

The background of the slide is a complex, abstract geometric pattern in shades of blue and cyan. It consists of concentric circles, radial lines, and various rectangular and circular segments, creating a sense of depth and technical complexity. The pattern is set against a dark blue background with small white specks, resembling a starry sky or a digital interface.

## DevOps – What is it? Why? Is it real? How to do it?



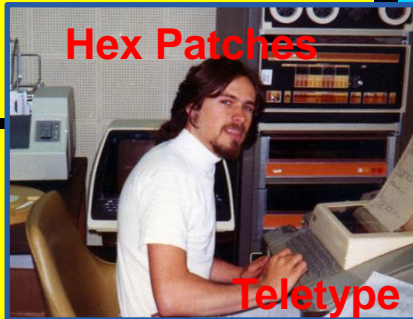
**Marc Hornbeek**  
**Sr. Solutions Architect**

# 1978 – Berlin Packet Exchange



Dev - Ottawa

Hex Patches



Teletype

**Not DevOps!**



Manual  
Test & install  
Ops - Berlin

- 1. DevOps resource references**
- 2. Best Practices Assessment Tool**
- 3. Continuous Testing eBook**



[http://www.spirent.com/Assets/EB/EB\\_A-CLEAR-Perspective-on-Continuous-Testing](http://www.spirent.com/Assets/EB/EB_A-CLEAR-Perspective-on-Continuous-Testing)

