

CI/CD ON



Once upon a time...



«Integration Hell» und «Works on My Machine»



1991: Object Oriented Design: With Applications, Grady Booch





1997: Extreme Programming Explained

2001 CruiseControl

The screenshot displays the CruiseControl web interface. At the top, there are navigation tabs for 'Dashboard', 'Builds', and 'Administration'. The main content area features a large green banner with a checkmark icon, indicating a successful build: 'cce-windows passed (44 minutes ago)'. Below this, the build details are shown: 'Build Time: 27 Nov 2007 09:51 GMT +08:00' and 'Duration: 7 minutes 40 seconds'. The build is identified as 'Build: build.8'. To the right, a 'Latest Builds' sidebar lists recent builds with their completion times and build numbers. The most recent build is '7 minutes ago build.9'. Below the main banner, there are tabs for 'Artifacts', 'Modifications', 'Build Log', 'Tests', and 'Errors and Warnings'. The 'Modifications' tab is active, showing a list of changes. The first modification is by 'bestfriendchris' [Chris & Gao Li], with the description 'Fixed issue with queued inactive status.' and revision '[rev. 3847]'. Two files are listed as modified: '/branches/cce/cruisecontrol/reporting/dashboard/jsunit/tests/json_to_css_test.html' and '/branches/cce/cruisecontrol/reporting/dashboard/webapp/javascripts/json_to_css.js', both with revision '[rev. 3847]'.




Dashboard Builds Administration



cce-windows passed (44 minutes ago)  











Build Time: 27 Nov 2007 09:51 GMT +08:00 **Duration:** 7 minutes 40 seconds
Build: build.8

Artifacts Modifications Build Log Tests Errors and Warnings

Modifications

 **bestfriendchris** [Chris & Gao Li] Fixed issue with queued inactive status.
[rev. 3847]  /branches/cce/cruisecontrol/reporting/dashboard/jsunit/tests/json_to_css_test.html
[rev. 3847]  /branches/cce/cruisecontrol/reporting/dashboard/webapp/javascripts/json_to_css.js

Latest Builds  

-  7 minutes ago build.9
-  44 minutes ago build.8
-  about 17 hours ago build.7
-  about 17 hours ago
-  about 18 hours ago build.6
-  about 18 hours ago build.5
-  about 19 hours ago build.4
-  1 day ago build.3
-  1 day ago build.2
-  8 days ago build.1

2005 Hudson

Hudson

search ?

[ENABLE AUTO REFRESH](#)

[edit description](#)

Continuous integration builds for ██████████

[New Job](#)
[Manage Hudson](#)
[People](#)

Build Queue
No builds in the queue.

Build Executor Status

No.	Status
1	Idle
2	Idle

All	S	W	Job ↓	Last Success	Last Failure	Last Duration	
			excalibur-slide-server-██████████	4 hours 34 minutes (#1)	N/A	22 seconds	
			██████████cocoon-live	2 hours 9 minutes (#1)	N/A	21 seconds	
			██████████workflow	2 hours 9 minutes (#5)	6 hours 24 minutes (#1)	15 seconds	
			hippo-cms-██████████	2 hours 8 minutes (#9)	N/A	6 minutes 32 seconds	
			hippo-repository-1.2.13	5 hours 37 minutes (#1)	N/A	2 minutes 20 seconds	
			repository-initialization	N/A	9 minutes 40 seconds (#24)	2 seconds	
			workflows-██████████	5 hours 10 minutes (#1)	N/A	22 seconds	

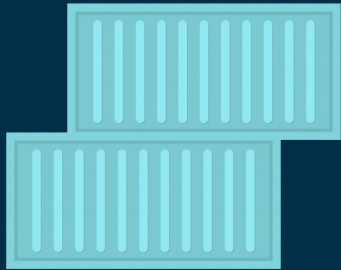
Icon: [S](#) [M](#) [L](#)

Legend for all for failures

[Hudson ver. 1.184](#)

Done

1



Continuous Integration



einchecken



automatisches
testen

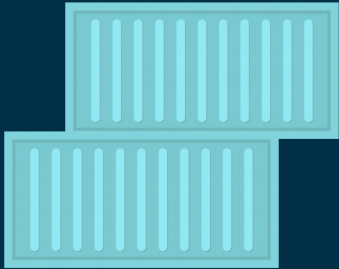


Reporting /
Codeanalyse



Deployment

2



Continuous Delivery

«It aims at building, testing, and releasing software faster and more frequently.»

