

Be A CloudNative DevOps Ninja In Alibaba Cloud



莫源 From Alibaba Cloud

# About Me

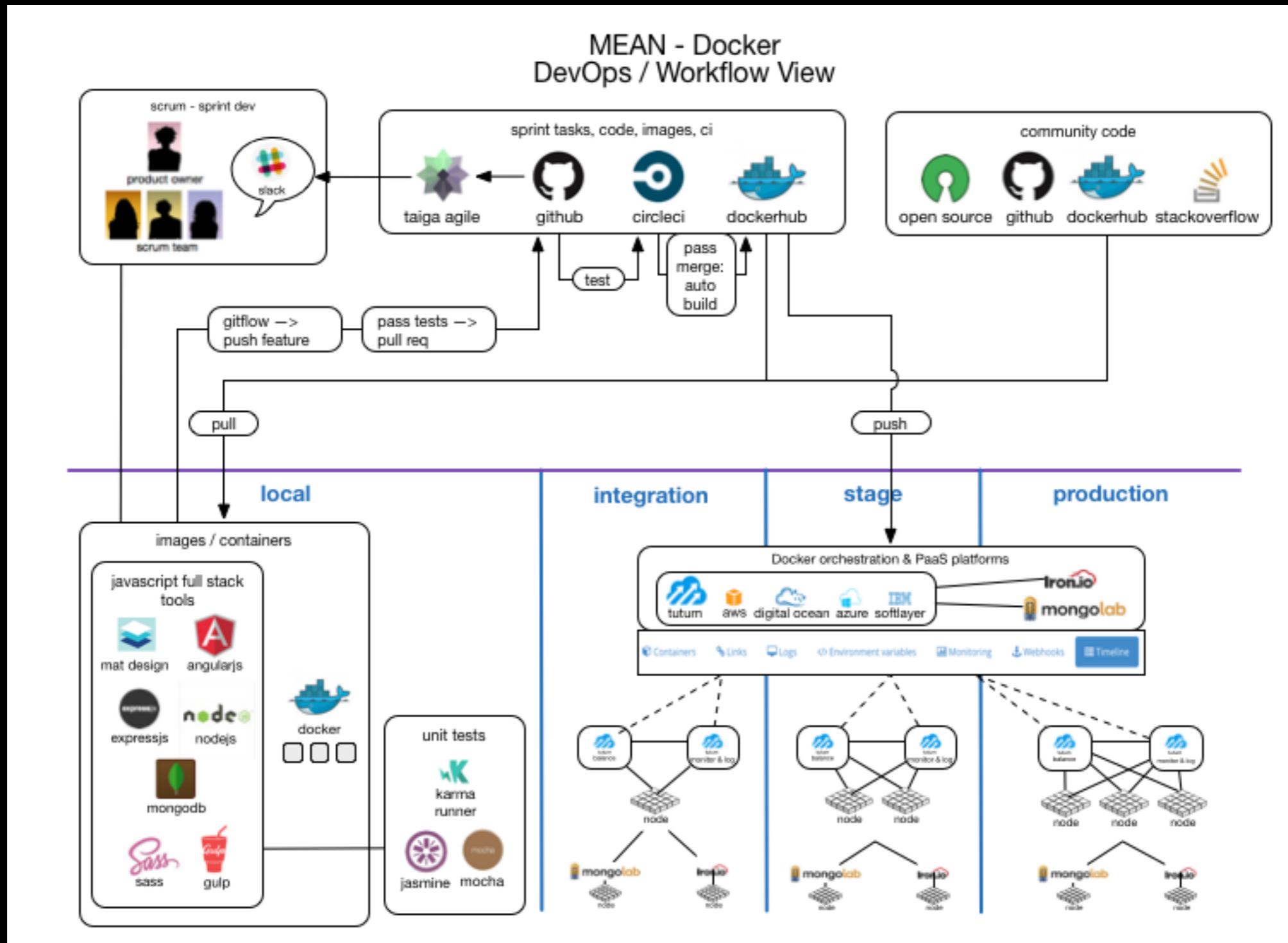


 Microsoft Microsoft Research Asia 2012–2013

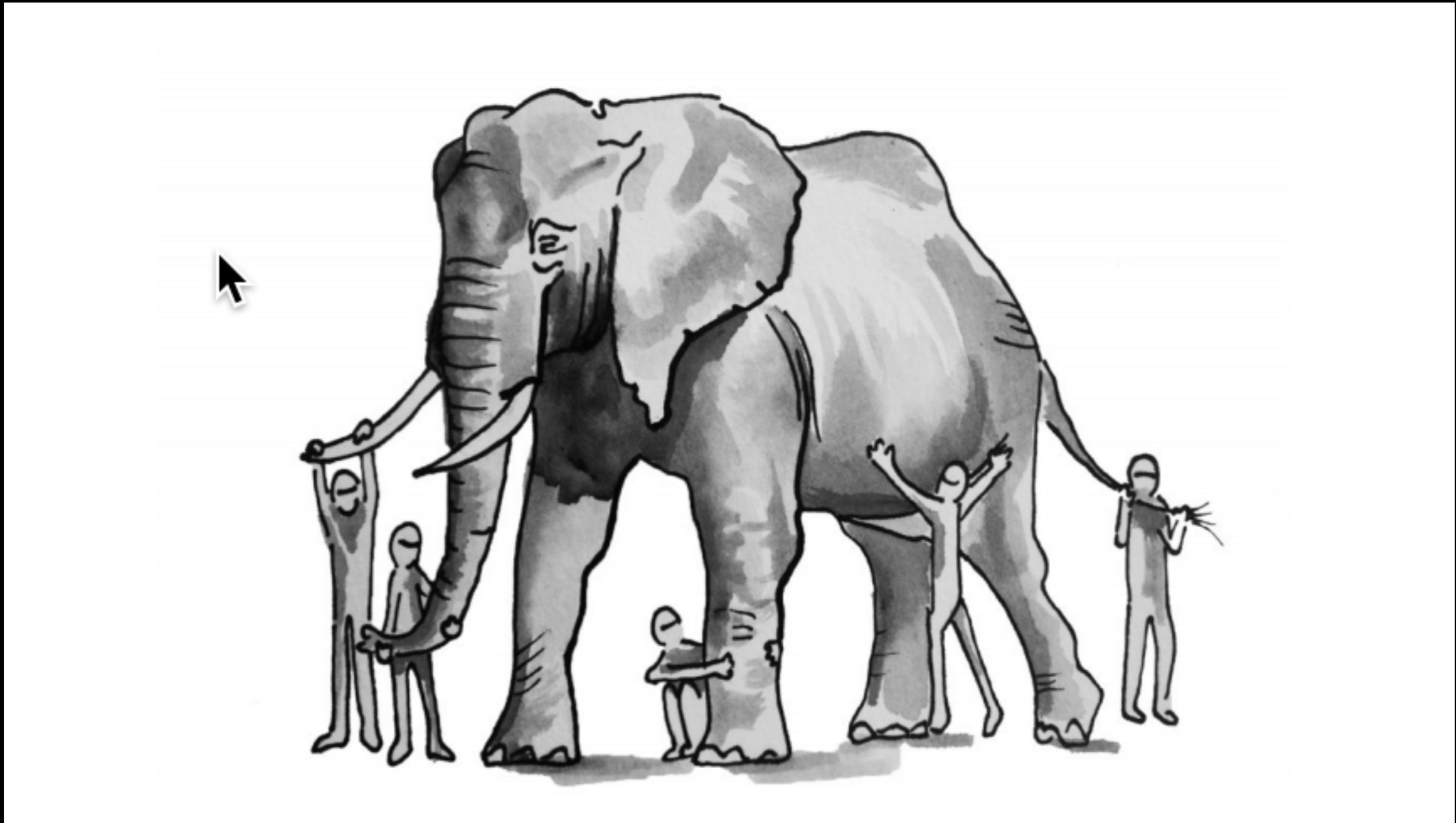
 Alibaba Cloud Alibaba Cloud 2013 ~