<http://itrevolution.com/the-history-of-devops/>

# What is DevOps?

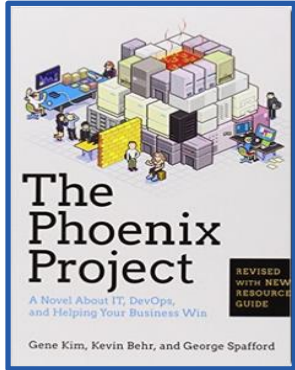
4 million google hits

*No standard DevOps definition !....*

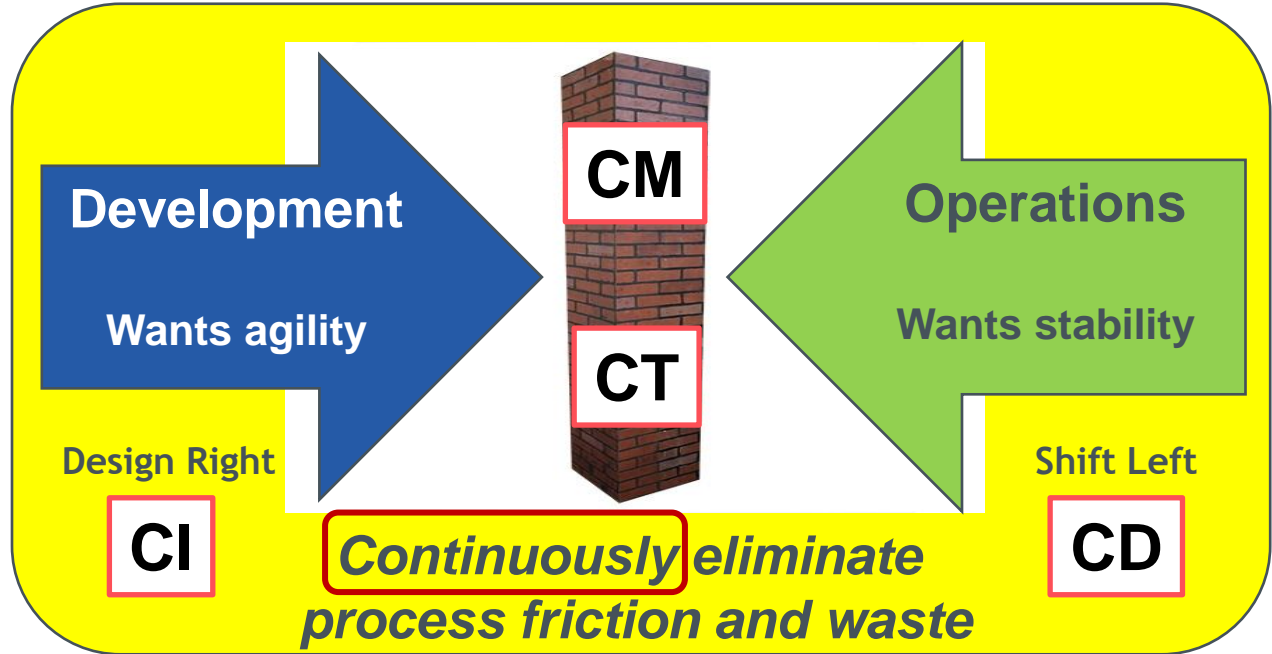


Patrick Debois  
2007

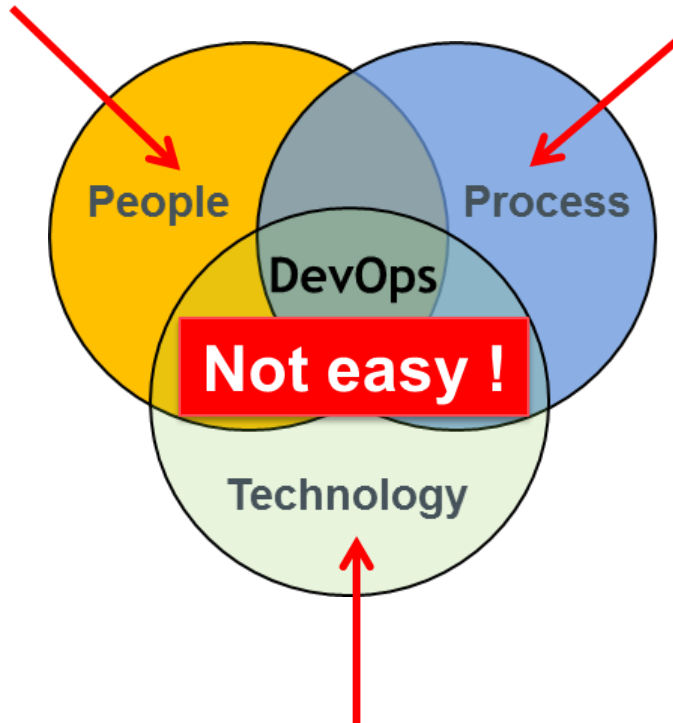
2009 “Agile Infrastructure”



57 million  Gene Kim



# DevOps – defined ?



*continuous*  
*and delivery*

“software development method that stresses communication, collaboration, integration, automation, and measurement of cooperation between software developers and other information-technology (IT) professionals.”

<https://en.wikipedia.org/wiki/DevOps>

# Common DevOps “mutations”

NetOps

WebOps

DevSecOps

ChatOps

NoOps





# Where does DevOps apply?

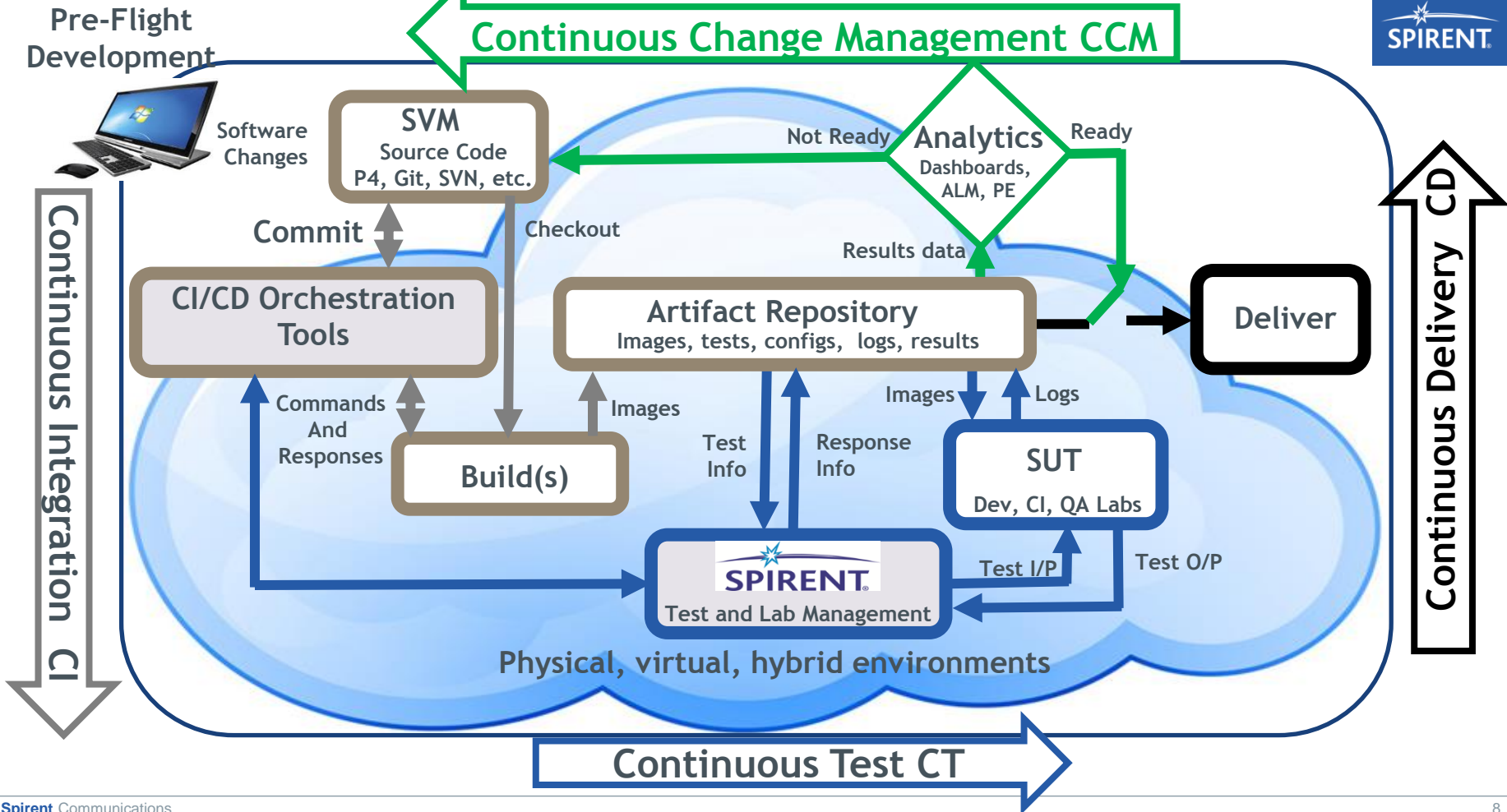


93% of firms by end 2015  
Source: Rackspace Nov 2014

Software world

Greenfield, brownfield, legacy, apps and embedded.

