



accelerate  
your ambition

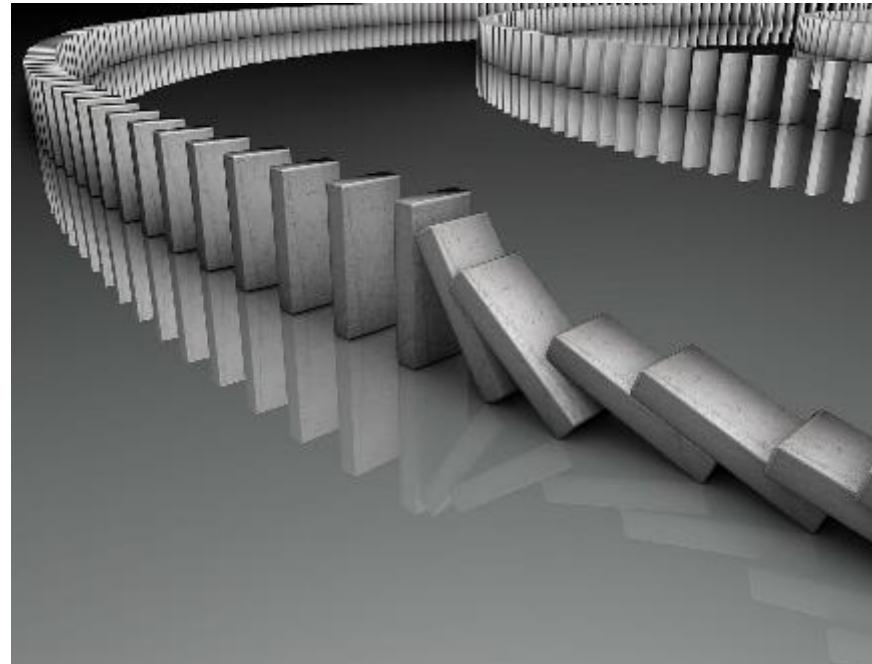
*Gráinne Coghlan, Principal Software Architect*

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# How We Build Software

March 1, 2017

## Domino chain of questions ...



How? ... What? ... Who? ... Why? ... When? ... Where?

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# Agenda



- My Background
- Dimension Data: the company
- Dimension Data: the software
- How We Build Software: the philosophy, the practices, the pain!
- Q&A

## Background



- 1997 •  : C++, CORBA, Installed Software
- 2002 •  : Java, EJB, SOAP, Installed Software
- 2007 •  LeCayla (OpSource): Java, Web Services, Software-as-a-Service
- 2012 •  OpSource (Dimension Data): Java, Web Services, REST, Cloud Platform
- 2017 •  : Java, REST, Global Cloud Platform

# Who we are

---



Wholly-owned  
*subsidiary of*  
NTT Group



Offices in 49 *countries* and a  
network of  
Preferred Partners in  
100+ countries



FY16 turnover of  
USD 7.4bn



Clients across all industry  
sectors including 70% of  
*Fortune 100* and nearly 60%  
of *Fortune 500*



Official Technology  
Partner of  
A.S.O., *organiser of*  
*The Tour de France*



Title partner of  
*Team Dimension Data*  
for Qhubeka



Global Top Employer  
of 30,000 employees



*Strategic partners:*  
Cisco, DellEMC, VMware,  
NetApp, Microsoft, Intel, and  
SAP

# What we do

Deployment model



Services



## Consulting services

We help you visualize your digital future, and translate your business needs and desired outcomes into IT strategy and architecture plans



## Technical and Support services

We help you design, implement, support and optimize your infrastructure, improve operations and reduce costs



## Managed services

We take over your day-to-day operations to enhance your IT and business functions, and enable IT agility and scalability through Dimension Data platforms

Technology towers



Network as the platform



CX & collaboration



End-user computing



Next-generation data centre



Digital



Security

Working with you to provide the service you need to complement your team



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We orchestrate the best  
technology from our  
***partners***  
*to meet our clients needs*

