



UNIVERSITÀ  
DEGLI STUDI  
DI BERGAMO

# Tecnologie Cloud & Mobile

TECNOLOGIE CLOUD  
E MOBILE  
INTRODUZIONE

[mauro.pelucchi@gmail.com](mailto:mauro.pelucchi@gmail.com)

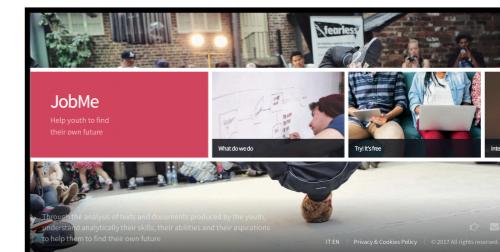
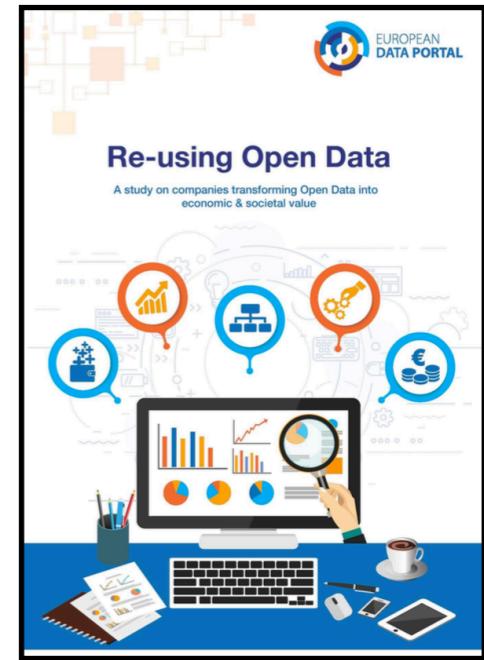
Mauro Pelucchi

Aprile 2020

21059 - Tecnologie cloud e mobile

# Conosciamoci

- Mauro Pelucchi [mauro.pelucchi@unimib.it](mailto:mauro.pelucchi@unimib.it) [mauro.pelucchi@gmail.com](mailto:mauro.pelucchi@gmail.com)
- Laureato in **Ingegneria Informatica** presso Università degli Studi di Bergamo con una tesi sull'utilizzo degli OpenData ([www.hammer-project.com](http://www.hammer-project.com))
- Master in **Business Intelligence & Big Data Analytics** (2015/2016, trovate il lavoro finale all'indirizzo web [www.job-me.it](http://www.job-me.it))
- Mi occupo di **Data Science e Data Engineering**: progettazione e messa in qualità di grandi basi di dati, estrazione di patterns da dati non strutturati, realizzazione di sistemi direzionali statistici e strumenti per la data visualization
- In passato ho progettato e realizzato sistemi di Process Integration e Business Intelligence per grandi realtà industriali e per la pubblica amministrazione
- Main interests: **OpenData e Open Government, Big Data Analysis, Data Presentation techniques, Artificial Intelligence, Machine Learning Modelling & Deep Learning, Applied Artificial Intelligence**



# Programma

~ 2 ore  
Cloud Systems  
and Infrastructure

- 1) Cloud Architecture
- 2) Microservices
- 3) Server-less architecture

~ 2 ore  
Cloud & Mobile  
Project

- 1) Git
- 2) DevOps
- 3) Design as a Service
- 4) Agile Methodologies

~ 4 ore  
Big Data and  
Applications in  
the Cloud

- 1) Python & PySpark
- 2) Aws Glue
- 3) MongoDB

# Programma

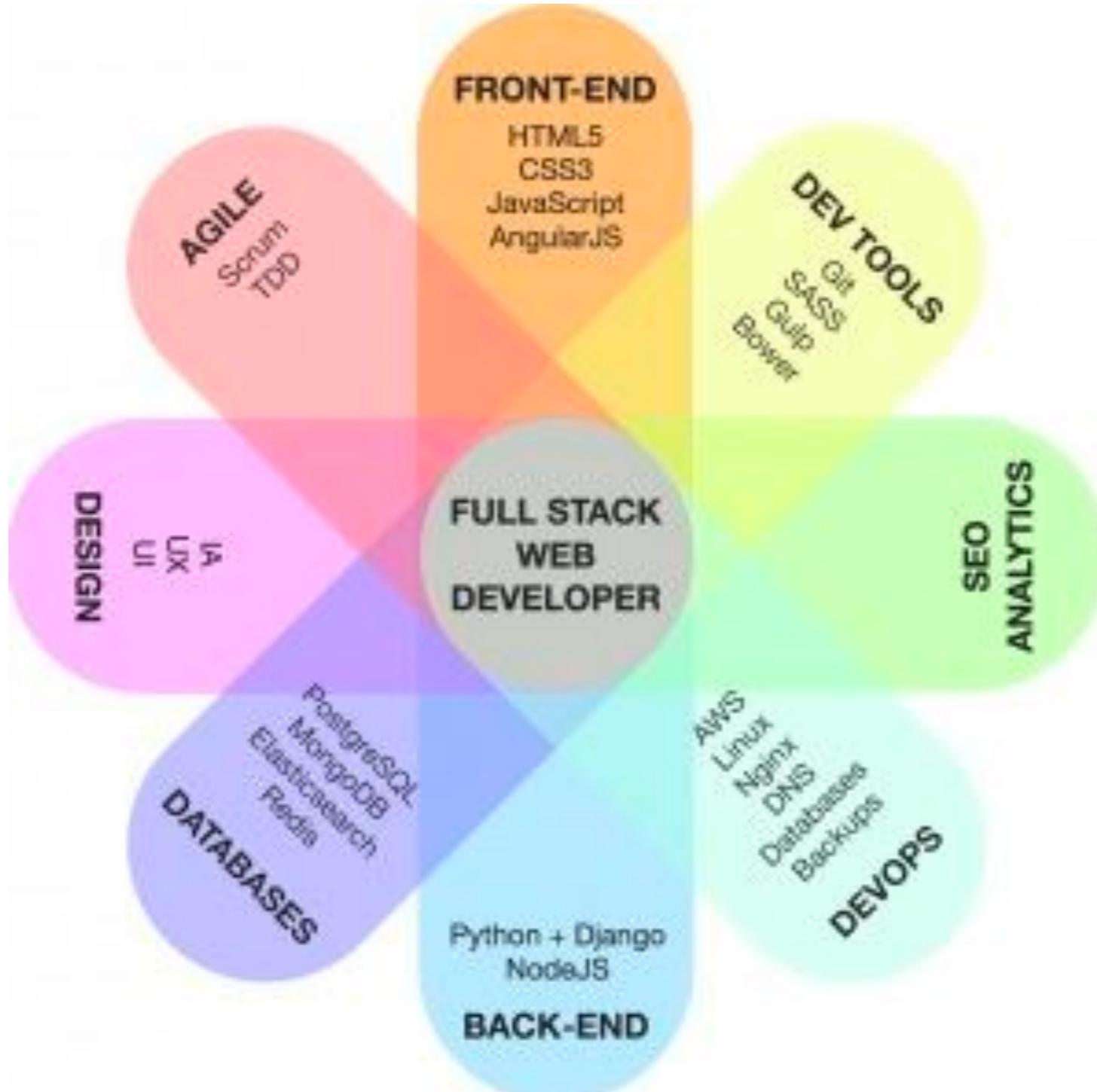
~ 4 ore  
Building  
Server-less  
Applications