# Continuous Orchestration and Automation





# DevOps "Pipeline"

Dev



Monitoring and Management Environment



Orchestrated, Automated processes

Elastic Production Infrastructure

Ops



Tools as Services

REPOs



Analytics



GUI Test



Deploy



Build



Code Test

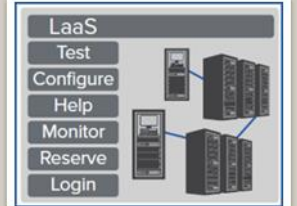


Test



Virtual Infra

Lab as a Service



DevOps Framework

+

1000 plugins  
93.9 million

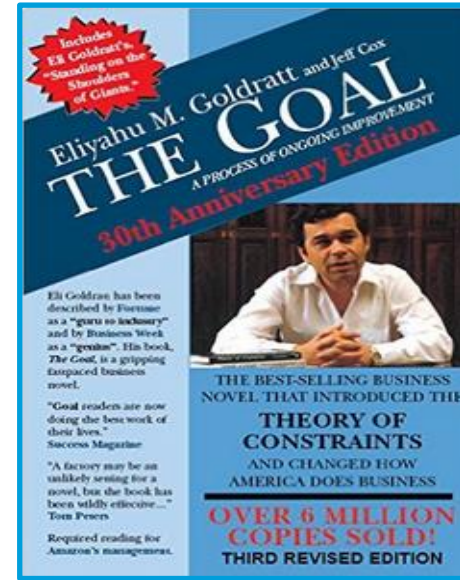
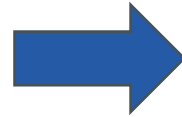


Kohsuke Kawaguchi

# Why DevOps?

## Business competitiveness:

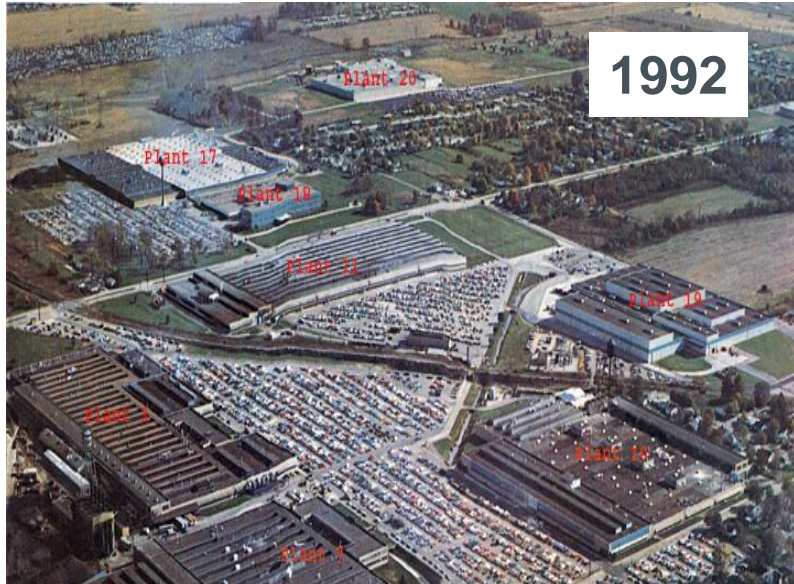
- ❌ Late to market
- ❌ Cost overruns
- ❌ Quality problems
- ❌ Inadequate innovation



1<sup>st</sup> Edition (C)1993

“Lean manufacturing meets software” (= DevOps)

# GM's Van Nuys plant “nobody wanted to change”.



“the world’s largest auto maker has been hit with stiff competition from the Japanese, huge financial losses and a shrinking U.S. market share.”

*August 28, 1992, Patricia Apodaca, Times Staff Writer*

# Why DevOps now?

## How long using DevOps?

Evaluating	40.0%
Less than a year	10.0%
12–24 months	13.3%
25–48 months	13.3%
>4 years	6.7%
Other	16.7%

“IDC ...Fortune 1000 Survey”,  
December 2014

## ■ Notable successes

### ■ Unicorns:



### ■ Horses:



- Elastic virtual / cloud technologies
- Service Oriented Architectures
- Orchestration tools
- Emerging Best Practices

# Is DevOps Real?



20,000 surveyed

- ✓ Deploy 30x more frequently
- ✓ 200x shorter lead times
- ✓ 60x fewer failures
- ✓ Recover 168x faster.
- ✓ Delivering value faster
- ✓ Improved sustainably
- ✓ Greenfield, brownfield or legacy
- ✓ DevOps helps prevent burn-out

