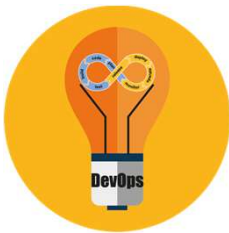# DevOps for IBM i

Philippe MAGNE, CEO

Lausanne, 24 Septembre 2019

World leader
in **DevOps for IBM i**
solutions and services

Distributed worldwide by
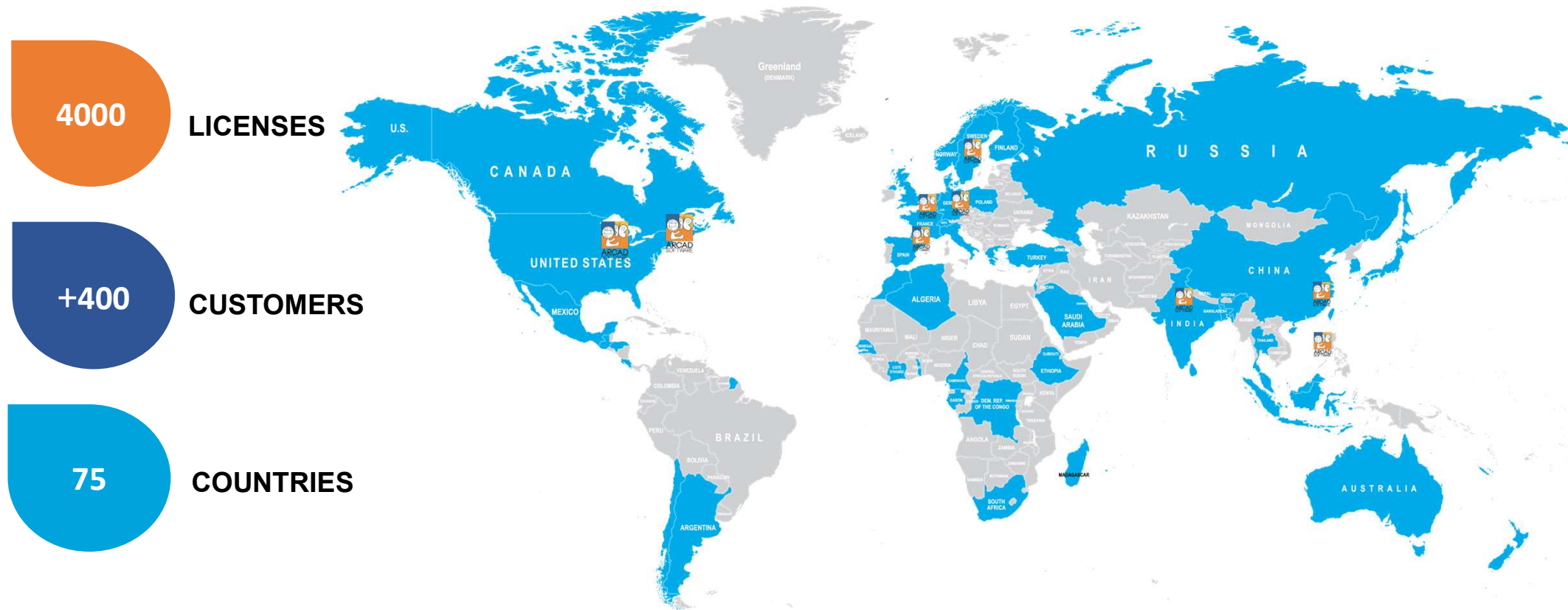
+25 years
of expertise

A global company.

4000 LICENSES

+400 CUSTOMERS

75 COUNTRIES

24/7 Tech support

ARCAD SOFTWARE

Technology alliances

Main international partners

Our mission.

