

Development & Operations: a journey

José Bonnet, AlticeLabs, 20th Jan, 2017

What's DevOps (1)?

<http://www.jedi.be/presentations/agile-infrastructure-agile-2008.pdf>

Patrick Debois



<http://media.tivi.fi/incoming/ixbvzc-Debois-1000V/binary/Debois-1000V>

Andrew Clay Shafer



<https://blog.pivotal.io/wp-content/uploads/2014/06/Andrew-Clay-Shafer.jpg>

What's DevOps (2)?

- Agile methodologies
- Software Configuration Management
- Automated Testing
- Infrastructure as Code
- Continuous Integration
- Continuous Delivery/Deployment

1 Fm Gh Github		PERIODIC TABLE OF DEVOPS TOOLS (V2)																												2 Fm Aws Amazon Web Services					
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		<div><div><div>Os Open Source</div><div>Fr Free</div><div>Fm Freemium</div><div>Pd Paid</div><div>En Enterprise</div></div><div><div>SCM</div><div>CI</div><div>Deployment</div><div>Cloud / Iaas / Paas</div><div>BI / Monitoring</div></div><div><div>Database Mgmt</div><div>Repo Mgmt</div><div>Config / Provisioning</div><div>Release Mgmt</div><div>Logging</div></div><div><div>Build</div><div>Testing</div><div>Containerization</div><div>Collaboration</div><div>Security</div></div></div>																																	
3 Os Gt Git		4 En Dm DBmaestro										5 En Ch Chef		6 En Pu Puppet		7 Os An Ansible		8 En Sl Salt		9 Os Dk Docker		10 Pd Az Azure													
11 Fm Bb Bitbucket		12 Os Lb Liquibase												13 Os Ot Otto		14 En Bl BladeLogic		15 Os Va Vagrant		16 Fr Tf Terraform		17 Os Rk rkt		18 En Gc Google Cloud Platform											
19 Os Gl GitLab		20 En Rg Redgate		21 Os Mv Maven		22 Os Gr Gradle		23 Os At ANT		24 Os Fn FitNesse		25 Fr Se Selenium		26 Os Ga Gatling		27 Fr Dh Docker Hub		28 Os Jn Jenkins		29 Pd Ba Bamboo		30 Os Tr Travis CI		31 Pd Gd Deployment Manager		32 Os Sf SmartFrog		33 Os Cn Consul		34 Os Bc Bc42		35 Os Mo Mesos		36 En Rs Rackspace	
37 Os Sv Subversion		38 En Dt Datical		39 Os Gt GrunT		40 Os Gp Gulp		41 Os Br Broccoli		42 Fr Cu Cucumber		43 Os Cj Cucumberjs		44 Fr Qu Qunit		45 Os Npm npm		46 Fm Cs Codeship		47 Pd Vs Visual Studio		48 Fm Cr CircleCI		49 Fr Cp Capistrano		50 Fr Ju JuJu		51 Os Rd Rundeck		52 Os Cf CFEngine		53 Fr Ds Swarm		54 Os Op OpenStack	
55 Os Hg Mercurial		56 En Dp Delphix		57 Fr Sb sbt		58 Os Mk Make		59 Os Ck CMake		60 Fr Jt JUnit		61 Fr Jm JMeter		62 Fr Tn TestNG		63 Os Ay Artifactory		64 Fm Tc TeamCity		65 Fm Sh Shippable		66 Os Cc CruiseControl		67 En Ry RapidDeploy		68 Fm Cy CodeDeploy		69 En Oc Octopus Deploy		70 En No CA Nolio		71 Os Kb Kubernetes		72 Fm Hr Heroku	
73 En Cw ISPW		74 En Id Idera		75 Os Msb MSBuild		76 Os Rk Rake		77 Fr Pk Packer		78 Os Mc Mocha		79 En Xltv XL TestView		80 Os Jm Jasmine		81 Os Nx Nexus		82 Os Co Continuum		83 Fm Ca Continua CI		84 Pd So Solano CI		85 En Xld XL Deploy		86 En EB ElasticBox		87 Fm Dp Deploybot		88 En Ud UrbanCode Deploy		89 Os Nm Nomad		90 En Os OpenShift	

