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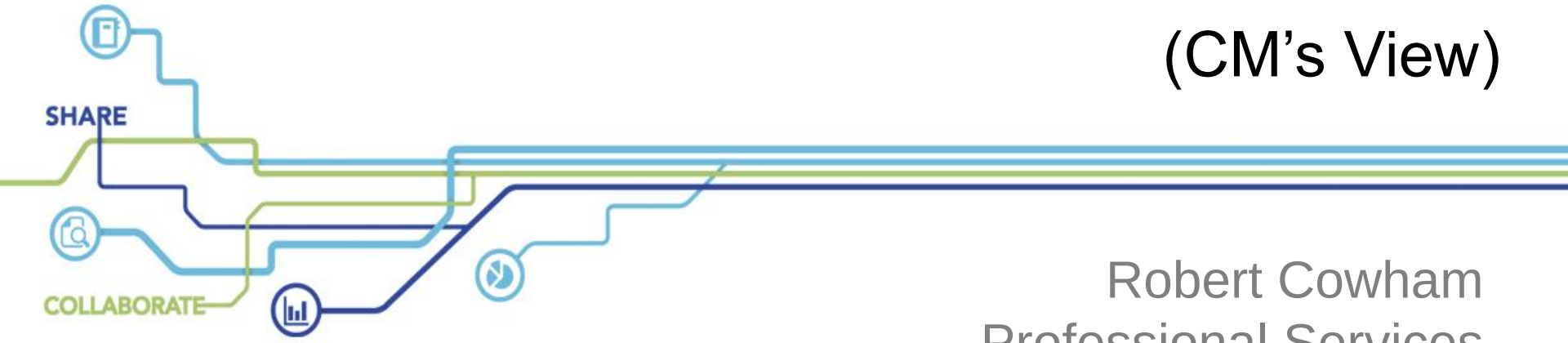
The Real CD

Continuous Delivery Success

(CM's View)



Robert Cowham
Professional Services
Perforce Software

BCS CMSG Vice Chair

Agenda

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- What is Continuous Delivery?
  - Management View vs Reality!
- Key metrics
- Key challenges
  - CM challenges
- Case studies

Continuous Delivery - Background

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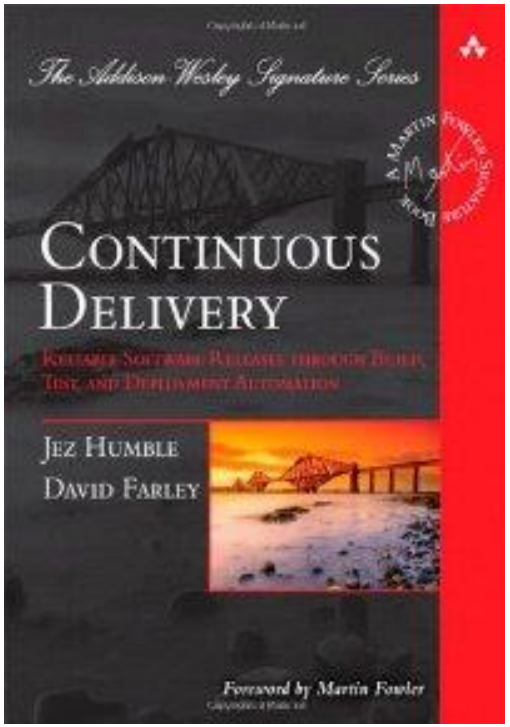
- Continuous Delivery ("The Book") was published in 2011 by Jez Humble and David Farley
  - It builds on pre-existing practices and methods
- Agile manifesto
  - Our highest priority is to satisfy the customer through early and **continuous delivery** of valuable software



- So – how many of your organisations are doing Continuous Delivery?