- 1) AWS Lambda Function
- 2) AWS API Gateway
- 3) Node.js

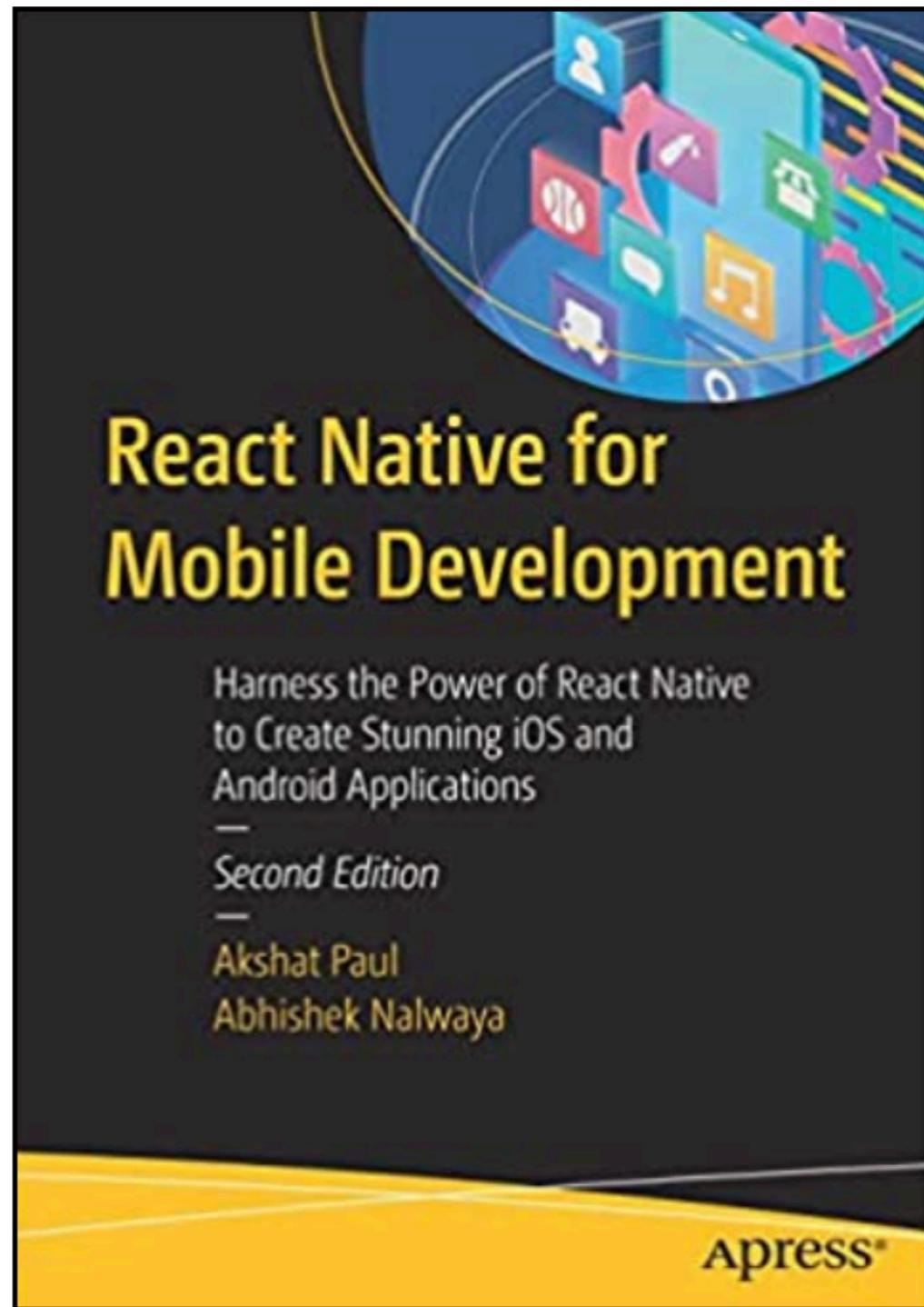
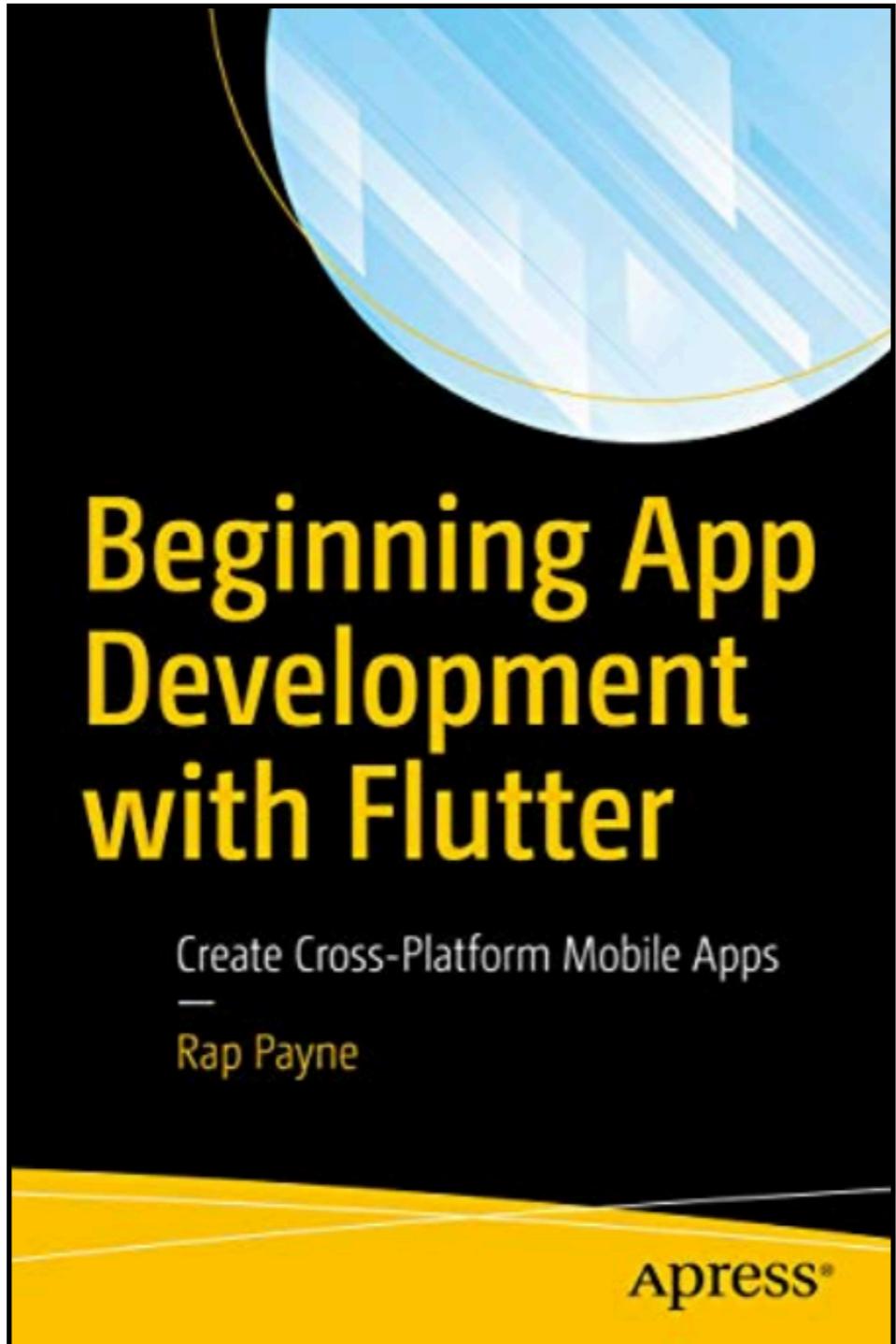
~ 4 ore  
Hybrid Mobile  
App Development