Enabling our customers to include their legacy systems in their DevOps strategy

ARCAD SOFTWARE

ARCAD Software strategy

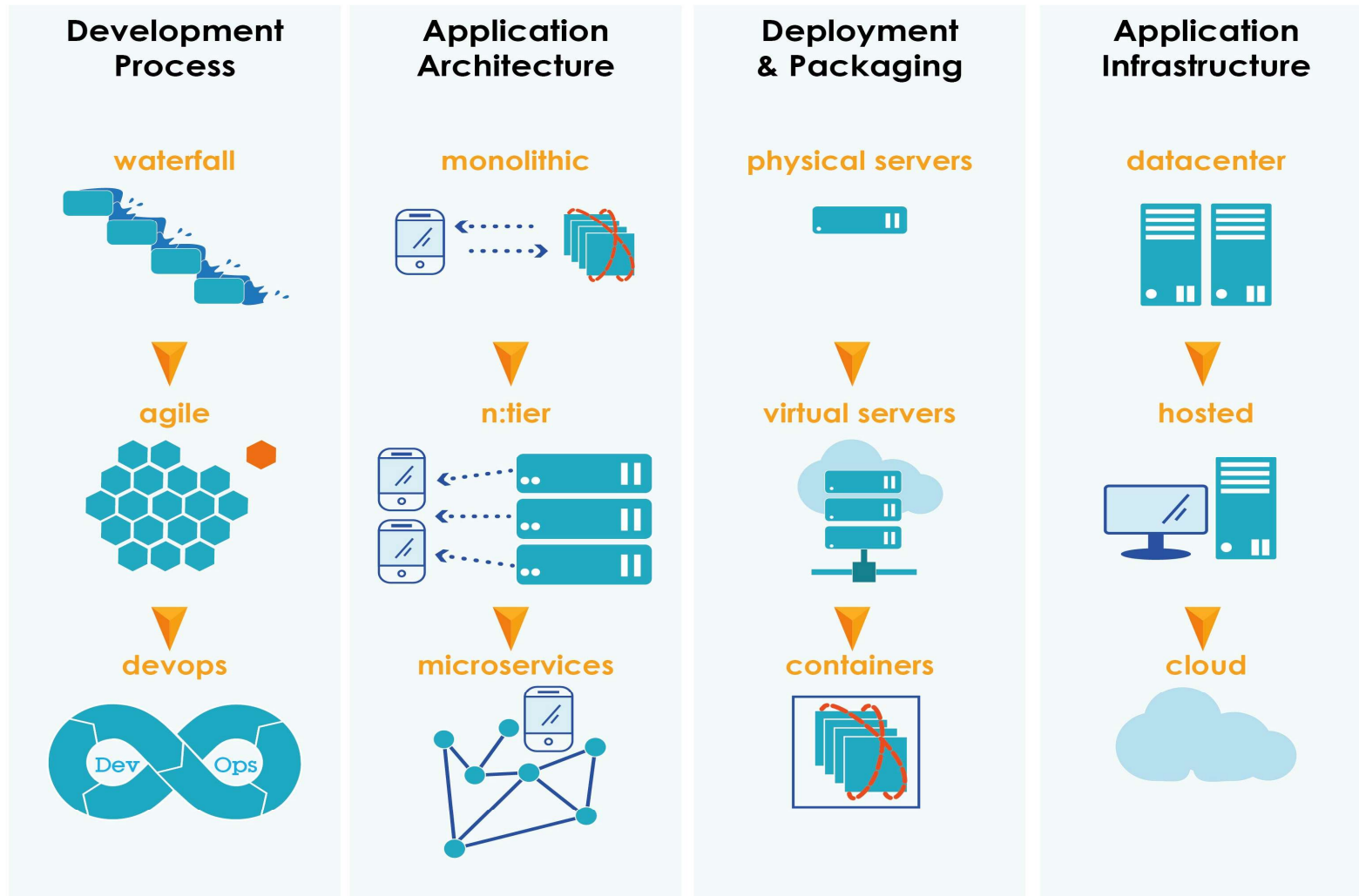| IBM i Modernization	DevOps	GDPR
Synon exit	CI/CD for IBM i	Data Masking
Database modernization	Continuous testing for IBM i	
RPG code modernization	Application Release Automation	
UI modernization		

NEWS 2019

- Platform: 7th quarter of growth
- Cloud has become a reality
  - 4 offerings including Google Cloud
- Gartner publication

Technology shift.

Development Process	Application Architecture	Deployment & Packaging	Application Infrastructure
waterfall	monolithic	physical servers	datacenter
agile	n:tier	virtual servers	hosted
devops	microservices	containers	cloud

ARCAD SOFTWARE

Challenges

1. We must succeed in our **digital transformation**

2. We must succeed with our **generational transition**

=> We must:

Modernize

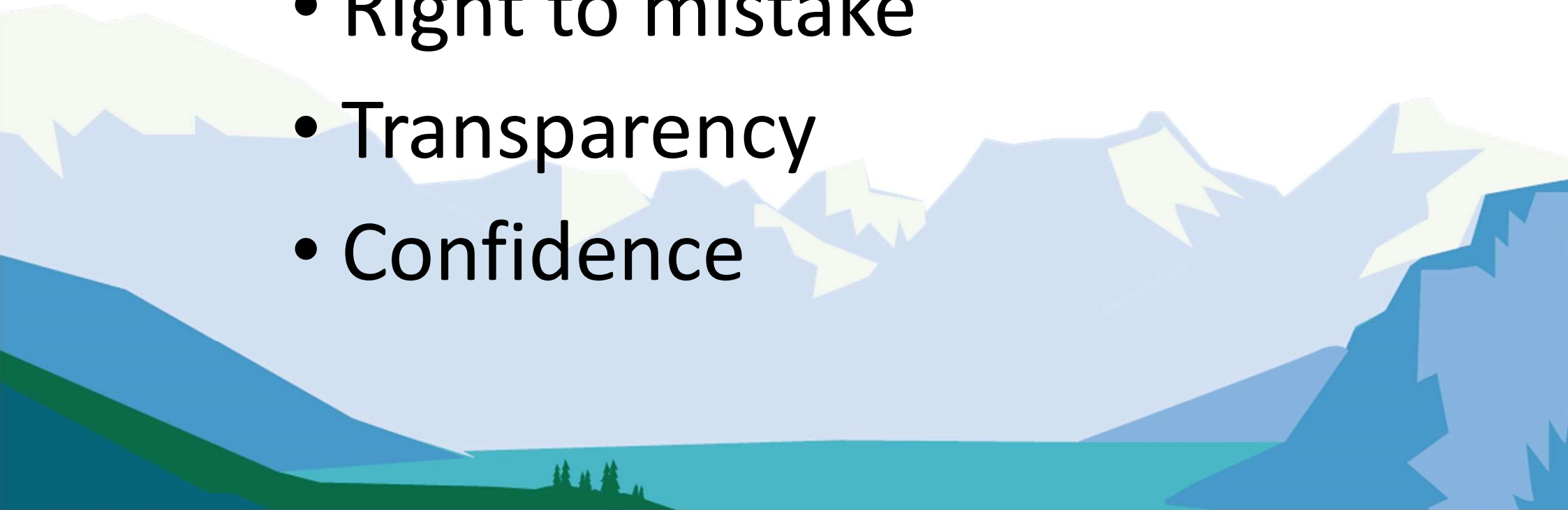« Le~~gacy~~ »?

« Heritage » !

HSBC

We are Agile.
We are DevOps.

"There is no
such thing as
legacy technology
or system, only
legacy thinking."