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Industry Perspective

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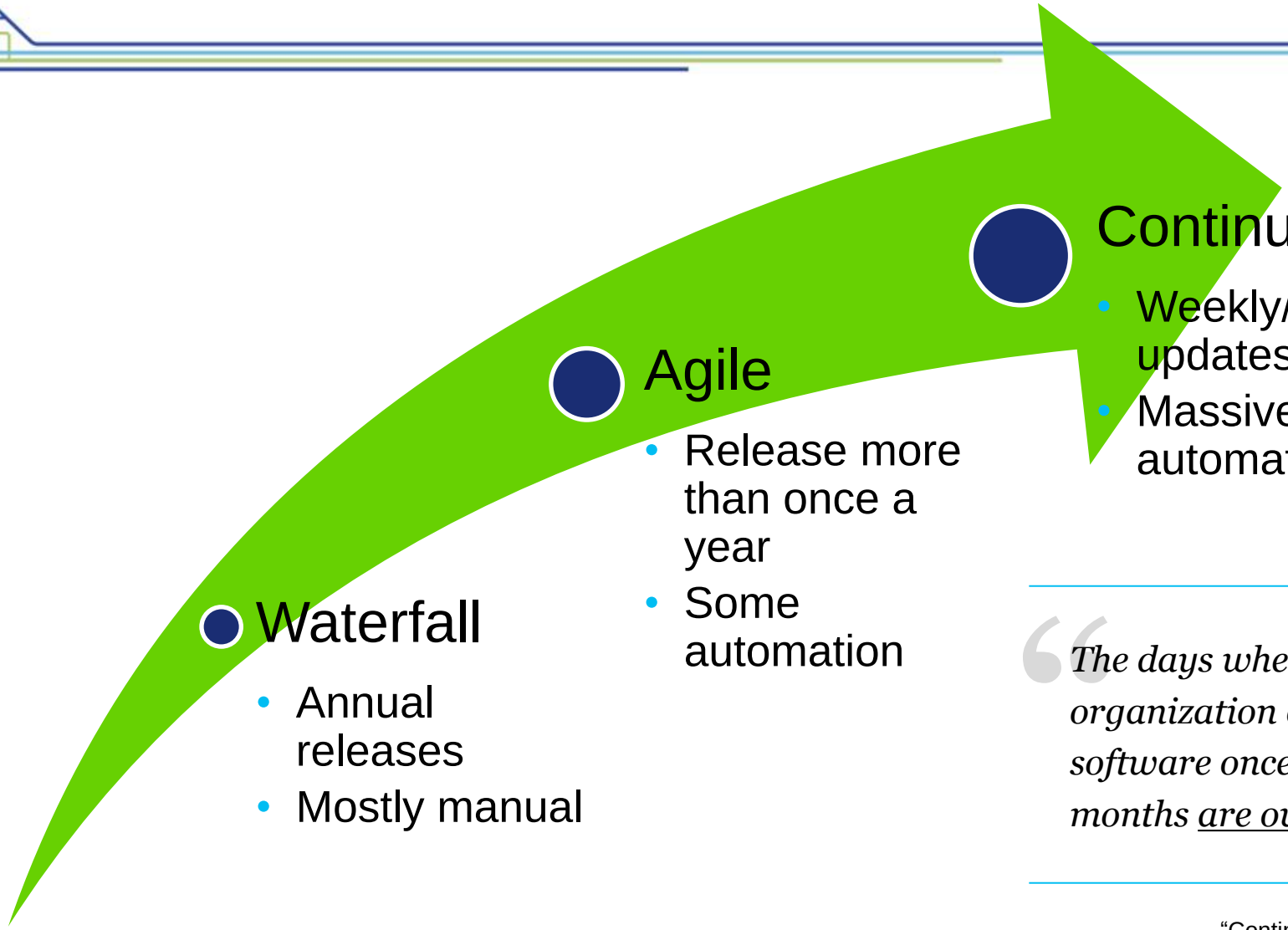

> *The days when a successful organization could release software once every 12 to 18 months are over.*

"Continuous Delivery is Reshaping the Future of ALM,"
Kurt Bittner, Forrester, July 2013