- 1) Apps development
- 2) Hybrid Mobile Apps
- 3) Flutter

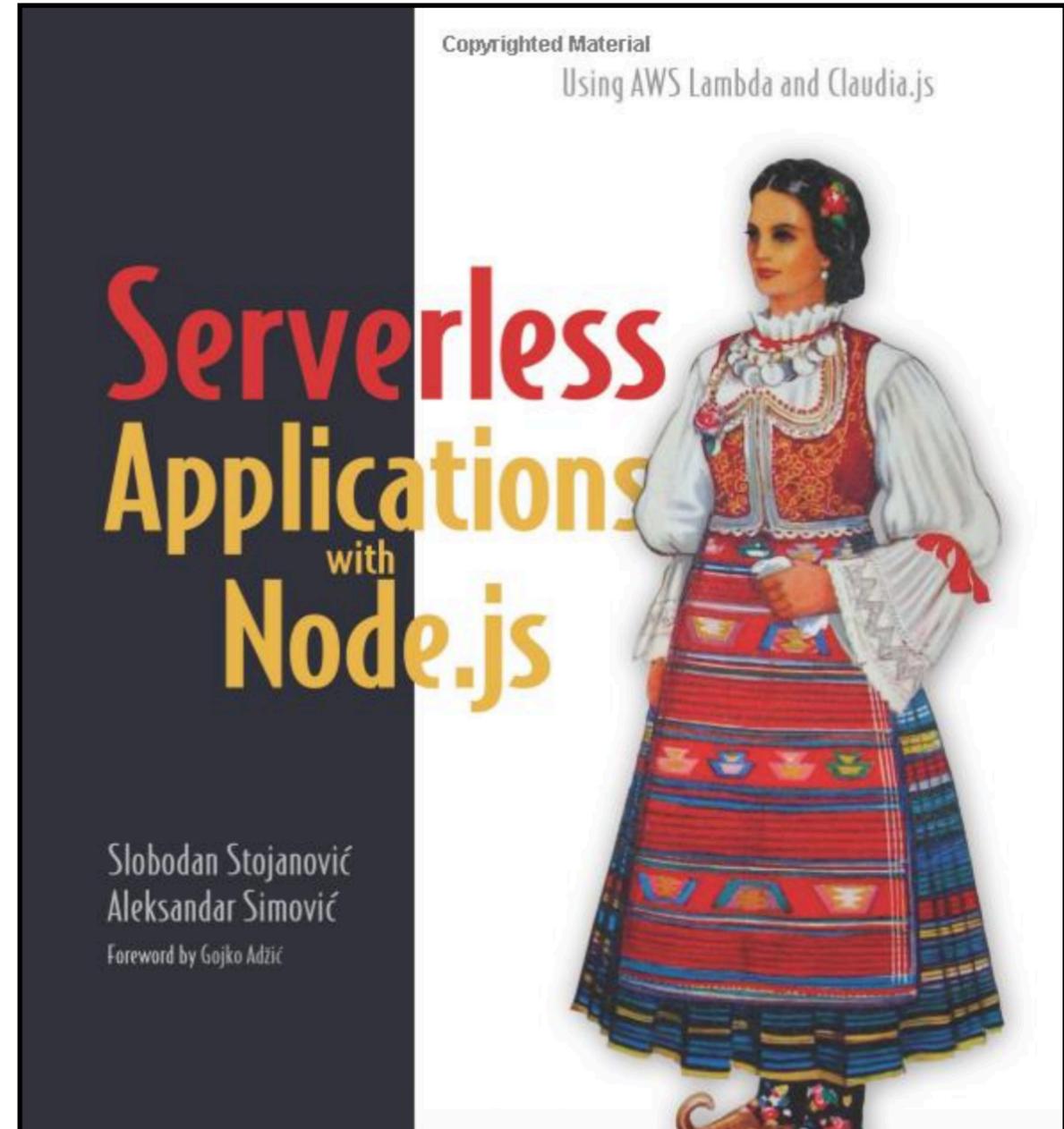
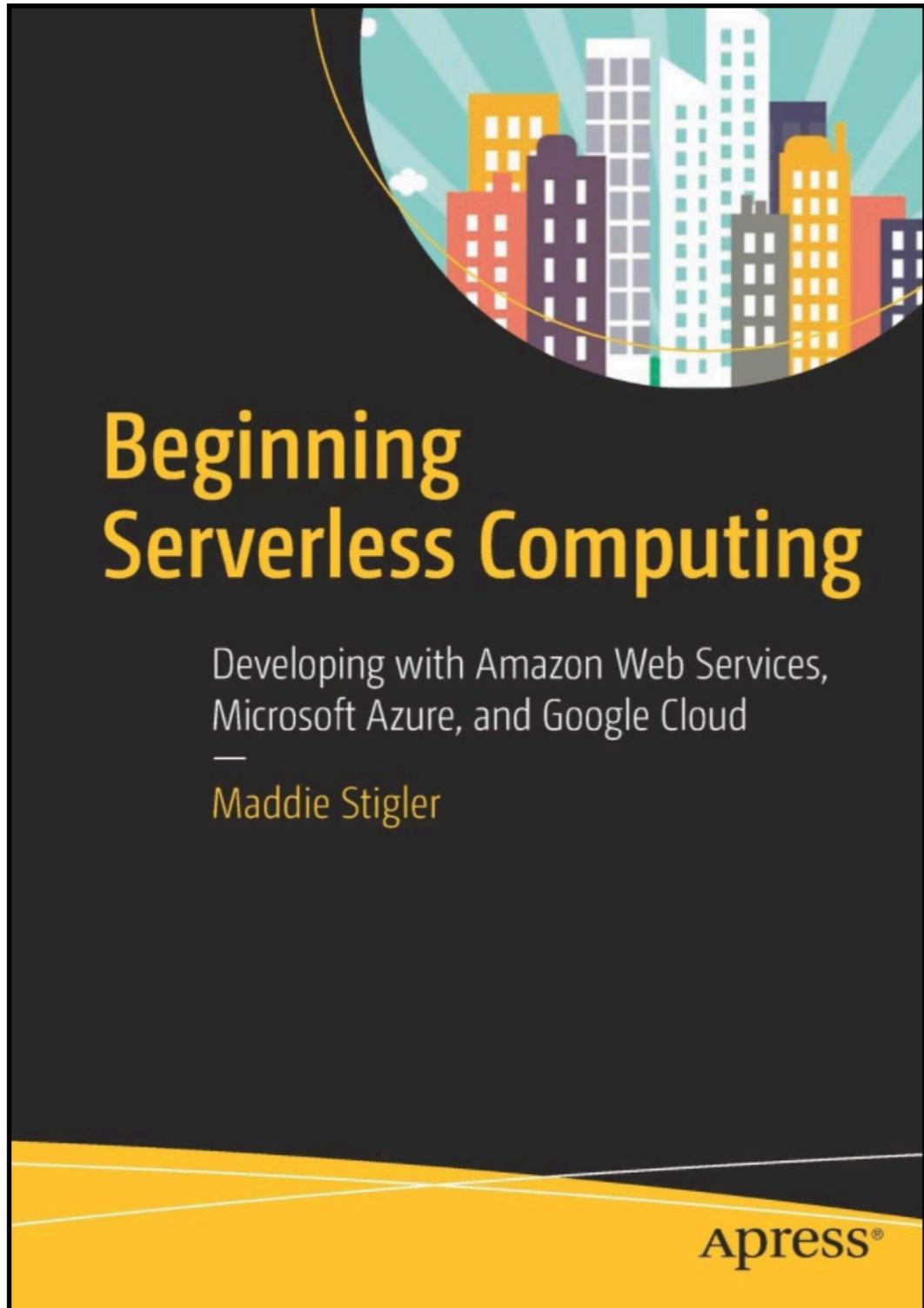
# Full stack software engineer