Continuous
Integration



schnell &
oft released



auf
Knopfdruck



Entwicklungsprozess



Kleine und kurze Entwicklungszyklen



Agiles Vorgehen



Voll automatisierte Acceptance Tests



Sehr hohe Testabdeckung



Feature Toggles



Big Scary Merge

Feature Toggles

...

```
public void sendOrderNotification(Order order) {  
  
    // send default OrderNotification  
    mailService.sendOrderNotificationMessage(order);  
  
    if (featureService.isEnabled(SEND_ORDER_NOTIFICATION_AS_SMS)) {  
        smsService.sendOrderNotificationMessage(order);  
    }  
}
```

...

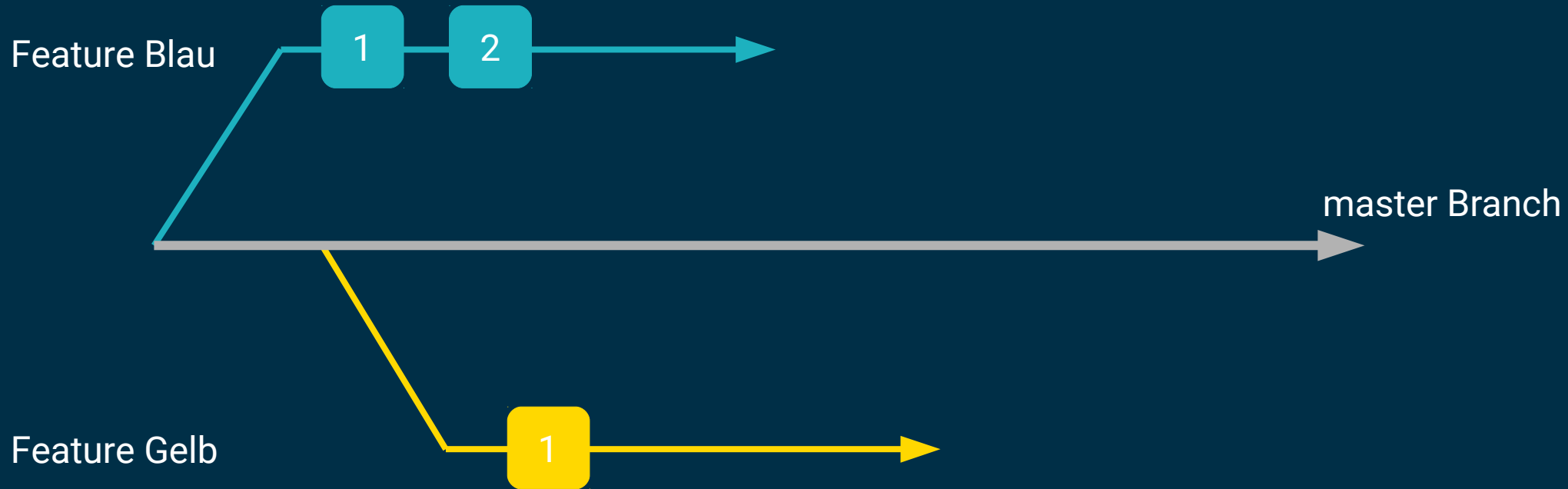
Big Scary Merge bei Feature Branches



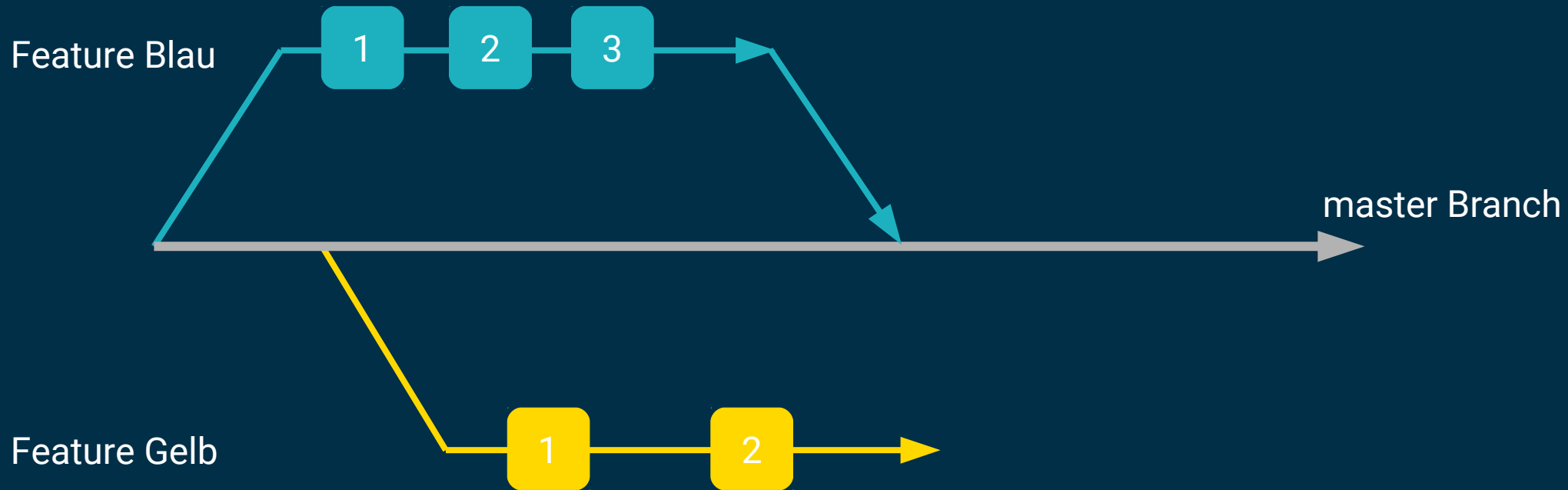
Big Scary Merge bei Feature Branches