Wiky W N Li, Consultant Specialist
HSBC Technology Guangzhou
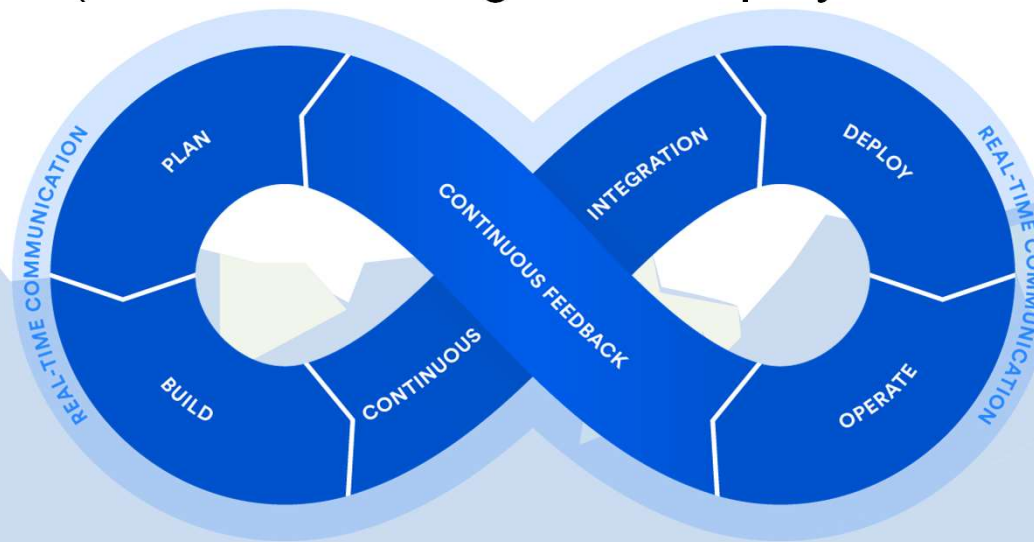
Agility = culture.

- Continuous improvement
- Right to mistake
- Transparency
- Confidence

What is **DevOps?**

DevOps couples <u>Dev</u>elopment and <u>Op</u>eration<u>s</u>, minimizing or eliminating bottlenecks in Agile SDLC:

- ~~User Meetings~~ (Team Collaboration Software, Social Coding)

- ~~Manual processes~~ (Automated Testing)

- ~~Fixed Releases~~ (Continuous Integration/Deployment aka CI/CD)

DevOps modernizes IT organizations

- Value
- Speed
- Robustness

DevOps is a __strategy__

- **Aligns the __Dev__elopment and __O__peration__s__ functions**
  to structure and automate continuous software delivery

- Brings diverse development teams together

- Supports synchronized, multi-platform deployment

The promise of DevOps

DEV **OPS**

ACCELERATE
software
delivery

BALANCE
speed, cost,
quality
and risk

REDUCE
time
to customer
feedback

Development Meetings?

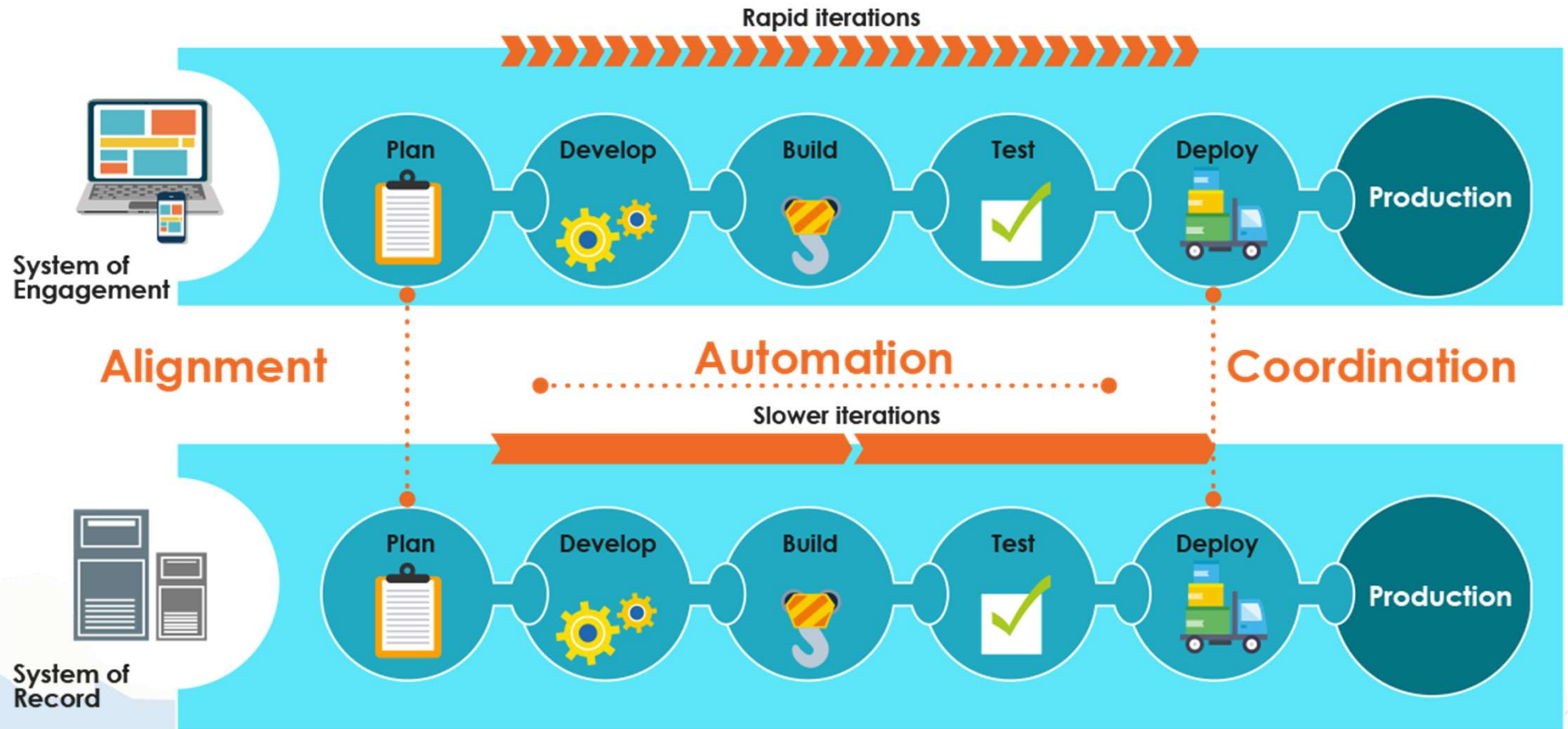RPG, Cobol

Java, .NET, PHP, Python

Deployment Meetings?

