DevOps

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Agile is not enough!

Agile Dev Team

Focus on:
- Innovation
- Speed
- Flexibility to change

Organizational separation + Different objectives

Ops Team (traditional)

Focus on:
- Reliability
- Security
- Minimize and manage problems

Deployment WIP = Waste!

The value remains "potential" if the software is not released into production

Delay in collecting user / customer feedback

Risks of changes in the meanwhile

Risk of changes to the production environment

DEV vs OPS – «**Wall of Confusion**»

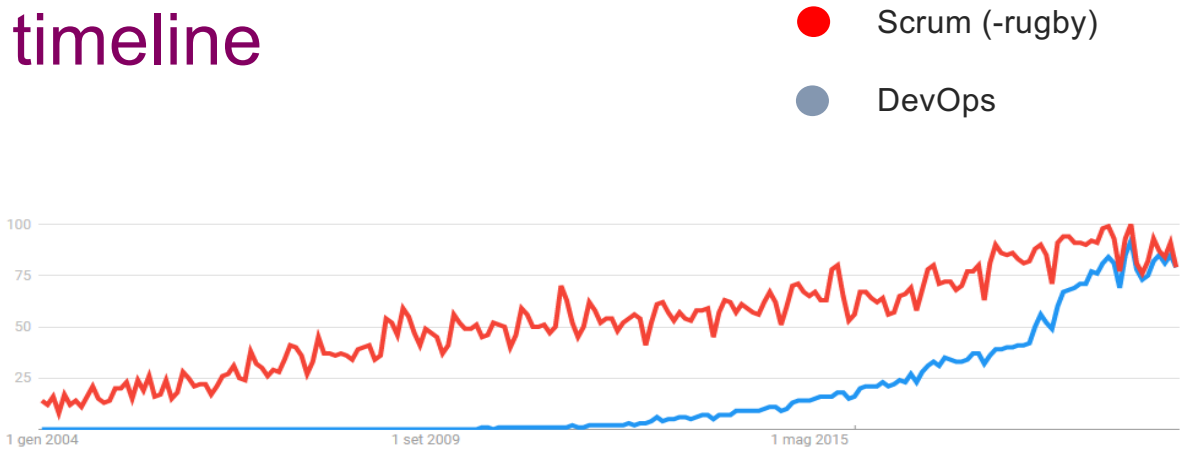
Dev's view:

- **«**Ops takes too long to make environments available (dev, test and prod)»
- «We are slowed down by Ops which takes too long to release the software on different environments»
- «In development it works … in production is responsibility of Ops!»
- «In staging it works and in production it doesn't… it's because the environments are not the same»
- «I cannot make problem determination if I do not have access to the production environment»

Ops's view:

- «I often work in emergency, too many interrupts that do not allow me to work on planned activities»
- «The development does not provide us with the documentation for putting the software into operation»
- «The software has poor performance because it is poorly written, it cannot scale on the infrastructure!»
- «I can't keep production environments safe if I give everyone free access!»

Agile & DevOps timeline

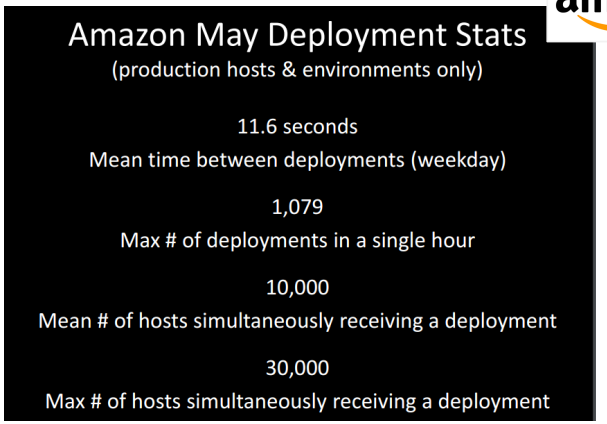


2001
«Agile»

2009
«DevOps»

http://www.slideshare.net/jallspaw/10-deploys-per-day-dev-and-ops-cooperation-at-flickr/

