



Sheer Deploying Pleasure

Shifting gear towards Agile delivery of mobility services

Patrick Verpaalen, Start-up Manager
Rens Vooft, IT Lead



Sheer Deploying Pleasure Agenda



1 About Alphabet

2 New horizons

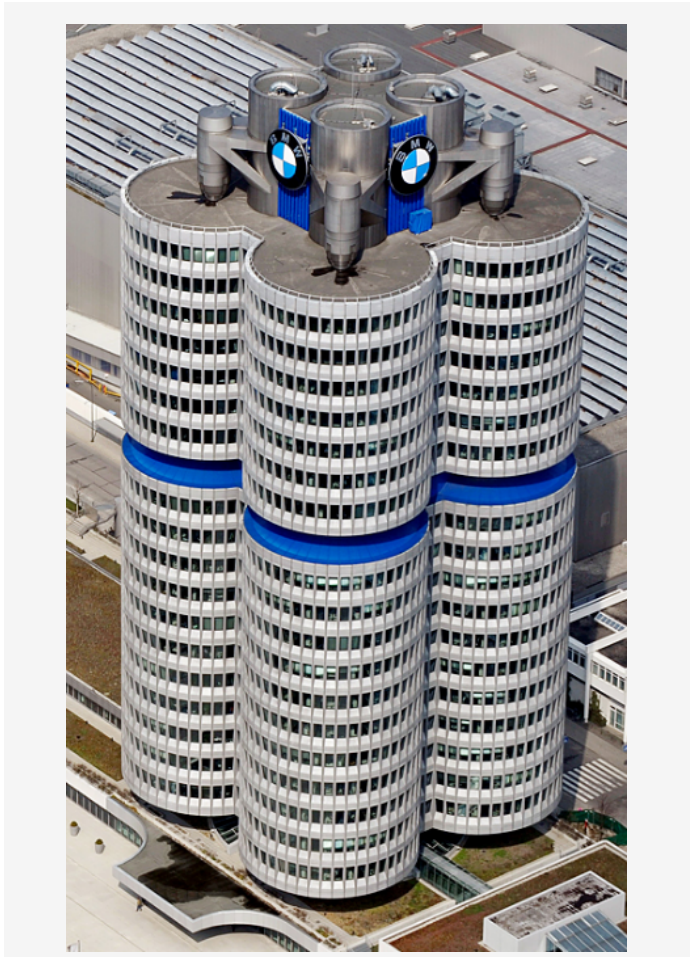
3 The road to Agility

4 New technology

5 Questions

Alphabet is BMW Group's Business Mobility branch since 1997

It is part of the Financial Services Segment



**BMW
GROUP**

Financial Services



Future-proof solutions for changing Operating Lease needs



Car financing & Fleet management



CarSharing / Car-on-demand
AlphaCity
Corporate CarSharing

AlphaCity
AlphaRent



eMobility

AlphaElectric

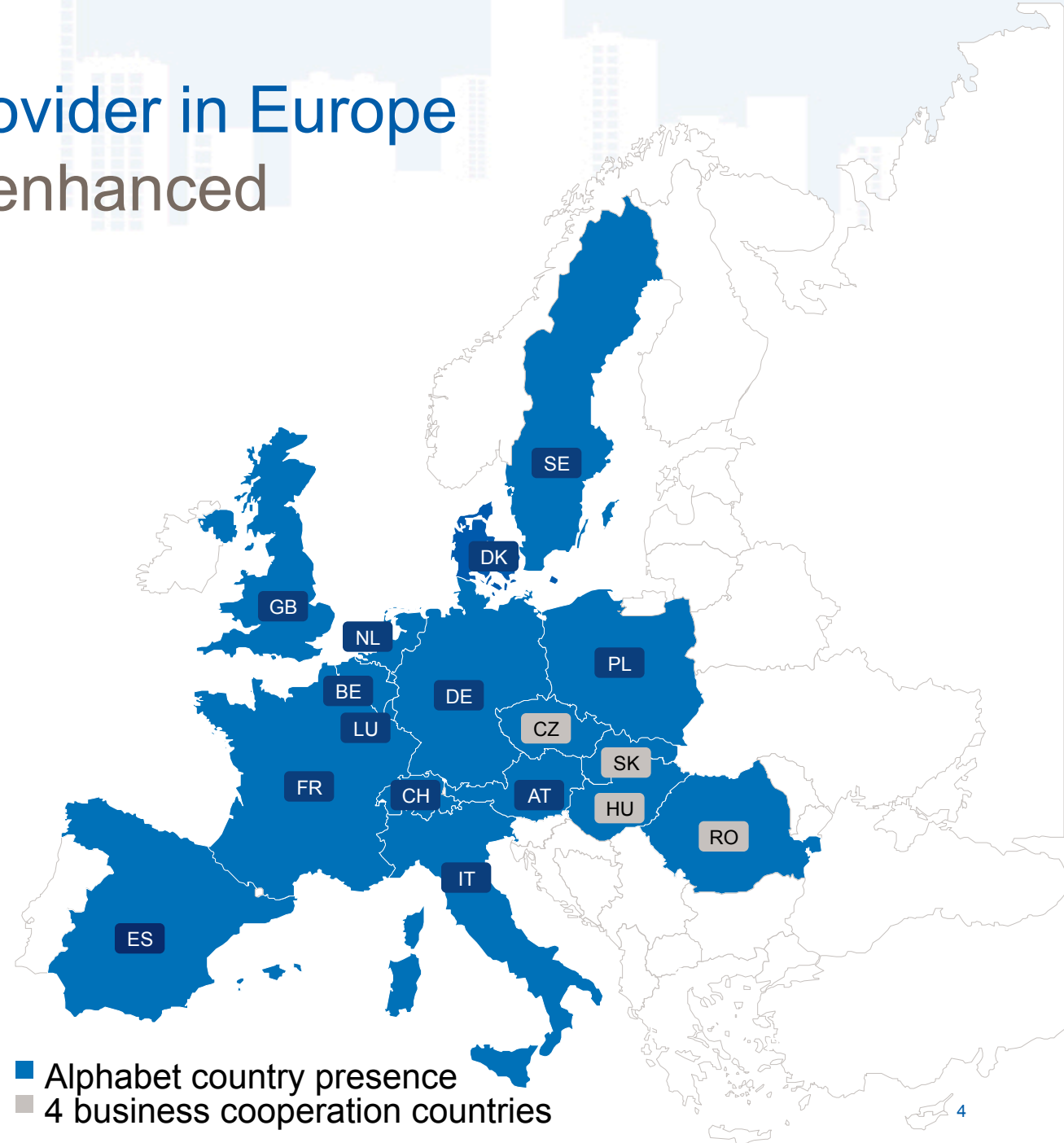
Alphabet is the No. 4 leasing provider in Europe

Global footprint is continuously enhanced

We serve 80,000 customers in 17 European countries, Australia and China with a team of 2,650 people.