Bimodal IT

	Systems of Record	Systems of Engagement
Applications	Legacy/high volume	Modern/small
Speed of change	Slow	Rapid
Methodology	Waterfall	Agile
Skills	Specialized	"Jack of all trades"
Collaboration	Silos	Collaborative
	Managed by IT department	External ecosystem

Bimodal IT

What Is Social Coding?

Waterfall -> Agile -> DevOps

Defect resolution.

# of defects found/testing effort/effort to fix=cost ($)

$16,000   640X

Percentage of Defects

$1000   40X

$250   10X

$25   1X   4X $100

% Defect injection

% Defects found

Cost to repair defect

Coding   Unit Test   Function Test   System Test   After Release
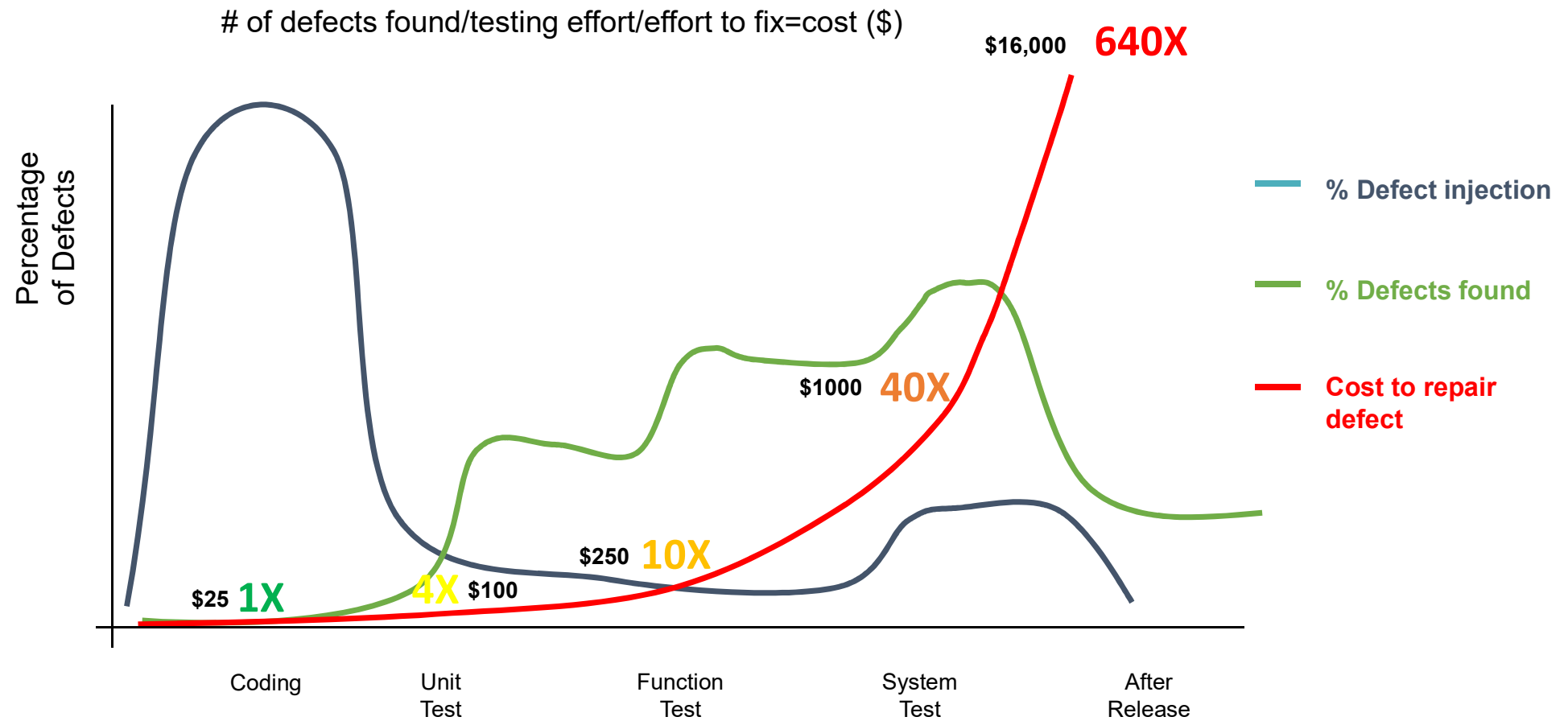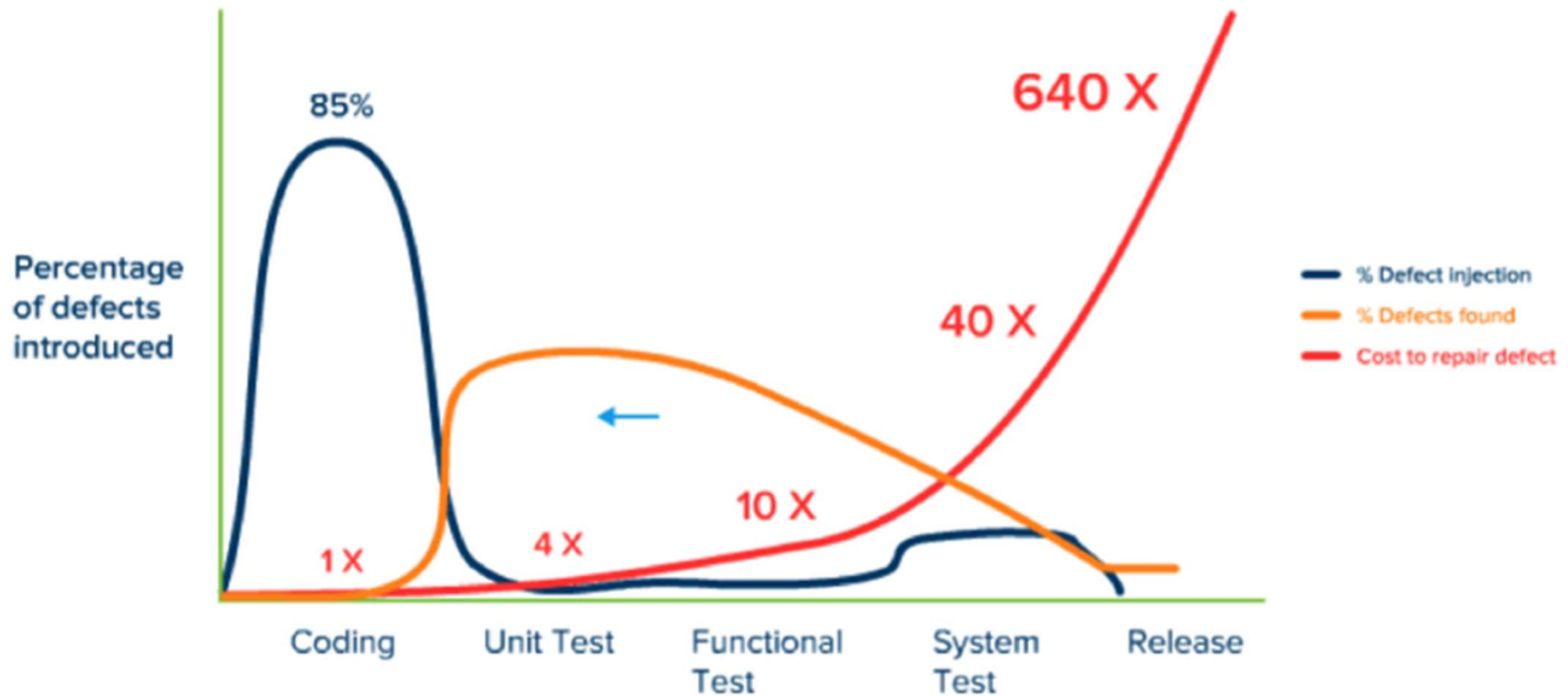
Jones, Capers. *Applied Software Measurement: Global Analysis of Productivity and Quality*