2011
Diffusion begins



http://assets.en.oreilly.com/1/event/60/Velocity%20Culture%20Presentation.pdf

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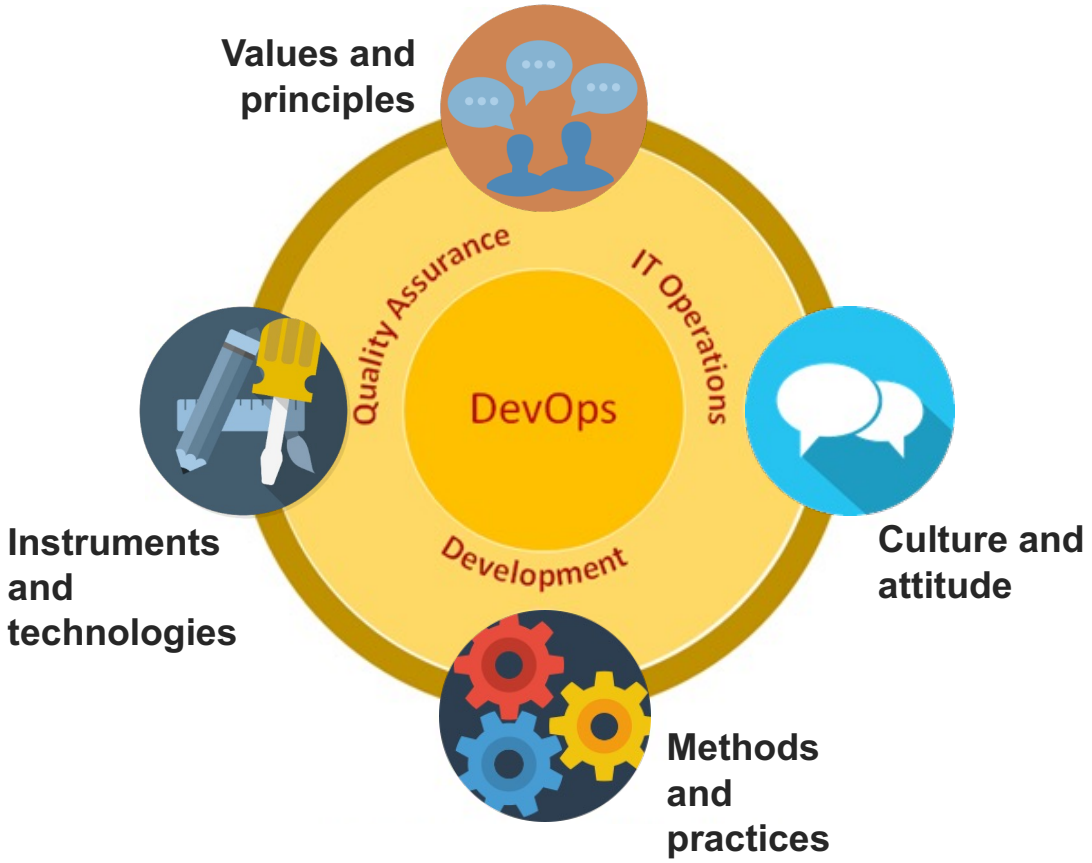
DevOps requires a cultural change… supported by suitable tools!



"DevOps it's not something you can buy - it's something you have to do and you have to do it yourself"

John Michelsen,
CTO, CA Technologies

What is DevOps?

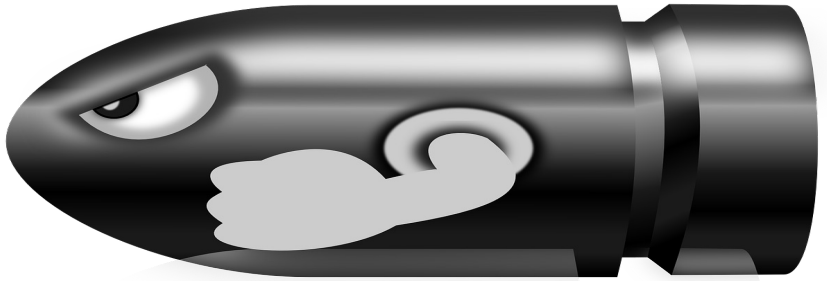
"A mix of patterns intended to improve collaboration between development and operations. DevOps addresses shared goals and incentives as well as shared processes and tools."

Michael Hüttermann
"DevOps for Developers"

"A movement of people who care about developing and operating reliable, secure, high performance systems at scale"

Jez Humble
"Continuous Delivery"

A SILVER BULLET?