We hold top 4 positions in 7 European countries.

We provide customised services, innovative solutions and manage multi-make fleets consisting of passenger cars and light commercial vehicles.

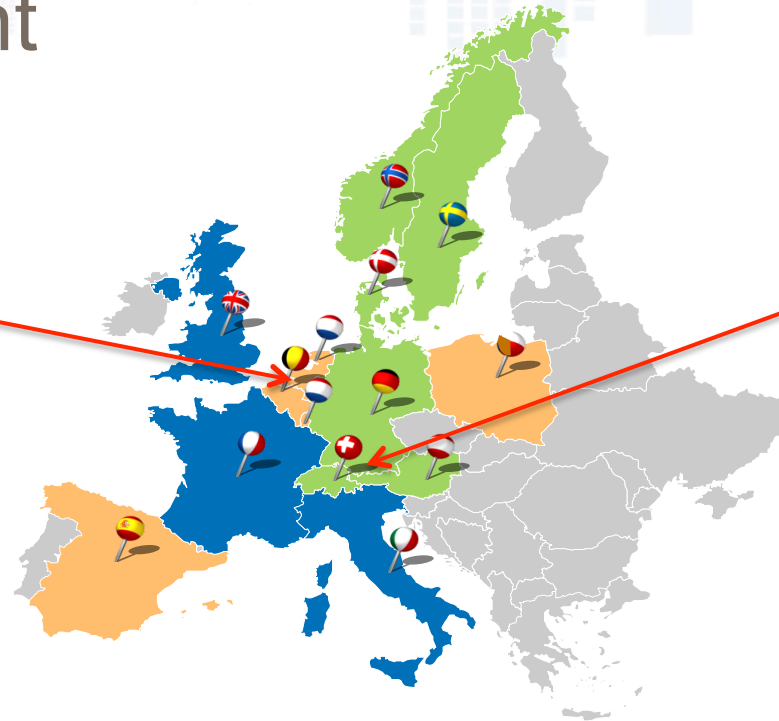


One Alphabet IT with two hubs: Breda and Munich

Looking for new talent



- Breda Office, Netherlands**
- 97 employees
 - Internal Development Hub
 - Dev and Ops together



- Munich Office, Germany**
- 69 employees
 - Group IT Network
 - Services & Steering

Solution Delivery incl. Application Operations

166 employees

> 56 active projects

> 170 applications

Inhouse Development

CI/CD & DevOps

Microservices Platform

Sheer Deploying Pleasure Agenda

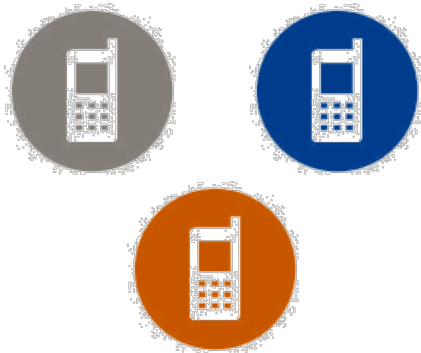


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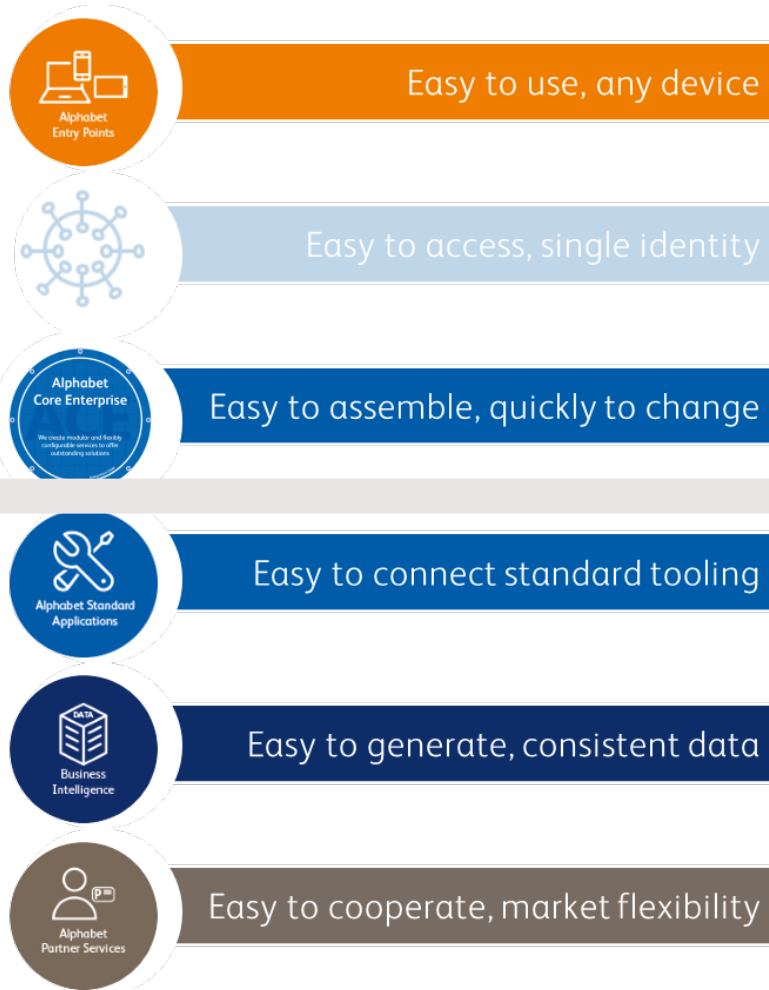
A new international platform, built for change

Investing in the future

Heterogeneous products, processes and monolithic systems with a defined set of functionalities



Comparable to a feature phone



We break down our business in **consistent, modular and flexible** configurable business services.