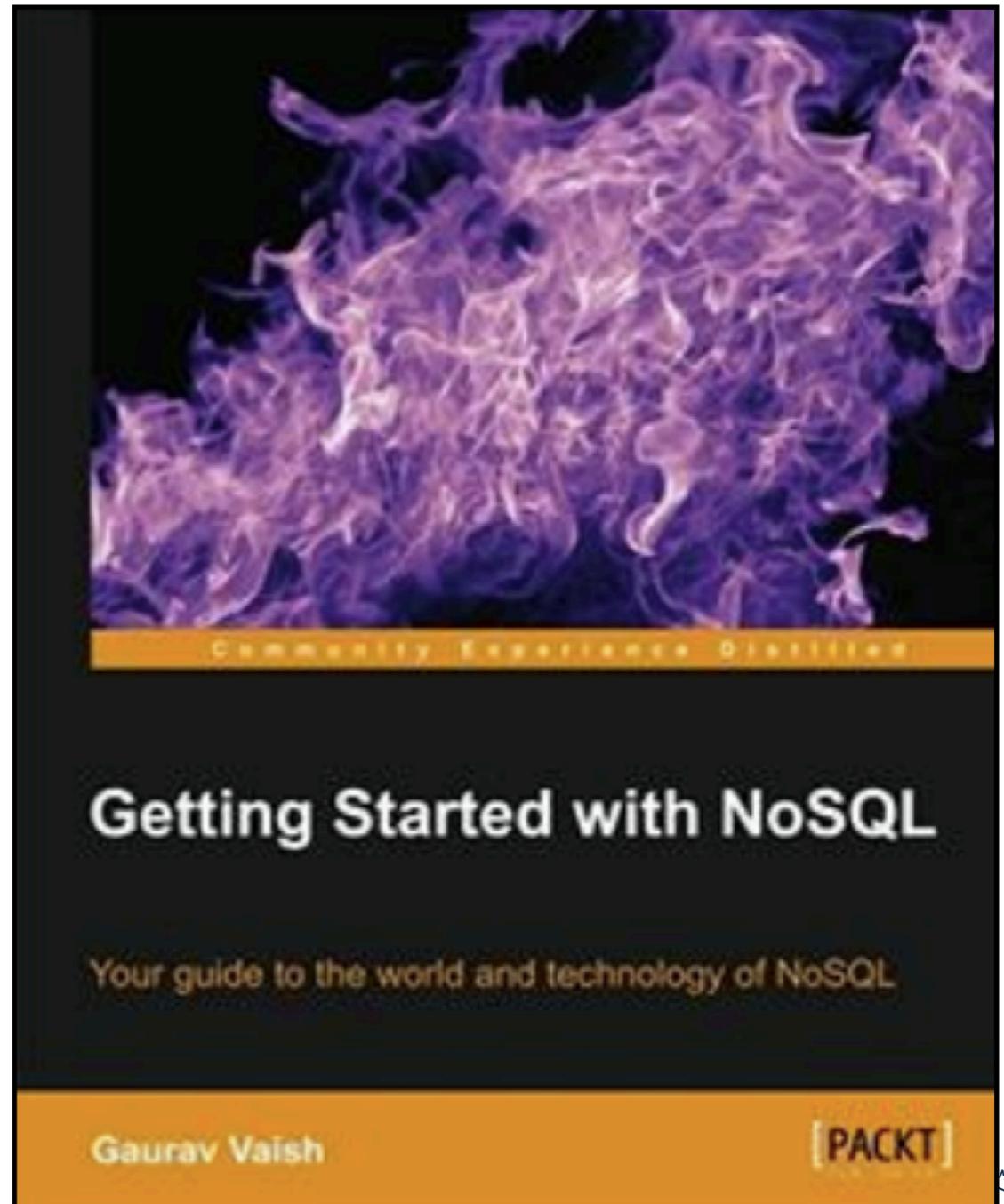
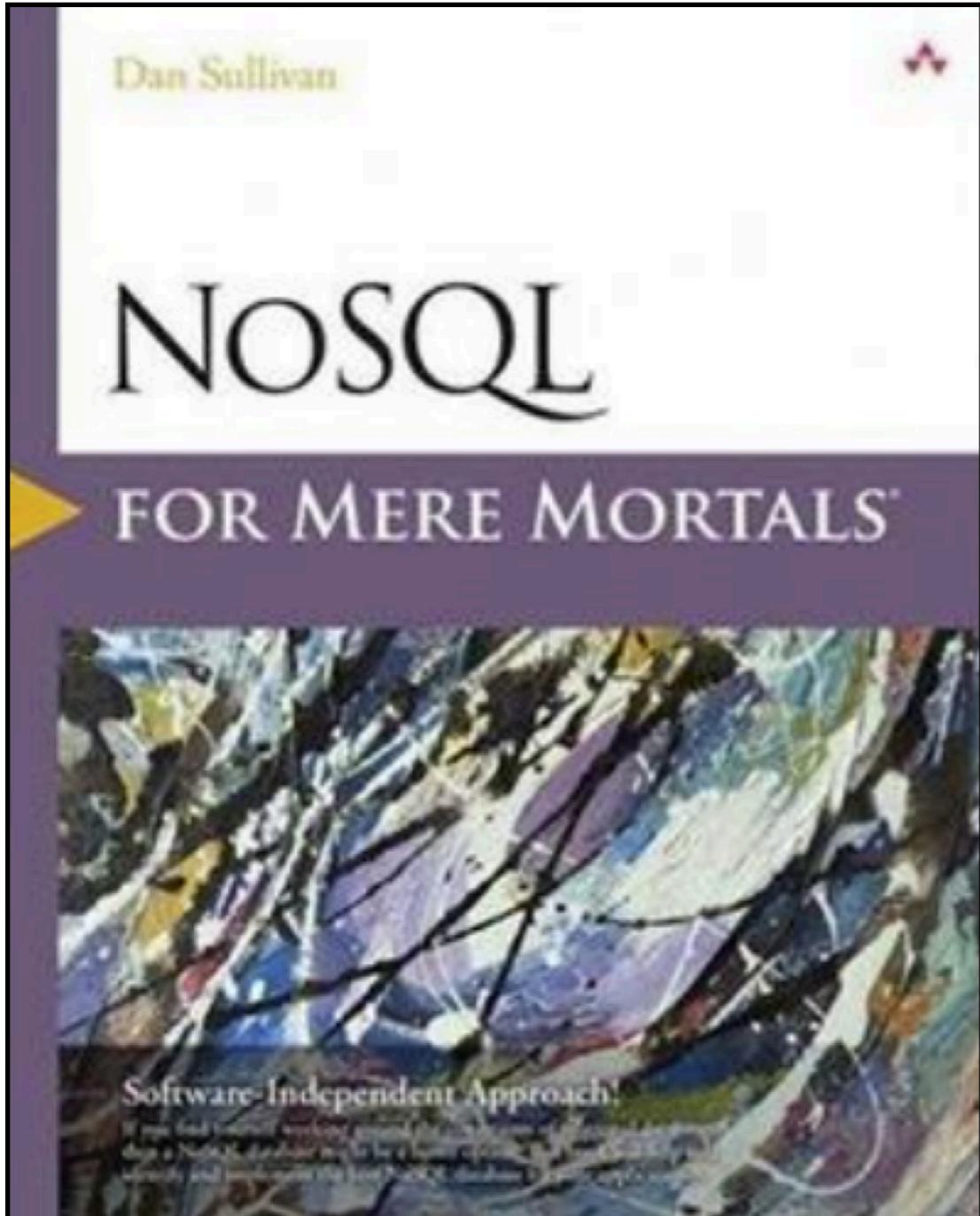
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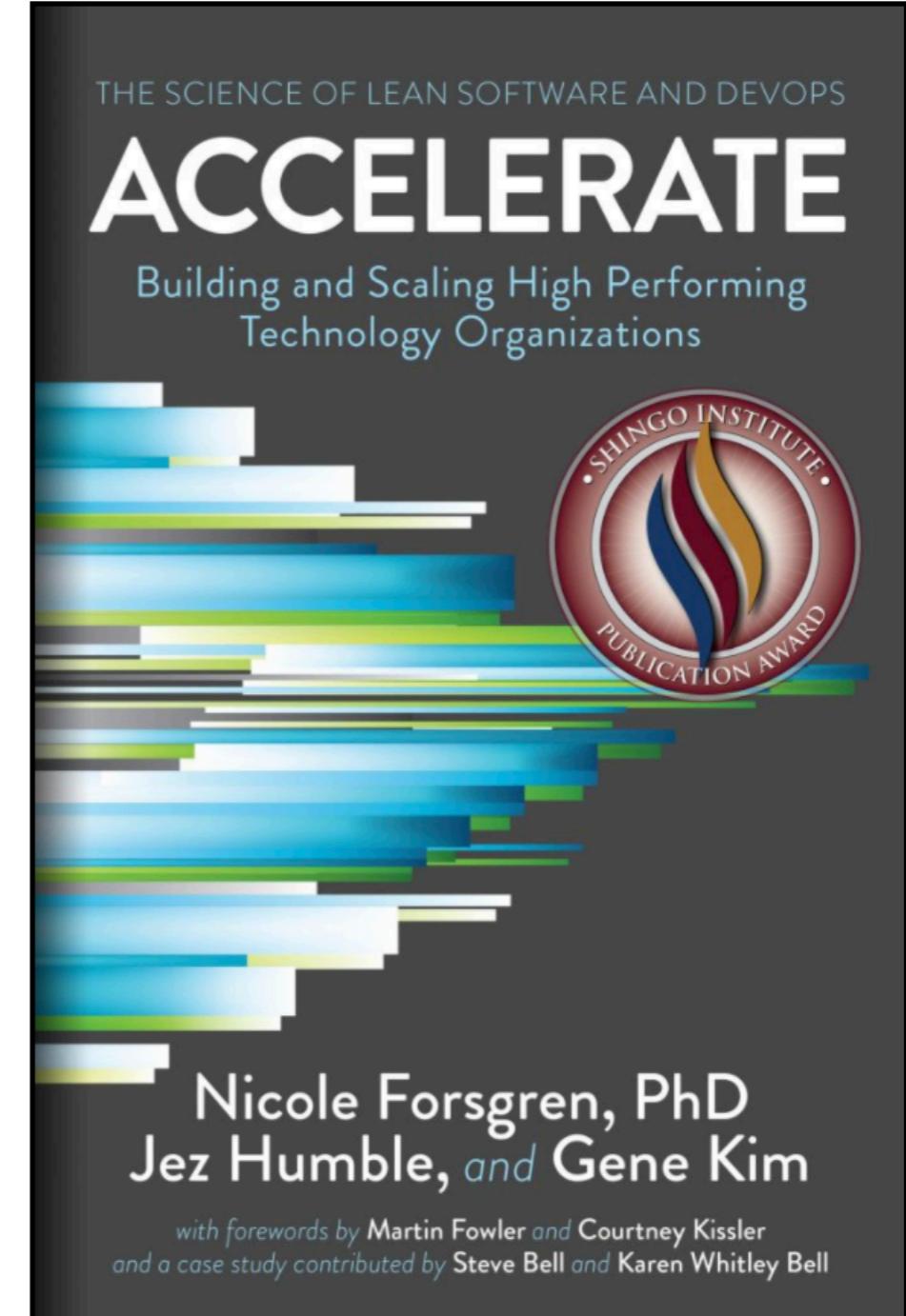
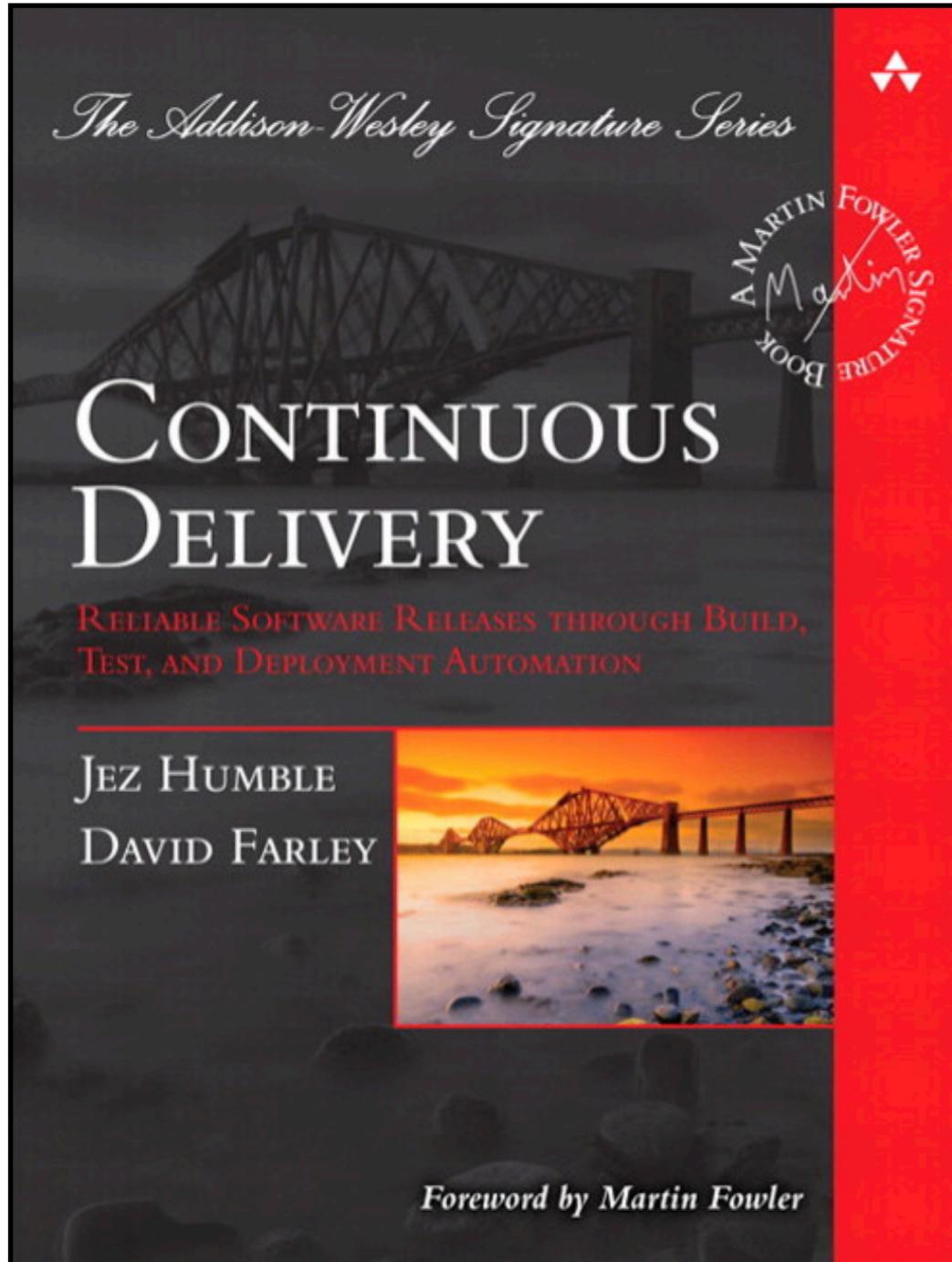
# Bibliografia