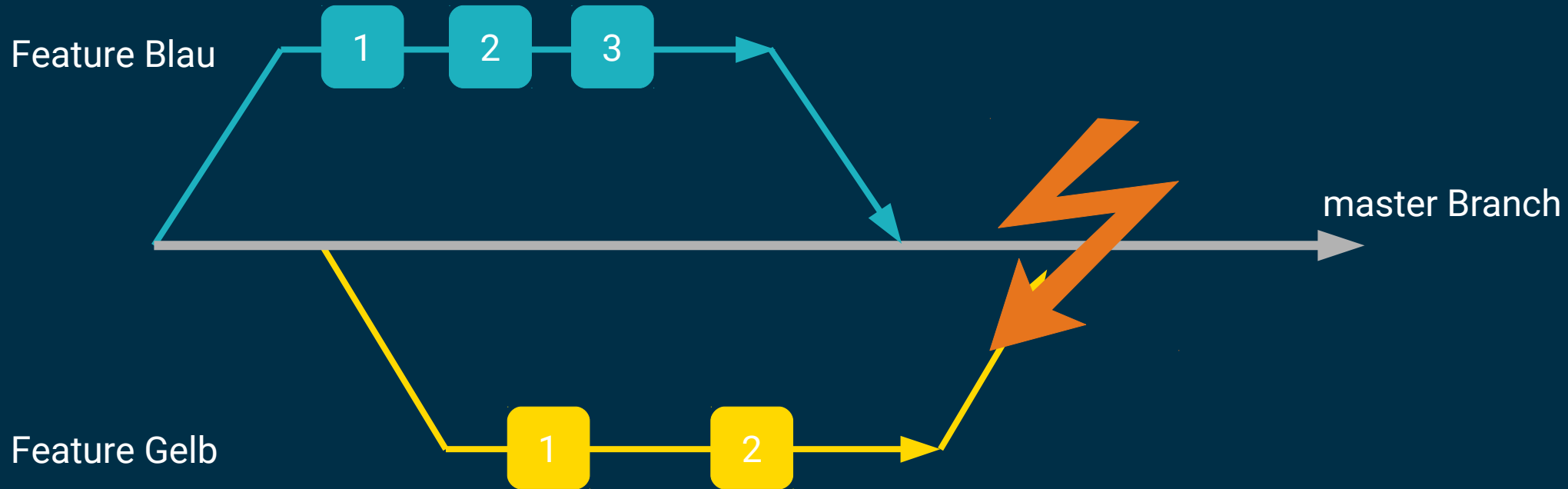
Big Scary Merge bei Feature Branches



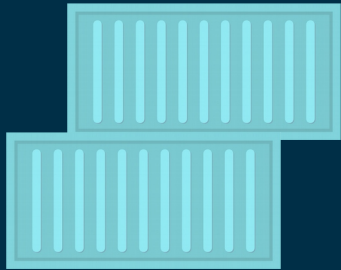
Big Scary Merge bei Feature Branches



Big Scary Merge bei Feature Branches



3



Continuous Deployment

Continuous Deployment

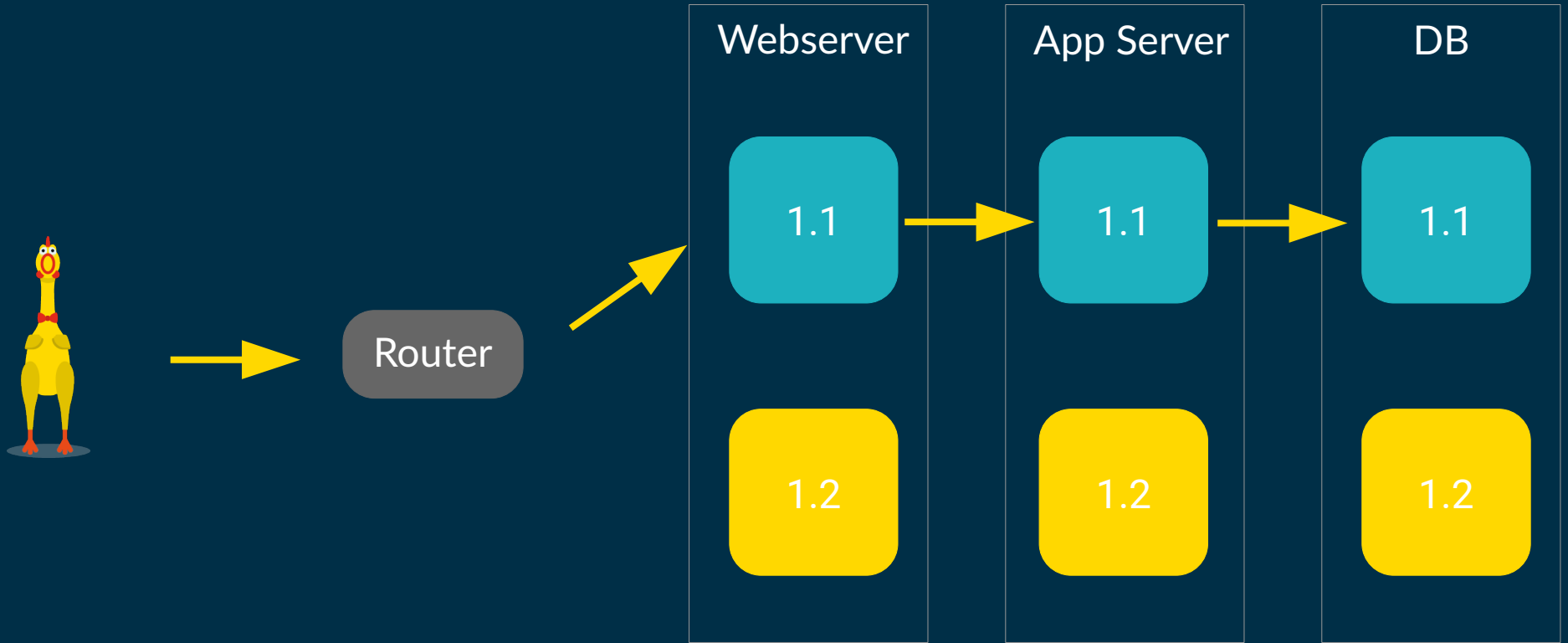
Jedes Release wird automatisch in Produktion deployed

