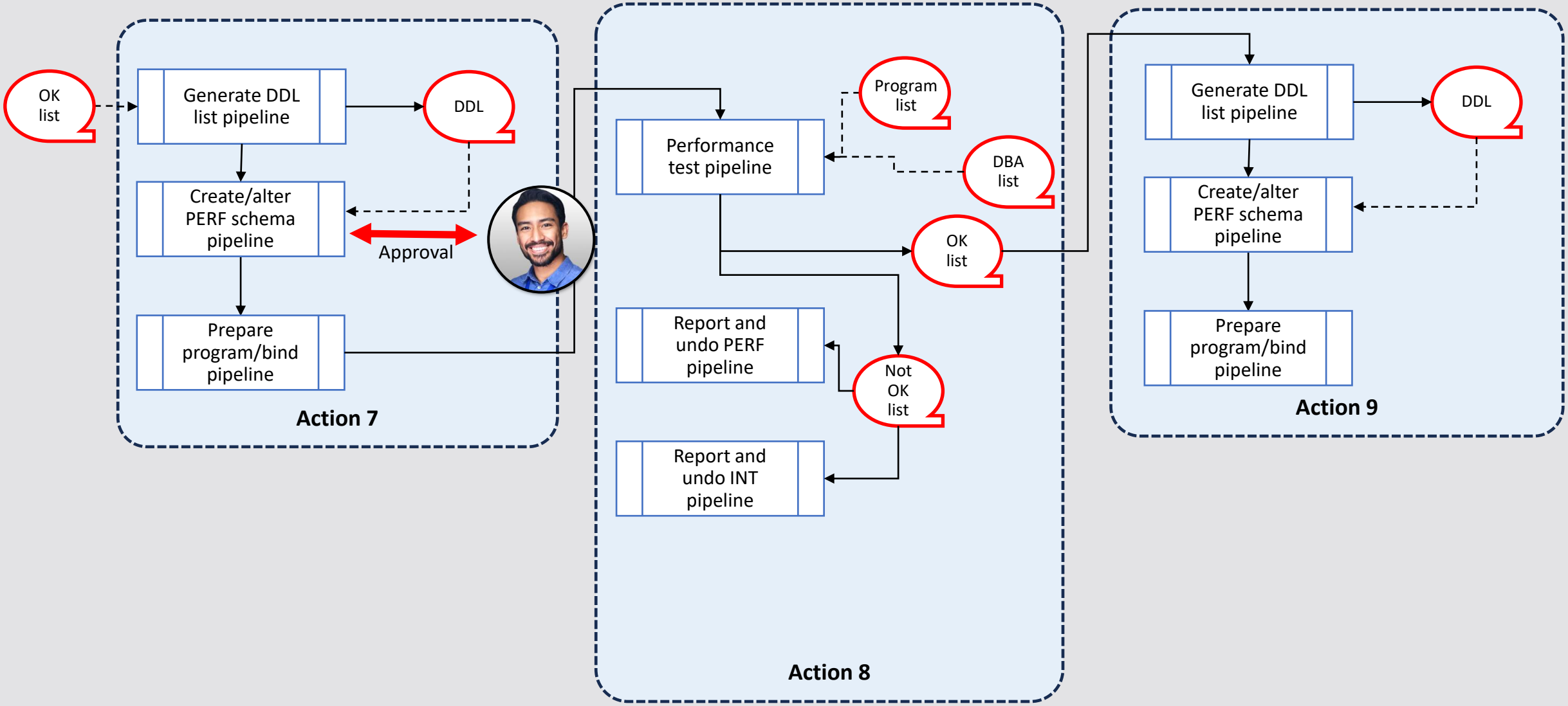
An example: Developer view



An example: System view (1/2)



An example: System view (2/2)



Questions …

(thanks Sam!!)

Broadcom Mainframe Technical Exchanges

- ✓ European in-person event in Prague: April 16-18
- North American in-person event in Plano, TX: September 10-12 (registration open)
- Global virtual event: October 8-10 (save the date)

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