Alcatel-Lucent  
Enterprise

**aruba**  
NETWORKS

**AVAYA**

**BLUE COAT**

  
**Check Point**  
SOFTWARE TECHNOLOGIES LTD.

  
**CISCO**

  
**CITRIX**

**Deloitte.**

**DELL EMC**

  
**FireEye**

**FORTINET**



  
**Genesys**

  
**Hewlett Packard  
Enterprise**

  
**iMPERVA**

  
**intel**

  
**JUNIPER  
NETWORKS**

  
**Polycom**

  
**riverbed**

  
**SAP**

  
**Microsoft**

  
**NetApp**

  
**vmware**

  
**ORACLE**

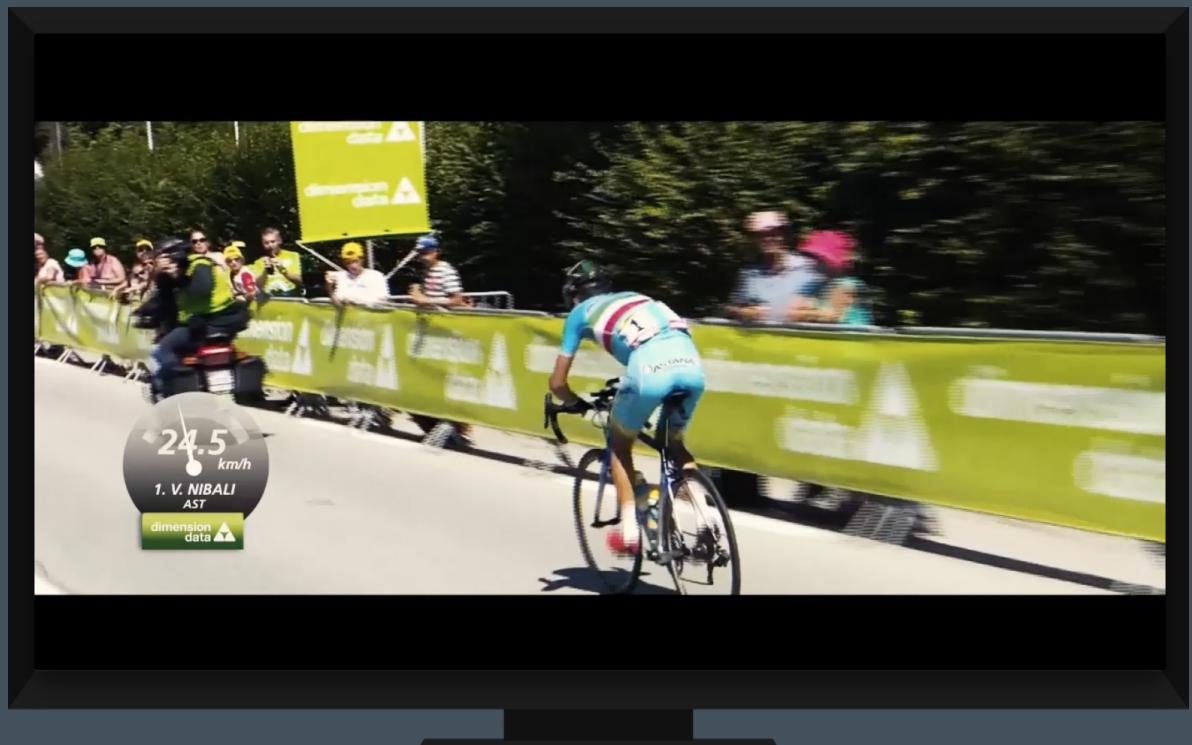
  
**Infoblox**

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OFFICIAL TECHNOLOGY PARTNER

Live speed data  
on television for the  
**first time**  
in cycling history

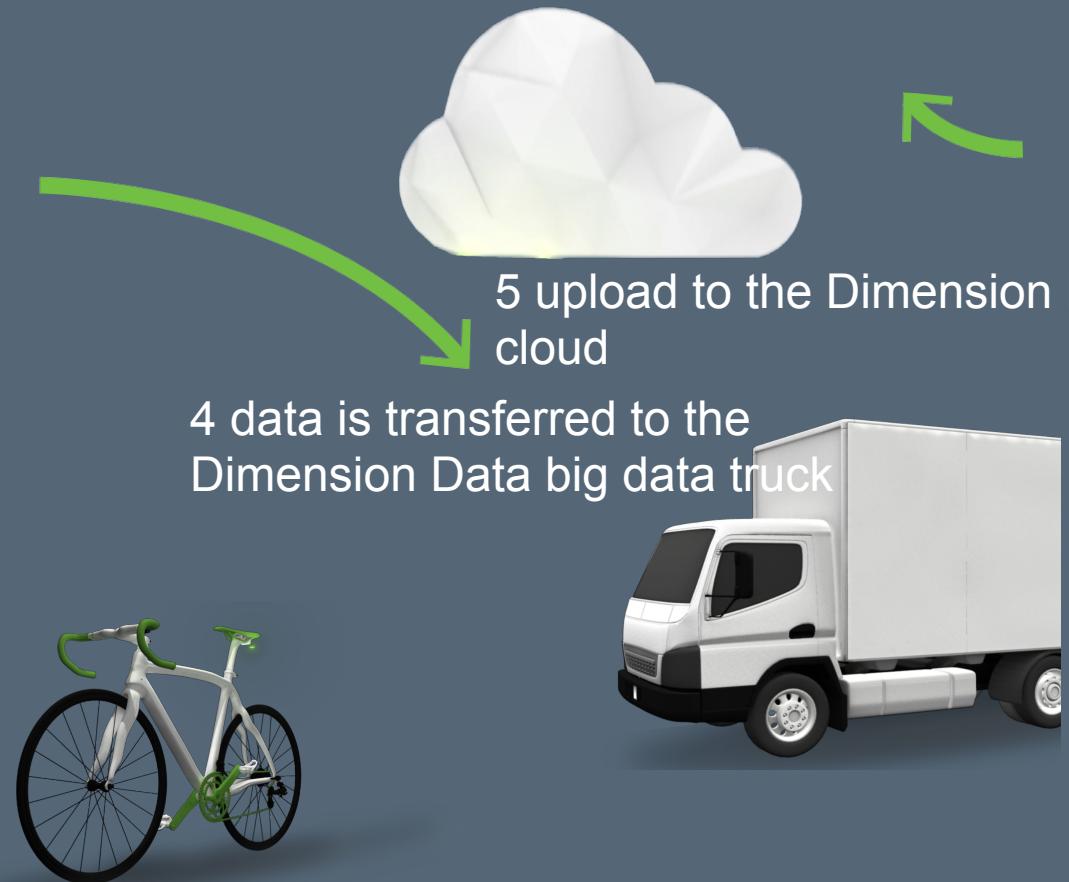




3 data is streamed to aircraft



2 trackers and vehicles  
create a mesh network.



