THOUGHTS ON PHP 7.2, KUBERNETES AND BEYOND

POWERED BY

Ablaufplan

19:00 Uhr **Begrüßung**

19:15- 19:30 Uhr **Opening** InnoMeet Cologne by our sponsor **Wolfgang Lang** (CEO Crowdfox GmbH)

@ocramius Marco Pivetta presents **Extremly Defensive PHP**

19:30- 20:00 Uhr

The crowdfox **DevOps-Team** presents **Big Data Integration Environments**

20:15- 20:45 Uhr

Eat & Meat at Hans im Glück

21:00- Open End

Opening

Opening

Extremely Defensive PHP

Big Data Integration Environments

Feedback & Networking

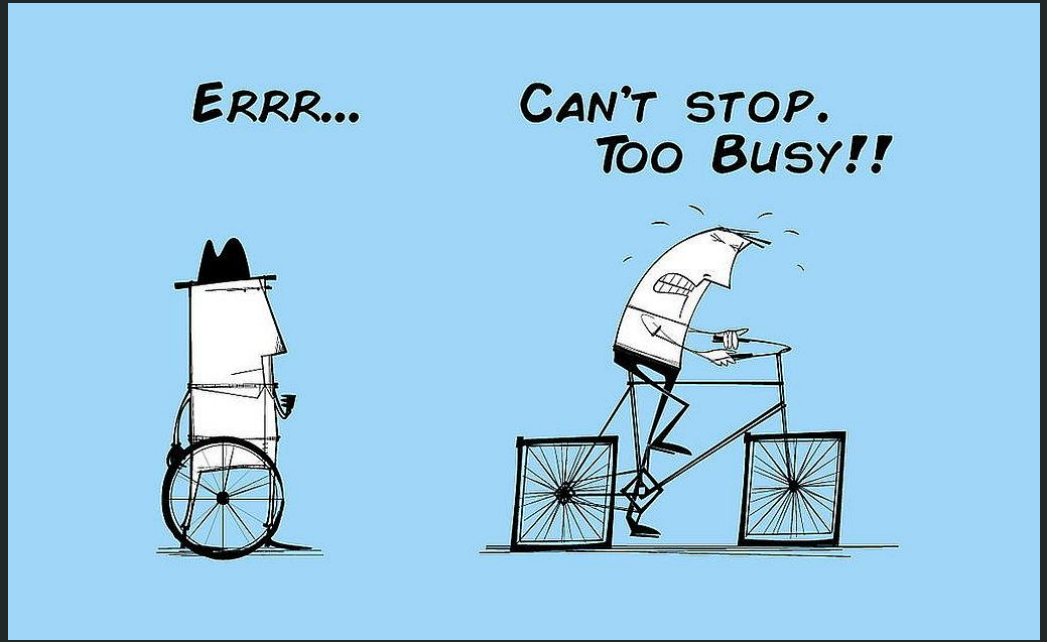
Meeting Motivations

New Technologies

Meeting Motivations

Exchange innovative solutions

#noWarImmerSo
#noTooBusyToImprove



Meeting Motivations

Not yet another branded Meetup

#noBuzzwordBingo
#noCultureCult

Warum dieses Meetup

Real Experiences

We want:
#realXP
#realMistakes
#realLearnings

Sponsor

Extremely Defensive PHP

Opening

Extremely Defensive PHP

Big Data Integration Environments

Feedback & Networking

Extremely Defesive PHP

http://ocramius.github.io/extremely-defensive-php/#/

Big Data Integration Environments

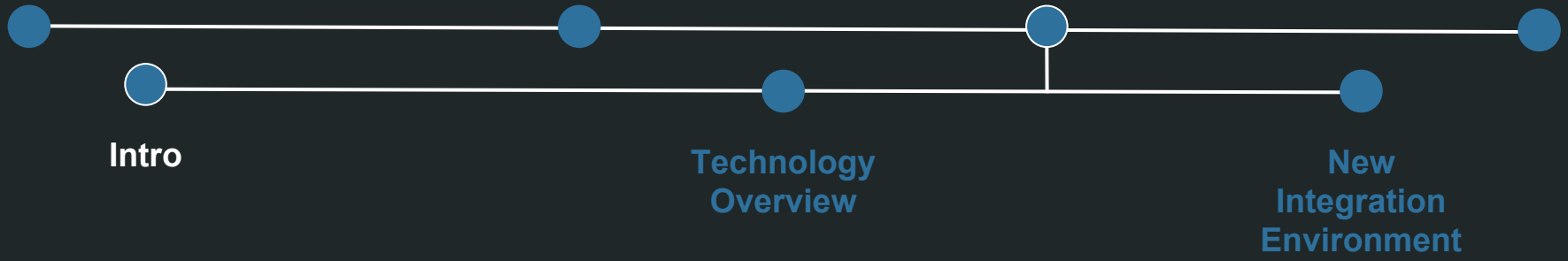
Opening

Extremely Defensive PHP

Big Data Integration Environments

Feedback & Networking

Big Data Integration Environments



Intro

Common Problems with Integration Environments

- You need **more than one** integration environment

  #bottleneck
- **Budget(Integration)** <= Budget(Production)