XebiaLabs
Deliver Faster

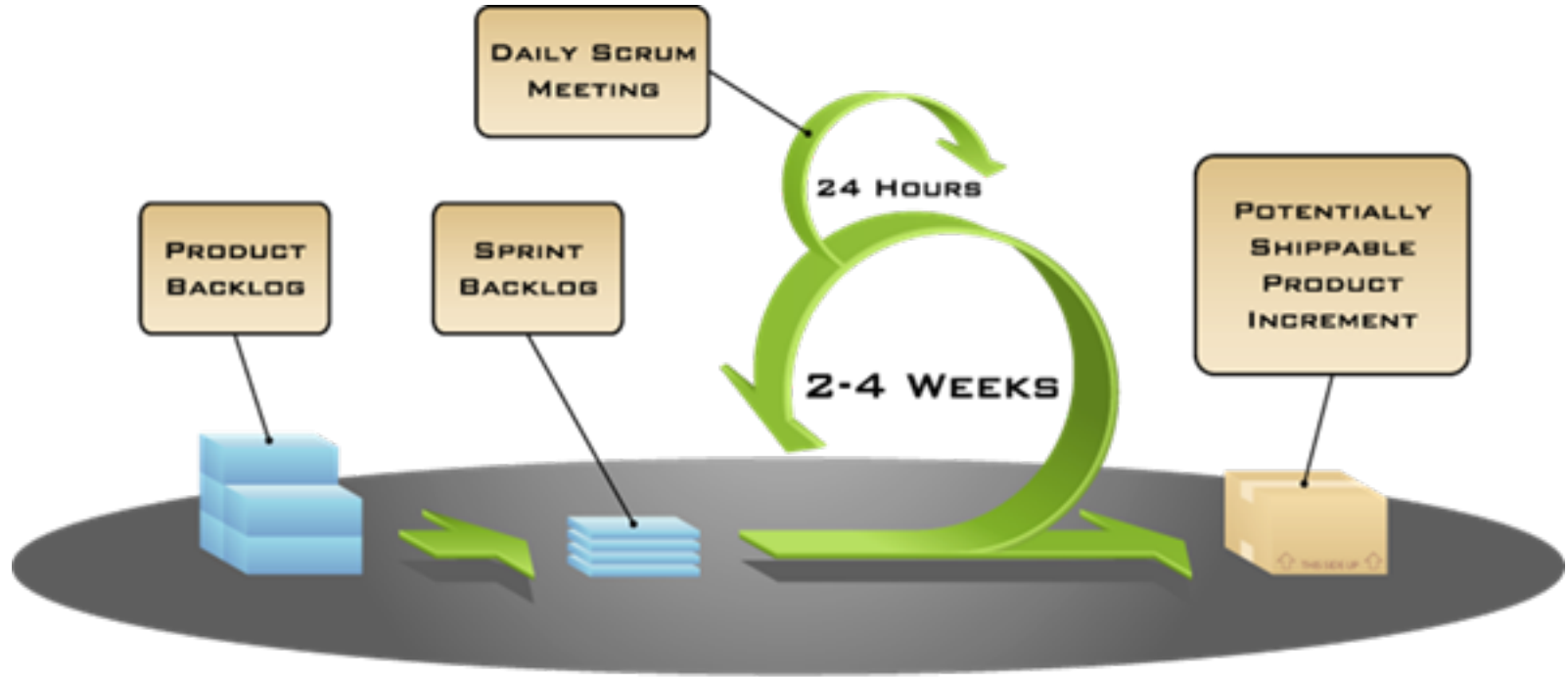
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91 En Xlr XL Release	92 En Ur UrbanCode Release	93 En Bm BMC Release Process	94 En Hp HP Codar	95 En Au Automtic	96 En Pl Plutora Release	97 En Sr Serena Release	98 Pd Tfs Team Foundation	99 Fm Tr Trello	100 Pd Jr Jira	101 Fm Rf HipChat	102 Fm Sl Slack	103 Fm Fd Flowdock	104 Pd Pv Pivotal Tracker	105 En Sn ServiceNow
106 Os Ki Kibana	107 Fm Nr New Relic	108 Os Ni Nagios	109 Os Zb Zabbix	110 En Dd Datadog	111 Os El Elasticsearch	112 En St StackState	113 En Sp Splunk	114 Fm Le Logentries	115 Fm Sl Sumo Logic	116 Os Ls Logstash	117 Os Gr Graylog	118 Os Sn Snort	119 Os Tr Tripwire	120 En Ff Fortify