# Bibliografia



# Bibliografia



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### English-Language Books

- [Ajax Design Patterns](#)
- [The Cathedral and the Bazaar](#)
- [CouchDB: The Definitive Guide](#)
- [Creating Applications with Mozilla](#)
- [DocBook: The Definitive Guide](#)
- [Embedding Perl in HTML with Mason](#)
- [Free as in Freedom](#)
- [Learning JavaScript Design Patterns](#)
- [Linux Device Drivers, 3rd Edition](#)
- [Managing Projects with GNU make, 3rd Edition](#)
- [MySQL Reference Manual](#)
- [OpenSources: Voices from the Open Source Revolution](#)
- [Producing Open Source Software: How to Run a Successful Free Software Project \(\*Translations\*\)](#)
- [Understanding Open Source and Free Software Licensing](#)
- [Practical mod\\_perl](#)
- [RESTful Web Services](#)
- [Version Control with Subversion, 2nd Edition](#)
- [We the Media](#)

### Out-of-Print Books

- [Asterisk: The Future of Telephony, Second Edition](#)
- [CGI Programming on the World Wide Web](#)
- [The Future Does Not Compute](#)

# Dataset

Dataset per training e interessi personali:



RegioneLombardia

<https://dati.lombardia.it>



<https://www.kaggle.com/datasets>



<http://www.kdnuggets.com/datasets/index.html>

<https://github.com/caesar0301/awesome-public-datasets>

# Piattaforme

 <https://databricks.com/try-databricks>



<https://aws.amazon.com/it/free/>

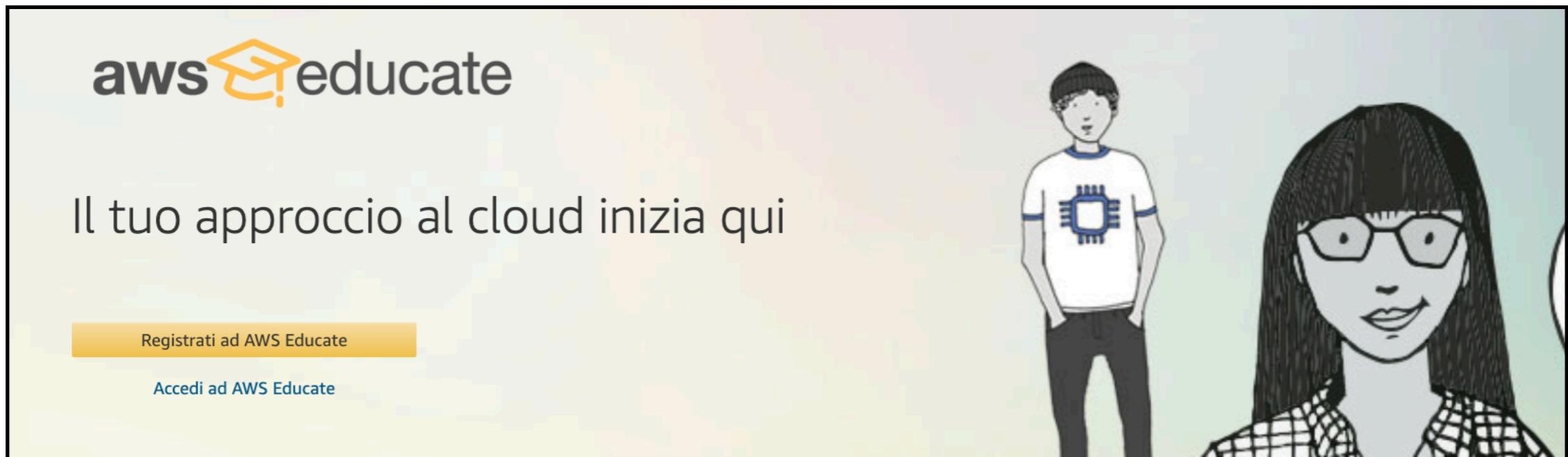
 <https://www.mongodb.com/cloud/atlas>

 <https://colab.research.google.com>



# AWS Education

<https://aws.amazon.com/it/education/awseducate/>



The screenshot shows the AWS Educate landing page. At the top left is the AWS Educate logo. Below it, the text "Il tuo approccio al cloud inizia qui" is displayed. There are two buttons: a yellow one labeled "Registrati ad AWS Educate" and a blue one labeled "Accedi ad AWS Educate". To the right of the text are two cartoon illustrations: a boy wearing a white t-shirt with a blue circuit board graphic and a girl with glasses and dark hair wearing a plaid shirt.

In questo momento unico in cui assistiamo alla chiusura temporanea e prolungata delle scuole, abbiamo sviluppato una serie di risorse di ausilio per te e i tuoi team:

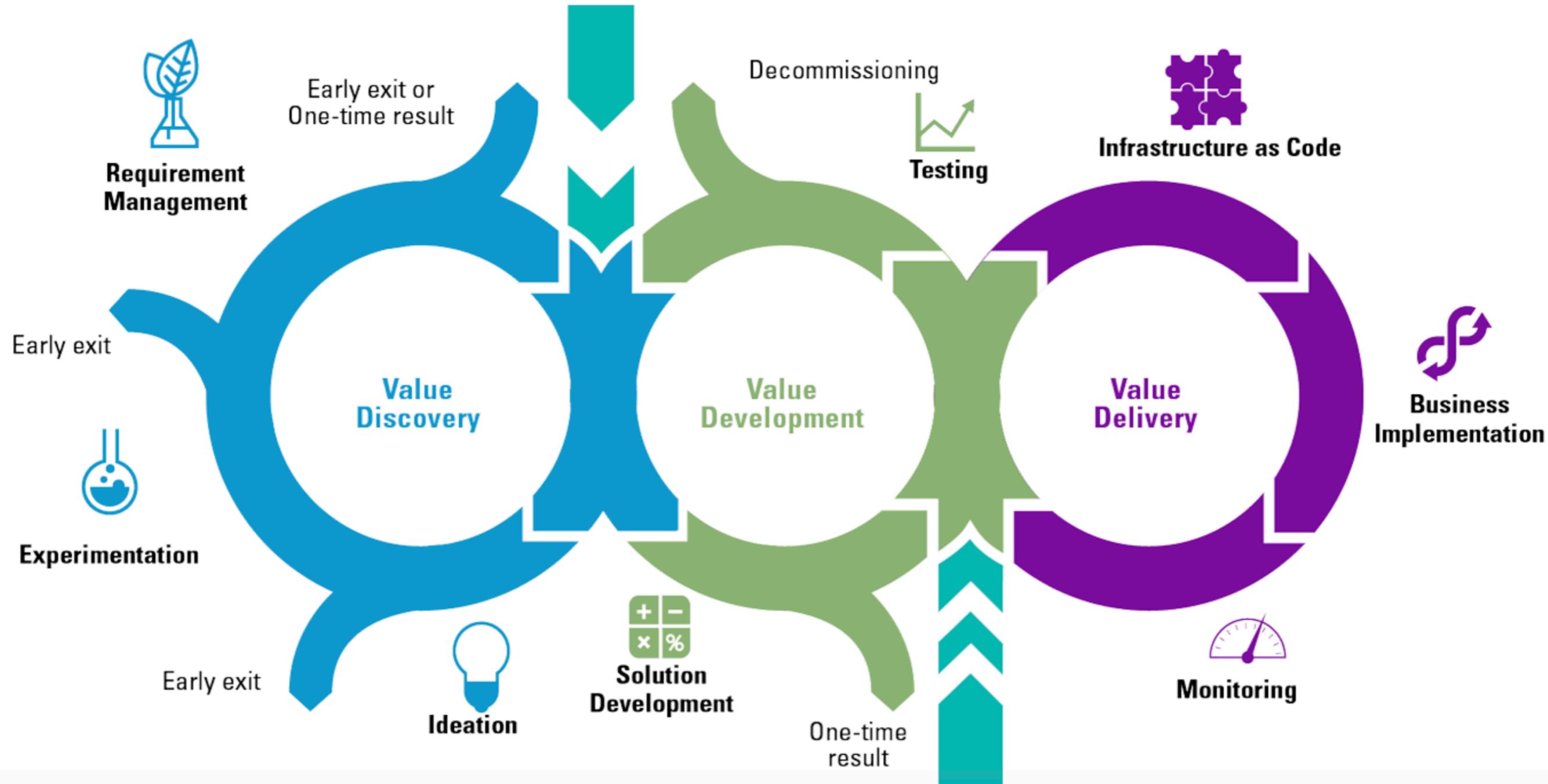
- **Se sei uno studente**, puoi usufruire a casa tua delle opportunità didattiche gratuite grazie ai percorsi professionali nel cloud e i badge delle specialty AWS Educate.
- **Se sei un insegnante** e desideri offrire moduli di apprendimento online gratuiti sul cloud computing ai tuoi studenti, laboratori di cloud virtuale alla tua facoltà o assicurarti AWS Promotional Credit per creare con l'aiuto di AWS, [aderisci gratuitamente ad AWS Educate](#) per accedere a queste risorse.
- Se sei un istituto alla ricerca di altre informazioni su come AWS sta contribuendo a favorire il lavoro e l'apprendimento da casa, [visita il blog AWS](#) o la [pagina AWS Remote Work and Learning](#) per informazioni dettagliate sull'uso gratuito di strumenti quali Amazon Chime, Amazon Connect e Amazon WorkSpaces per un ulteriore aiuto in questo difficile periodo. Puoi anche partecipare a una [chat live con un rappresentante AWS](#) relativa alle risorse per le scuole con difficoltà in ambito di apprendimento e lavoro remoto.



# Cloud & Mobile Technologies

Perché?