Fullstack(f2e,Docker,DevOps,OpenSource)

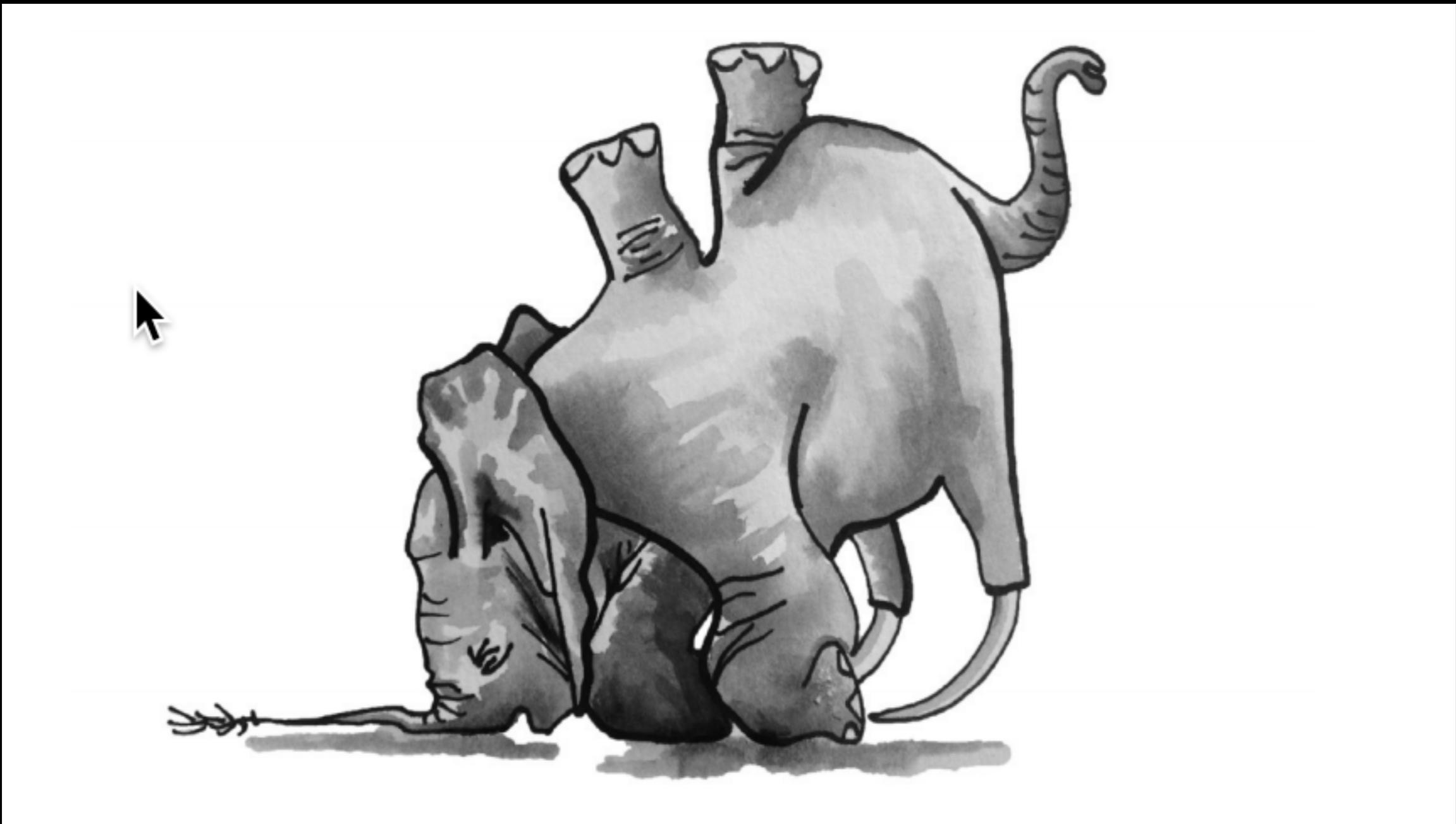
# Glance on DevOps



# Elephant problem in DevOps



# Elephant problem in DevOps



# What does DevOps really matters



Time is the master of the world  
DevOps save your life and kill the thief of time