Unterbruchsfreie Deployments nötig

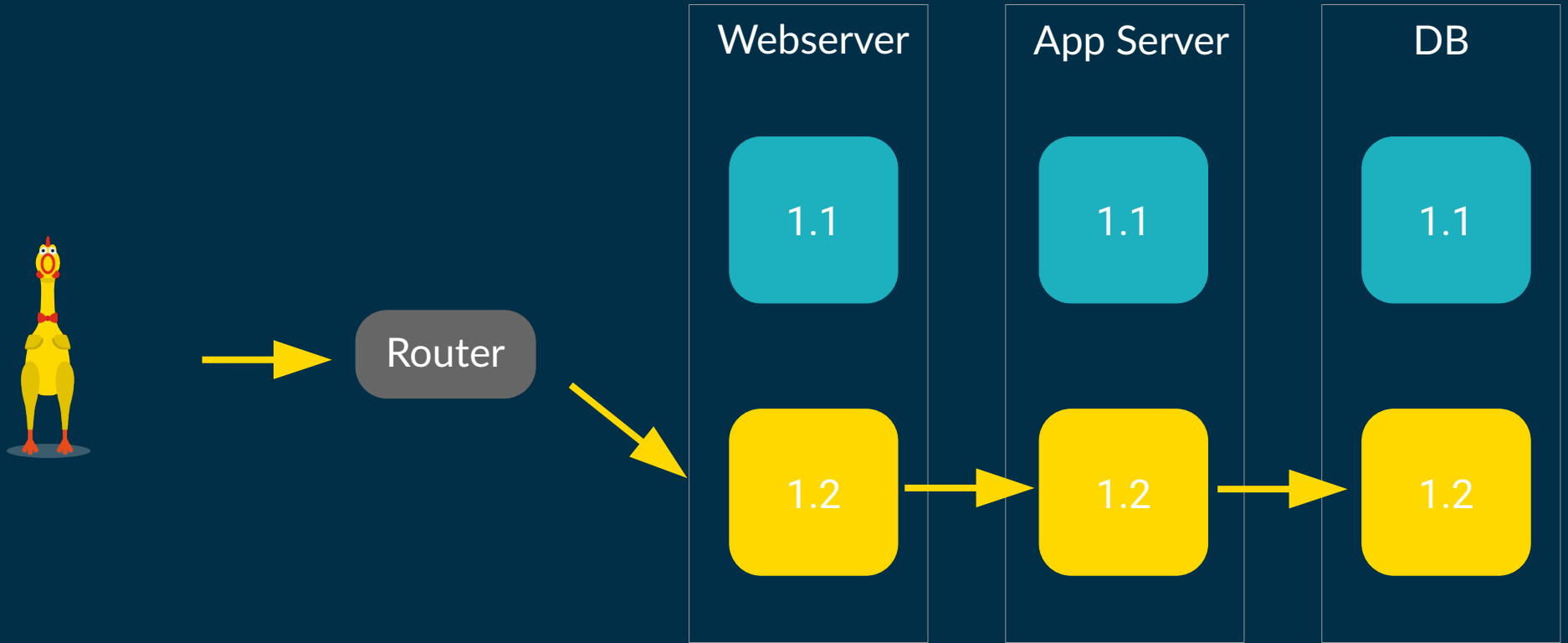
Blau - Gelb Deployments

Canary releasing

Blau – Gelb Deployments



Blau – Gelb Deployments



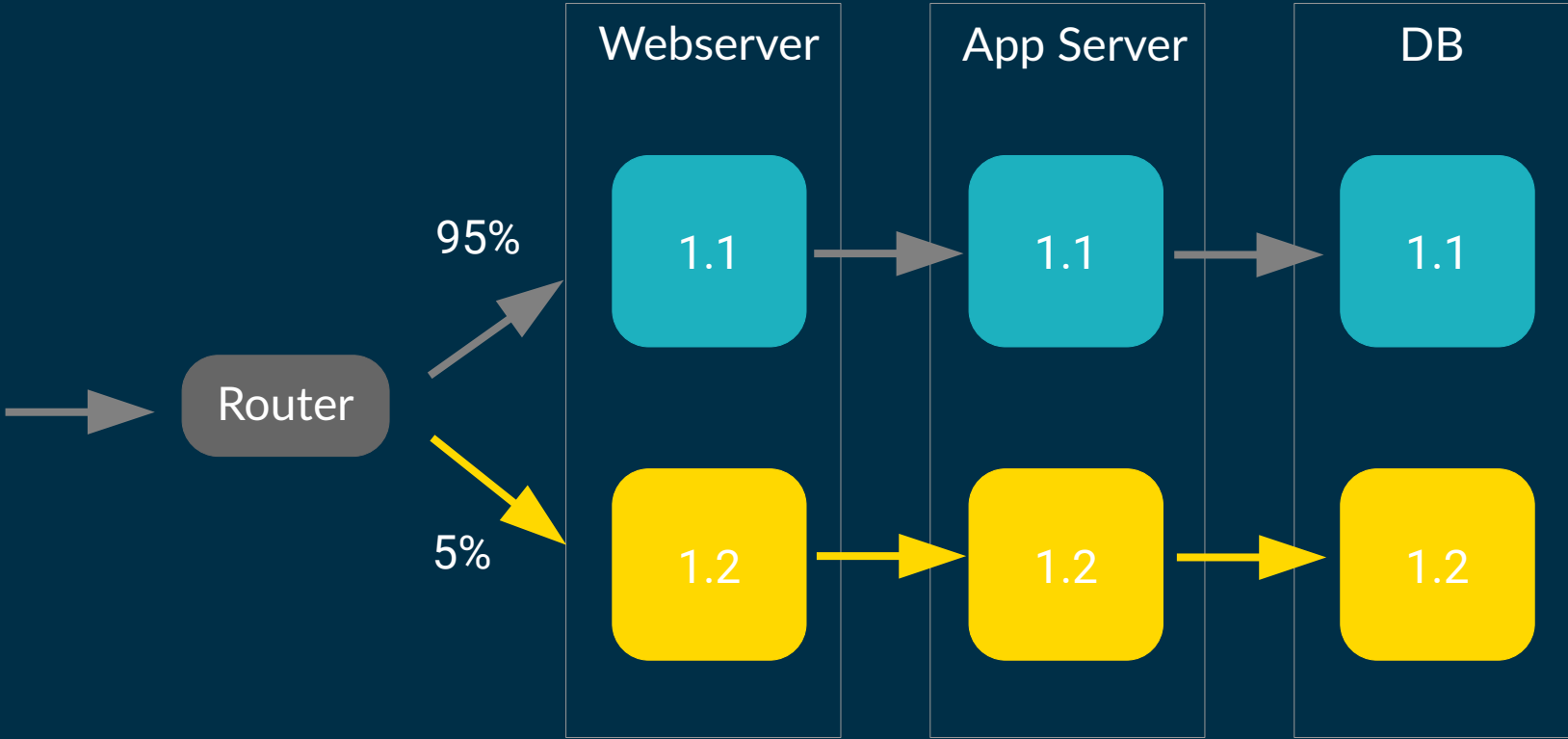
Canary Releasing



Router

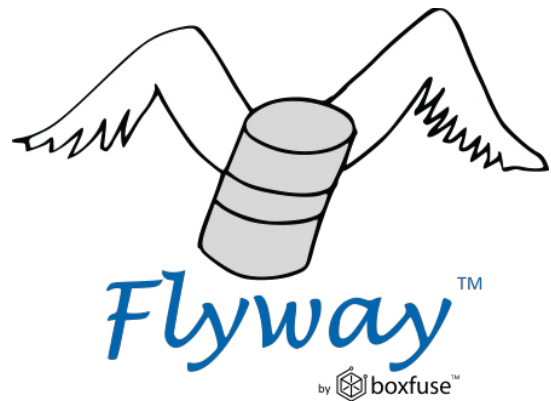


Canary Releasing



Automated Database Migration

Database Migration Scripts werden während dem Deployment einer neuen App Version ausgeführt.