Competitiveness, Valuation



# “DevOps Jobs”

**10.8 million hits !**

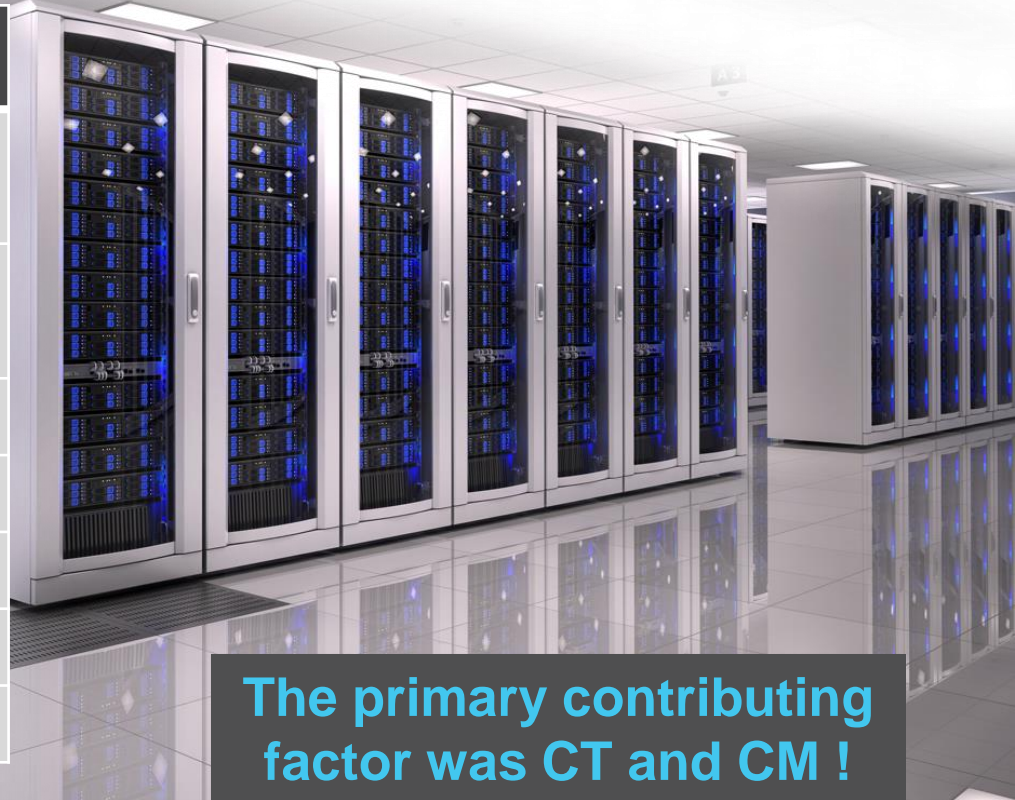
Cf. “Computer programmer jobs”  
11.9 million



<https://www.youtube.com/watch?v=MQm5BnhTBEQ&feature=youtu.be>

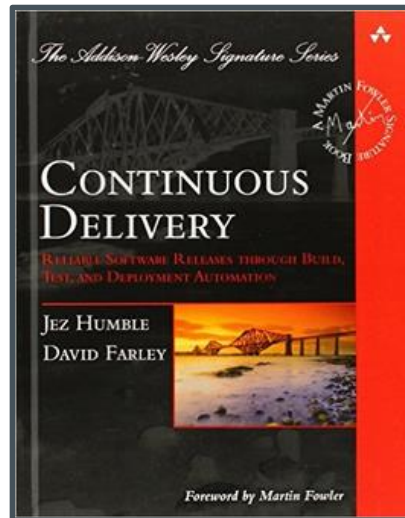
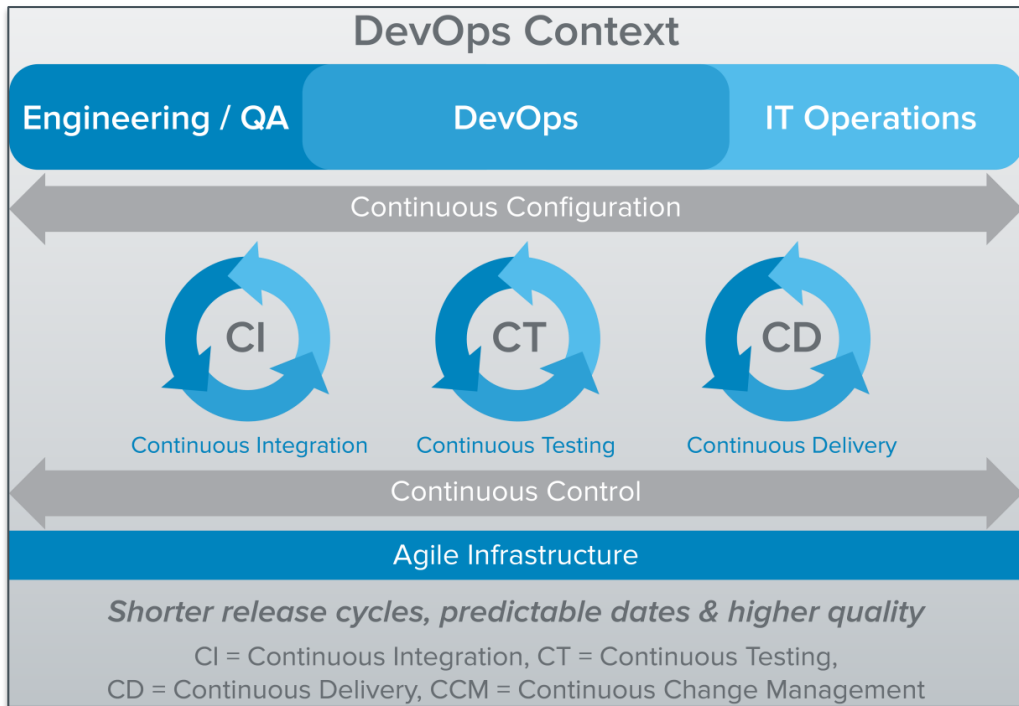
# DevOps Success Story

Metric	Before	After
Major release (#months)	6	3
Minor release (#weeks)	4	2
# Features	113	150
Defects	1260	10
Integrations / day	0.5	100
Tests / day	0.3	10
Automated tests	5%	85%



**The primary contributing factor was CT and CM !**

# How to do DevOps?



Jez Humble

**Ingredients: Lean culture, orchestration frameworks, plug-in tools, elastic high availability infrastructures**

DevOps like snowflakes...no two the same !