# Modern software development



# Modern software development

It is all about quality and speed



**Old World**  
One size fits all

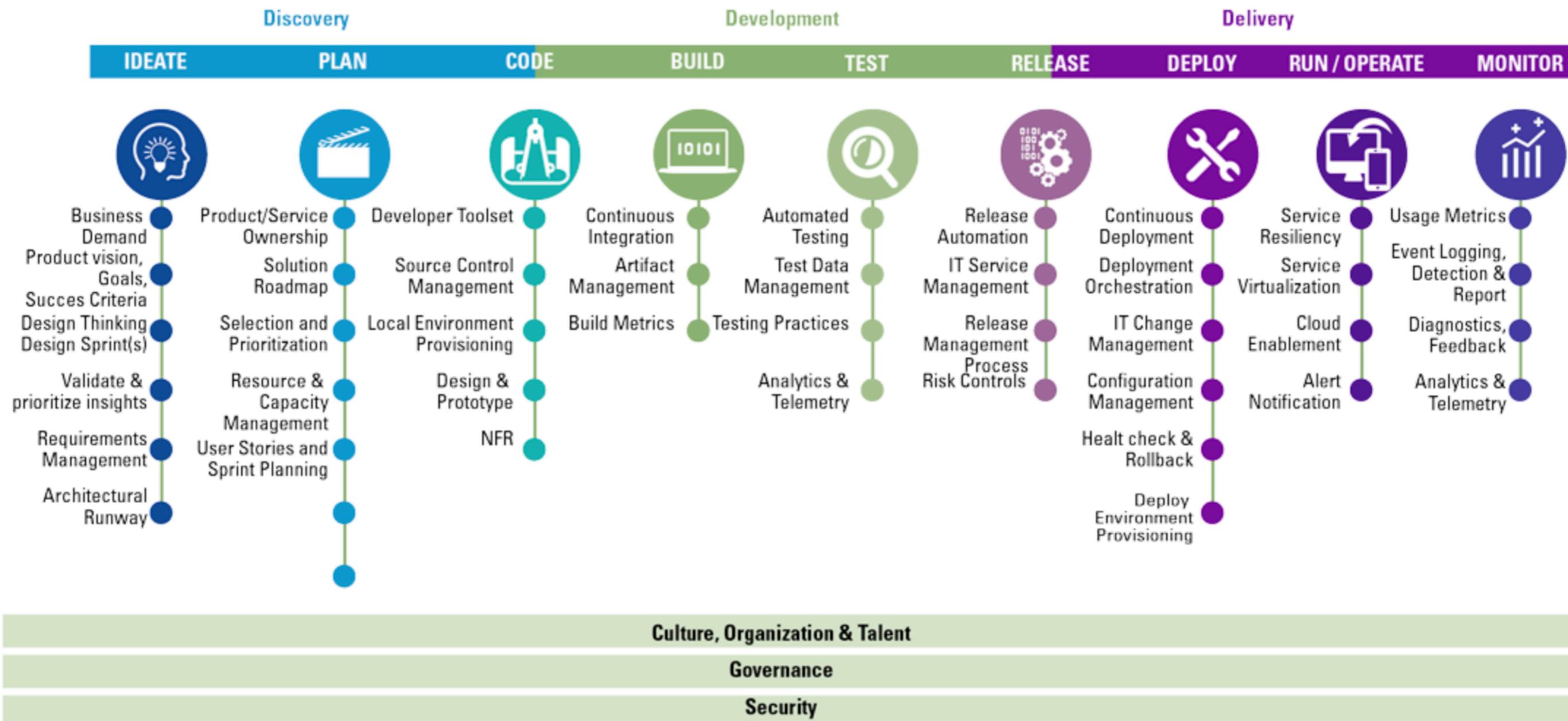


**New World**  
Best of breed

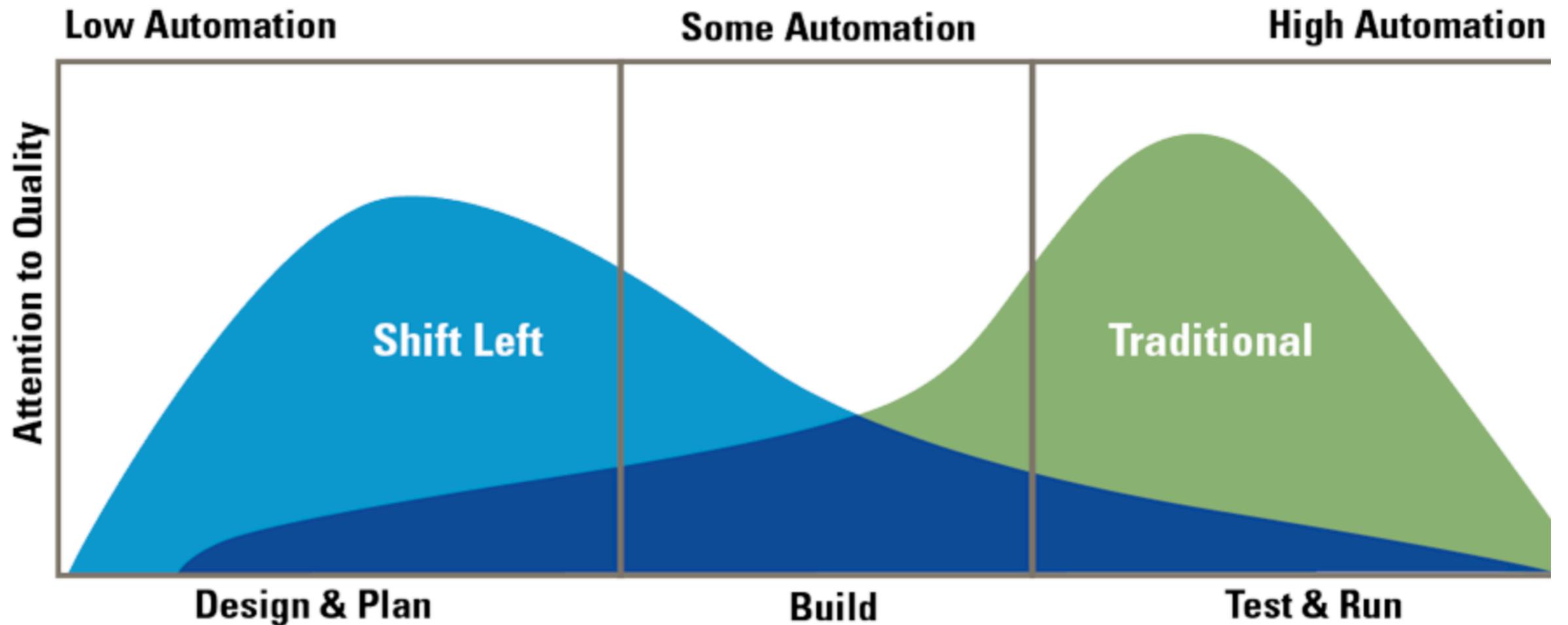


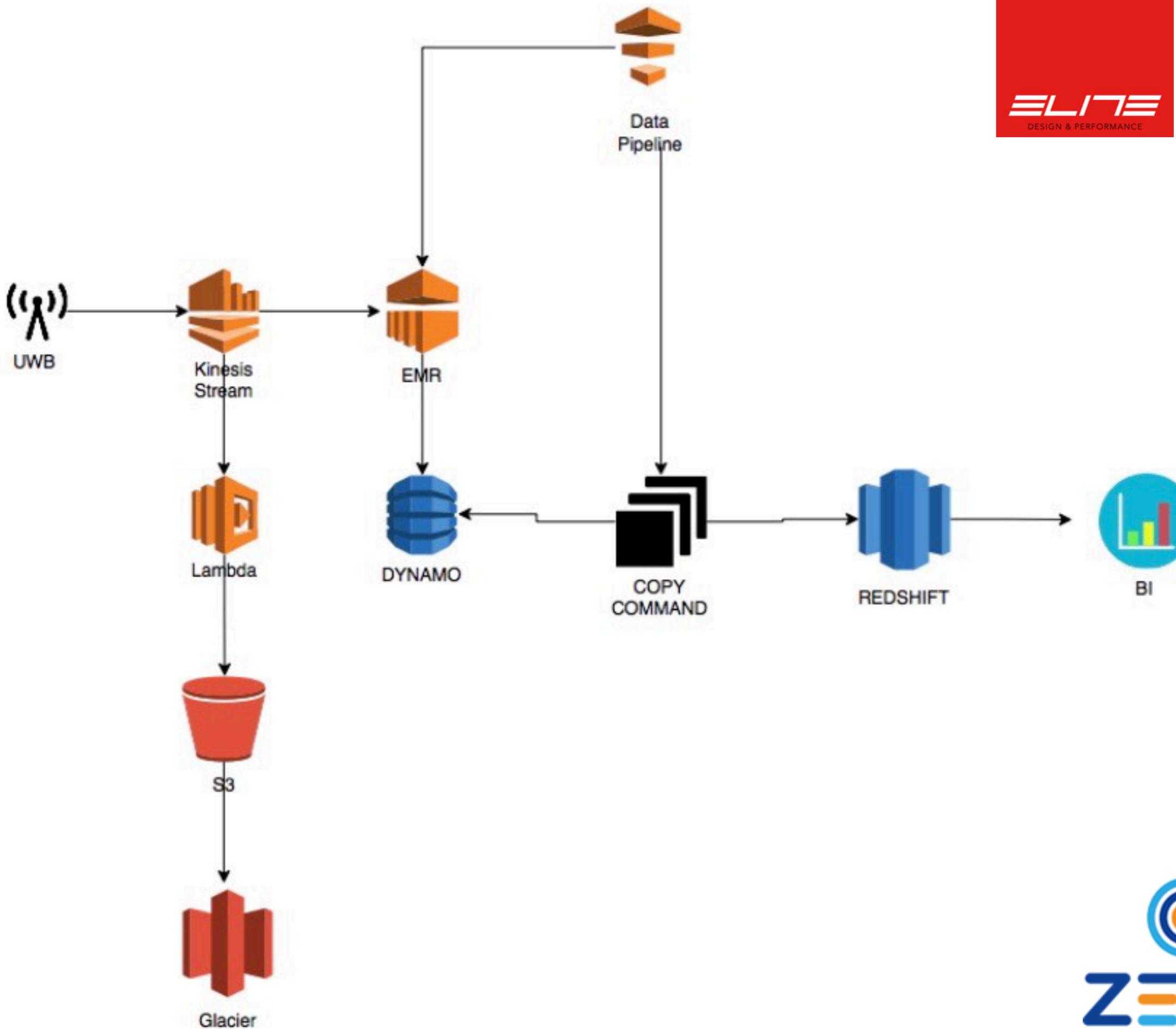
# Modern software development

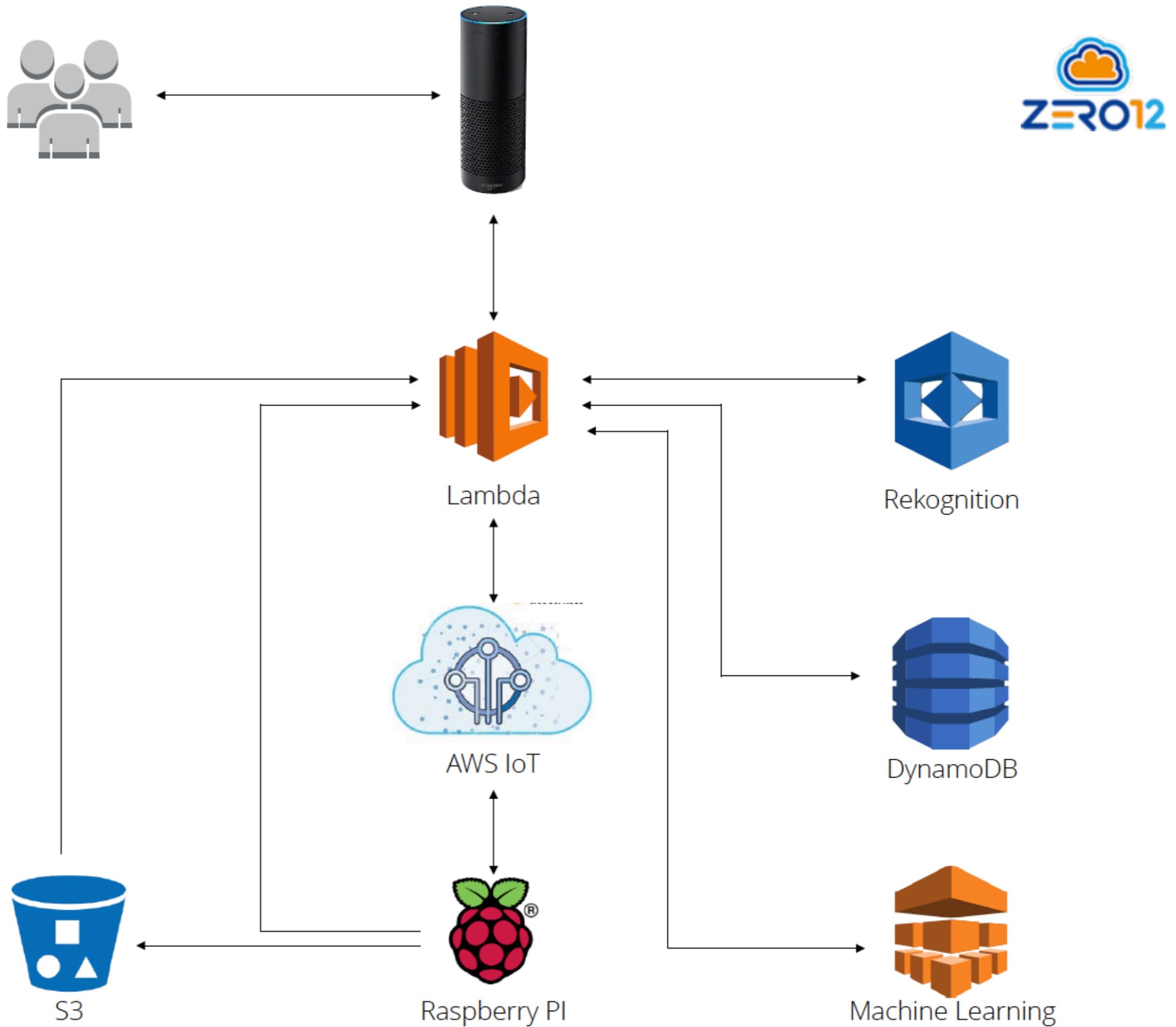