Comparable to a smart phone

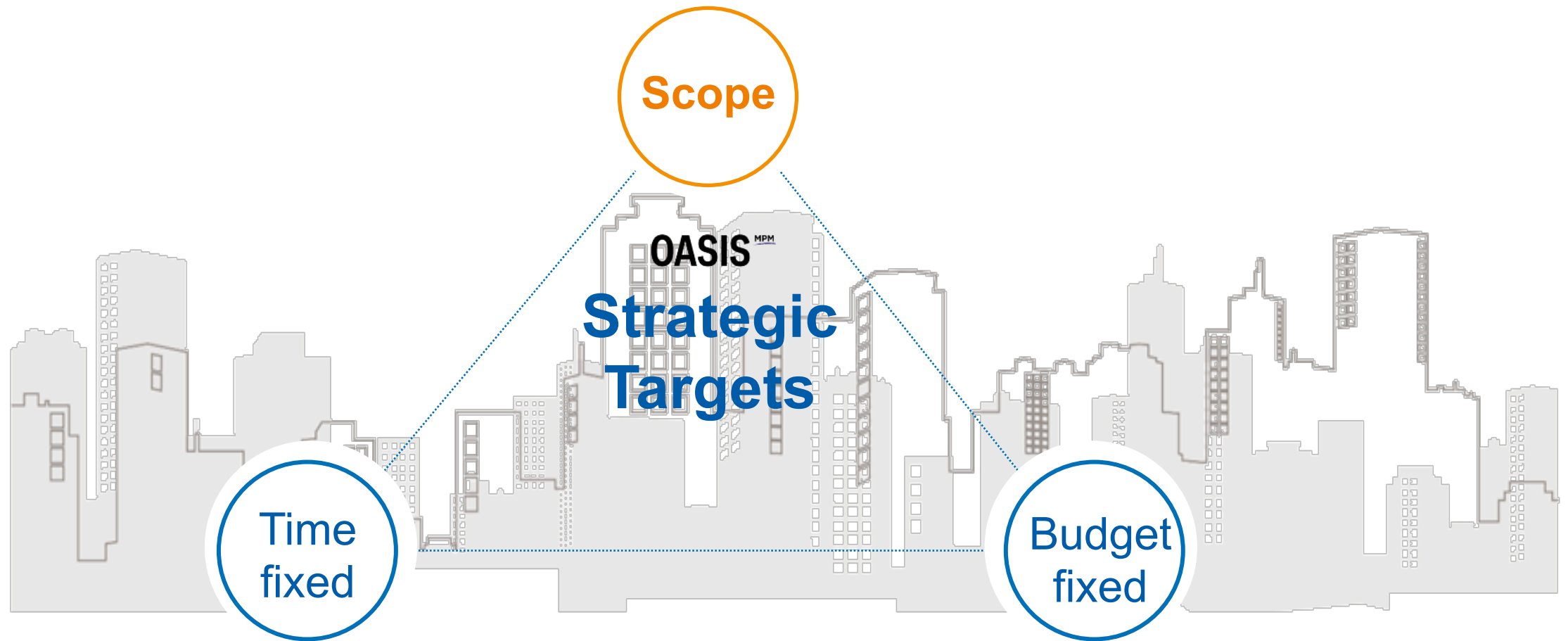
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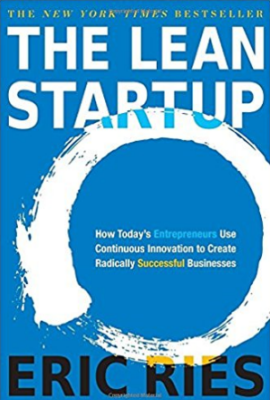
Our Challenge: Deliver in fixed time & budget frame

Our Answer: Transformation to 100% Agile



Why Agile

Embracing Change and Uncertainty

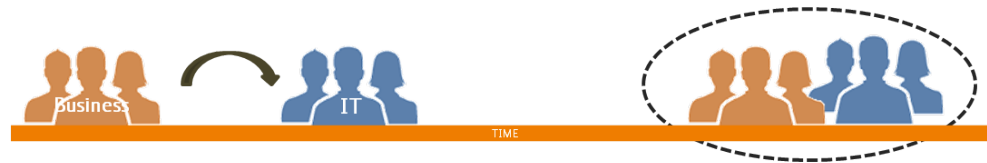


Known project issues

How Agile can help

Our Agile approach

Strong **separation** of Business and IT



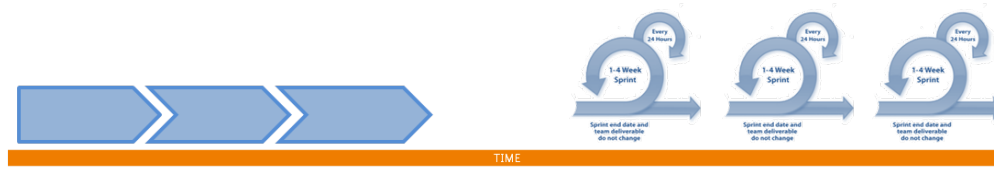
Bring **business and IT** closely together

Create everything at one moment in time, try to foresee all future changes, in **one big block**



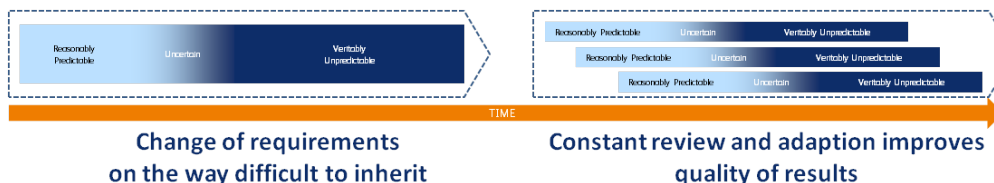
Create **smaller chunks** of the total solution to deliver **quickly visible results**

Create the results sequentially, apply **proved approaches**, failures are later expensive



Learn on the way by short term sprints and retrospective on process and results

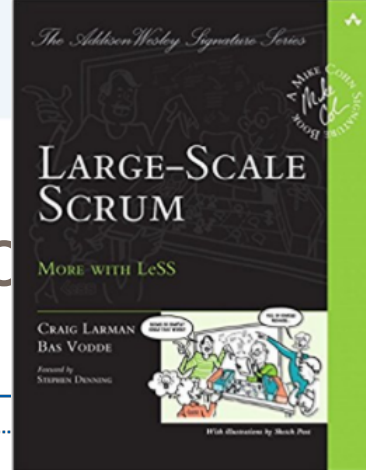
Ensure alignments by **big all-deciding reviews**