It's Not Just for SaaS Anymore

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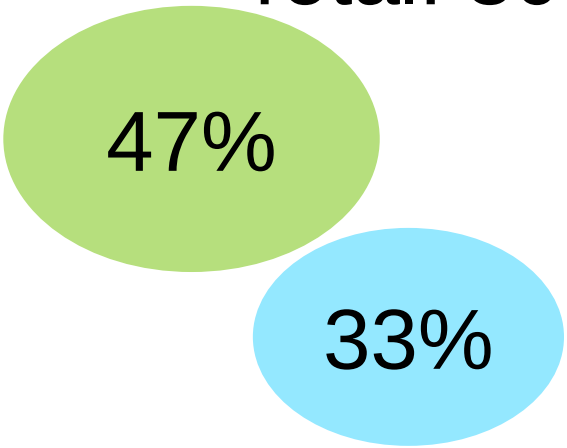
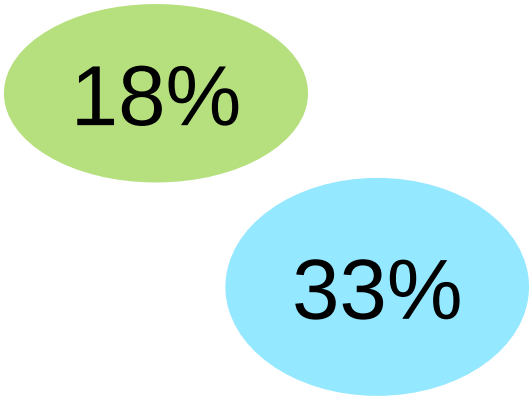
SaaS Companies

Total: 80%



Non-SaaS Companies

Total: 51%



All Projects

At Least Some Projects

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Source: Evans Data research 2013

Keeping up with the Joneses

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Reality
(All companies)

28%

All Projects

Vs.

Perception
(Competitors)

46%

think their competitors have fully embraced Continuous Delivery

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Source: Evans Data research 2013