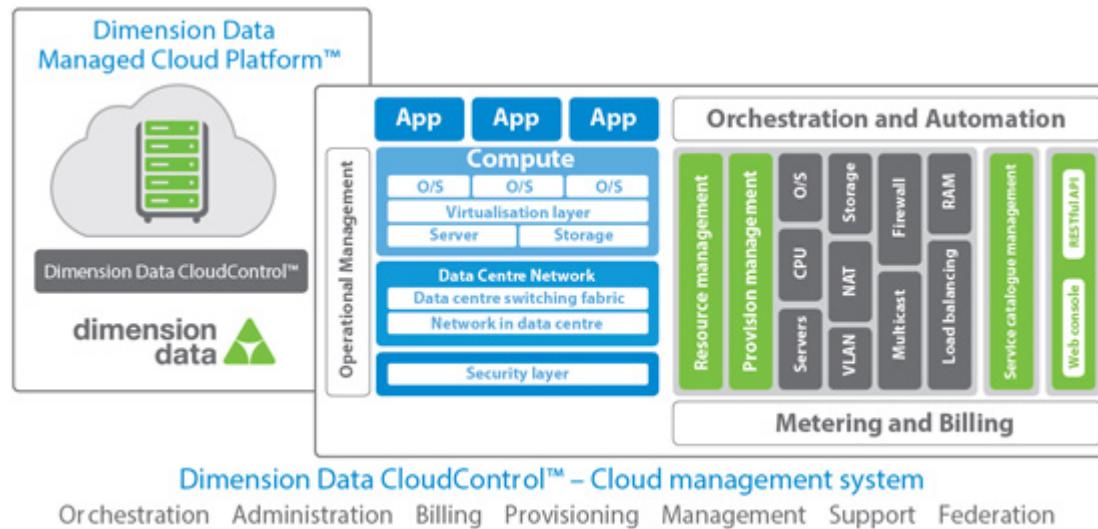
4 data is transferred to the  
Dimension Data big data truck



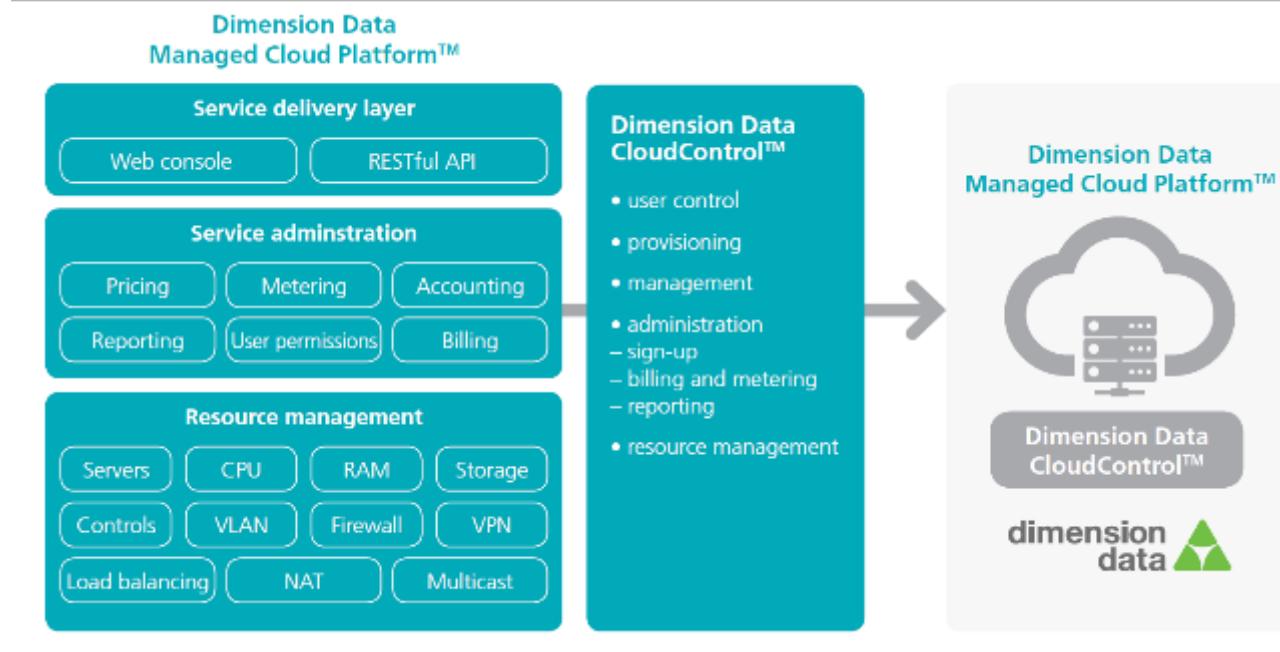
5 upload to the Dimension Data  
cloud

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# Dimension Data Managed Cloud Platform (MCP)