"Shift Left" effect.

Jones, Capers. *Applied Software Measurement: Global Analysis of Productivity and Quality.*

Defect Cost Example (without DevOps)

D=25

> 1 Hour/Fix
>
> Average Developer salary = $52,000/year
>
> Developer bug cost = **52000÷52÷40 = 25**

B=50

> 60 Developers
>
> 3000 total bugs/year

Each developer fixed **50** bugs/year (**3000÷60 = 50**)

U=10, **F=15**, **S=20**, **R=5**

> **U=50×.2=10**, **F=50×.3=15**, **S=50×.4=20**, **R=50×.1=5**

Total Cost = U×D×4 + F×D×10 + S×D×40 + R×D×640

Total Cost = 1000 + 3750 + 20000 + 80000

Total Defect Cost per Developer = $104,750

Defect Cost Example (with DevOps)

D=25

    1 Hour/Fix

    Average Developer salary = $52,000/year

Developer bug cost = $52000 \div 52 \div 40$ = 2

B=50

    60 Developers

    3000 total bugs/year

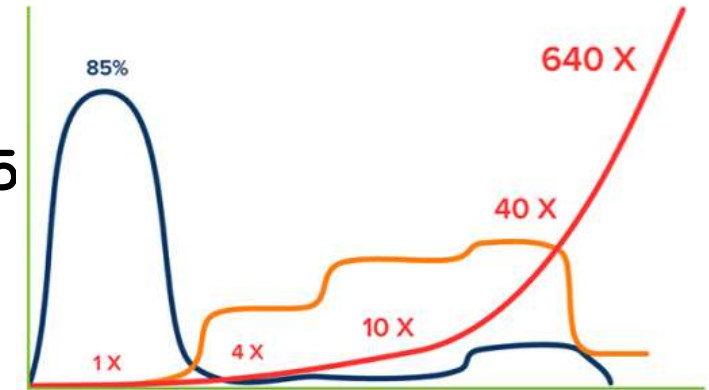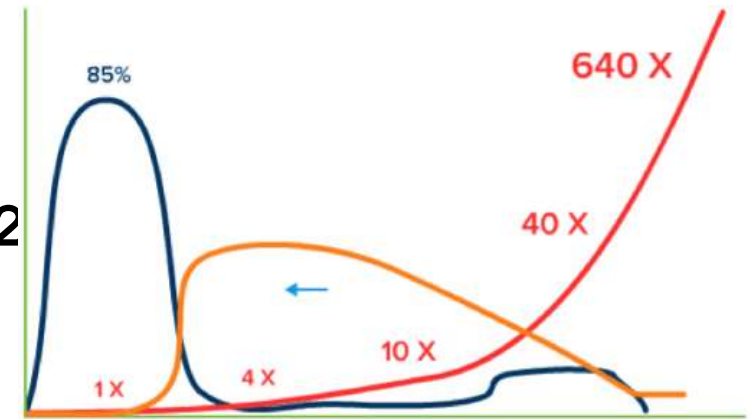Each developer fixed **50** bugs/year ($3000 \div 60$ = 50)

U=30, F=12.5, S=7.5, R=2.5

  U=50×.6=30, F=50×.25=12.5, S=50×.15=7.5, R=50×.05=2.5

Defect Cost = U×D×4 + F×D×10 + S×D×40 + R×D×640

Defect Cost = 3000 + 3125 + 7500 + 40000

Total Defect Cost per Developer = $53,625

85%

640 X

40 X

10 X

4 X

1 X

DevOps ROI

Defect Savings $\qquad$ $= \texttt{DefectCost}_{\texttt{WO}}\texttt{-DefectCost}_{\texttt{DO}}$

$= 104750 - 53625$

$= 51125$

Total Defect Saving $\qquad = 51125 \times 60$ Developers

Total Defect Saving $\qquad$ = \$3,067,500

ROI = Total Defect Savings - Infrastructure - Implementation

!!! EVERY YEAR !!!