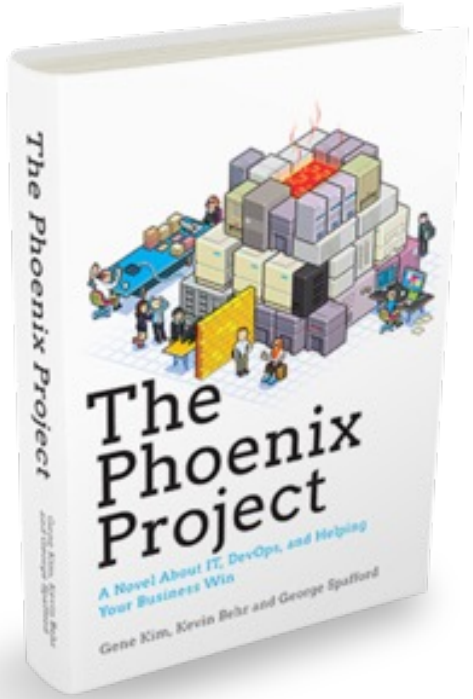
"DevOps (a clipped compound of "software DEVelopment" and "information technology OPerationS") is a term used to refer to a set of practices that emphasize the collaboration and communication of both software developers and information technology (IT) professionals while automating the process of software delivery and infrastructure changes.

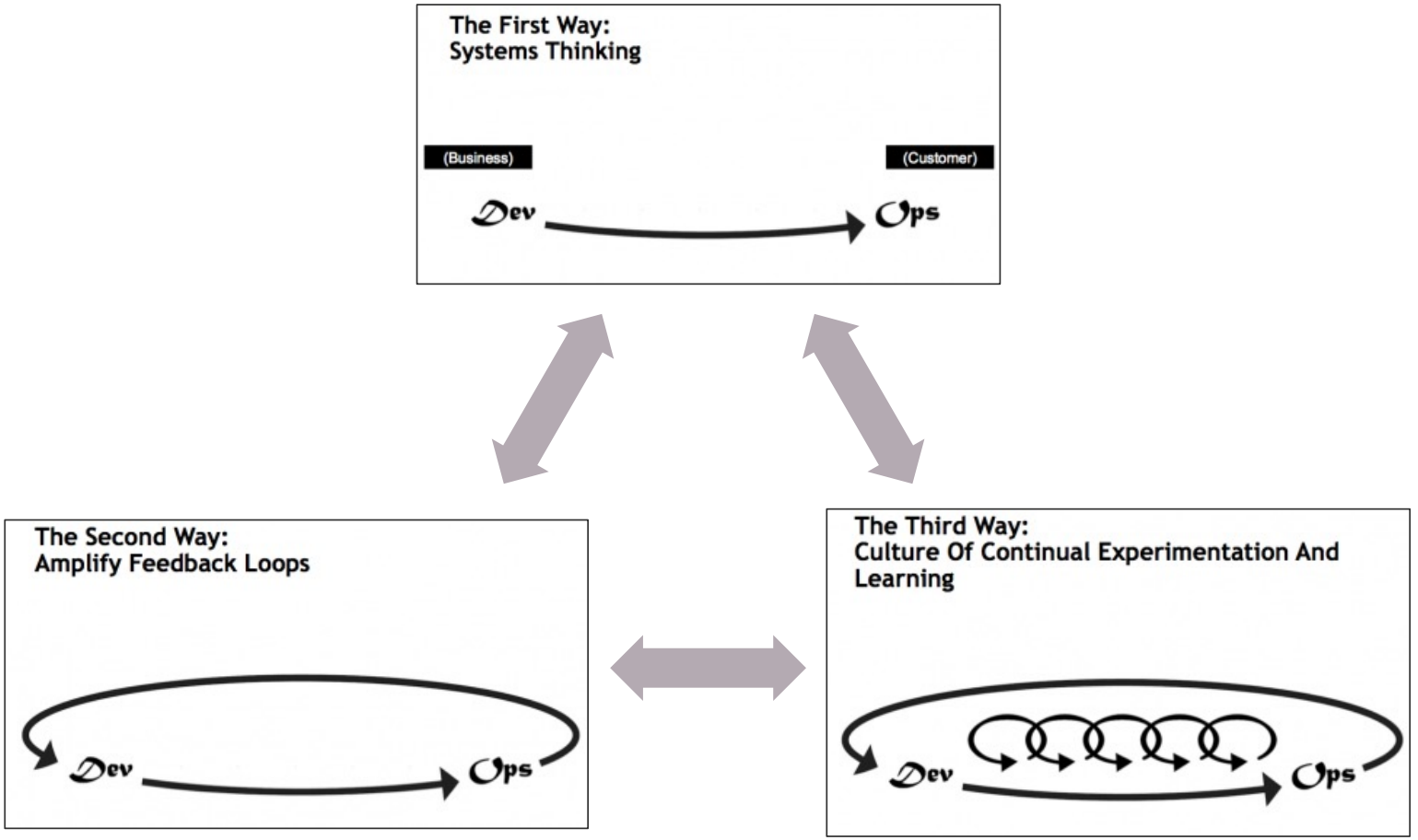
It aims at establishing a culture and environment, where building, testing, and releasing software can happen rapidly, frequently, and more reliably"