Ensure **constant touch points between stakeholders** to ensure quality deliverables, early

We have adopted Large Scale Scrum

Using LeSS Framework: Autonomy, Mastery and Purpose



Key principles

Deliver one common product

Decrease number of handovers

Reduce steering to a minimum

Reduce barriers

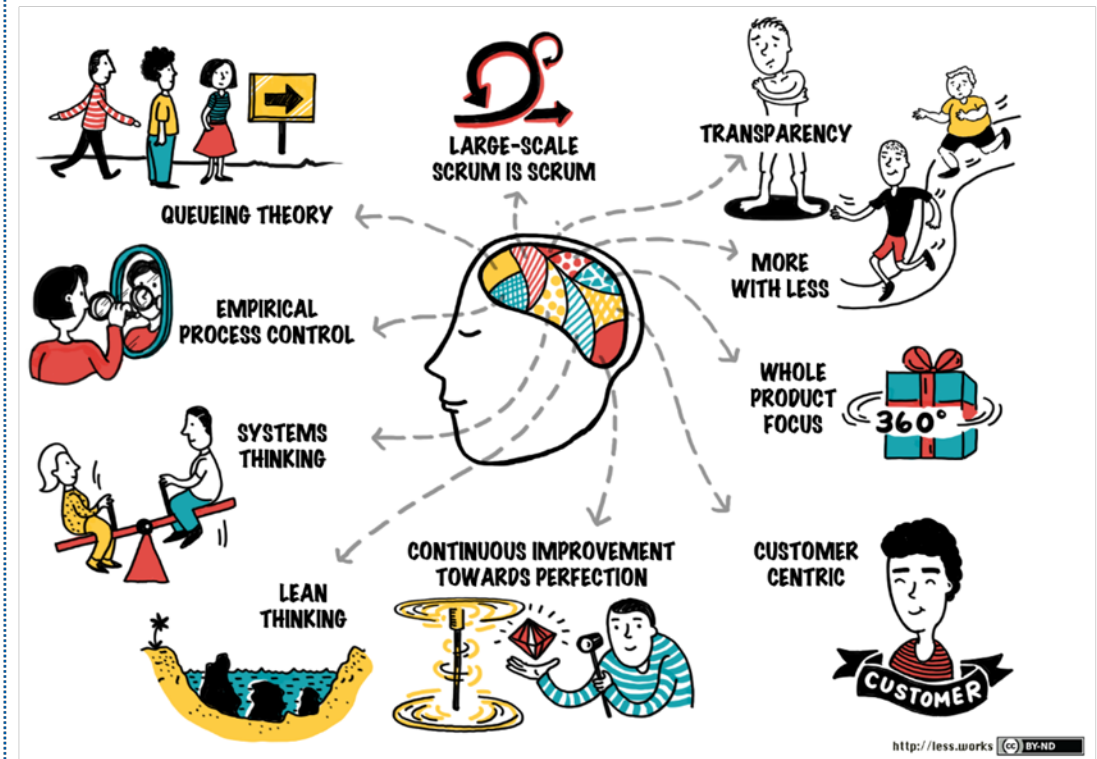
One Scope Management

Strive for simplicity & easiness

Ensure velocity

Centralised planning

LeSS Principles



Current program setup

Line following in 2018

Start 2015

100% SDM / Waterfall
Three releases per year
Oracle PL/SQL
A handful of monolithic systems
Fixed desks
Outsourced



Target 2020

100% Agile
Multiple releases per day
Java / JavaScript
A swarm of microservices
Flex desks
In-house

Development vs Operations
Traditional infrastructure

- One Program Backlog
- Four Area Product Owners
- Five feature teams, one enabling team
- All knowledge and disciplines part of the team
- Strong discipline on Agile ceremonies
- Co-location of developers (and other stakeholders as much as possible)

DevOps
OpenShift Cloud

=> Ready for go-live Nov 2017 – 18 months BEFORE planning

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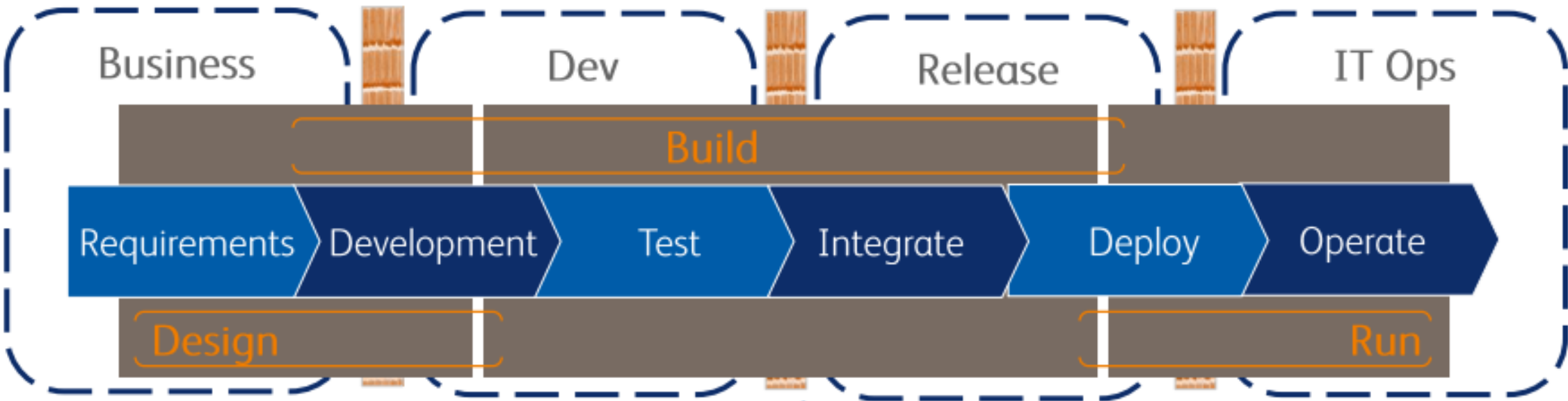
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History of BMW Group IT & Alphabet IT

Plan-Build-Run-Silos



Agile working in a waterfall environment!

A key challenge!