DevOps J-Curve

J-CURVE OF TRANSFORMATION

Technical debt and increased complexity cause additional manual controls and layers of process around changes, slowing work

Automation helps low performers progress to medium performers

Relentless improvement work leads to excellence and high performance! High and elite performers leverage expertise and learn from their environments to see jumps in productivity.

Teams begin transformation and identify quick wins

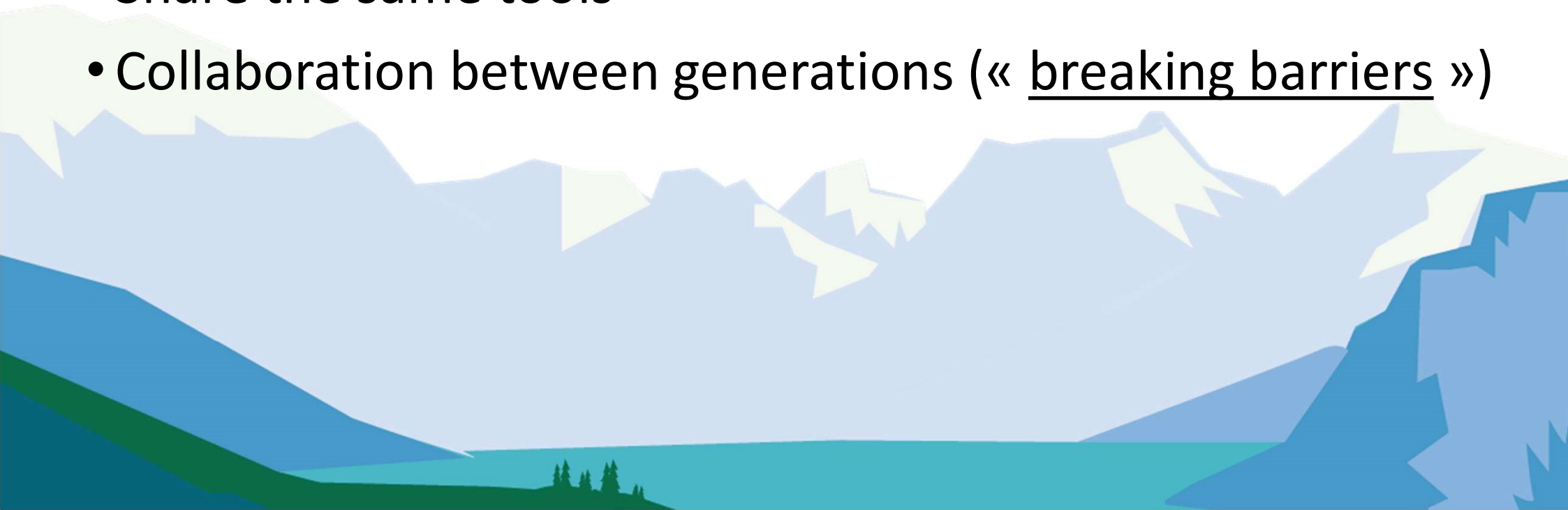Automation increases test requirements, which are dealt with manually. A mountain of technical debt blocks progress.

Source: DORA (DevOps Research & Assessment): www.devops-research.com

Enterprise DevOps strategy

- Convergence of the working methods

- Share the same tools

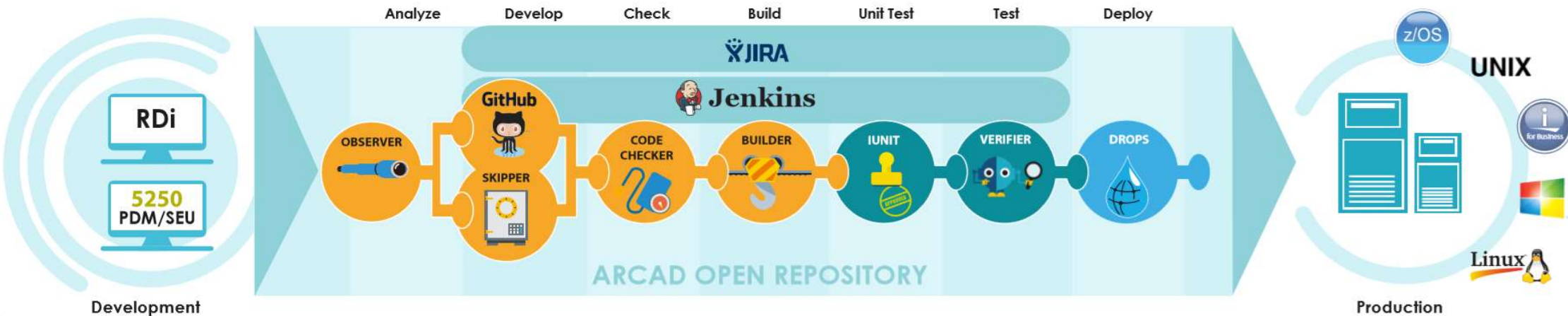- Collaboration between generations (« breaking barriers »)