LIQUI  BASE

```
$ rake db:migrate
```

```
$ php bin/console doctrine:schema:update
```


Automated Database Migration

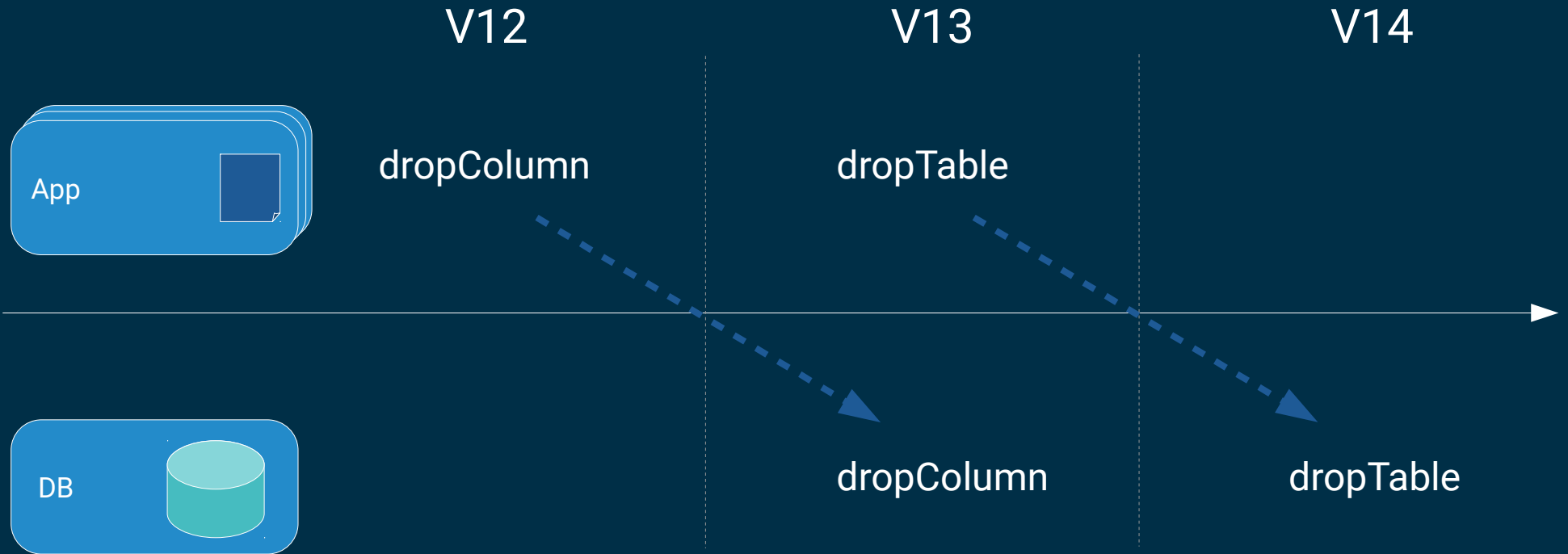
Die Datenbank kennt die aktuelle Schema Version.

DB Migrationen werden während dem App Deployment ausgeführt.