New way of working at BMW and Alphabet IT

You build it, you run it

- From waterfall projects and outsourcing
- To agile approach and insourcing
- Acknowledge competence gap: invest in new competencies
- Invest in technology
- No silos in the organization (go DevOps)



Alphabet IT

How can we plan IT as our plants

Make work visible

Make work plannable (time and budget)

Limit the amount of work in progress

Identify events

Automate as much as possible

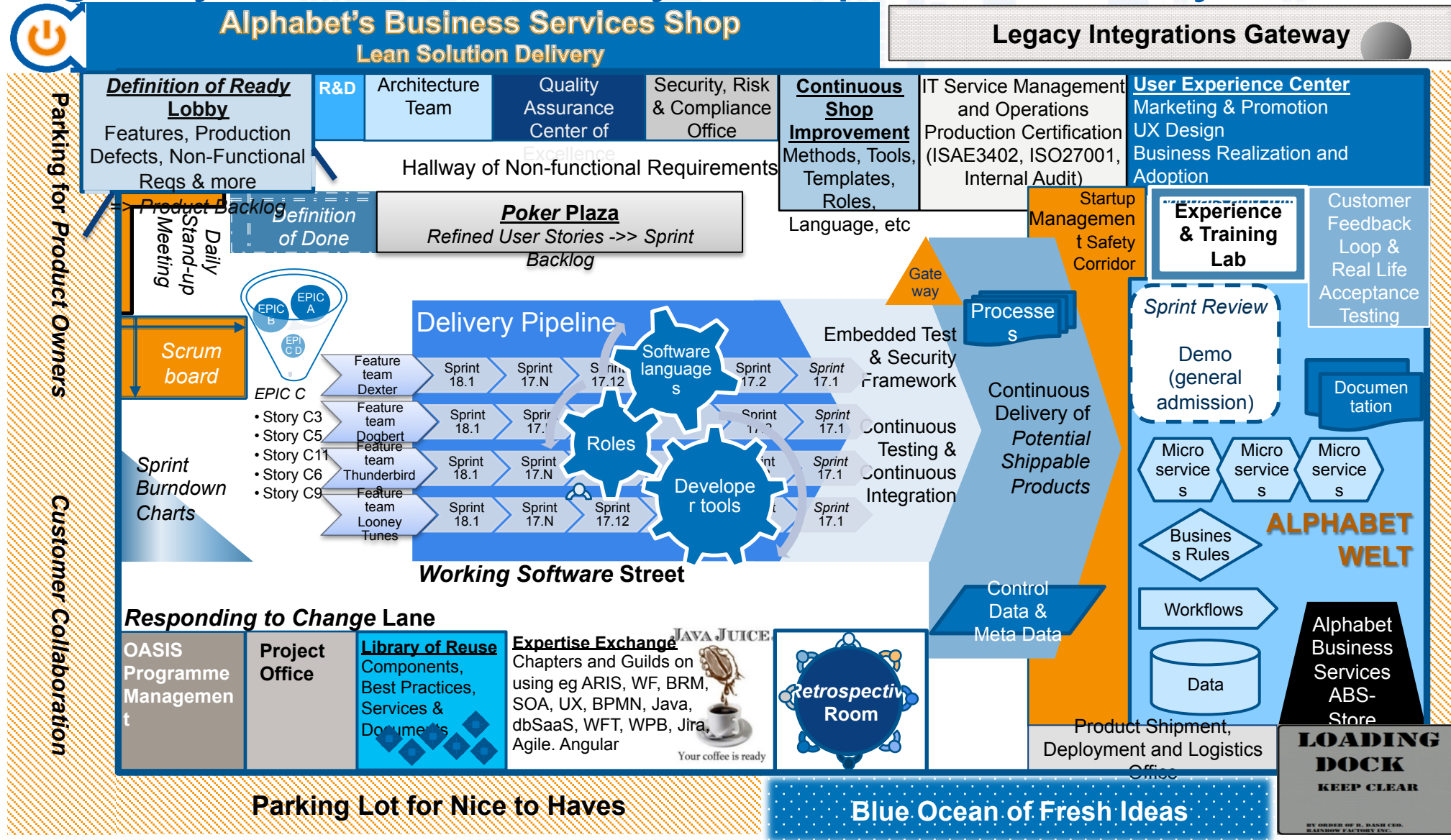
Eliminate waste

DevOps collaboration

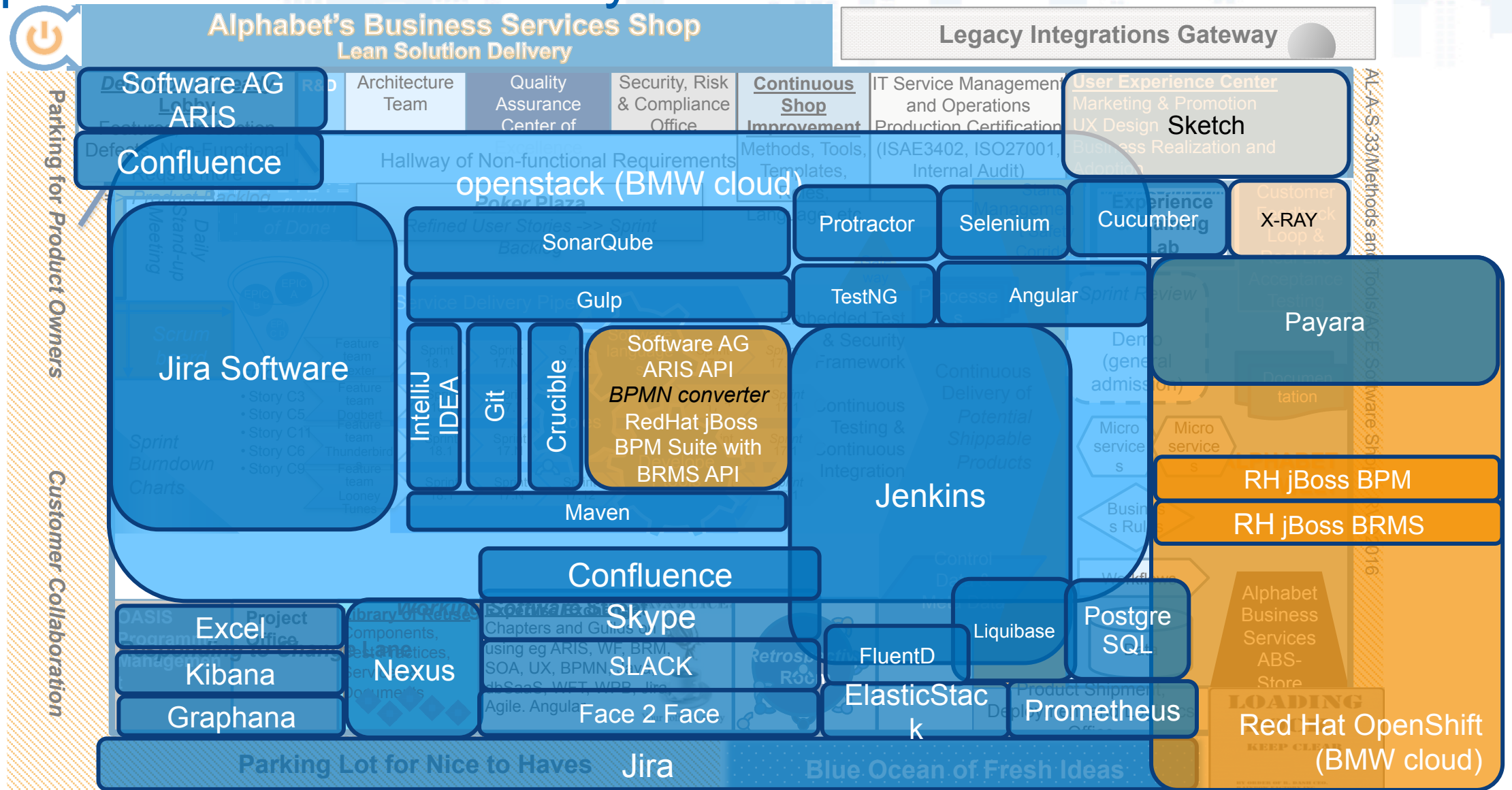
Management commitment to change



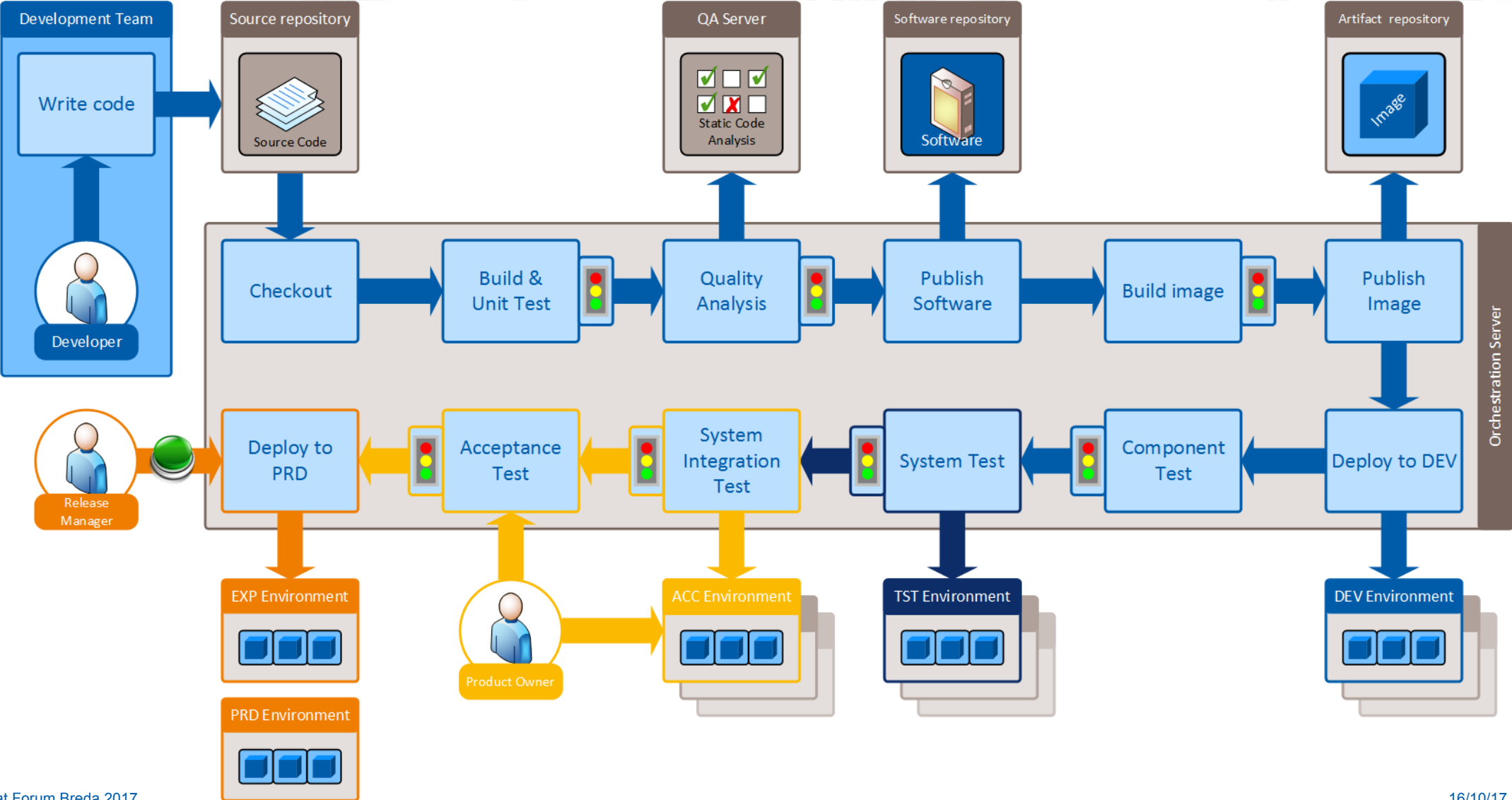
Imagine yourself a Factory Floorplan - birds eye view



Alphabet Software Factory main tool stack



Delivery Pipeline



Delivery Pipeline in action

Average stage times:		Checkout	Build and Unit Test	SonarQube	Publish	Component Test	Create Docker image	Publish Docker image	Deploy DEV
		6s	2min 17s	24s	33s	7min 19s	21s	3s	5s
#41	Oct 04 10:31 25 commits	10s	2min 34s	26s	31s	5min 1s	14s	3s	5s
#40	Oct 03 09:48 9 commits	8s	2min 28s	25s	31s	3min 52s	18s	4s	5s
#39	Oct 02 15:36 11 commits	867ms	1min 30s	23s	34s	8min 23s	40s	3s	5s
#38	Oct 02 14:55 No Changes	1s	1min 26s	22s	33s	9min 23s <small>failed</small>			
#37	Oct 02 14:40 No Changes	8s	2min 59s	22s	36s	8min 55s <small>failed</small>			
#36	Oct 02 12:49	8s	2min 42s	25s	32s	8min 18s	11s	3s	4s