**But the result is beautiful when done right !**

# #1 Prepare People and Culture

- Leadership (over Dev and Ops) sets vision, goals and rewards
- Collaborative culture: identify & remove process friction
- Responsibilities shift with faster cycles
- Training: people, process, tools
- Metrics !

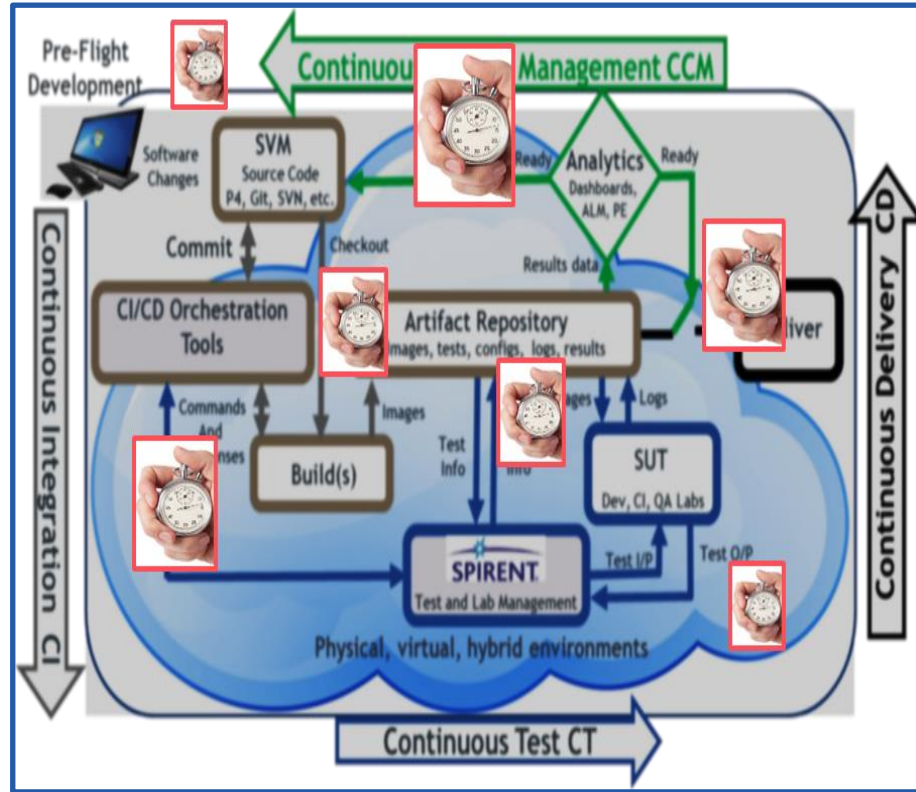
**Consequences if not done:  
confusion, infighting, morale  
problems, overload**





# #2 Create a Process Optimization Map

**Diagram current process pipeline & identify bottlenecks**



**Consequences if not done:  
Confused priorities and tool choices**

# #3 Calibrate your Practices



✓ Right tool

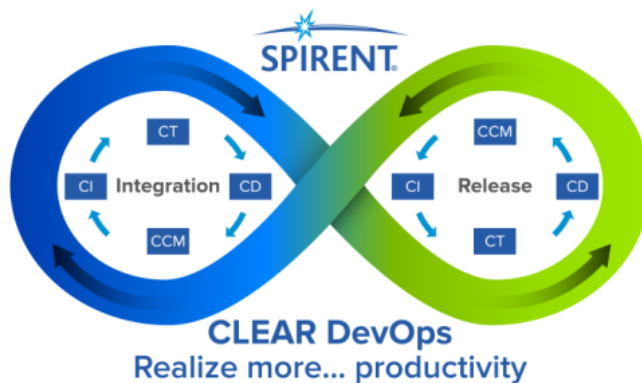
✗ Wrong practice !

A **best practice** is a technique or methodology that, through experience and research, has been proven to reliably lead to a desired result.