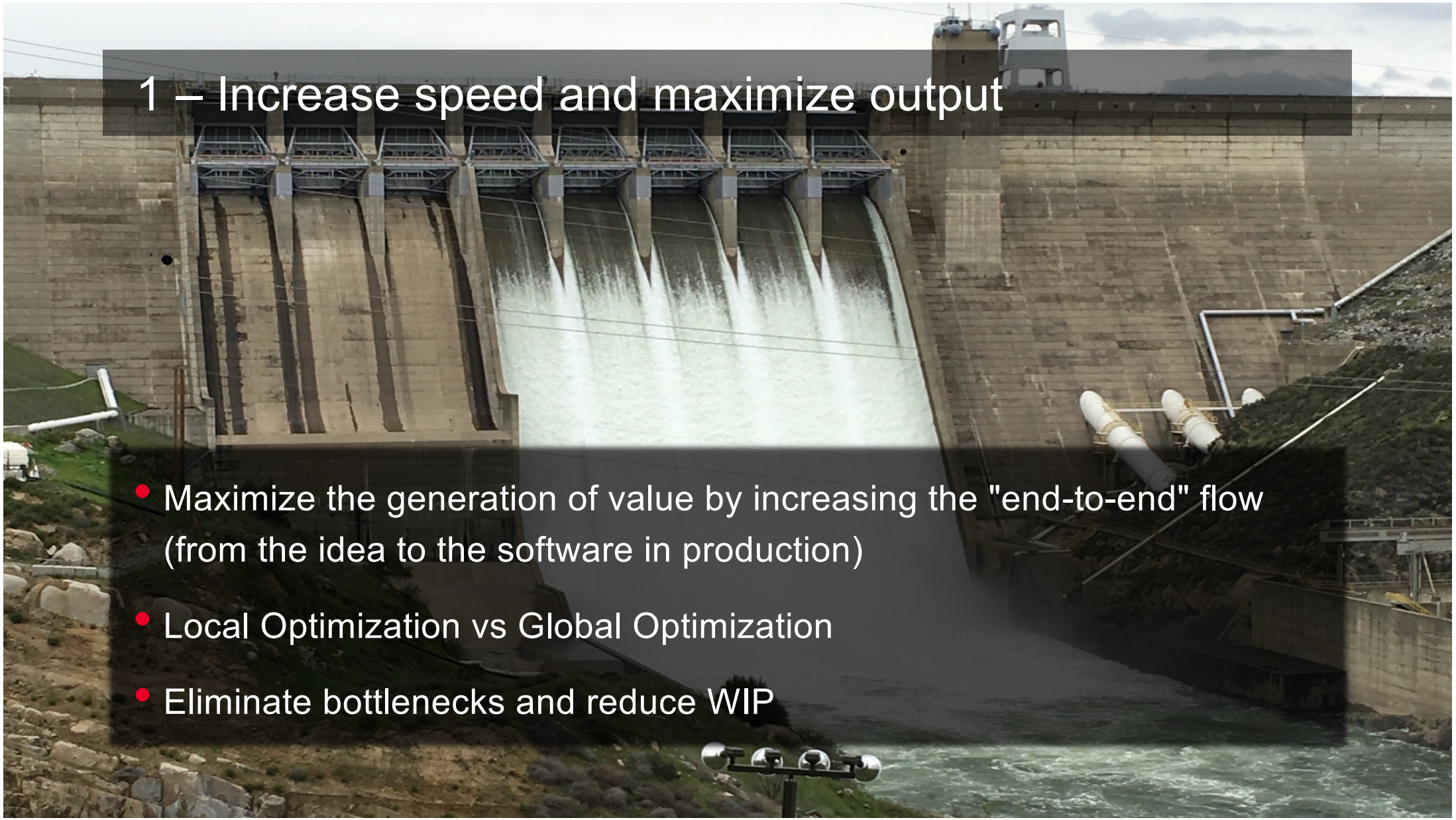
Wikipedia


DevOps: GOALS
MORE SPEED
MORE RELIABILITY
LESS COSTS

How to adopt DevOps? "The three ways"