# DevOps time saving method

**DevOps is about workflow**

流程化、标准化减少脱节环节时间浪费

**DevOps is about culture**

节约时间人人有责

**DevOps is about automation**

自动化降低人工时间消耗

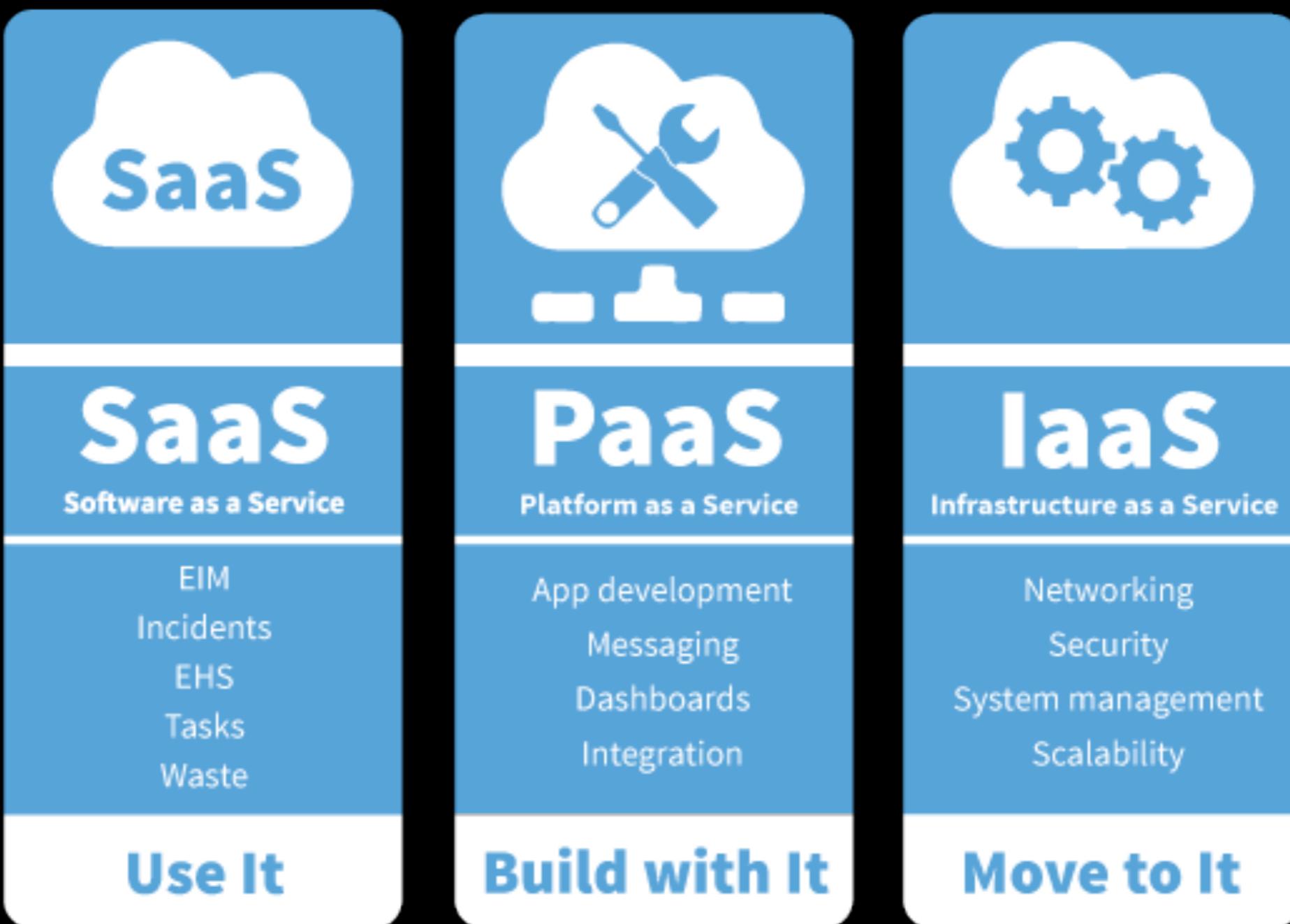
**DevOps is about quality**

质量的提升可以避免返工



I seem to understand, but what should I do

# What does CloudNative bring



# What can be mastered in 45 minutes?



**Zen** of DevOps and suitable DevOps tool's **Name**

# DevOps Tool is cool But too cool

1	En																																			2	Fm
O																																			Aws	Amazon Web Services	
12c																																				Po	
My	Os	Gt																																	Az	Azure	
MySQL		Git																																		Fm	
Mq	En	Sv																																	Rk	Hk	
MSSQL		Subversion																																	Heroku		
Pq	Os	Mc	Mv	Gr	Mr	Jn	Bb	Tr	Ar	Fn	Se	Gn	Gd	Sf	Cb	Bc	Kb	Rs															36	En			
PostgreSQL		Mercurial	Maven	Gradle	Meister	Jenkins	Bamboo	Travis CI	Archiva	FitNesse	Selenium	Gatling	Deployment Manager	SmartFrog	Cobbler	Bcfg2	Kubernetes	Rackspace																			
Mg	Os	Gh	Br	At	Bm	Cs	Sn	Cr	Nx	Cu	Cj	Qu	Cp	Ju	Rd	Cf	Pk	Bx																			
MongoDB		Github	Buildr	ANT	BuildMaster	Codeship	Snap CI	CircleCI	Nexus	Cucumber	Cucumber.js	Qunit	Capistrano	Juju	Rundeck	CFEngine	Packer	Bluemix																			
Db	En	Bb	Qb	Ub	Ta	Tc	Sh	Cc	Ay	Ju	Jm	Tn	Rd	Cy	Oc	No	Eb	Ad																			
DB2		Bitbucket	QuickBuild	UrbanCode Build	Visual Build	TeamCity	Shippable	CruiseControl	Artifactory	JUnit	JMeter	TestNG	RapidDeploy	CodeDeploy	Octopus Deploy	CA Nolio	ElasticBox	Apprenda																			
Cs	Fr	Hx	Msb	Rk	Lb	Cu	Ca	Gu	Ng	Ap	Xltv	Tc	Go	Ef	Xld	Ud	Mo	Cf																			
Cassandra		Helix	MSBuild	Rake	LuntBuild	Continuum	Continua CI	Gump	NuGet	Appium	XL TestView	TestComplete	Go	ElectricFlow	XL Deploy	UrbanCode Deploy	Mesos	Cloud Foundry																			