Need for OpenShift

Business case

Old infrastructure

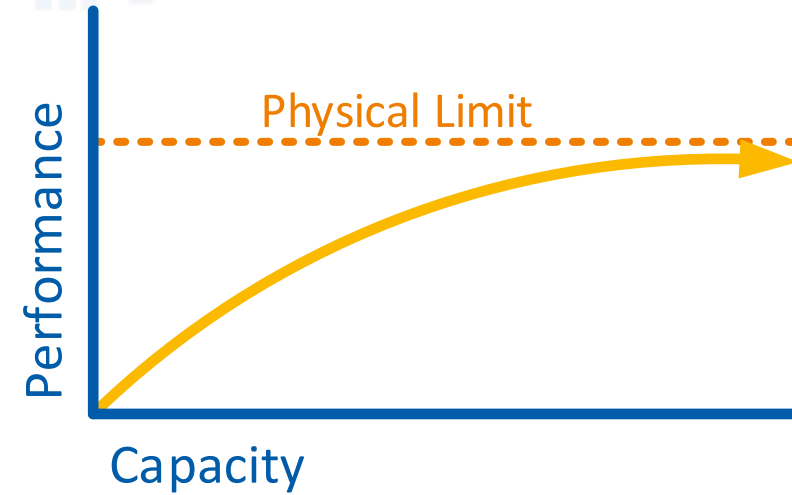
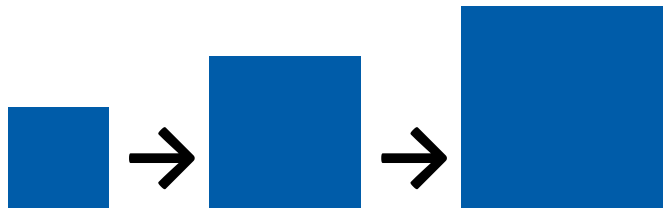
- 220 web rooms with multiple instances needed
- Complex to manage (operate)
- Guarantee that each instance is the same is difficult
- Lead time within BMW (72h; if available)

Why OpenShift?

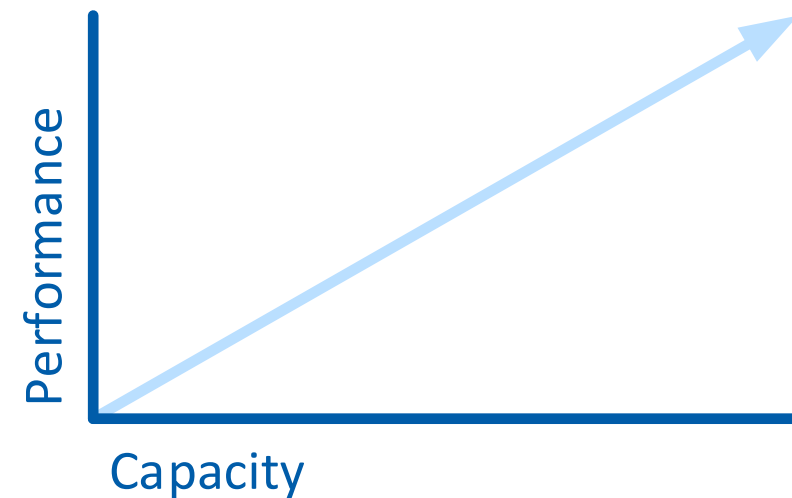
- Automated service discovery
- Fully flexible to scale out
- Fully flexible to create environments on the fly
- Same deployments to different environments
- Ability to rollback to a previous version of your application