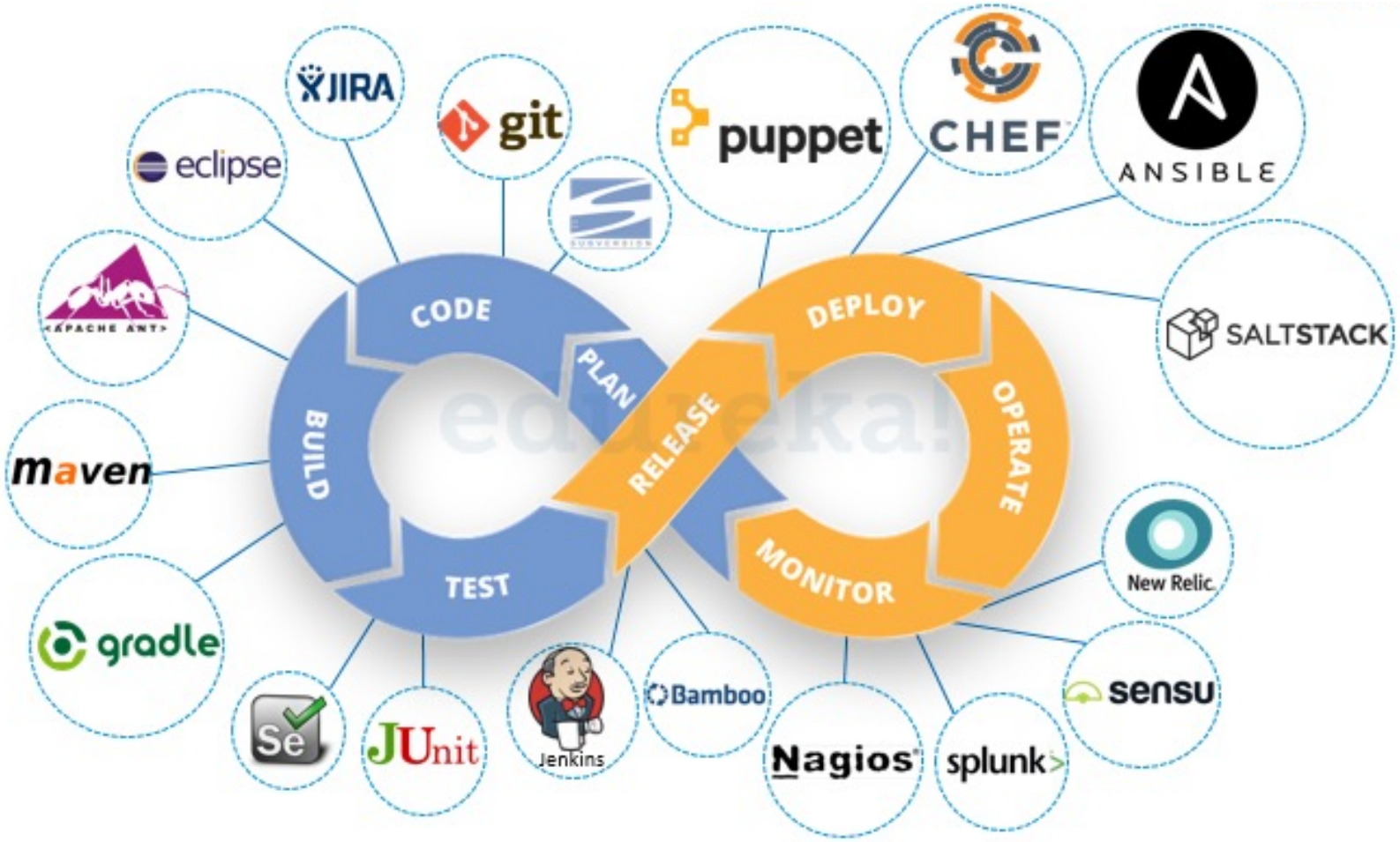




1 – Increase speed and maximize output

- Maximize the generation of value by increasing the "end-to-end" flow (from the idea to the software in production)
- Local Optimization vs Global Optimization
- Eliminate bottlenecks and reduce WIP