# Dimension Data CloudControl



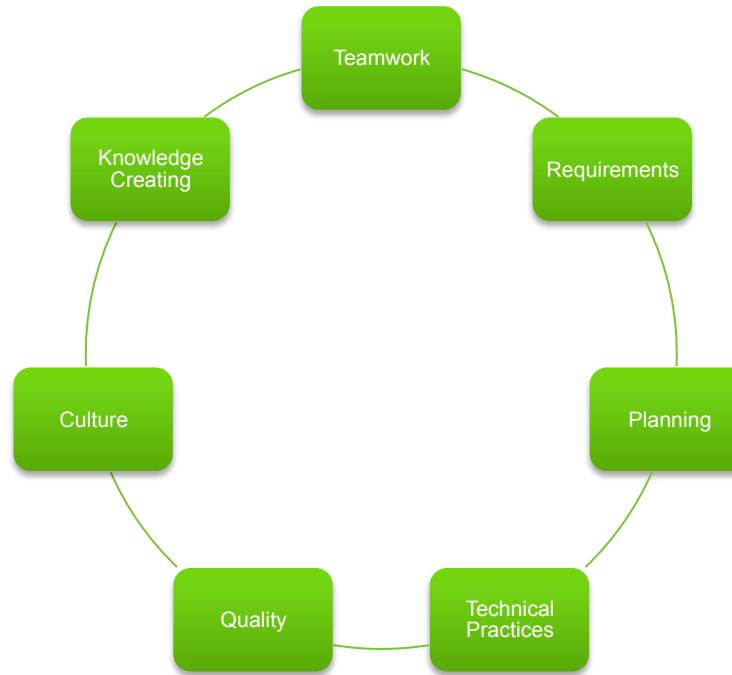
# Agile Software Development - Philosophy



*“Individuals and interactions over processes and tools  
Working software over comprehensive documentation  
Customer collaboration over contract negotiation  
Responding to change over following a plan”*

From Manifesto for Agile Software Development, [agilemanifesto.org](http://agilemanifesto.org)

# Agile Software Development - Philosophy



Agile dimensions from [comparativeagility.com](http://comparativeagility.com)

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## Agile Software Development - Philosophy

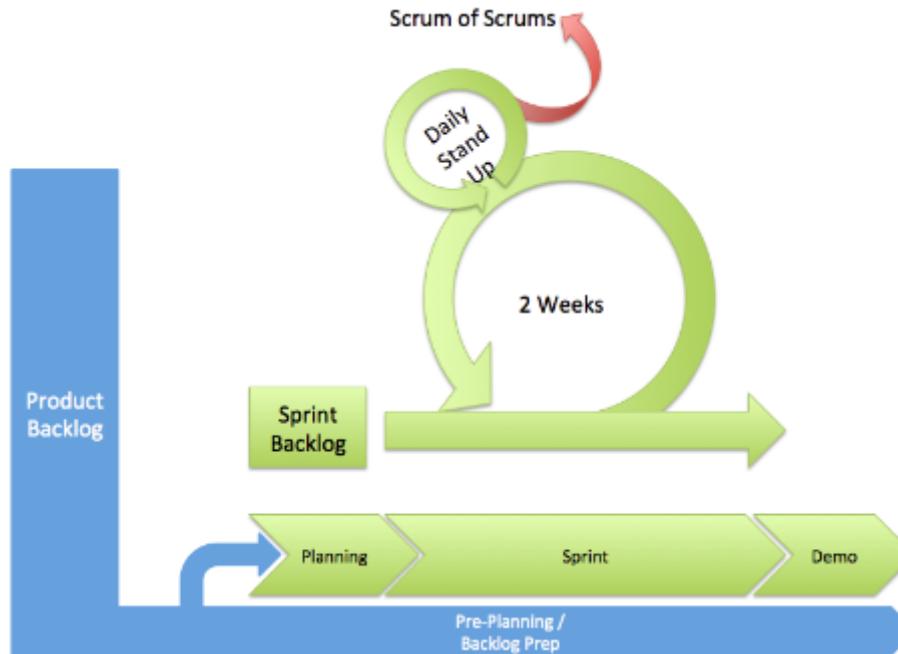


“Is agile a remedy for failing software projects? [...] No. [...]. One thing that agile development can give you is to make sure those projects fail faster, sooner, cheaper, so you can get on with the next thing.”