Agile vs Continuous Delivery

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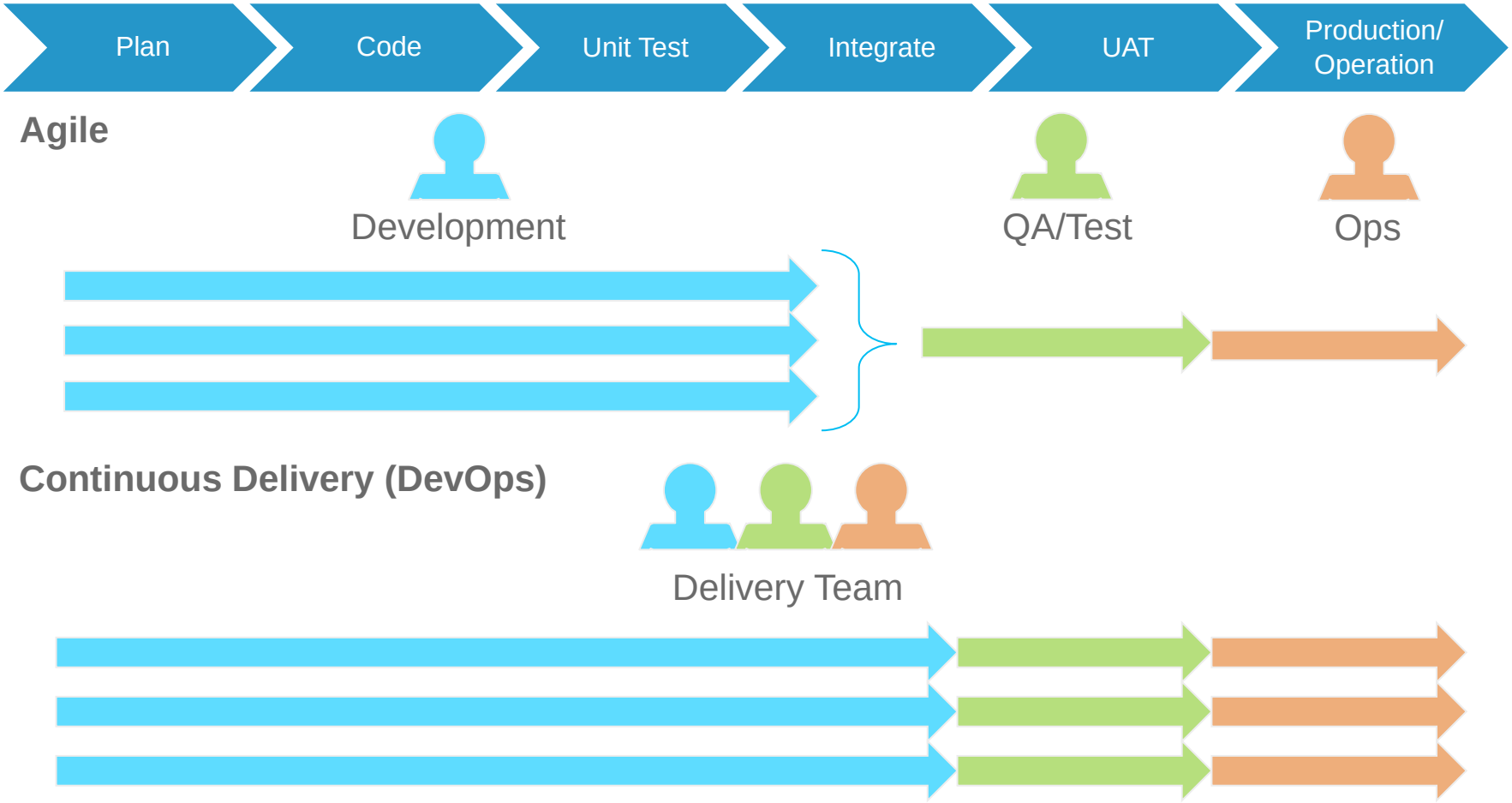
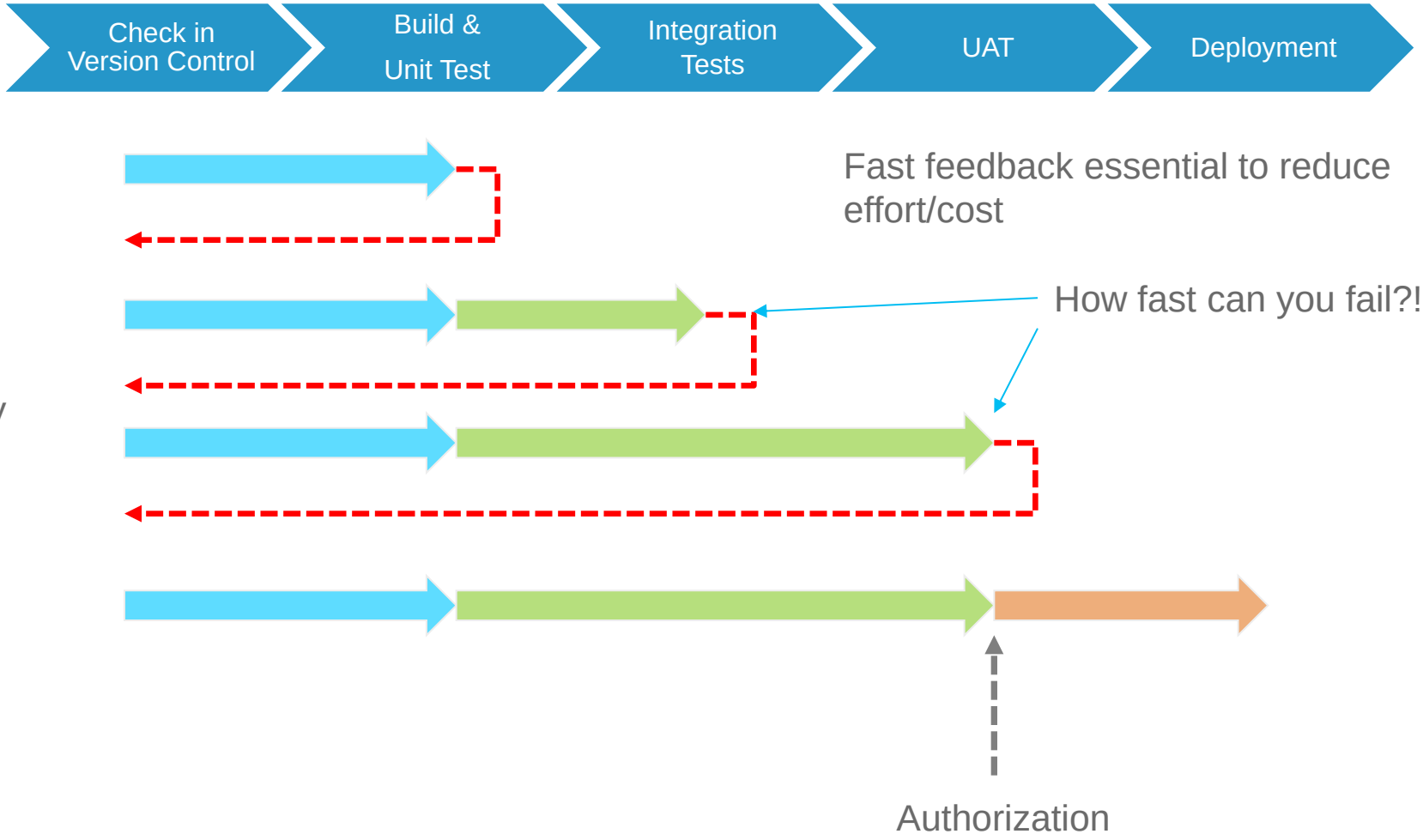