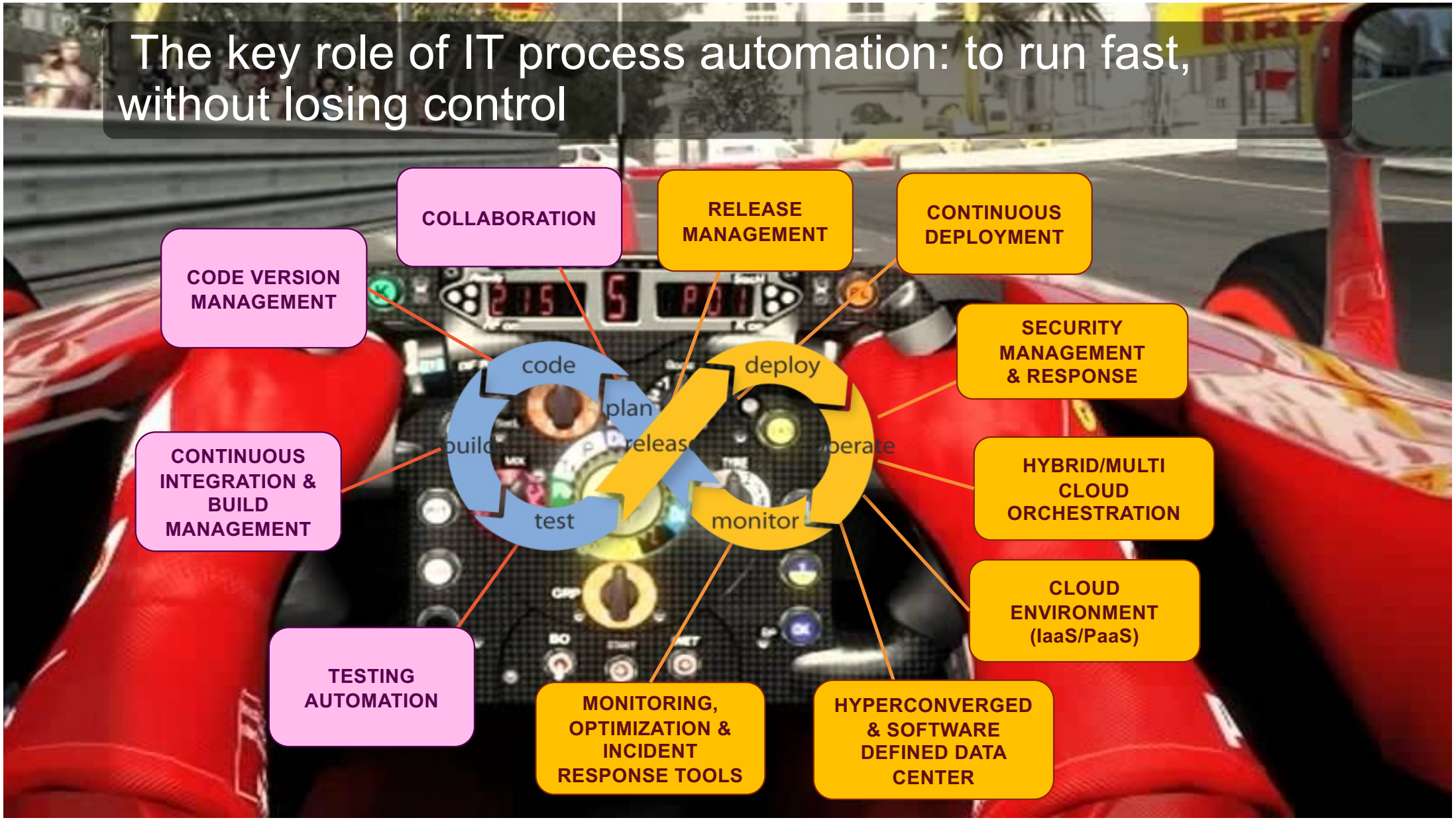
DevOps Tools (example)



1 – Optimize the flow

The optimization of the overall process is more important than the optimization of the individual areas / phases