Agile methodologies (1)

- Manifesto:
 - **Individuals and interactions** over **processes and tools**
 - **Working software** over **comprehensive documentation**
 - **Customer collaboration** over **contract negotiation**
 - **Responding to change** over **following a plan**
- Principles:
 - Highest priority is customer satisfaction
 - Welcome changing requirements
 - Frequent delivery of software
 - Business people & developers cooperating daily
 - Build projects around motivated people
 - Face-to-face conversation is best
 - Progress measured by working software
 - Sustainable development pace
 - Continuous attention to technical excellence
 - Simplicity
 - Self-organizing teams
 - Regular reflection & adaptation

Agile methodologies (2): SCRUM

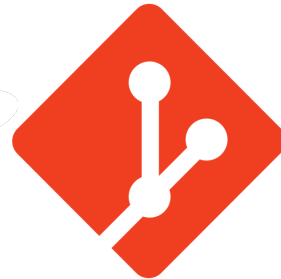


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Software Configuration Management

Version everything!

~~Seminar Symposium~~
International Conference on
~~Managing Change of~~
XML Vocabularies and ~~Documents~~ ~~Systems~~
stet ~~X X X X~~ versioning



Automated Testing

- Manual tests:
 - do not scale
 - Introduce time lags in making tested software available
- Tests done by a QA team:
 - Imply a gap between software developers and software testers
- There are many kinds of tests:
 - ...'shift-left', i.e., test as early as possible in the chain
 - Unit tests: make them to be ran often
 - Functional/Acceptance tests: less frequently ran



Infrastructure as Code (1)

Treat it as cattle...



http://animalercare.com/clients/19508/images/Group_cats_and_dogs.jpg

Infrastructure as Code (2)

...and not as pets!



http://animalercare.com/clients/19508/images/Group_cats_and_dogs.jpg

Infrastructure as Code (3)



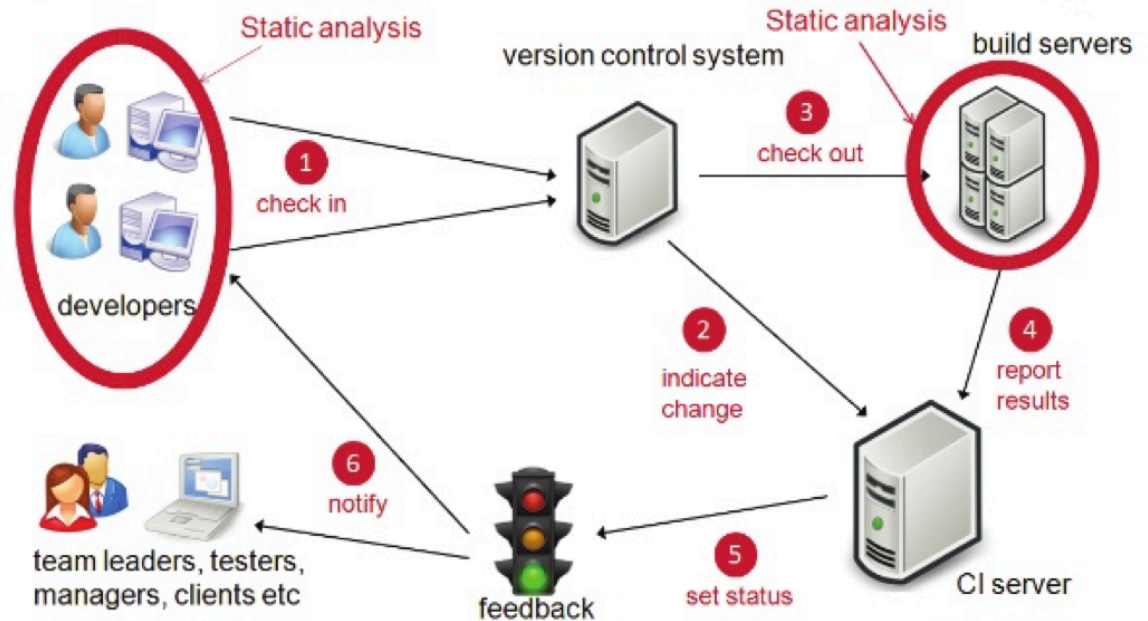
<https://www.ansible.com/>

Continuous Integration



<https://jenkins.io>

CONTINUOUS INTEGRATION WORK FLOW



<http://image.slidesharecdn.com/jenkins2-150728163959-lva1-app6892/95/continuous-integration-with-jenkins-and-git-7-638.jpg?cb=1438101733>