Key metric – cycle time

- How long would it take your organization to deploy a change that involved a single line of code?
- Do you do this on a repeatable, reliable basis?

Mary and Tom Poppendieck, *Implementing Lean Software Development (2006)*

Maximize flow/improve feedback



CD Challenges

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- Automation
  - Build & Unit test (isn't everyone doing this already?!)
  - Integration/Acceptance Tests
  - Other tests (performance/capacity)
  - Deployment
- Legacy technologies/code bases
  - Architecture
- Environments
- Anything else?!

What do we control/version?

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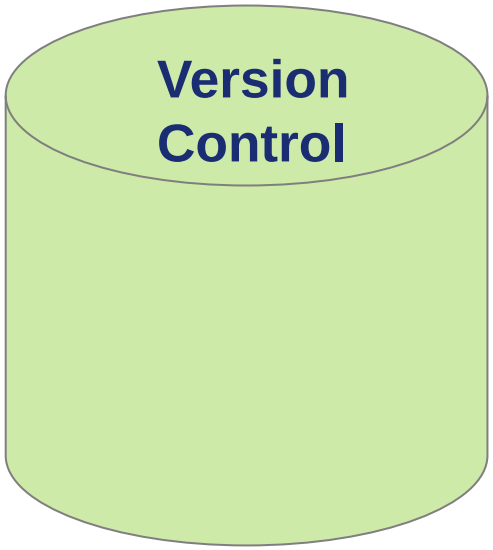
- Source code
- Build scripts
- Test scripts
- Environment configuration information
- Deployment tools
- Built executables?
- Other binaries/assets?
- Other configuration data?

How do we control it?

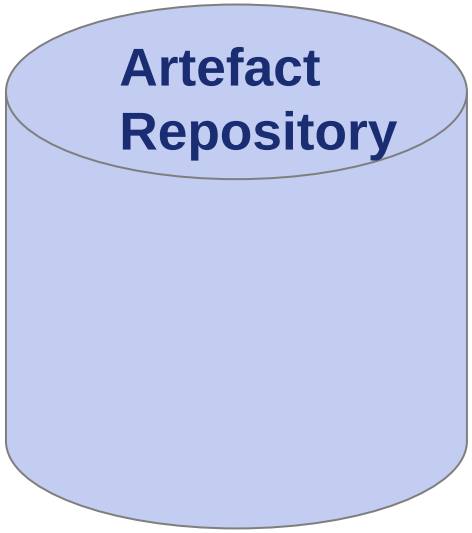


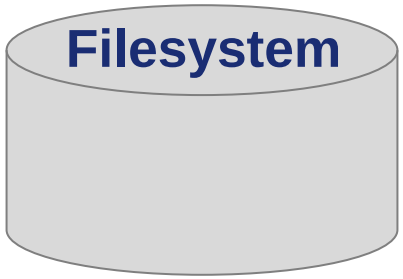
Source

Configuration

Binaries

Tools





Where do we control it?