  #small datasets
- Data must be **anonymized**

  #systemmails

  #GDPR
- Data must be **up to date**

  #migrations

  #accounting

  #sliding windows queries and algorithms

Intro

What about “Big Data” Algorithms?

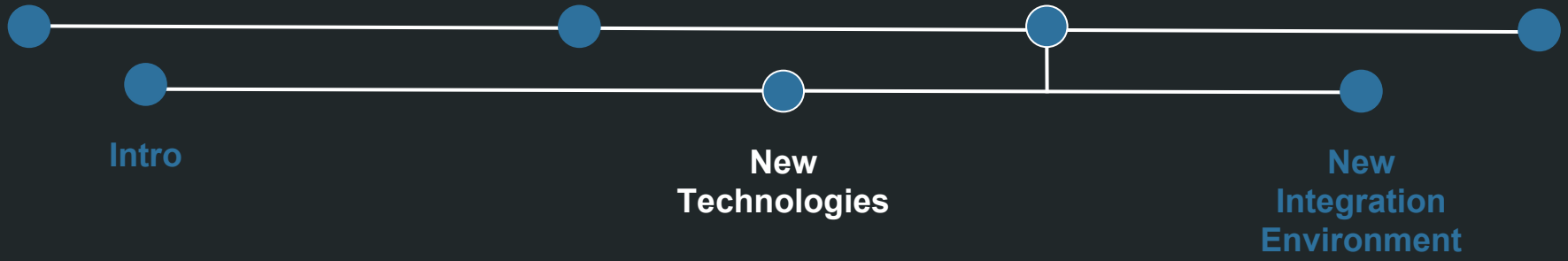
- You need **more than one** integration environment
  - because the local machine is not big enough
  - local machine is too slow
- **Budget(Integration)** <= Budget(Production)
  - small datasets
- Data must be **anonymized**
- Data must be **up to date**
  - meaningful
  - representative

Intro

Current Integration Environment

- You need **more than one** integration environment
  - 9 possible Evironments
- **Budget(Integration)** <= Budget(Production)
  - 3 Integration Servers vs 20 Production Server
    - 1 x DB
    - 1 x FE
    - 1 x BE
- Data must be **anonymized** and Data must be **up to date**
  - Updating all DB Slots takes ~ 6 Days
  - 1 DB server runs 9 DB Instances
  - Every instance has to be updated seperatly
  - Nearly no case specific customization, because this would create **side effects**

Big Data Integration Environments



New Technologies

Gitlab Review Apps

Automatic Live Preview

Code, commit, and preview your branch in a live environment. Review Apps automatically spin up dynamic environments for your merge requests.

One-click to Collaborate

Designers and product managers won't need to check out your branch and run it in a staging environment. Simply send the team a link and let them click around.