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Xlr		Ur		Ls		Bm		Hp		Ex		Pl		Sr		Tr		Jr		Rf		Sl		Fd		Pv		Sn					
XL Release		UrbanCode Release		CA Service Virtualization		BMC Release Process		HP Cedar		Excel		Plutora Release		Serena Release		Trello		Jira		HipChat		Slack		Flowdock		Pivotal Tracker		ServiceNow					
Sp	En	107	Os	108	Fm	109	Os	110	Os	111	Os	112	Os	113	Os	114	Fm	115	Os	116	Fm	117	Os	118	Os	119	Os	120	En				
Splunk		Kibana		New Relic		Nagios		Ganglia		Cacti		Graphite		Icinga		Sumo Logic		Logstash		Loggly		Graylog		Snort		Tripwire		CyberArk					

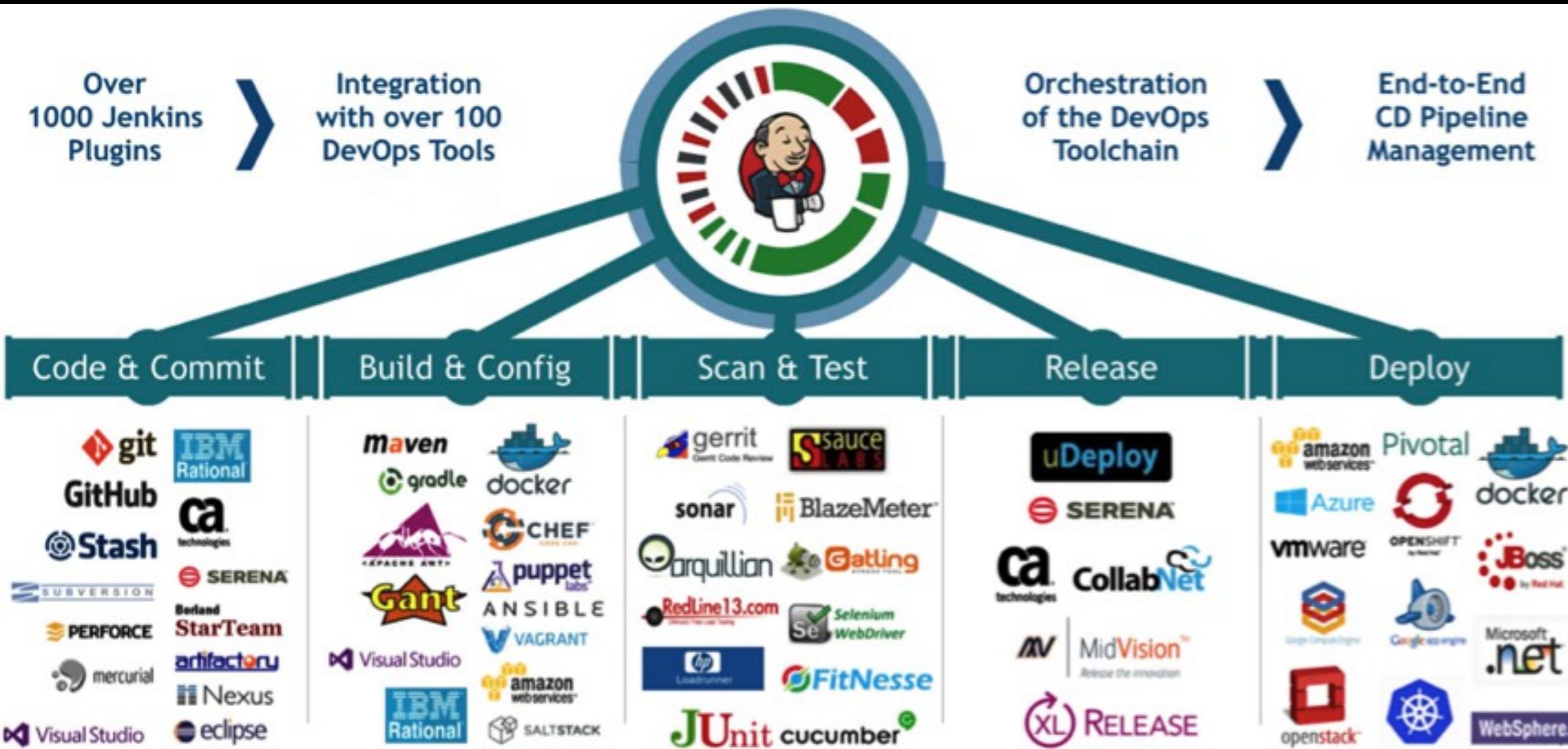
# Daily life of our works



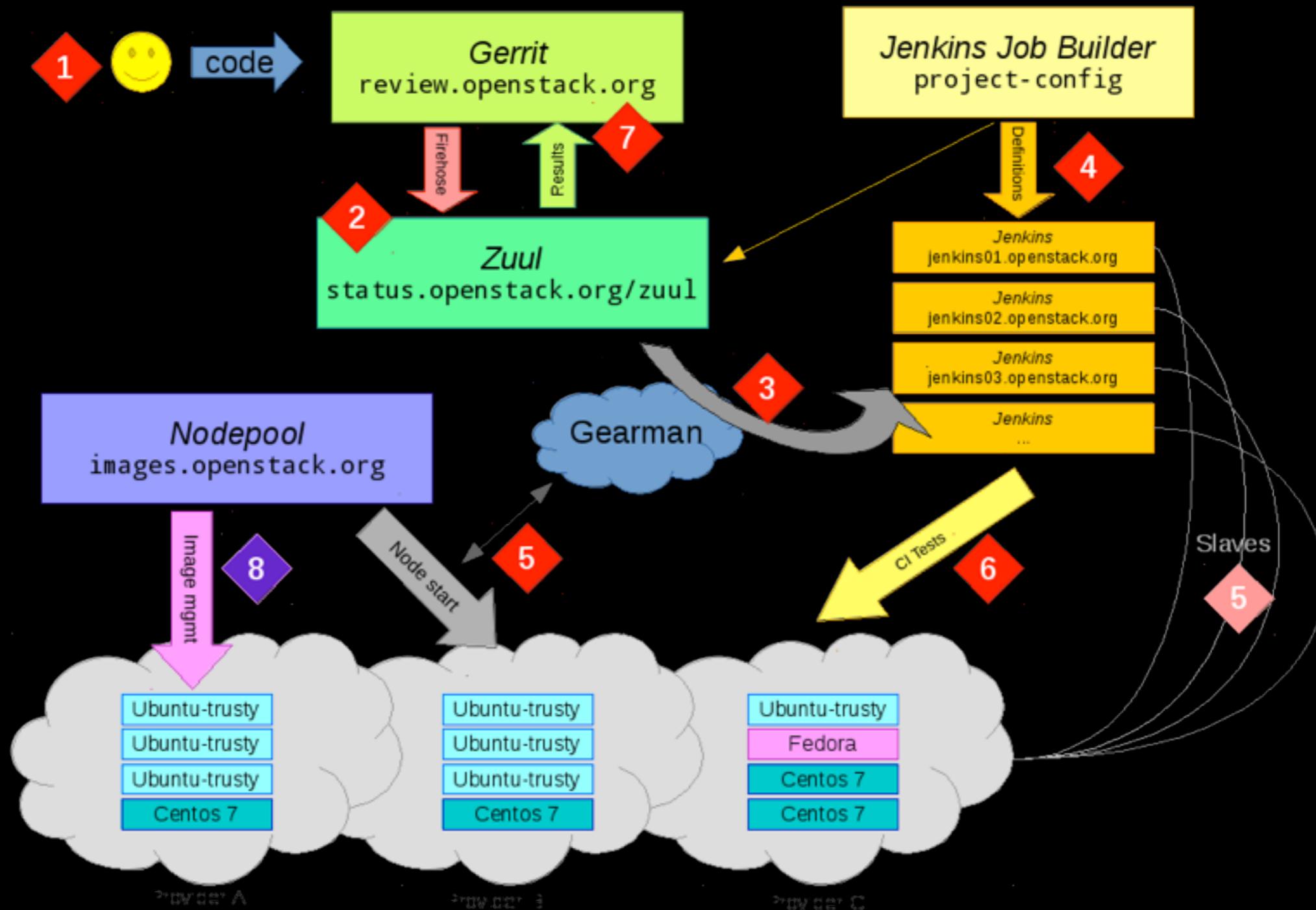
# Daily life of our works



# Jenkins is good

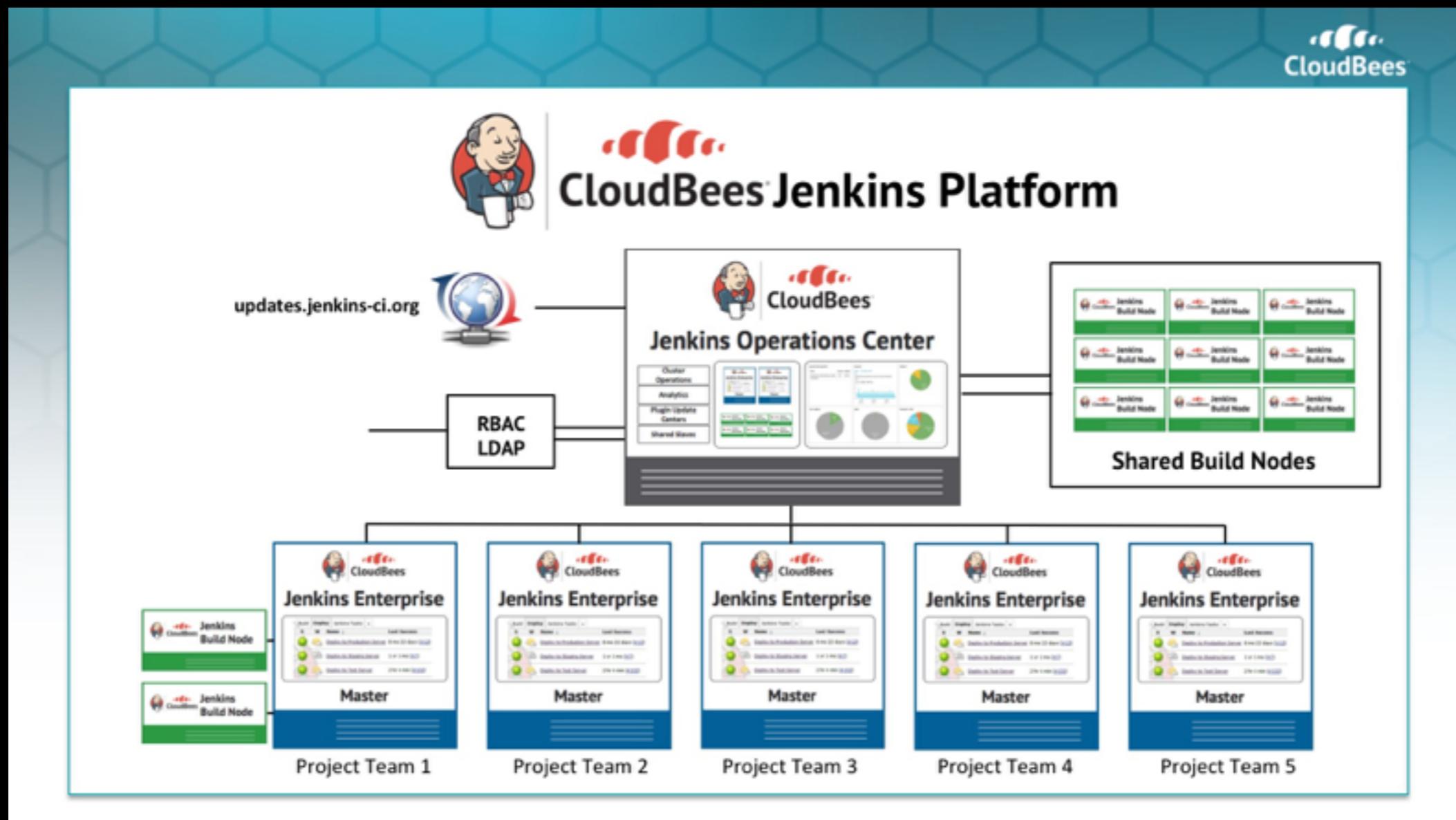


# Jenkins is not perfect – Monolithic Structure



OpenStack try to solve this problem using Gearman  
But Jenkins cluster can't benefit plugin's UI and experience

# Jenkins is not perfect – Monolithic Structure



CloudBees try to solve this problem by top level architecture  
But different department can't share the data and need more ops

