



# Cloud Native Applications

REV. 10/2021 |

# Cloud Native Applications

## *Event-driven single view of customer:*

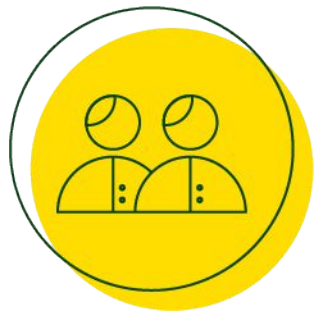
*Frictionless and real-time enterprise aggregation architecture for data propagation and business critical services*

Nov 16<sup>th</sup> 2021, Red Hat Summit Connect, Milan  
*Luciano Di Leonardo*

*luciano.dileonardo@dabpumps.com*

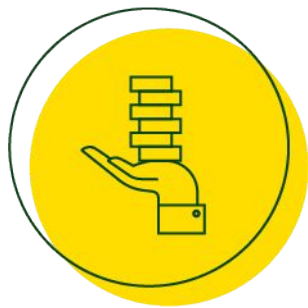
*Solution Architect at DWT Holding S.p.A.*

# DAB IN NUMBERS

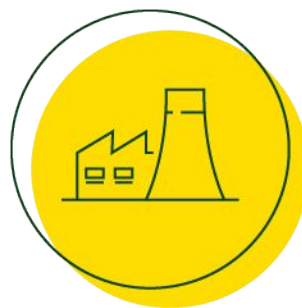


**1700  
PEOPLE**

55% ITALY  
45% ABROAD



**338 M€  
TURNOVER**



**6  
PRODUCTION  
SITES**



**14  
SALES  
OFFICES**



**2.5 M  
PIECES  
PRODUCED**

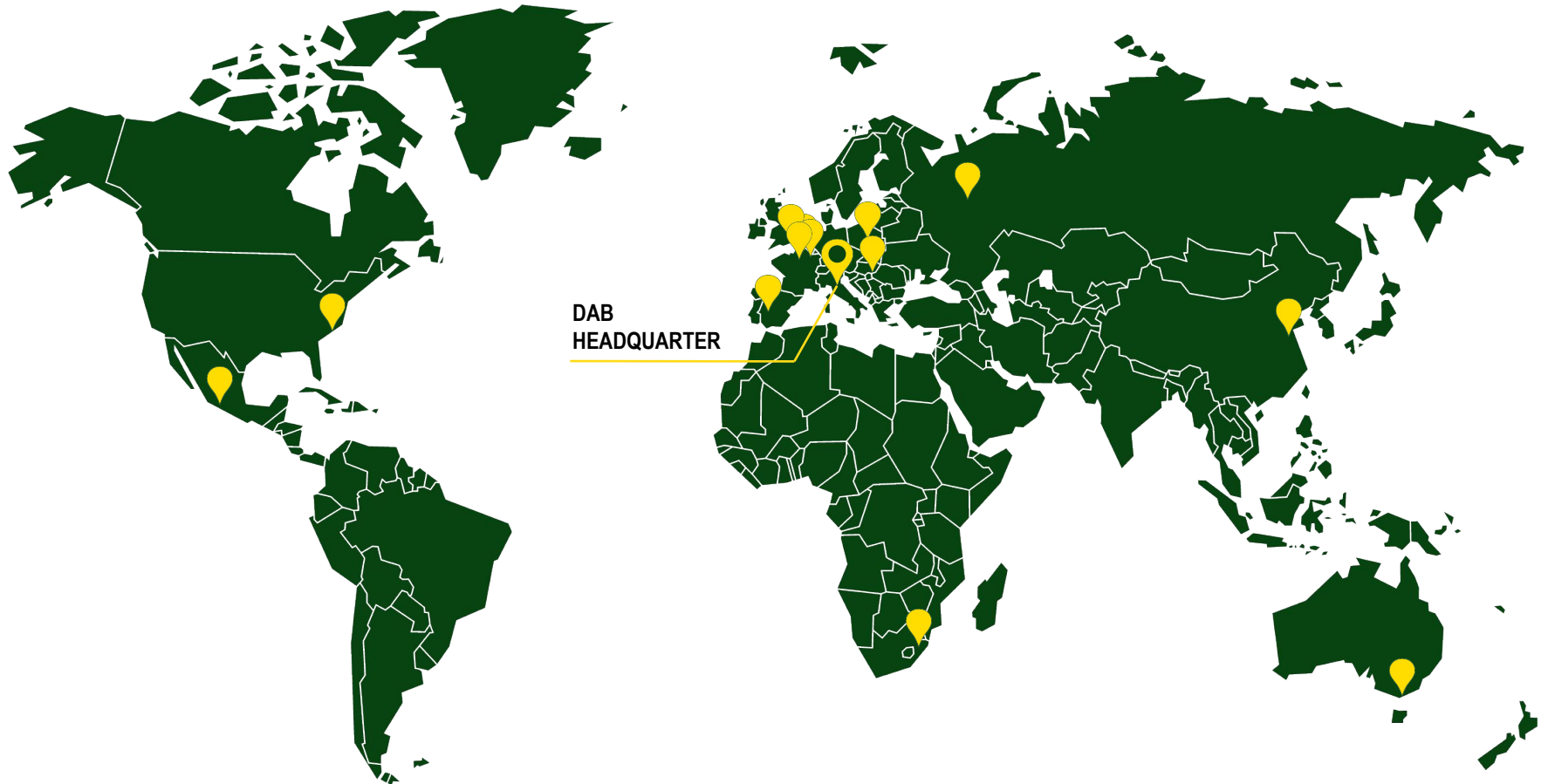
# WORLD MAP



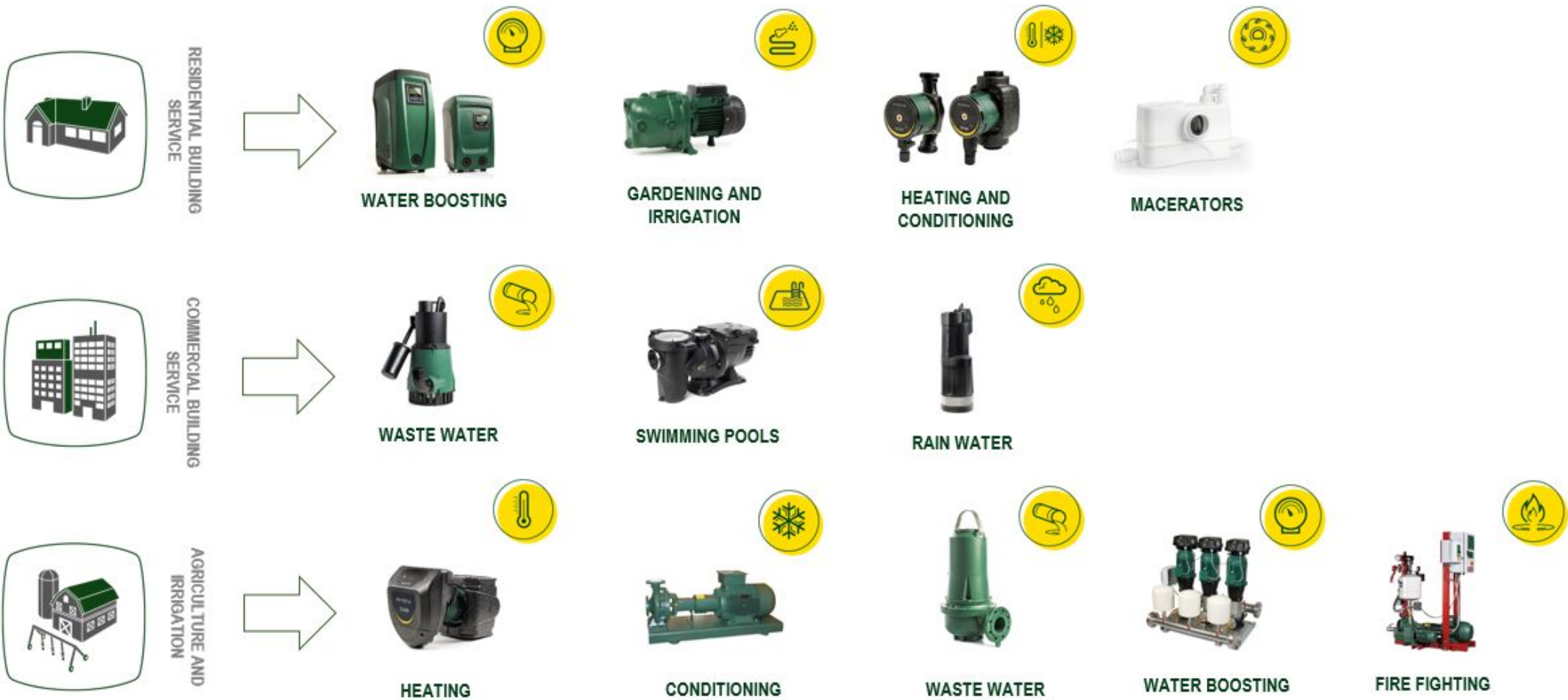