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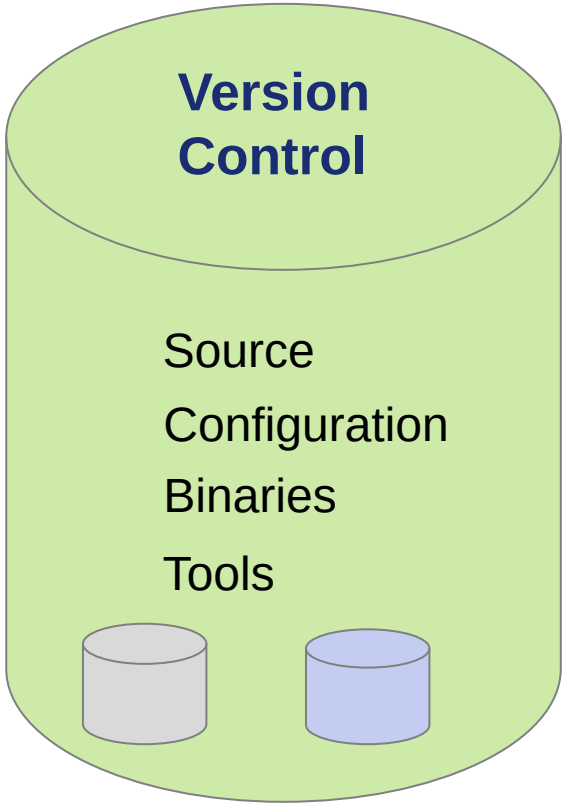
- How to ensure traceability?
- How to provide audit trails?
- How to manage access controls?
- How many admins, processes, tools, …?



CD: the aggregation of marginal gains

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- Sir Dave Brailsford (Team GB Cycling Performance Director):
  - “If you broke down everything you could think of that goes into riding a bike, and then improved it by 1%, you will get a significant increase when you put them all together”
- Big things – training and conditioning
- Little things
  - Sleeping in the right position
  - Having the same pillow when you are away
  - Washing your hands properly

- Advantage over the French: “our wheels are round!”

(Marginal) Gains

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- Automation
- Reporting/Communicating Status/progress
  - Information radiators
  - Name and shame…
- Testing
  - Smoke tests
  - Test in parallel
- Deployment environments
  - Infrastructure as Code (DevOps)
  - Virtualisation technologies
- Database versioning