# Jenkins is not perfect – Performance

**Number of plugins:** Plugins cause performance issues for builds (because of hooks) and UI (because they adds stuff to it). Do not add too many plugins and anyway - evaluate them thoroughly.

**Number of jobs:** Jenkins gets slow (at least in UI) with 1000+ jobs. Moving jobs to several masters (manual static sharding) helps. E.g. one master - for builds, another - for tests.

**Number of slaves:** There is “X1K initiative” - goal for Jenkins developers to assure smooth operation of master with 1000 executors on all slaves. It is still a challenge. Somewhere around 250 slaves and lots of builds slave connections start getting broken in the middle of a build.

**Number of executors per slave:** Increasing number of executors over the slave capabilities decreases overall throughput - due to clashes, IO congestion or RAM swapping. Leverage RAM, CPU cores and build type. RAM should be enough for maximum number of builds at maximum memory setting + file cache. CPU should be enough to work below 100% utilization, taking IO into account - IO releases some CPU time. Have less than 1 executor per CPU core for single-thread builds.

# Jenkins is not perfect – Security

[jenkins命令执行漏洞| 阿德马Web安全](#)

[www.nxadmin.com/tag/jenkins命令执行漏洞](#) ▾

1,系统介绍Jenkins是一个开源软件项目，旨在提供一个开放易用的软件平台，使软件的持续集成变成可能。 2,漏洞描述Jenkins管理登陆之后，后台"系统管理"功能，有 ...

[【漏洞分析】 Jenkins 未授权代码执行漏洞分析（更新漏洞环境、检测脚...](#)