## Components of the Value Delivery Chain



# Modern software development

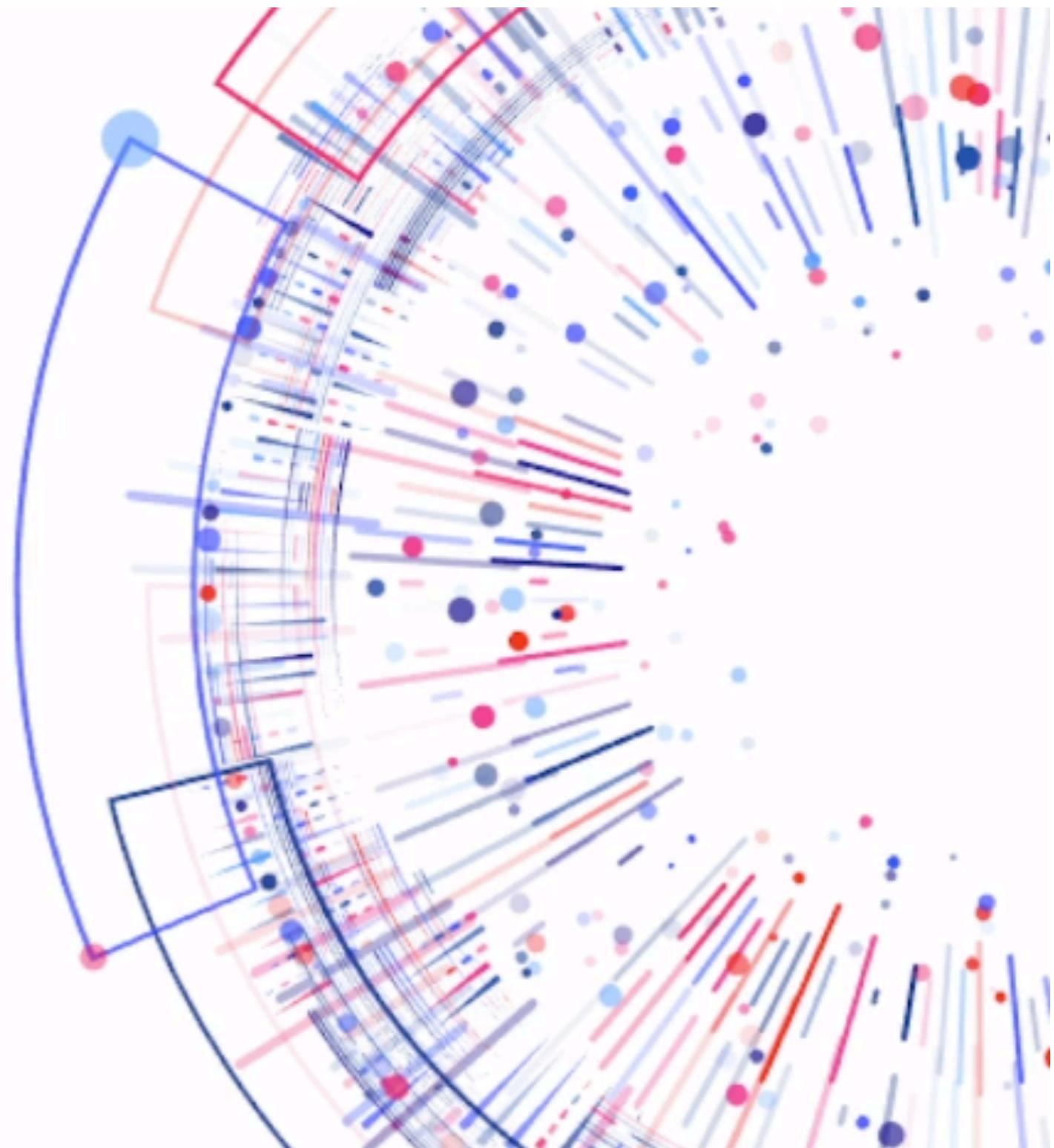






# Critical drivers for modern architecture

- Data volume
- Data variety
- Use case complexity
- Data access
- Breaking down silos



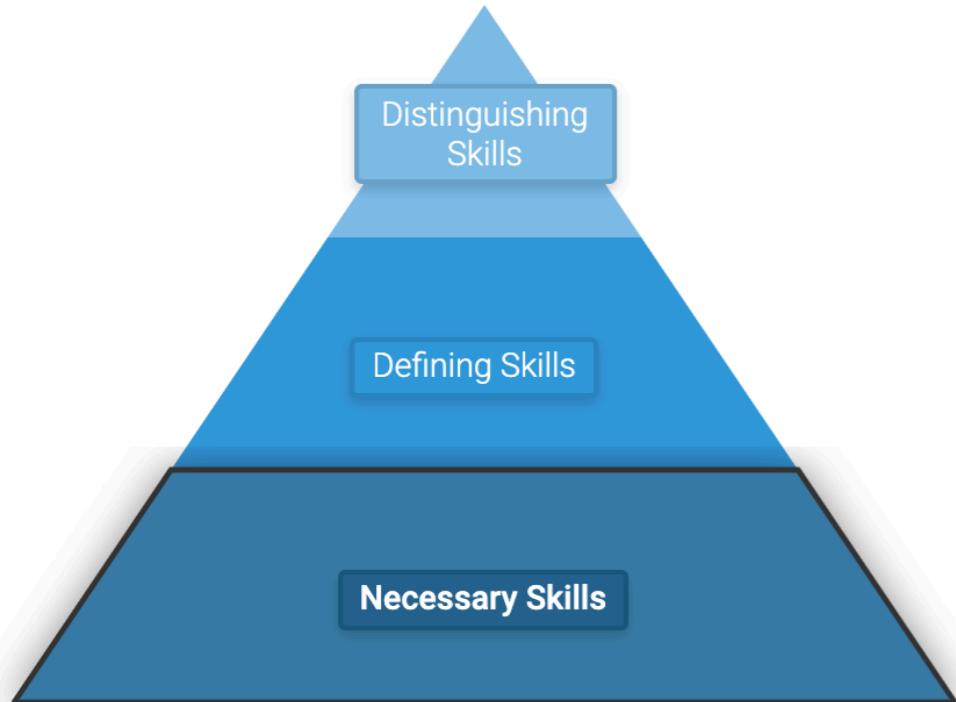
# AWS Servizi



Perché parleremo di cloud computing, DevOps, server-less architecture, mobile apps?