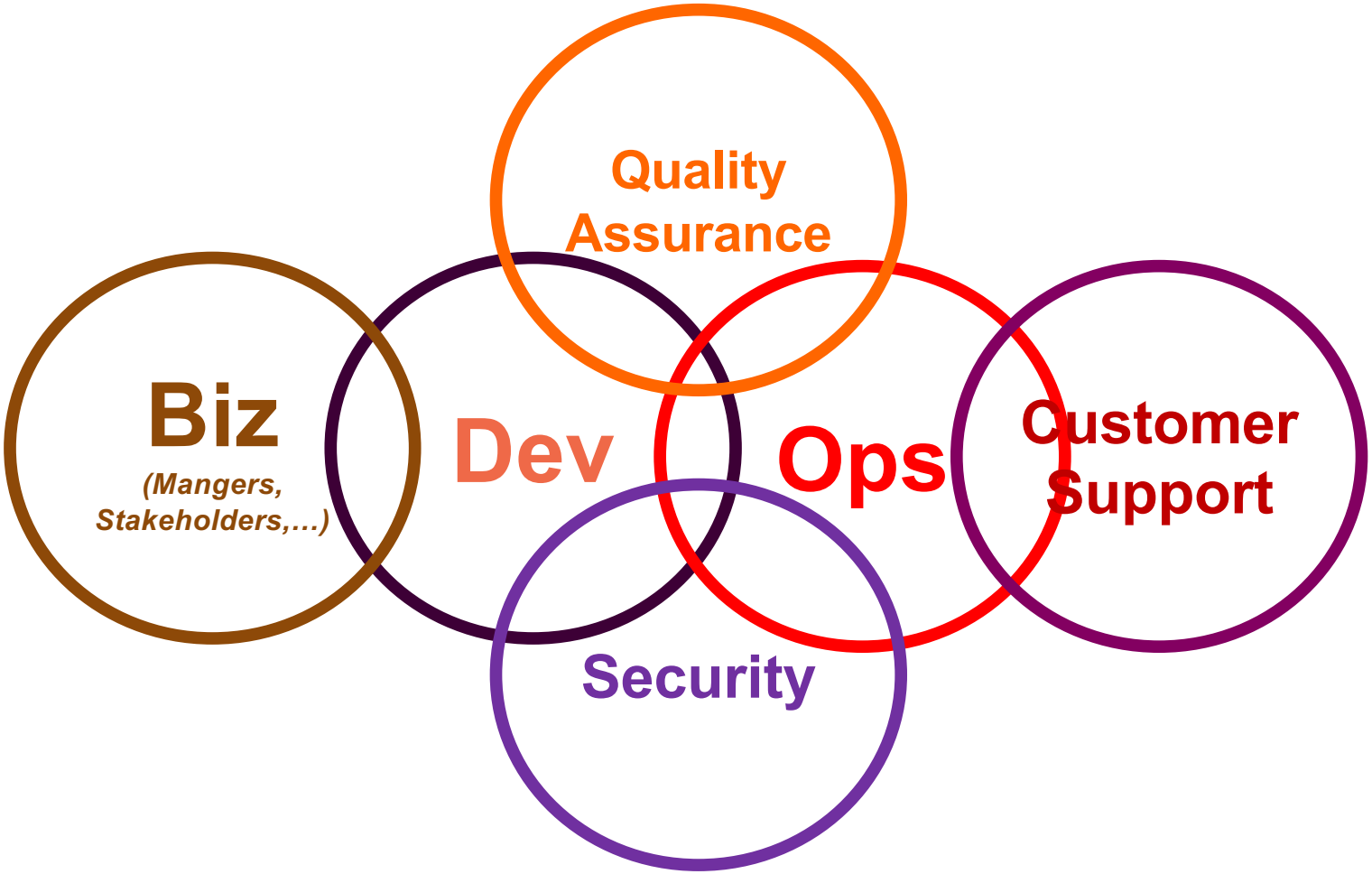
The speed of the process depends on the speed of the slowest phase / activity. The problems of the single phase / activity are problems of the whole process


The key role of IT process automation: to run fast, without losing control
COLLABORATION
RELEASE MANAGEMENT
CONTINUOUS DEPLOYMENT
CODE VERSION MANAGEMENT
SECURITY MANAGEMENT & RESPONSE
CONTINUOUS INTEGRATION & BUILD MANAGEMENT
HYBRID/MULTI CLOUD ORCHESTRATION
CLOUD ENVIRONMENT (IaaS/PaaS)
TESTING AUTOMATION
MONITORING, OPTIMIZATION & INCIDENT RESPONSE TOOLS
HYPERCONVERGED & SOFTWARE DEFINED DATA CENTER
code
plan
deploy
test
monitor

2 - Reduce waste by anticipating problems

- **Encourage feedback information along the way**
- **Identify problems as early as possible along the chain and prioritize their resolution**
- **Learn from mistakes to try to improve**

DevOps: who is involved?