# Spirent's Best Practices Assessment Tool simplifies the assessment process.

## CLEAR DevOps

### Best Practices Assessment Tool



New Assessment

Load Assessment

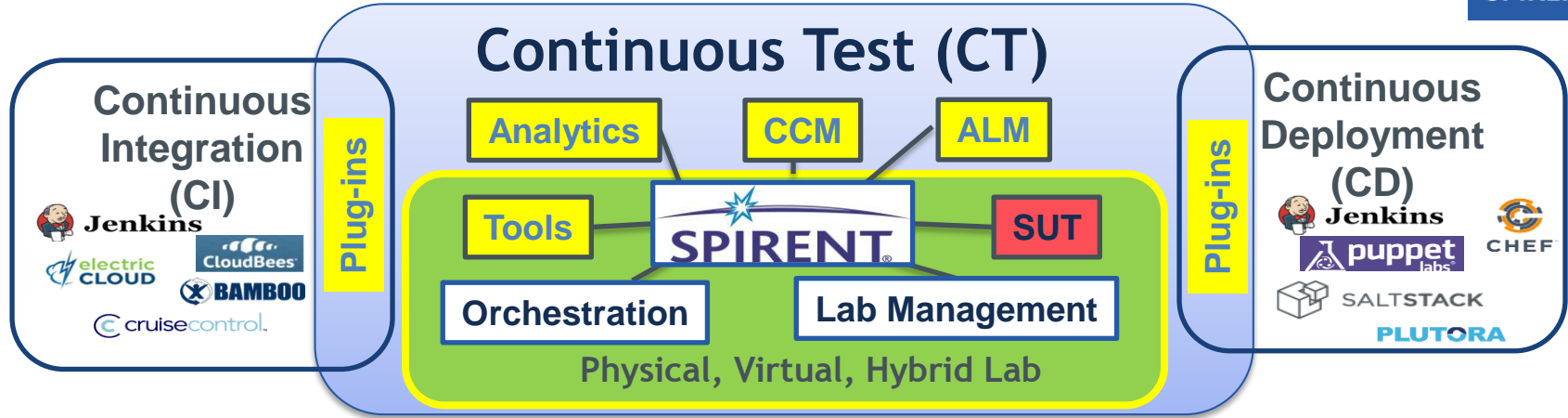
Instructions

Exit

Assessment GAPS are automatically computed for all practices and categories.

Home		Gap Assessment		<	>
7/20/15		Marc Hornbeek New Assessment		Marc Hornbeek	
Practice Area	Importance Level	Practice Level	Gap		
Pre-Flight	4	3	6.4		
Continuous Integration Practices	2.5	2.9	3.2		
Continous Delivery Practices	2.3	2	5.3		
Continuous Change Management Practices	2.8	2.5	7.7		
System	3.7	2.8	12		
DevOps Team Practices	3.2	2	6.2		
Overall Assessment	3.1	2.5	6.8		

# #4 Select DevOps-Ready Tools



Select tools framework to match your goals for high availability and virtual environments

Select tools with RESTful APIs, plugins



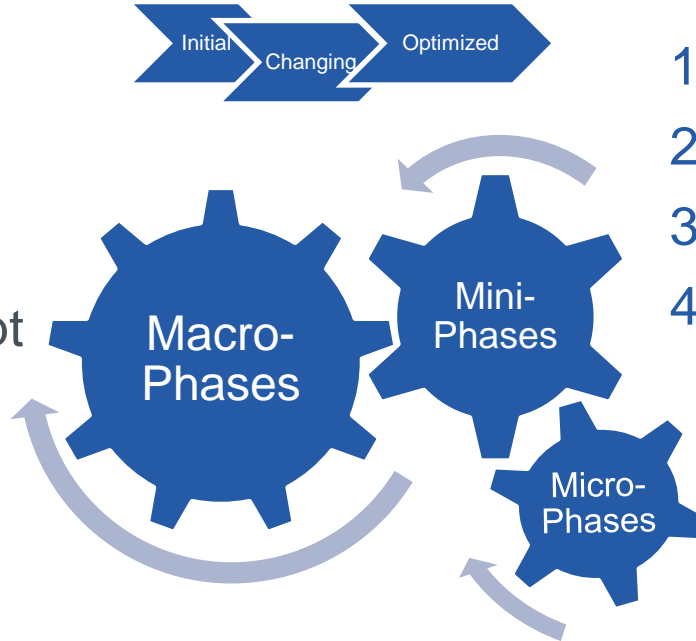
80% failure rate when using current tools  
*IDC Fortune 1000 survey, December 2014*



# #5 : Determine Project Phases and Metrics

## Macro-Phases

1. Assessment to determine bottlenecks
2. Proof of concept
3. Horizontal integration
4. Vertical deployment



## Mini-Phases

1. Team & Culture
2. Tools integrations
3. Stabilize, measure
4. Optimizations

## Micro-Phases

1. Change a little
2. Test
3. Deploy

# Example DevOps Project

## BEFORE DevOps



## AFTER DevOps



# Solution Approach

**1. Infrastructure**

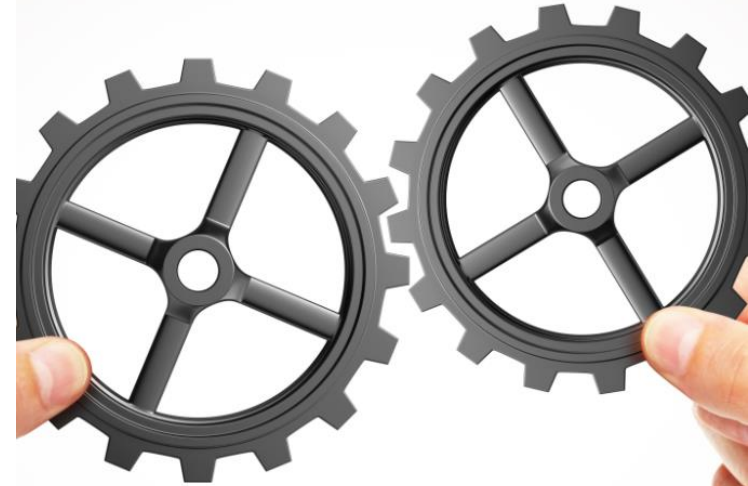
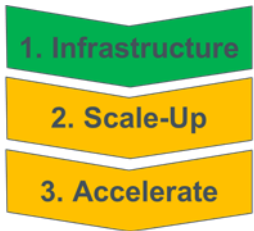
**2. Scale-Up**