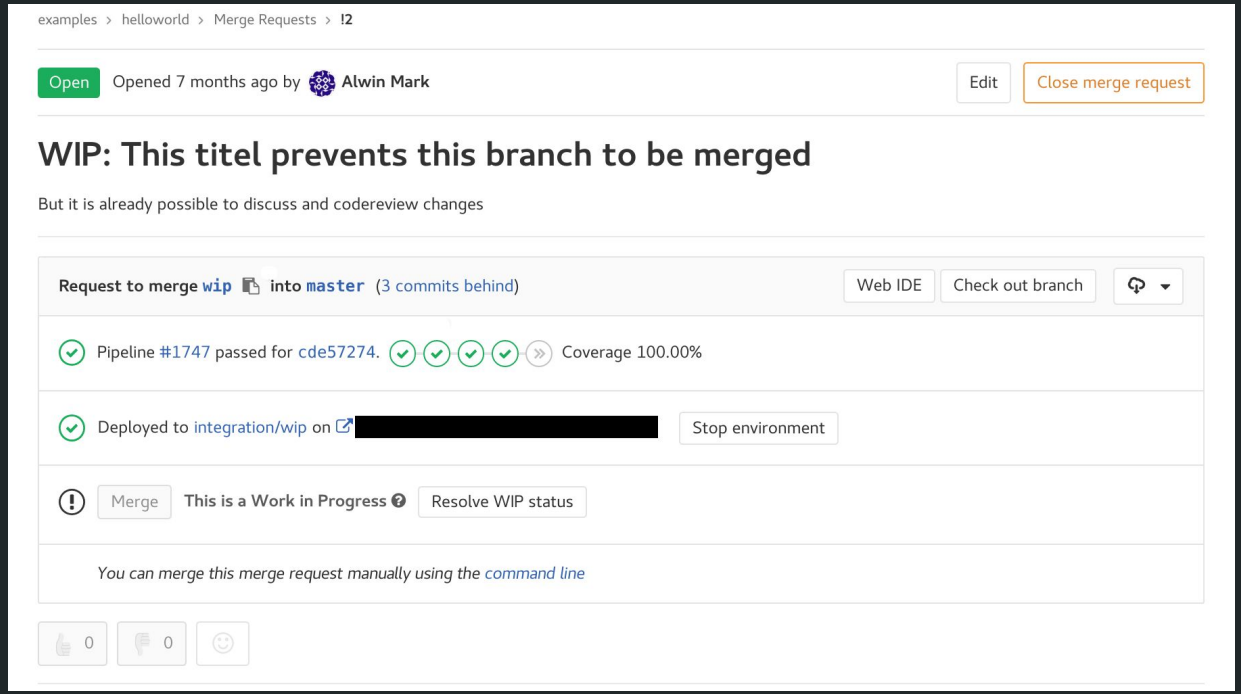
Fully-Integrated

With GitLab's code review, built-in CI/CD, and Review Apps, you can speed up your development process with one tool for coding, testing, and previewing your changes.

[https://about.gitlab.com/features/review-apps/]

New Technologies

Gitlab Review Apps



New Technologies

Gitlab Review Apps

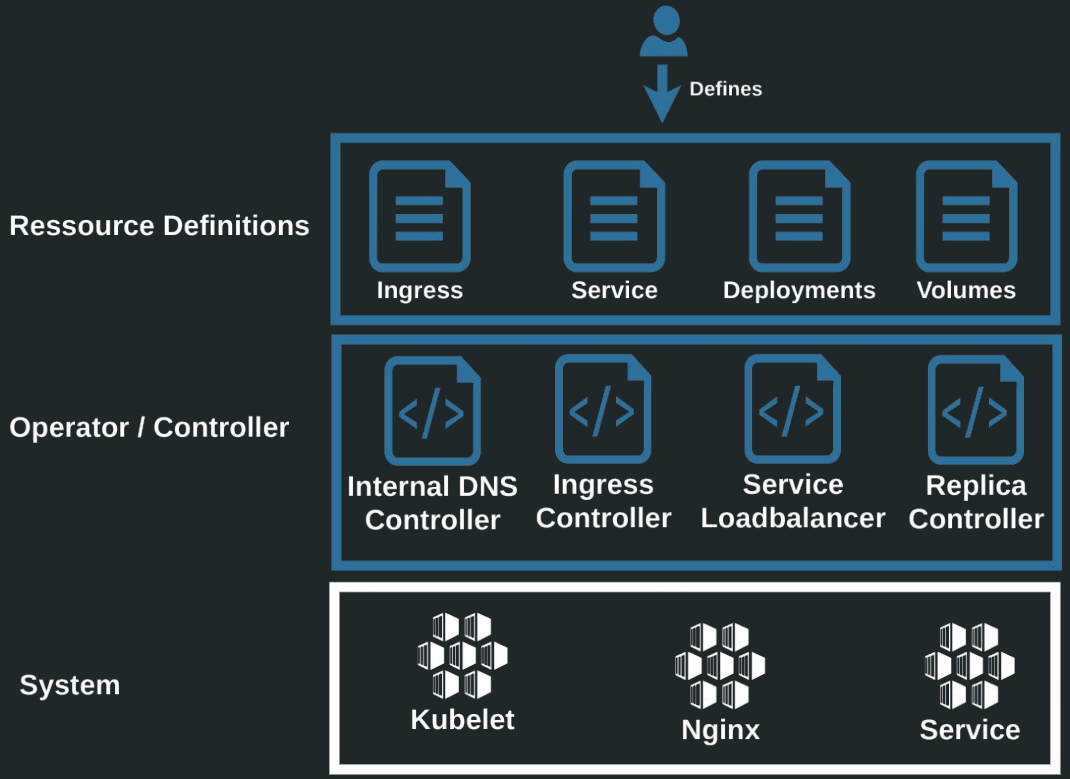
```
deploy_integration:
  stage: deploy
  image: registry.crowdfox.me/devops/docker-rancher-compose:latest
  variables:
    RANCHER_URL: [redacted]
    RANCHER_ACCESS_KEY:
    RANCHER_SECRET_KEY:
    RANCHER_ENVIRONMENT:
  script:
    - rancher --env $RANCHER_ENVIRONMENT rm -s helloworld/service-$CI_COMMIT_REF_NAME && echo "wait until container is down" && sleep 10 || true
    - rancher --env $RANCHER_ENVIRONMENT run --name helloworld/service-$CI_COMMIT_REF_NAME -p 80  $CI_REGISTRY_IMAGE/temporary:$CI_COMMIT_SHA
  environment:
    name: integration/$CI_COMMIT_REF_NAME
    url: [redacted]
    on_stop: stop_integration
  only:
    - branches
  except:
    - master

stop_integration:
  stage: cleanup
  image: registry.crowdfox.me/devops/docker-rancher-compose:latest
  variables:
    RANCHER_URL: 'http://94.130.22.27:8080/'
    RANCHER_ACCESS_KEY: '37F2CCE9C7A5A589F907'
    RANCHER_SECRET_KEY: $RANCHER_API_SECRET_KEY_INTEGRATION
    RANCHER_ENVIRONMENT: 1a16
  script:
  script:
    - rancher --env $RANCHER_ENVIRONMENT rm -s helloworld/service-$CI_COMMIT_REF_NAME
  when: manual
  environment:
    name: integration/$CI_COMMIT_REF_NAME
    action: stop
```