Case study – deployment scripts

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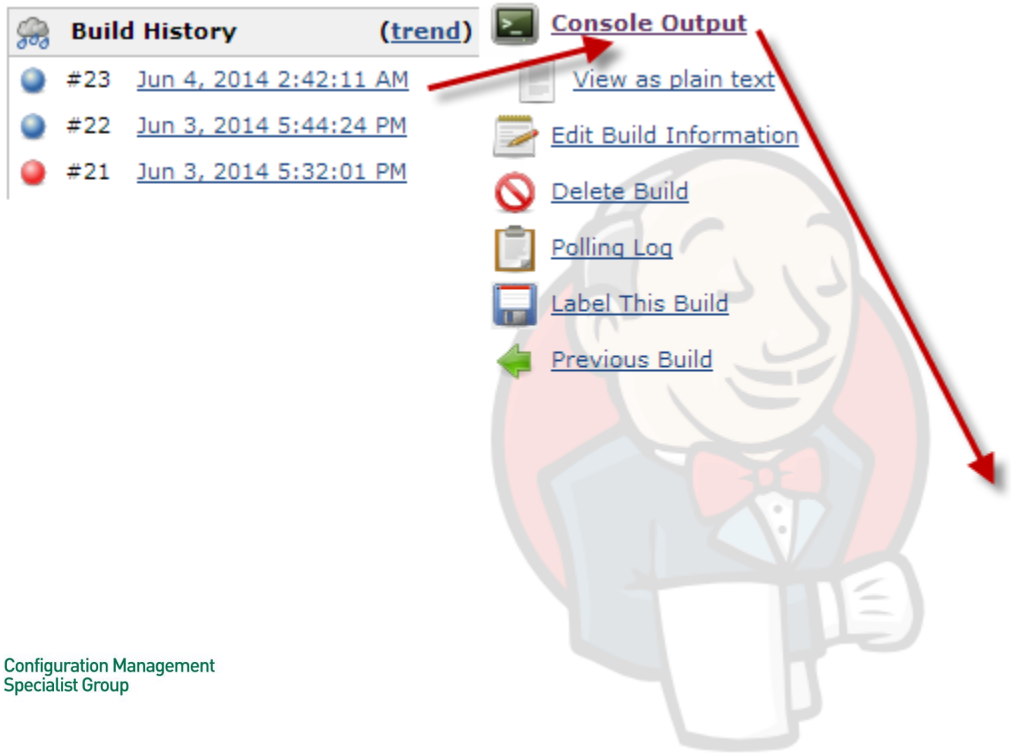
- SDP (Server Deployment Package)
- Supports Multiple platforms:
  - Windows (.bat files)
  - Unix (bash)
    - Linux (CentOS/Redhat, Ubuntu/Debian, etc…), Solaris
  - Some python/perl

- Challenges
  - “It’s just scripts…!”
  - Different functionality on different platforms
  - Manual testing
  - Manual deployment

Case study – solution

- Phase 1
  - Test harness (Python)
  - Virtual machines (Vagrant) – Windows now supported too!
  - Cross platform installer (Python)




```
Building in workspace /var/lib/jenkir
SCM Task: cleanup workspace: jenkins-
... [list] = revert //...
... rm [list] | ABANDONED
... [list] = reconcile -n -a //...
... rm [list]
... [list] = reconcile -n //...
SCM Task: syncing files at change: 87
... sync //...@872000
[workspace] $ /bin/sh -xe /tmp/hudson
+ bash -ex run_tests.sh
+ echo Running SDP tests
Running SDP tests
+ vagrant up
+ vagrant ssh usdpmaster -c 'sudo -u
+ vagrant ssh usdpmaster -c 'sudo -H
+ vagrant ssh usdpmaster -c 'cp /tmp/
+ cat ./sdp/test.out
Wed Jun  4 01:42:25 UTC 2014
Starting /p4/1/bin/p4d_1: Perforce db
Rotating /p4/1/logs/journal to /p4/1/
.
----------------------------------------
Ran 1 test in 2.973s

OK
Finished: SUCCESS
```

Case Study – Financial Institution

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- 10 year old application (started life as spreadsheets)
- Successful - but now has >100 people involved!
- .Net and SQL Server
- 8 week cycle time minimum
- Automated build

- Issues
  - Few automated tests
  - Lots of manual process steps
  - "**Everything would be better if** *Developers / testers / CM team* **just followed the process**"

(*delete one!)

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Improvement activities

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- People/team education/integration
- Test environments
  - Production vs “lite” database
  - Shared environments
  - Use same process for development/test/production deployment
- Automation
  - Expand test harnesses
  - Trial deployments – make it easy for developers to test
  - Merging

Version Everything – CCP Games

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- Version absolutely *everything*
  - Config data, tools, art assets…
  - Instant workstation configuration
- Make it easy for people to use

{ Versioning is the nerve center of the organization }

System of Record – NYSE

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- 14,000 servers, 6,600 production relea per year, 198+ active projects, only 6 people
- Build artifacts stored in SCM Repository
- SEC Audited
  - “the paradigm for maintaining production distribution and production auditing is so parallel to what you're trying to do in development”

Continuous Delivery in Real Life…

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A physical demonstration!

Best Habits for Success

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1. It's a whole team responsibility
   - CM needs to work with other teams
2. Think beyond the code - Version *everything*
3. Automate, Automate, Automate
4. Track every change
5. Put it all in one place

Questions?!

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