**3. Accelerate**



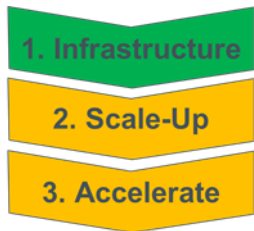
# Integrate Processes

- Common infrastructure
- Process design
- Controls



# Stabilize and Secure

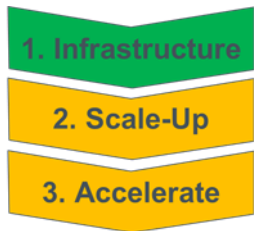
- Process re-engineering
- Tools
- Fault tolerance
- Intellectual Property admin





# Metrics & Telemetry

- Process times
- Environment reliability
- Intelligent dashboards
- Security metrics



# Remove Bottlenecks!

- Modular-ize
- Incremental-ize
- Remove dependencies
- Pipeline workflows
- Discount false failures

1. Infrastructure

2. Scale-Up

3. Accelerate

# Scale It Up !

- Virtualize build and test
- Elastic build and test resources
- Multiple DevOps setups
- Workflow optimizations

1. Infrastructure

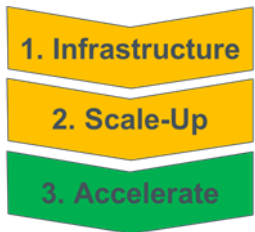
2. Scale-Up

3. Accelerate



# Organize for Speed

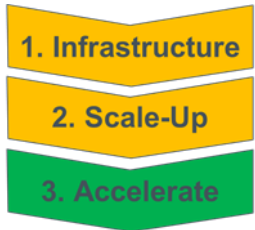
- DevOps team expansion
- QA folded into development
- Customer-focused development teams
- Fewer management layers



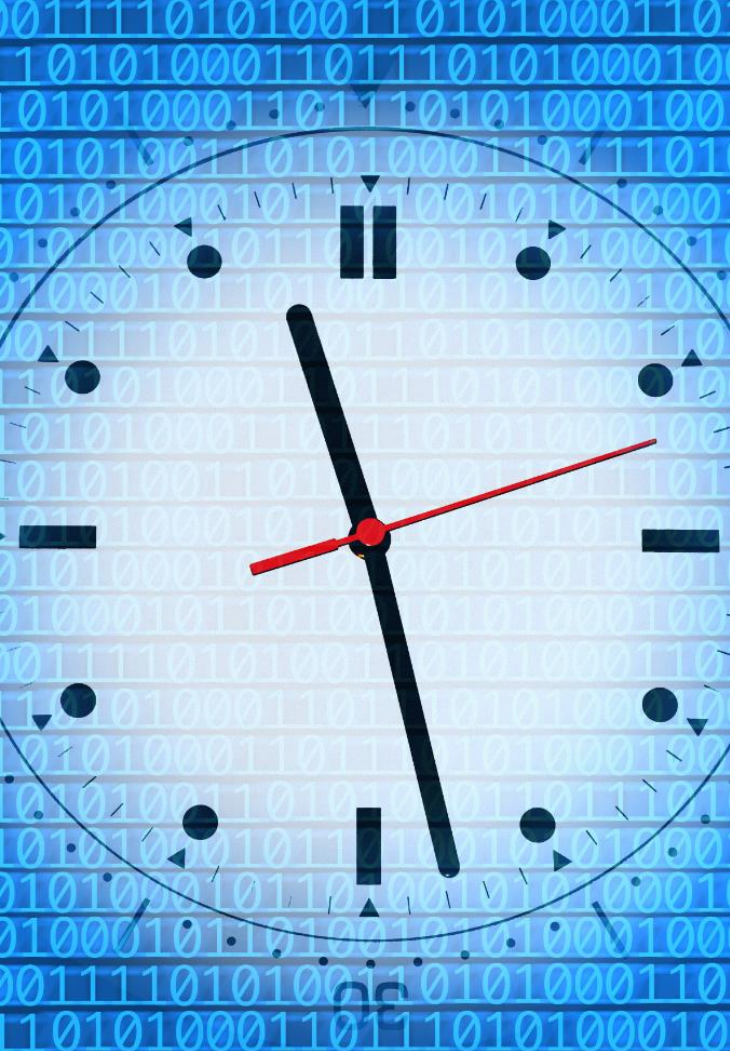
# Optimize



- Distributed version management with secure workgroups
- Target Pre-Flight for each development team
- Development owns QA/testing
- Development owns training



# Technical Results



- ✓ **Stability: 99%**
- ✓ **Speed:**
  - ✓ **One hour build / test**
  - ✓ **8 hour package**
  - ✓ **24 hour release test**
- ✓ **Security admin simplified**