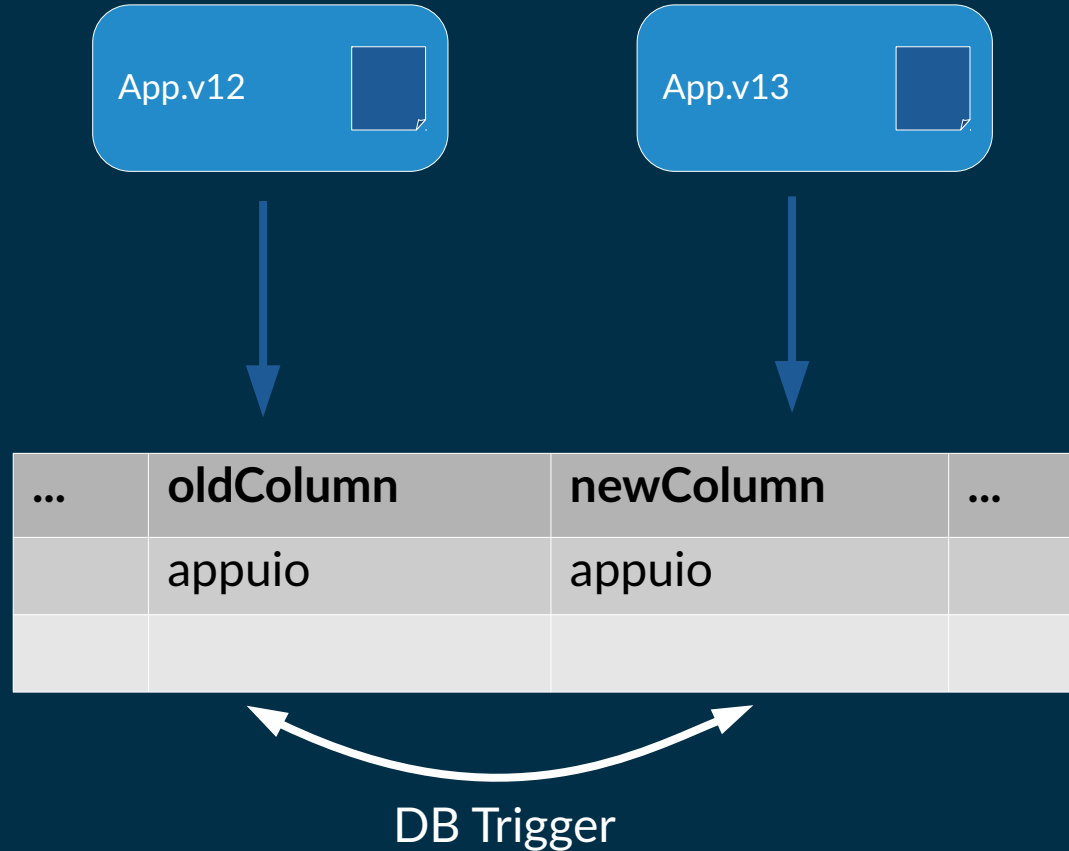
DB Migrationen werden analog Code getestet und durchlaufen die Pipeline

Rolling Update: Datenbank muss **abwärtskompatibel** sein

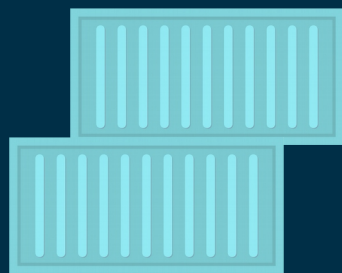
Konzept: Automated Database Migration



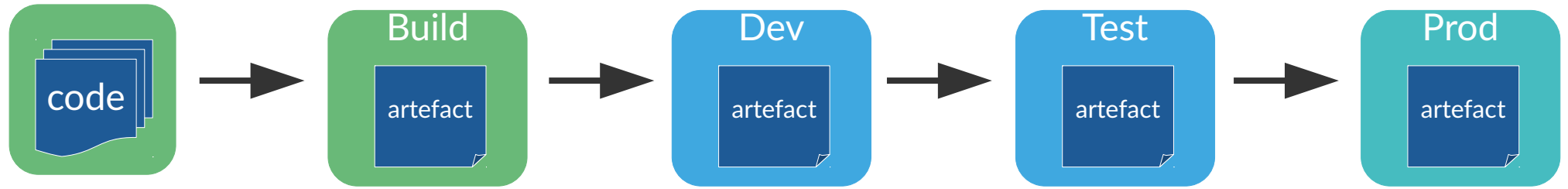
Konzept: Automated Database Migration



4



Continuous Delivery Pipeline



Das gleiche Artefakt durchläuft die gesamte Pipeline

Toplevel CI / CD Pipeline



Compile, Unittests

Integration Tests, Package

Deploy to Dev

Acceptance Tests

Deploy to UAT env

Manual Tests

Deploy to Prod



Tekton – Cloud Native CI/CD-Pipeline

