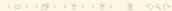
## DevOps or Death

(The title is silly)

Michele Finelli m@biodec.com BioDec





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## Cloud + Virtualization = Distributed Infrastructure

THANKS TO THE CLOUD AND TO THE VIRTUALIZATION technologies every company will need tools and techniques to deal with the complexities of a distributed infrastructure.

The **alternative** is *giving up* controlling or *giving up* the advantages of those technologies.

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- Your infrastructure will be not only distributed, but also large: a very different scenario from that of traditional (monolithic) infrastructures.
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- 4. bridging the gap between developers and operations does it ring a bell?

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## All that is old is new again

### Uncle Bob Martin says:

In 2001 a few of us met in hopes that we could agree on a simple statement that defines lightweight processes. We wrote a simple manifesto, and chose the name Agile. We had no idea how successful this idea would be. At that meeting, Kent Beck stated a prime goal: "To heal the divide between business and development".

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# Yesterday

MARCH, 2011. Gartner Group publishes the report "The Rise of a New IT Operations Support Model", where it is stated that by year 2015 the DevOps movement would have grown from a niche movement for cloud companies to adoption in more than a fifth of Global 2000 enterprises.

- February, 2013 Florence, first Italian DevOps Meeting (Incontro DevOps Italia), 80+ people, *community driven*.
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When 7th and 8th March 2017.

Where Bologna.

What Fifth Italian DevOps Meeting: one day of workshops, and and one day of conference.

Some history

# See you next year

#### When 7th and 8th March 2017.

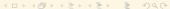
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- 2. lean methodologies,
- 3. some characteristics of the free software communities: openness, sharing, open standards,
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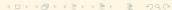
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A automate

M measure



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#### Culture

CREATE A CULTURE of collaboration. The first issue is the harder to get in practice, but it is probably the most important.

People and process first. If you don't have culture, all automation attempts will be fruitless. (John Willis)

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#### **Automate**

2 AUTOMATE everything. Let any task that can be done with software, be done by a program: write it, deploy it and run it.

All software is born equal under the sun: a system program is not an excuse for sloppy practices, lack of quality or misfeasance

Corollary: sysadmin is not an insult.

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### Measure everything

MEASURE all the parts of the infrastructure. Monitoring is not a new idea, and it has obviously not been invented by the DevOps community: the novelty of the DevOps approach is in considering monitoring as a whole: systems, applications, network. Everything has to be available for anybody involved.

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### Measure everything

The traditional approach to monitoring consists of some system management tool, **usually just for the system administrators**, tracking server resources or hardware performance data. Trouble arise since that tool is usually decoupled from an **ad hoc solution devised for the applications**, **by the application developer themselves**.

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#### Share

4 SHARE a project outcome, an objective, practices, techniques, tools among different groups that have different roles and responsibilities.

Sharing is the loopback in the CAMS cycle. Creating a culture where people share ideas and problems is critical. (John Willis)

### Wrapping up

- if only the code defines the infrastructure,
- and every action on the infrastructure has to be automated (that means: translated into code),
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### Technique #1: repeatable setup

- Setting up a new server or a new service should be a repeatable task: i.e. it should not require manual operations or manual configurations.
- ▶ Do it!
- Ask your providers to work that way.

Tools and techniques (and a principle)

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- Skills: a different mindset is needed to manage the infrastructure as code — no more "Let me connect to the server and change some settings".

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#### **DevOps**

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- Keep everything in a configuration management system.
- File systems are bad; repositories are good.
- Ask your suppliers to do the same (if they say they can't, they are lying). Offer to train them.

Tools and techniques (and a principle)

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- How can we walk the walk ?
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- Recovering from mistakes simply by undo changes.
- Setting releases of artifacts, to mark the state of a point in time.

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#### DevOps

- How can we walk the walk?
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Discipline.

#### DevOps

- How can we walk the walk?
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- Define test before or together with the implementation of the software solution.
- Do not accept anything that has not been properly tested. How do you verify that tests do indeed:
  - 1. exists;
  - 2. are passed by the software you are going to deploy;

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Tools and techniques (and a principle)

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- ► The necessity of rollbacks or cut-corner patches to fix unexpected problems is lesser and lesser.
- Quality.

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- ► Skills: tests must be conceived before or at least together with the solution, non as an afterthought.
- Discipline: keeping the course under time pressure is hard
- ► Use those levers at your advantage as a way of selecting and evaluating your supply chain.

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Tools and techniques (and a principle)

## Tool #2: continuous integration

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- There are free software tools that can be used to make a pipeline with little effort.

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  - Tools and techniques (and a principle)

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- Some resources (not too many).
- Time: cutting corners saves times.

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# Technique #3: visualize information

- ▶ Once you have a complex, distributed and large infrastructure, the only way to know that it works is having both *key process indicators* (KPIs) and the system that checks them.
- ▶ I KPIs are hidden, they are worthless: relevant information must be easily accessible.

Tools and techniques (and a principle)

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## Technique #3: visualize information

- Once you have a complex, distributed and large infrastructure, the only way to know that it works is having both key process indicators (KPIs) and the system that checks them.
- ► I KPIs are hidden, they are worthless: relevant information must be easily accessible.

- How can we walk the walk?
  - Tools and techniques (and a principle)

- ► Shorter feedback loops.
- Better understanding of the system architecture.
- Help in planning and evolving the system.

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- ► (Change company).
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- There are many really good free software solutions.
- ▶ Implement it and keep it up to date.

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- Time: building a fairly complete monitoring system takes a lot of time and energy.
- Often the process shows all the dark spots, the corners that were cut, etcetera.
- Once built, the monitoring system must be evolved together with the main infrastructure: in fact it is yet more complexity to manage.

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- ► A requirement of the above initiatives is the capability to operate on the infrastructure itself.
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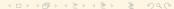
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Wrapping up





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