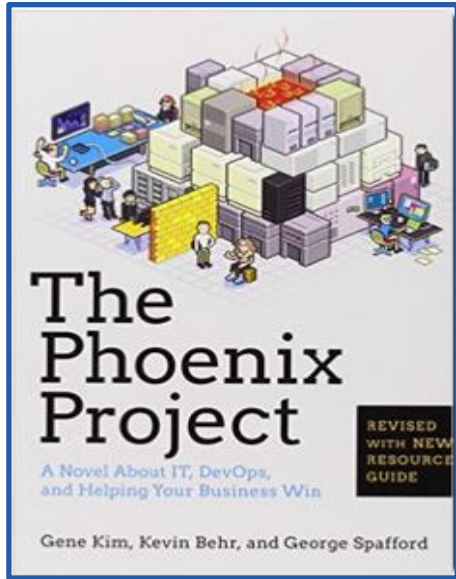
# Lessons Learned

- ✓ **Unexpected OpEx reductions**
- ✓ **Platforms stabilized faster**
- ✓ **Manage culture proactively**
- ✓ **Continuous testing challenges**
- ✓ **Best practices expertise**

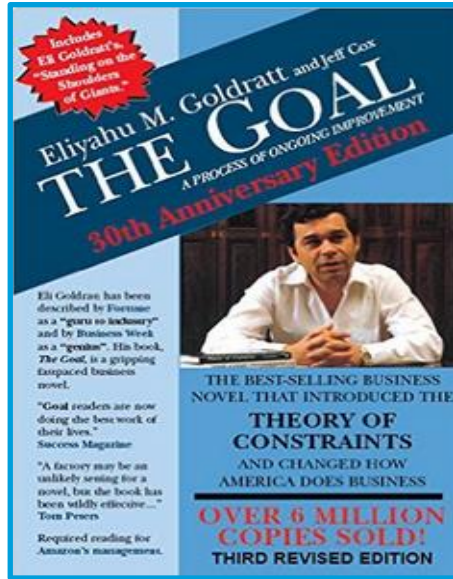


# DevOps Resource References

What is DevOps ?



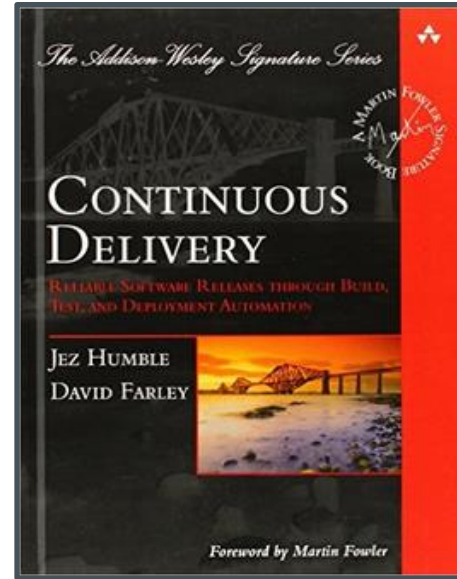
Why DevOps ?



Is DevOps Real?



How DevOps ?

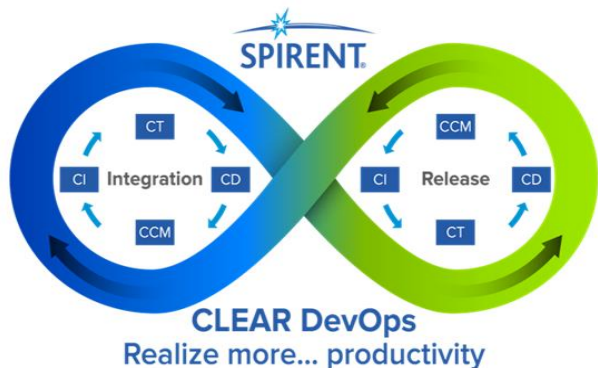


[www.DevOps.com](http://www.DevOps.com)

# Spirent Resources



## White Papers



[spirent.com/devops](http://spirent.com/devops)

## Continuous Testing eBook



[http://www.spirent.com/Assets/EB/EB\\_A-CLEAR-Perspective-on-Continuous-Testing](http://www.spirent.com/Assets/EB/EB_A-CLEAR-Perspective-on-Continuous-Testing)

## Assessment Tool

The screenshot shows the 'CLEAR DevOps Best Practices Assessment Tool' interface. It features the same infinity symbol diagram as the White Papers section. On the right side, there is a vertical menu with the following options: 'New Assessment', 'Load Assessment', 'Instructions', and 'Exit'. The SPIRENT logo is in the top right corner. At the bottom left, it says 'Contact Us' and at the bottom right, 'Rev. 3'.

Email:  
[marc.hornbeek@spirent.com](mailto:marc.hornbeek@spirent.com)

# Summary

- DevOps is real, happening now, and it works
- Best practices are critical
  - Culture
  - Technology
  - Process
- Learn from others!
  - ☒ “Not Invented Here”
  - ☒ “Do-it-yourself”



# Final Thought - the future of DevOps?

## Yesterday



## Today



## Tomorrow ?



Hopefully not  
“Cybermen”  
continuous  
“upgrades”





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<https://www.linkedin.com/in/marchornbeek>

# Thank you

[spirent.com](http://spirent.com)