Kent Beck, (Interview, 2005)

(creator of the Extreme Programming and Test Driven Development software development methodologies)

# Agile Software Development - Practicalities



## Technology and Tools



Apache  
Tomcat



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## Technology and Tools



**Maven™**



**Jenkins**

**JUnit**

 **NexusOSS**  
Sonatype

## Technology and Tools



 **Confluence**

 **slack**

 **JIRA Software**

 **Bitbucket**

 **Crucible**



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# Making changes to live systems



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# Production Headaches: Database Schema Drift



Can't create table '.\db  
\#sql-a24\_50.frm' (errno: 150)

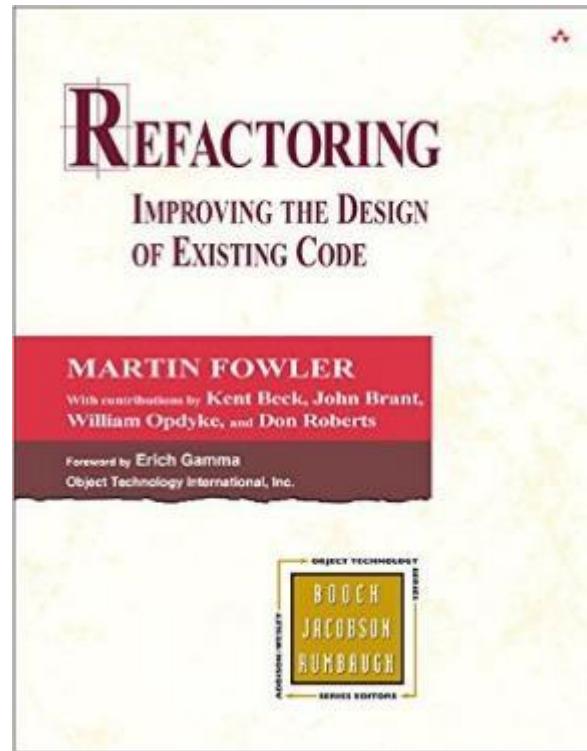
LIQUI<sup>DB</sup>ASE

# Refactoring



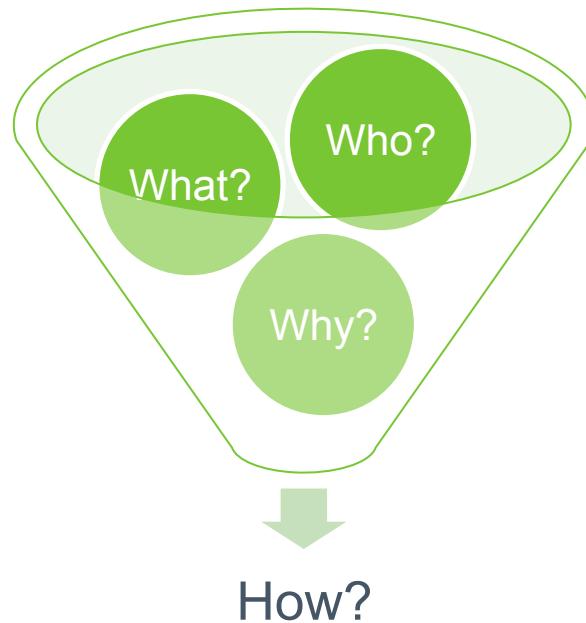
“Any fool can write code that a computer can understand. Good programmers write code that humans can understand”

Martin Fowler, Refactoring, 1999



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# How We Build Software



**Questions?**



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