[bobao.360.cn/learning/detail/3800.html](#) ▾

2017年5月4日 - CloudBees Jenkins 2.32.1版本中存在Java反序列化漏洞，最终可导致远程代码执行。本篇文章为针对该漏洞的分析。

[GitHub - blackye/Jenkins: Jenkins漏洞探测、用户抓取爆破](#)

[https://github.com/blackye/Jenkins](#) ▾

Jenkins漏洞探测、用户抓取爆破. Contribute to Jenkins development by creating an account on GitHub.



[关于Jenkins CLI漏洞情况的通报- FreeBuf.COM | 关注黑客与极客](#)

[www.freebuf.com/vuls/120420.html](#) ▾

2016年11月26日 - 近日，国家信息安全漏洞库（CNNVD）收到关于Jenkins CLI存在远程代码执行漏洞(CNNVD-201611-384)的情况报送。该漏洞源于Jenkins CLI ...

[Jenkins之Java反序列化漏洞分析 \(CVE-2016-0792\) - FreeBuf.COM ...](#)

[www.freebuf.com/vuls/97659.html](#) ▾

2016年3月2日 - Jenkins近日修复了一个可通过低权限用户调用API服务致使的命令执行漏洞：低权限用户通过构造一个恶意的XML文档并发送至服务端接口，使服务 ...

[Jenkins Java反序列化远程代码执行漏洞- 杭州迪普科技股份有限公司](#)

[www.dp.tech/research\\_gg\\_info.php?2877](#) ▾

Jenkins Java反序列化远程代码执行漏洞. 发布日期: 2017-05-03. 漏洞发现时间: . 2017-05-03. 漏洞编号: . CVE-2017-1000353. 危险等级: . 高危. 受影响软件: .

# Jenkins is not perfect – Sweet Choice



Discover the 1000+ community contributed Jenkins plugins to support building, deploying and automating any project.

$$1 + 1 < 2$$

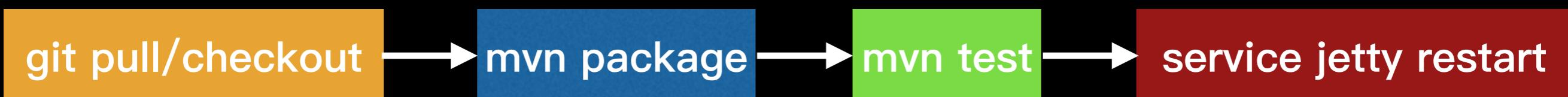
Choose a plugin to meet your scenario is not an easy thing. Sometimes you have to use multi plugins to meet the demand completely.