Continuous Delivery & Continuous Deployment

CONTINUOUS DELIVERY

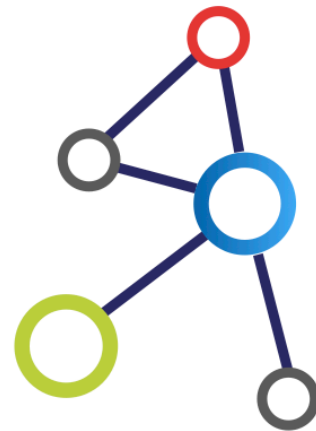


CONTINUOUS DEPLOYMENT



SONATA: a EU Horizon2020 project

sonata



<http://sonata-nfv.eu>

<https://github.com/sonata-nfv>

SONATA - Service Programming and Orchestration for Virtualized Software Networks



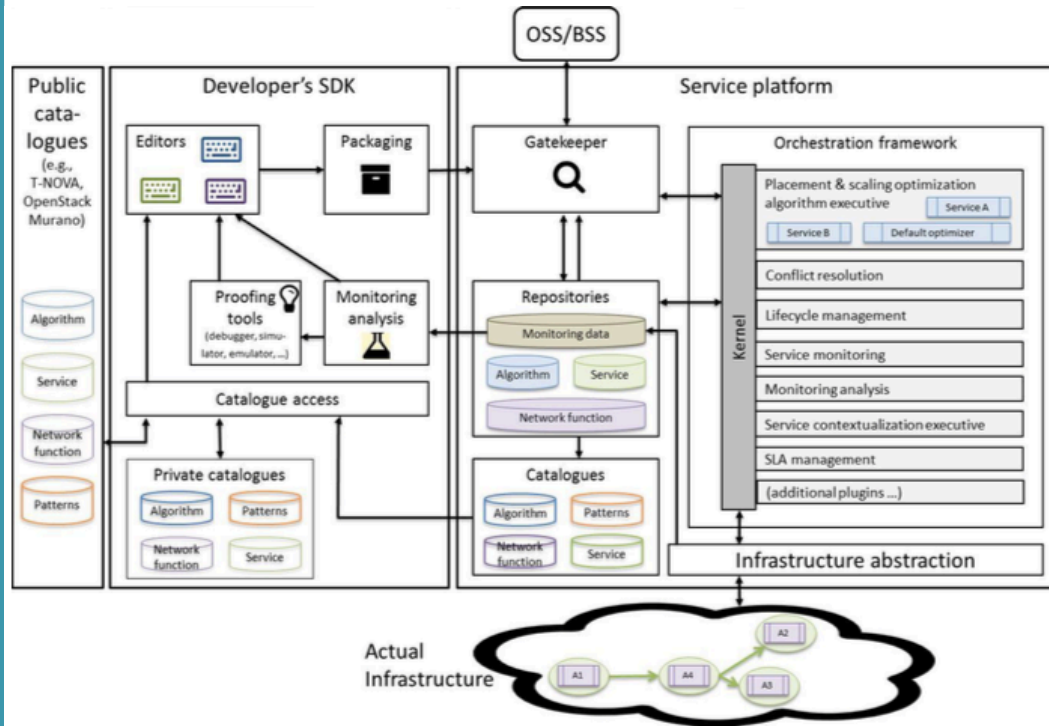
The project will support network function chaining and orchestration, make service platforms modular and easier to customize to the needs of different service providers, and introduce a specialized DevOps model for supporting developers.

Consortium:

15 partners (ATOS Spain, NEC Europe, **ALB**, THALES, Telefónica I+D, Alcatel Lucent Israel, University Paderborn, NCSR Demokritos, University College London, iMINDS, Optare, i2cat, Synelaxis, British Telecom, Ubiwhere)



The 5G Infrastructure Public Private Partnership



More detailed architecture