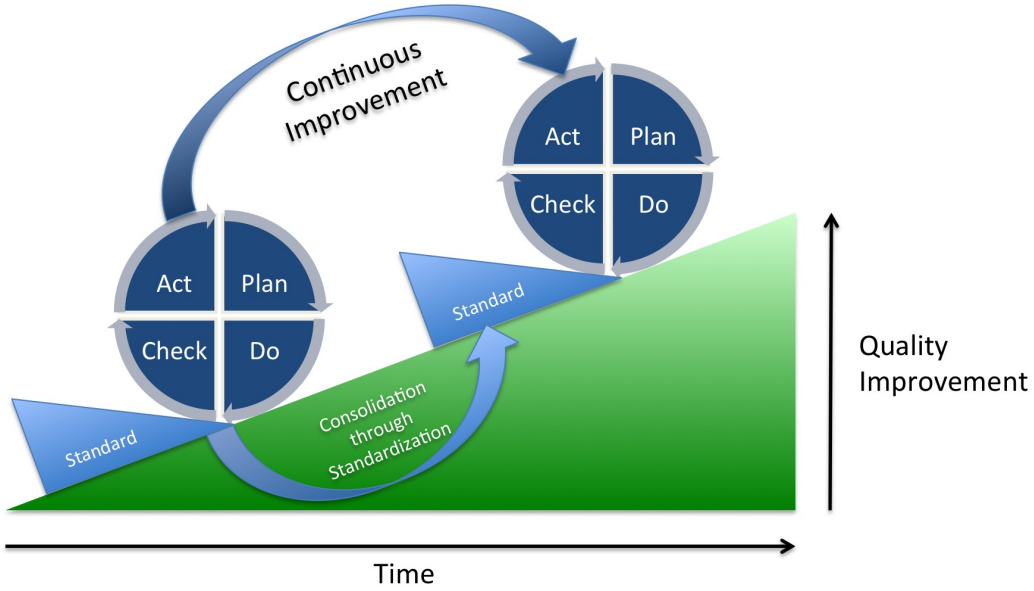


3 - Promote continuous improvement

- Create a culture that fosters continuous experimentation, taking risks and learning from mistakes
- Understanding and practice are prerequisites for becoming an expert
- "Fail fast, recover and move on!"

Experimentation and learning

Il **ciclo di Deming** (o ciclo **PDCA: plan–do–check–act**) è un metodo iterativo per il miglioramento continuo dei processi e dei prodotti.



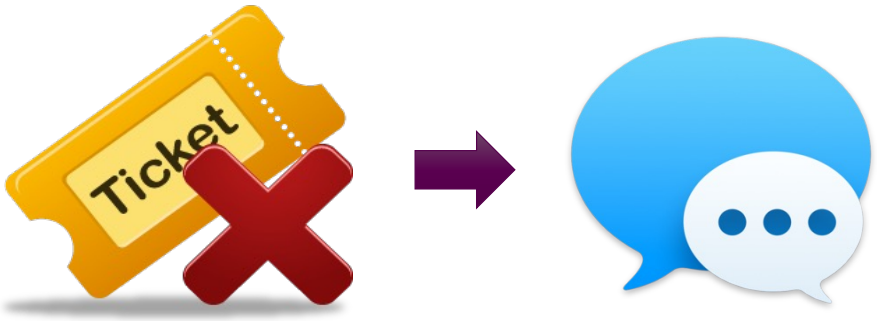
Experimentation

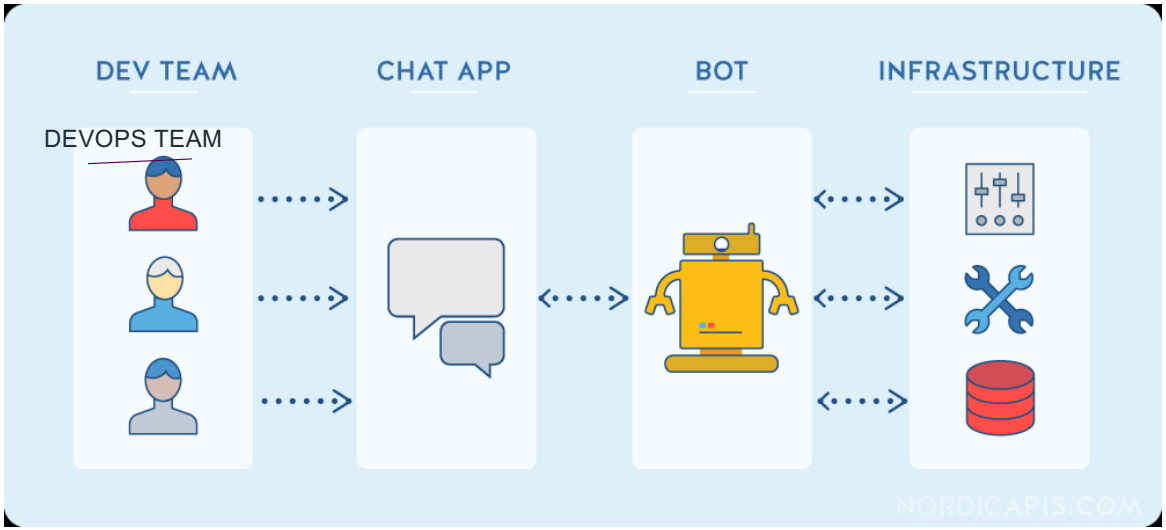
Learning

Repetition

Experience

ChatOps


Ticket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DevOps Tools (Esempio)