# Jenkins is not perfect – Domain Oriented Integration

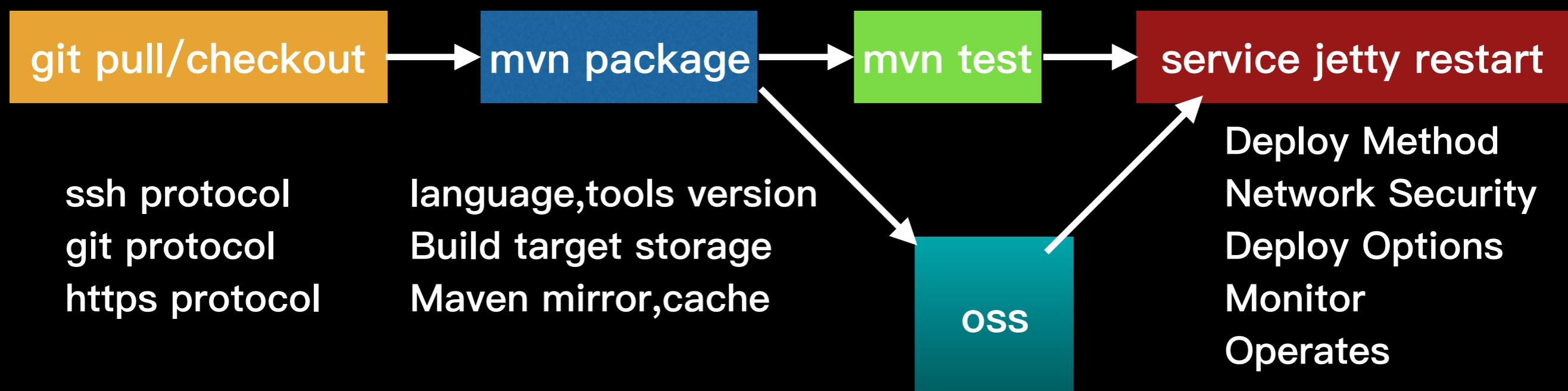
## General Model



## Domain Model



## Domain Model Achieve



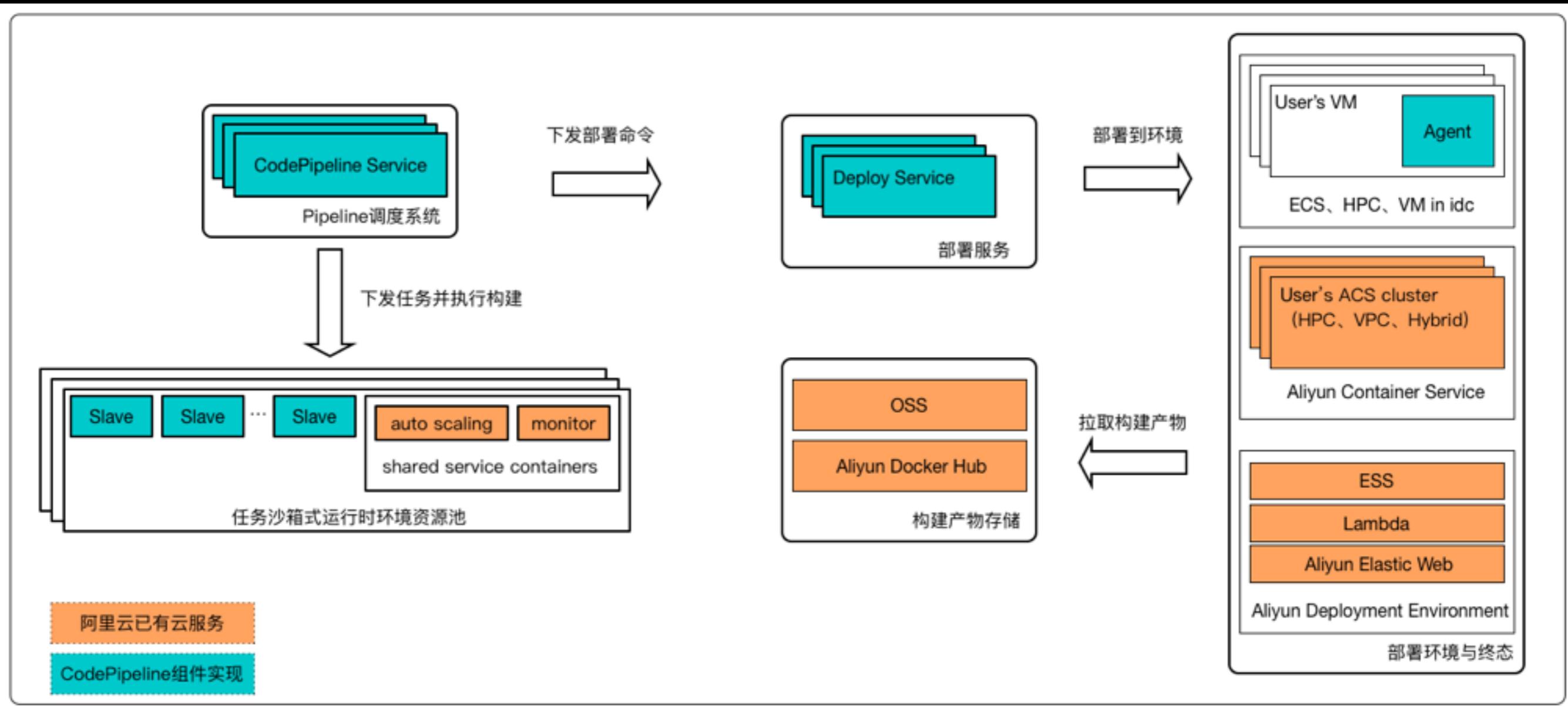
# Alibaba Cloud CodePipeline

The screenshot shows the Alibaba Cloud CodePipeline interface. On the left, there's a sidebar with various icons and a search bar. The main area has three tabs, each showing a similar dashboard with navigation links like '返回面板' (Back to Panel), '状态' (Status), '立即构建' (Build Now), etc. The right side is a detailed view of a build log.