DevOps tooling

- Traditional Change Management tools are outdated

- Embrace the most popular tools from the Open Systems world

- Generalise their usage for the IBM i World

ARCAD for DevOps:
Continuous software delivery on IBM i
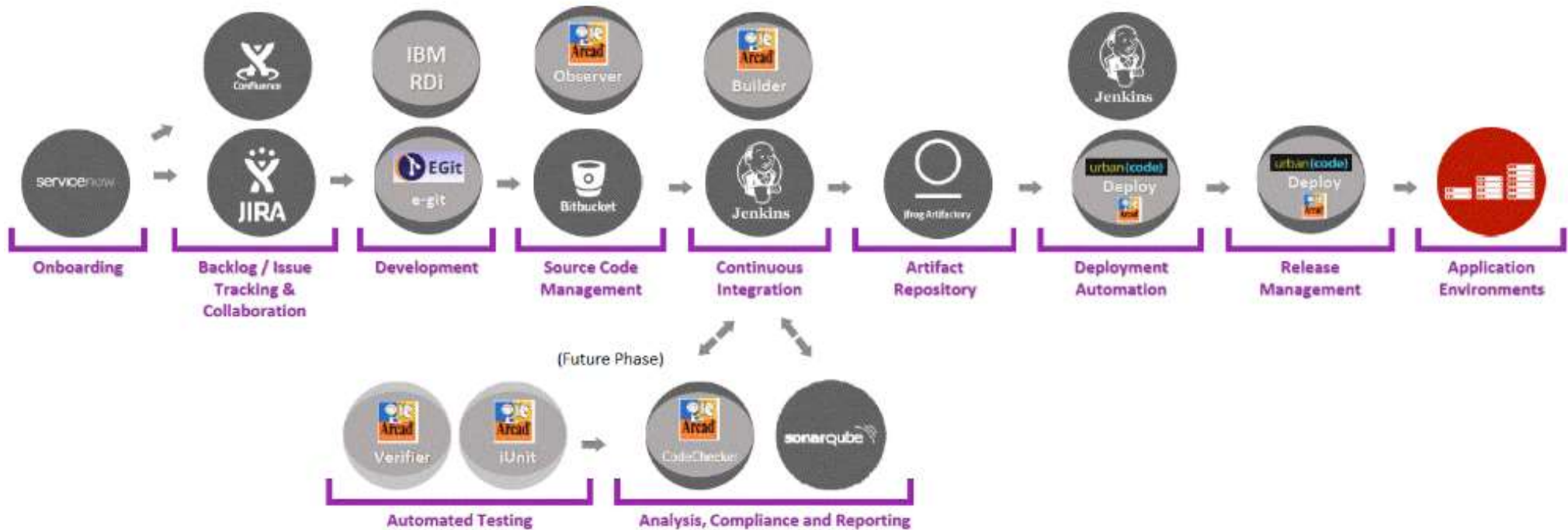
DevOps tooling adoption

- Step 1: Modern IDE

- Step 2: Common ticketing/project Management

- Step 3: Automated testing & code review

- Step 4: Single source repository/synchronized build

- Step 5: Common release management capabilities

Client example:

ScotiaGlobe CI/CD Overview

Other examples

Simple as 1,2,3...
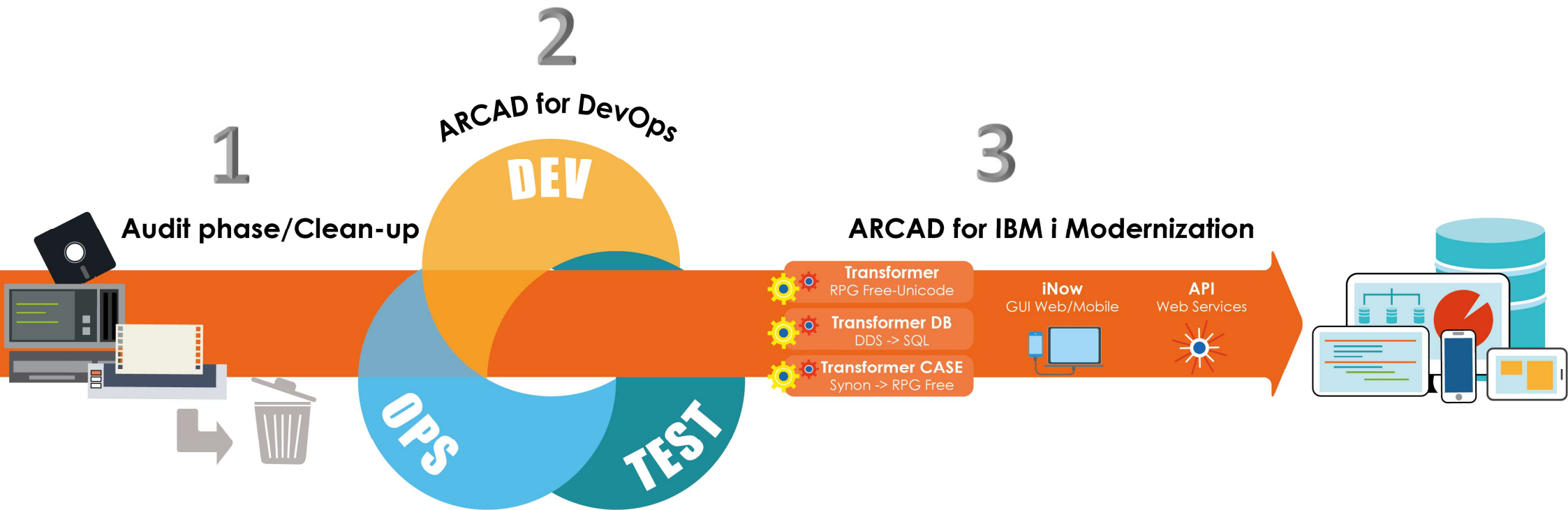
1 Audit phase/Clean-up