Scaling a software landscape

Scale up

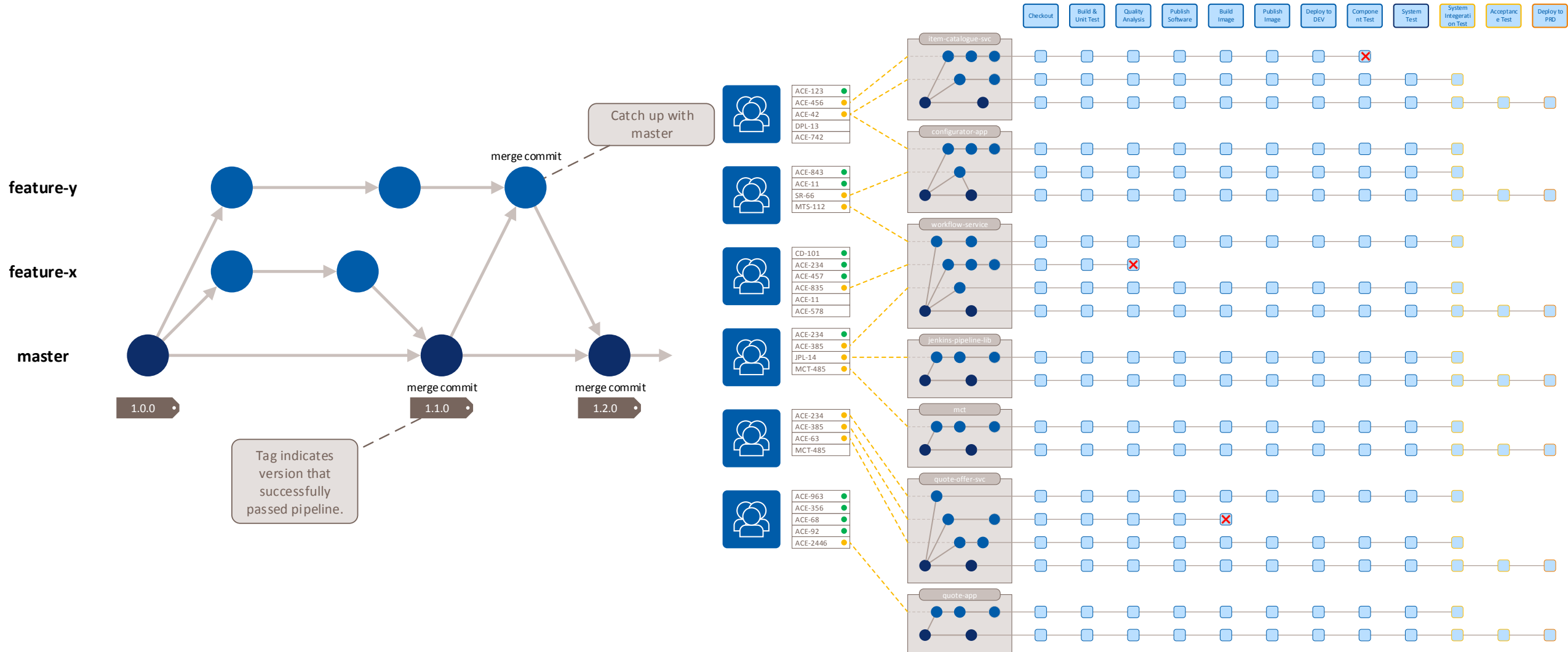


Scale out



How are we dealing with parallel development?

Code Branching Strategy



Setup of OpenShift

Cluster and environments

Current setup of OpenShift

- Enterprise version v3.5.5.31.24
- 2 OpenShift clusters (Dev and PROD)
- 280 GB memory
- 168 CPU cores
- 6 development teams
- 22 environments

Outside of OpenShift

- External PostgreSQL databases for persistent data (per service)
- Elastic Stack
 - FluentD
 - Elasticsearch
 - Kibana
- Prometheus for environment availability and endpoint monitoring

Monitoring and Logging of OpenShift environments

The screenshot displays the Kibana interface for monitoring and logging. The top navigation bar includes the Kibana logo, a search bar with 87,543 hits, and options for New, Save, Open, Share, and Today. The left sidebar contains navigation links for Discover, Visualize, Dashboard, Timelion, Dev Tools, Monitoring, and Management. The main content area is divided into three sections: a filter bar, a visualization, and a log list.

Search and Filter: The search bar contains the query `oasis-exp-1*`. Below it, the "Selected Fields" section lists `? _source`. The "Available Fields" section lists various fields including `@timestamp`, `t _id`, `t _index`, `# _score`, `t _type`, `t cid`, `@datetime`, `t level`, `t logger`, `t message`, `t module`, `t principal`, and `t thread`. An "add" button is visible next to the "principal" field.

Visualization: A bar chart titled "October 4th 2017, 00:00:00.000 - October 4th 2017, 23:59:59.999" shows the count of hits over time. The x-axis is labeled "@timestamp per 30 minutes" and the y-axis is labeled "Count". The chart shows a steady increase in hits throughout the day, peaking around 14:00.

Log List: Below the chart, a list of log entries is displayed. Each entry includes a timestamp, level, module, principal, cid, logger, thread, message, and other metadata. The entries are as follows:

- Entry 1:** `October 4th 2017, 00:00:40.000` | `datetime: October 4th 2017, 00:00:40.097` | `level: INFO` | `module: customer-agreement-service` | `principal: anonymous` | `cid: 750d8747-85d9-4545-9ba4-5c269cb94016` | `logger: com.alphabet.commons.log.logback.service.ServerLoggingFilter` | `thread: http-thread-pool::http-listener (4)` | `message: requestMethod="GET", requestPath="health" | @timestamp: October 4th 2017, 00:00:40.000` | `_id: AV7kQYF408CDHxDNYeGX` | `_type: logs` | `_index: oasis-exp-1-2017.10.03` | `_score: 2`
- Entry 2:** `October 4th 2017, 00:00:40.000` | `datetime: October 4th 2017, 00:00:40.098` | `level: INFO` | `module: customer-agreement-service` | `principal: anonymous` | `cid: 750d8747-85d9-4545-9ba4-5c269cb94016` | `logger: com.alphabet.commons.log.logback.service.ServerLoggingFilter` | `thread: http-thread-pool::http-listener (4)` | `message: responseStatus=200, duration=1 | @timestamp: October 4th 2017, 00:00:40.000` | `_id: AV7kQYF408CDHxDNYeGY` | `_type: logs` | `_index: oasis-exp-1-2017.10.03` | `_score: 2`
- Entry 3:** `October 4th 2017, 00:00:40.000` | `datetime: October 4th 2017, 00:00:40.099` | `level: INFO` | `module: customer-agreement-service` | `principal: anonymous` | `cid: 0118615a-8be0-4254-97c2-79f4321532fa` | `logger: com.alphabet.commons.log.logback.service.ServerLoggingFilter` | `thread: http-thread-pool::http-listener (1)` | `message: responseStatus=200, duration=2 | @timestamp: October 4th 2017, 00:00:40.000` | `_id: AV7kQYF408CDHxDNYeGZ` | `_type: logs` | `_index: oasis-exp-1-2017.10.03` | `_score: 2`
- Entry 4:** `October 4th 2017, 00:00:50.000` | `datetime: October 4th 2017, 00:00:50.096` | `level: WARN` | `module: customer-agreement-service` | `cid:` | `logger: com.alphabet.commons.auth.core.filter.AuthorizationHeaderFilter` | `thread: http-thread-pool::http-listener (8)` | `message: Could not set authorization, because principal is not a com.alphabet.commons.auth.api.AlphabetUserPrincipal, but was: null | @timestamp: October 4th 2017, 00:00:50.000` | `_id: AV7kQYF408CDHxDNYeGc` | `_type: logs` | `_index: oasis-exp-1-2017.10.03` | `_score: 2`

Lessons learned

Go full throttle

How we started

- First provided OpenShift solution (3.2)
- Not flexible in allocating resources
- Not flexible in creating projects
- Provided by external company
- Operated by external

company

- Minimal training
- No logging in place

Current state

- OpenShift Version 3.5.5
- Logging in place (external ElasticStack instance)
- Full flexible in creating OpenShift projects (environments)
- OpenShift developers followed the Red Hat developers training
- Full flexible for scaling
- Persistent data

Key take aways

- 100% commitment from all involved
- Steep learning curve of OpenShift
- Command lines are extensive, but very useful
- Red Hat OpenShift Enterprise training will provide Return on Investment

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Questions?

<https://www.alphabet.com/nl-nl/vacancies/corporate-division/it>



Alphabet is op zoek naar IT'ers die maximaal gaan! 



Vacatures bij BMW Alphabet 



Alphabet Business Mobility Services

Keep Moving

Alphabet