**控制台输出**

```
Started by user zhongwei.lzw@aliyun-test.com
Building remotely on slave-java-2a9850cff6bc
(
slave-java
)
in workspace /home/jenkins/workspace/EcsDeploymentSupport
[YAD-PLUGIN] Injecting DOCKER_CONTAINER_ID variable.
[YAD-PLUGIN] Injecting JENKINS_CLOUD_ID variable.
[YAD-PLUGIN] DOCKER_HOST variable.
Finished: SUCCESS
[EcsDeploymentSupport] $ /bin/sh -xe /tmp/hudson4000339578889839532.sh
+ echo Deploy to ECS successfully
Deploy to ECS successfully
```

# CodePipeline is more than Jenkins – Overview



# CodePipeline is more than Jenkins – Retrofitting



## Storage

- From files to database
- Full load to lazy load
- From stateful master to stateless master



## Security

- Reinforce selected plugins
- Add watch-dog to limit api privileges
- RAM supported to control complex policy



## Performance

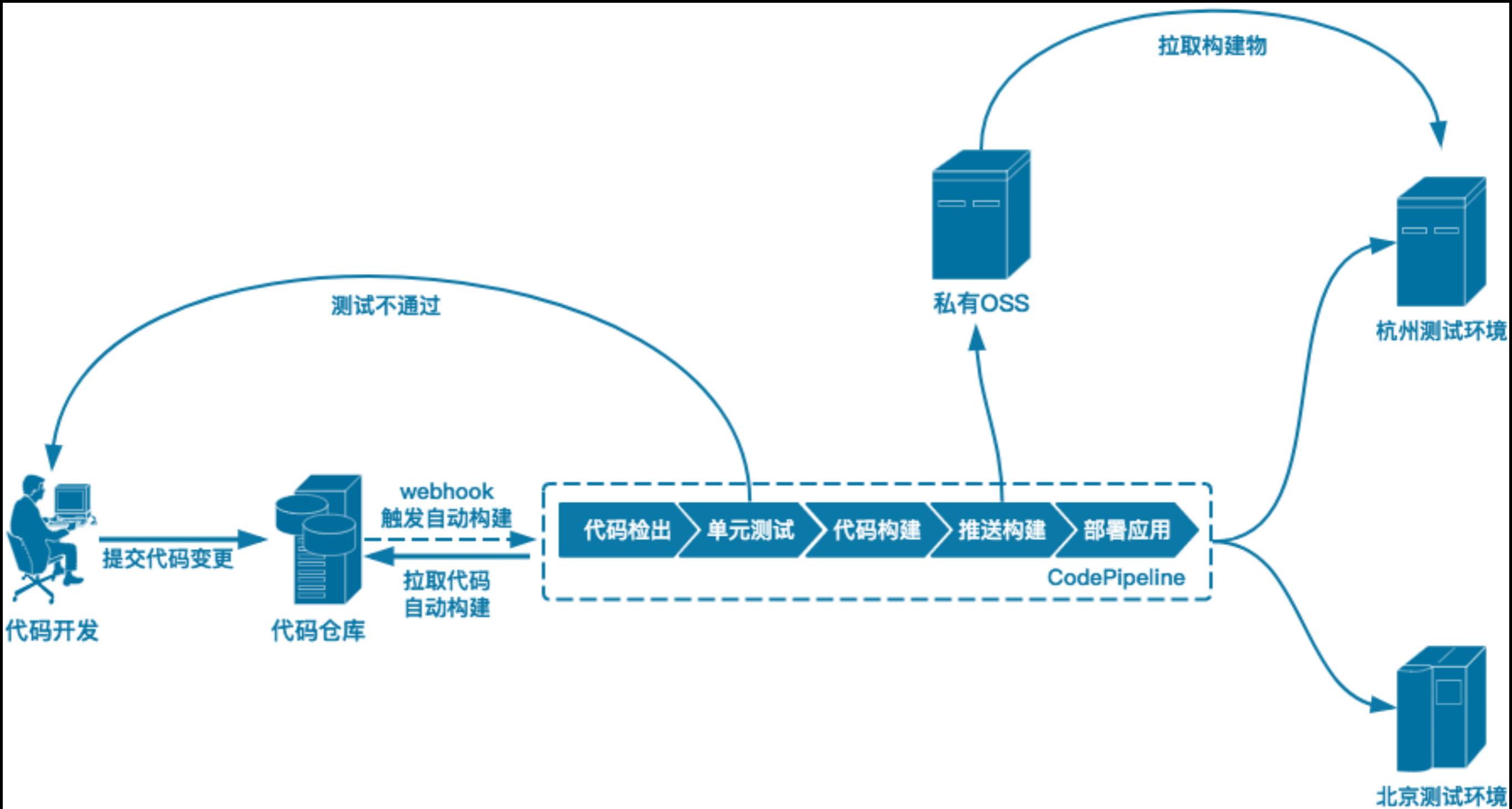
- Job's amount is almost no limited
- Dynamic slave pool to support more slaves
- Refactor job scheduler to reduce performance loss



## Integration

- Aliyun Code seamless integration
- Aliyun OSS seamless integration
- Aliyun ACS seamless integration
- Aliyun Linux & Aliyun ECS better integration
- Aliyun Function Compute (ongoing)

# CodePipeline is more than Jenkins – Demo



# Reference



Blogs



CodePipeline vip



Alibaba Cloud | To Incalculable Value