2 ARCAD for DevOps

DEV

OPS

TEST

3 ARCAD for IBM i Modernization

Transformer
RPG Free-Unicode

Transformer DB
DDS -> SQL

Transformer CASE
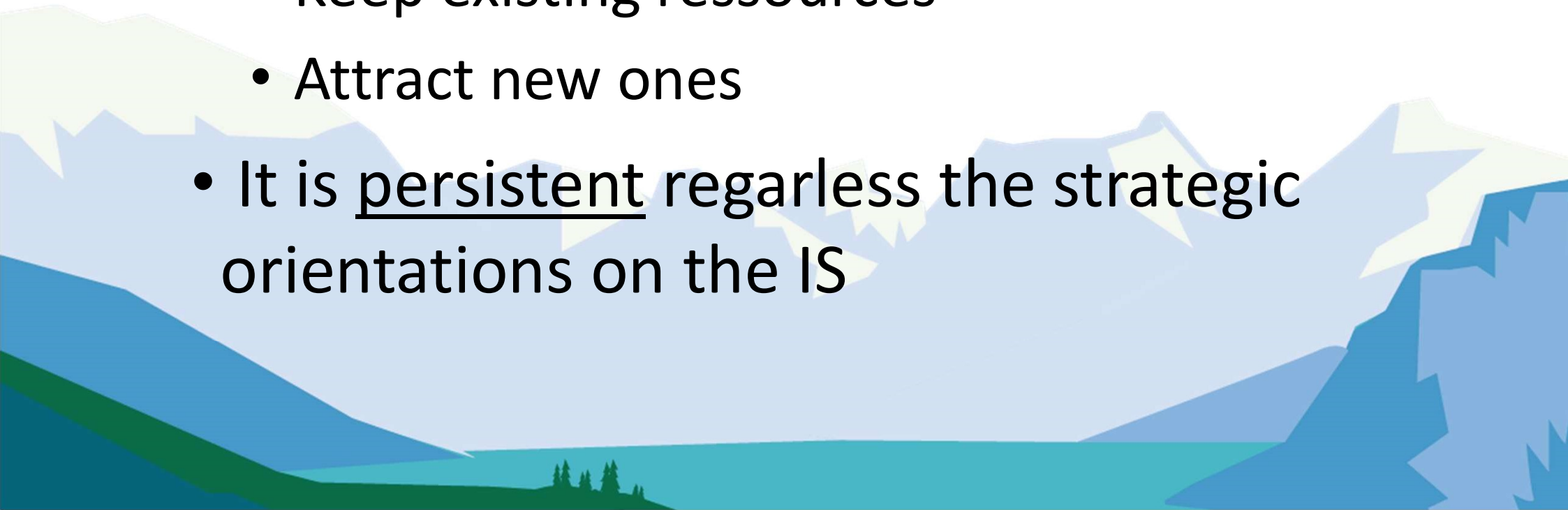Synon -> RPG Free

iNow
GUI Web/Mobile

API
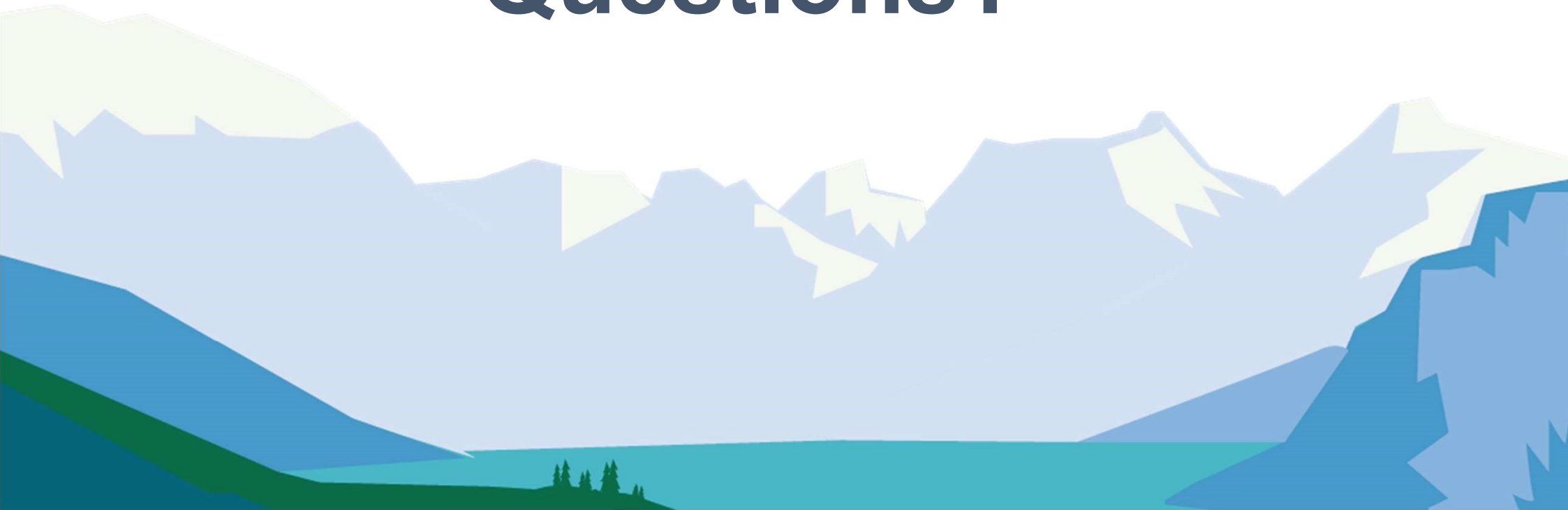Web Services

Conclusion

DevOps is strategic for any organization because:

- It holds the <u>generation transition</u>
  - Keep existing ressources
  - Attract new ones

- It is <u>persistent</u> regarless the strategic orientations on the IS

Questions?

https://arcadsoftware.com

https://www.linkedin.com/company/arcad-software