# Software Developer / Engineer

Occupational Skills for Software Developer / Engineer



Click a segment to explore more skills

An occupation's **Necessary skills** are specialized skills required for that job and relevant across other similar jobs. An employee needs these skills as building blocks to perform the more complex Defining Skills.

## Top Necessary skills by demand

Skill	Salary Premium	Job Postings Requesting Last 12 Months	Projected Growth 2 Years
Microsoft C#		186,915	-15.2% ↘
Linux		166,275	-3.5% ↘
.NET		144,480	-28.1% ↘
Oracle		138,999	-8.1% ↘
C++		134,519	-7.0% ↘
Scrum		116,506	+13.1% ↗
Project Management		96,659	-6.5% ↘
Extensible Markup Language (XML)		94,043	-23.0% ↘
Debugging		93,912	-5.2% ↘
SQL Server		92,634	-14.9% ↘

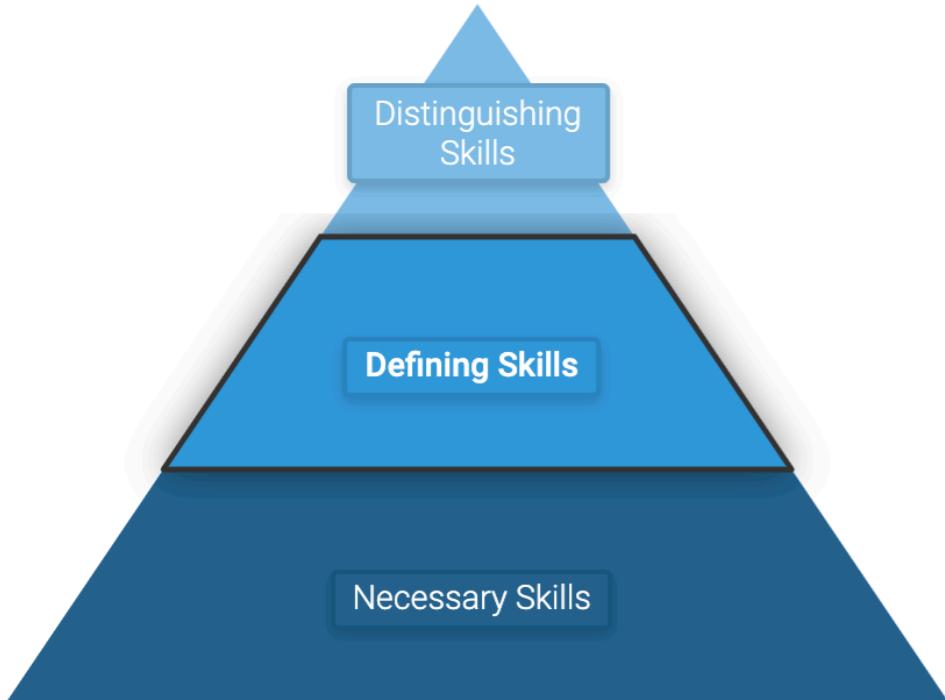
[Learn more](#) about Occupational Skill Categories.

Burning-Glass Technology Data (2020)  
Tabulaex Data (2020)



# Software Developer / Engineer

Occupational Skills for Software Developer / Engineer



Click a segment to explore more skills

An occupation's **Defining skills** represent the day-to-day tasks and responsibilities of the job. An employee needs these skills to qualify for and perform successfully in this occupation.

## Top Defining skills by demand

Skill	Salary Premium	Job Postings Requesting Last 12 Months	Projected Growth 2 Years
Java		431,140	-8.3% ↘
Software Engineering		369,795	+4.7% ↗
Software Development		368,176	-1.0% ↘
SQL		354,008	-9.3% ↘
JavaScript		277,353	+3.4% ↗
Python		209,699	+24.1% ↗
Git		152,718	+26.1% ↗
DevOps	✓	137,740	+39.9% ↗
Object-Oriented Analysis and Design (OOAD)		119,898	-15.3% ↘
Unit Testing		113,911	+4.4% ↗

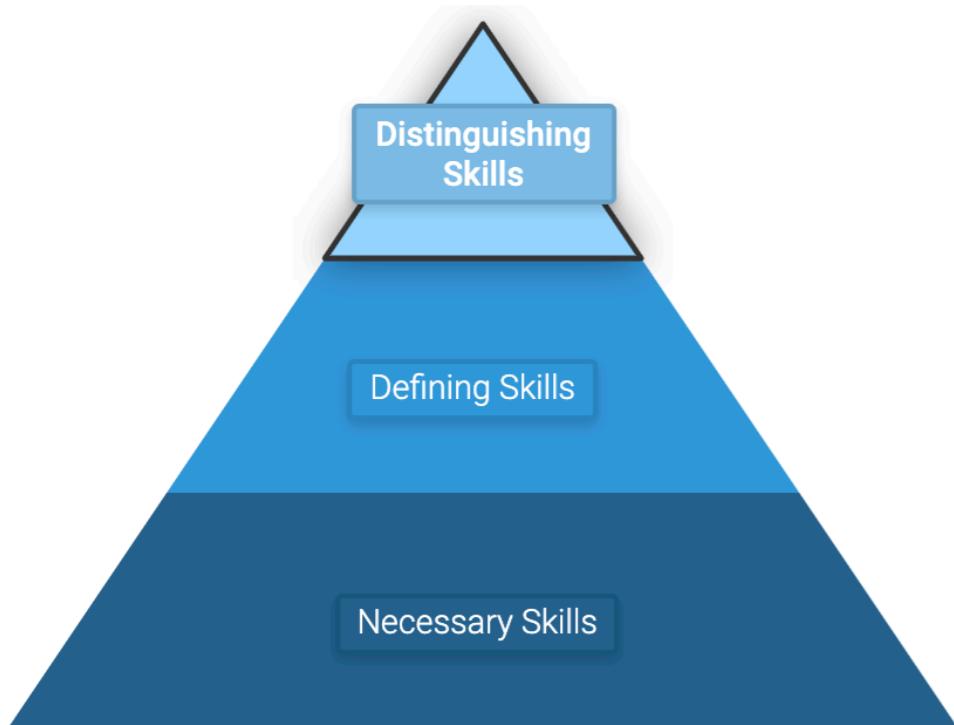
[Learn more](#) about Occupational Skill Categories.

Burning-Glass Technology Data (2020)  
Tabulaex Data (2020)



# Software Developer / Engineer

Occupational Skills for Software Developer / Engineer



Click a segment to explore more skills

An occupation's **Distinguishing skills** are the advanced skills that are called for occasionally. An employee with these skills is likely more specialized and able to differentiate themselves from others in the same role.

## Top Distinguishing skills by demand

Skill	Salary Premium	Job Postings Requesting Last 12 Months	Projected Growth 2 Years
NoSQL		74,756	+18.1%
JavaScript Object Notation (JSON)		72,159	+11.0%
Software Architecture		68,397	+1.7%
React Javascript		58,033	+88.1%
Test Driven Development (TDD)		47,307	
Big Data		46,189	+16.8%

[Learn more](#) about Occupational Skill Categories.



# Materiale e Lezioni

# Materiale

- Slide e materiale
  - <https://tinyurl.com/unibg-m-c-2020>
- GitHub
  - <https://github.com/mauropelucchi/unibg mobile and cloud 2020>

# Come seguire le lezioni?

- Il materiale verrà caricato sulla cartella condivisa GDrive
- Codice sorgente e altro materiale verrà reso disponibile attraverso GitHub
- Software/Tools necessari sul proprio notebook:
  - Visual Studio Code <https://code.visualstudio.com/>
  - Account GitHub
  - Account AWS Free Tier
  - Altro materiale verrà comunicato durante il corso

# Come seguire le lezioni?

- Lezioni in Remoto
  - Stanza Zoom
  - <https://us04web.zoom.us/j/765302450>
  - <https://zoom.us/>
- Ricevimento studenti
  - <https://www.meetingbird.com/h/mauropelucchi>
- Email
  - [mauro.pelucchi@unimib.it](mailto:mauro.pelucchi@unimib.it)
  - [mauro.pelucchi@gmail.com](mailto:mauro.pelucchi@gmail.com)
- Registrazione delle lezioni disponibili sulla cartella GDrive

# Calendario delle lezioni

- 9 Maggio 2020
  - Dalle ore 9 alle ore 13
- 16 Maggio 2020
  - Dalle ore 9 alle ore 13
- 23 Maggio 2020
  - Dalle ore 9 alle ore 13
- 30 Maggio 2020
  - Dalle ore 9 alle ore 13

# Svolgimento della lezione in remoto

- Sezione teoria + Dev session [2 ore]
- Assignment [1 ora]
- Presentazione del vostro lavoro e commento [30 minuti]
- Q&A