New Technologies

Kubernetes Operators and Controller Logic

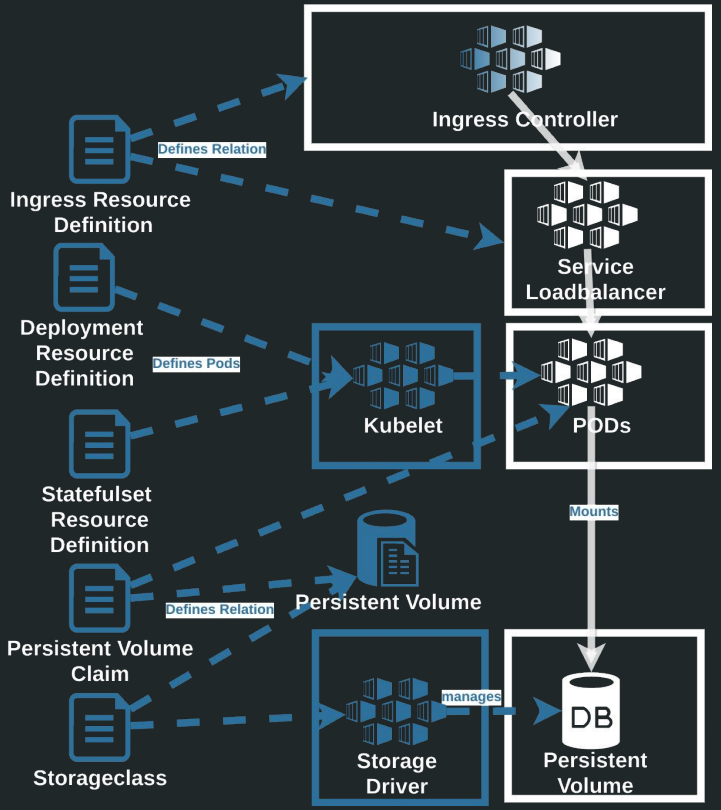
[https://coreos.com/blog/introducing-the-etcd-operator.html]

Kubernetes - High level architecture



New Technologies

Kubernetes - Common resources



New Technologies

Rook

- Hyper-scale or Hyper-converged
  - Dedicated Rook/Storage Kubernetes Cluster ☑
  - Single “Hyper-converged” Kubernetes Cluster
- Works as an Kubernetes Operator for Ceph Cluster
  - Manages small and medium failures
  - Cares about basic configurations
  - Is able to create Pools

Also because it just manages Ceph:

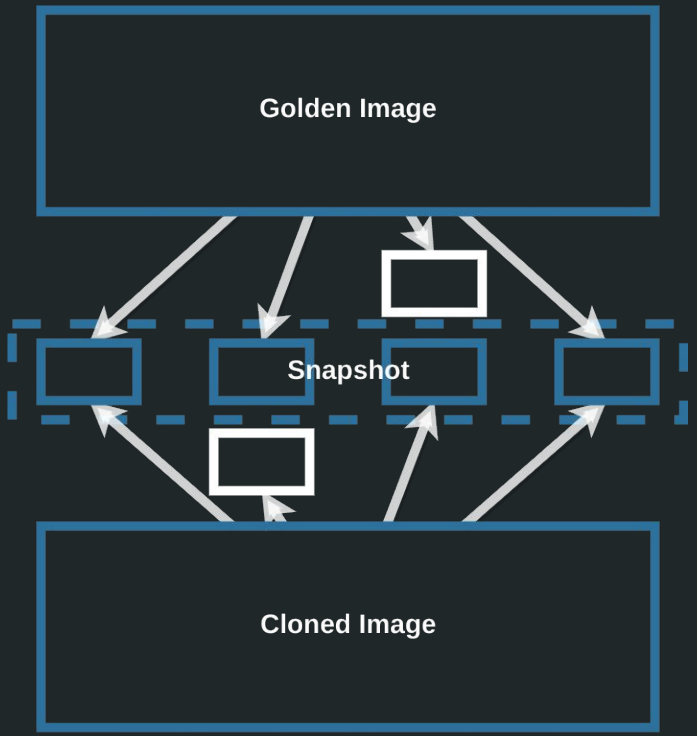
- Pretty stable
- Scales at will — I mean with your Network connection. (Recommended 10 Gb/s)

[https://rook.io/, https://ceph.com/]

New Technologies

Block Storage

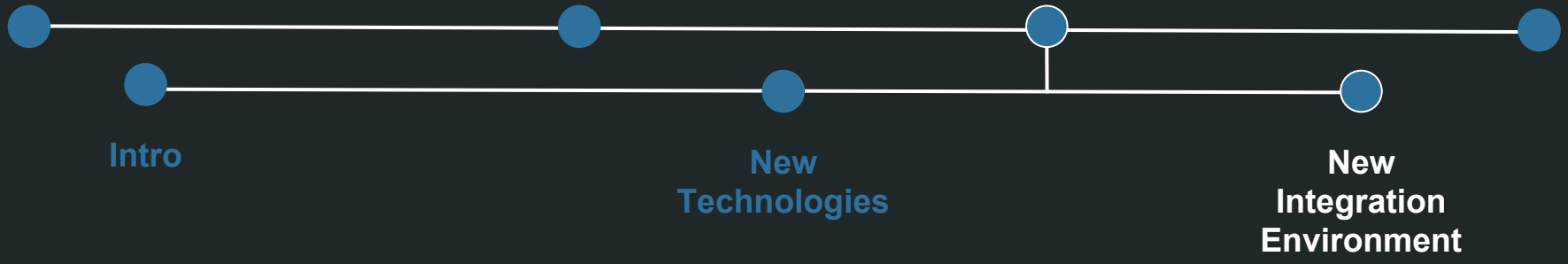
- Only changed Blocks will be copied
  #copyOnWrite
- Common Blocks are shared
  #deduplication



Text

[https://rook.io/, https://ceph.com/]

Big Data Integration Environments



New Integration Environment

Demo

https://gitlab.com/innomeat.cologne/bigdata-integration-environment

New Integration Environment

What we have achieved

- You need **more than one** integration environment
  - As many Environments as there is spare CPU and RAM (and disk space for the deltas)
- **Budget(Integration)** <= Budget(Production)
  - 3 Node K8s App Cluster + 1 Node DataNode <= 3K8s App Nodes + 3 Node Mysql Replication
- Data must be **anonymized** and Data must be **up to date**
  - Updating all DB Slots takes < 2h *(But during this time we can not deploy new Environments)*
  - Application and Data is separated and can be scaled separately
  - One update Process for all
  - “Pheonix setup” allows specific customization

Questions

??

Join us on Slack:
https://innomeet.cologne/slack.html

Questions

More often than Daily

1. Breeder creates temporary image, snapshot and protect
2. Clone temporary image to golden image
3. RBD “flatten” golden image
4. create new snapshot on the golden image and protect it
5. Use this snapshot for environments
6. unprotect temporary breeder image and delete it
7. repeat

Questions

What is Hyperconverged

Managed all by the same Hypervisor

In Rook context it means, that one Kubernetes Cluster is managing:

- Applications
- Network
- Storage