**PRODUCTION  
SITES**



**SALES OFFICES**



# MARKETS & PRODUCTS



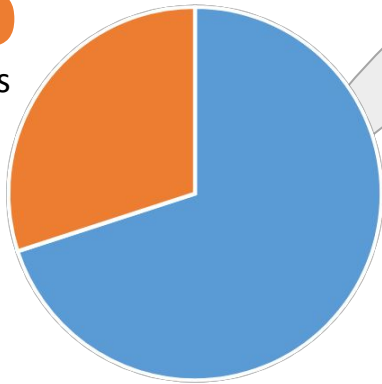


# Move-To-Cloud Strategy

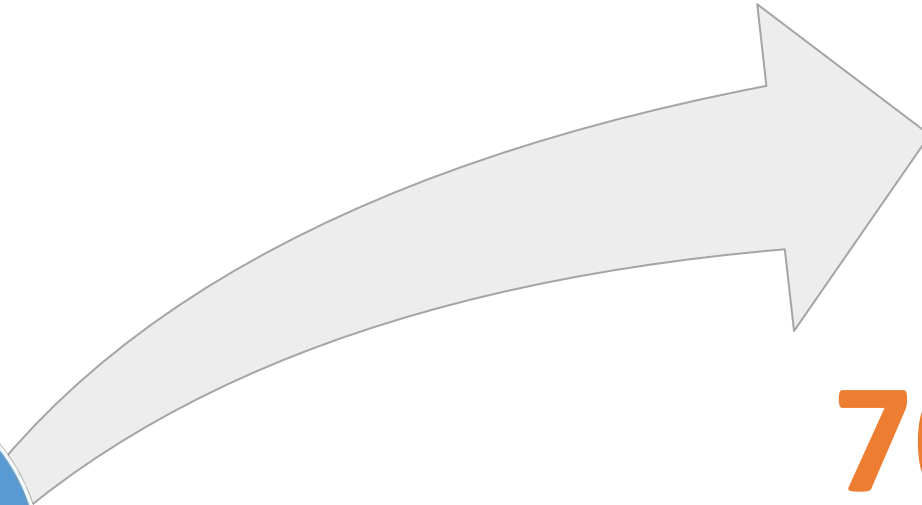
2020 / 2025 Plan

# Move-To-Cloud Strategy 2020/2025

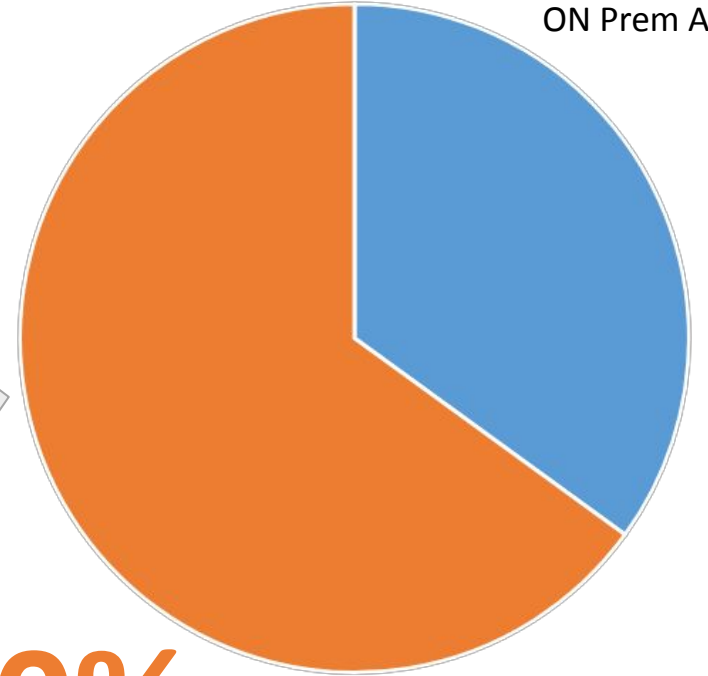
**30%**  
Cloud Applications



**70%**  
ON Prem Application



**70%**  
Cloud Applications

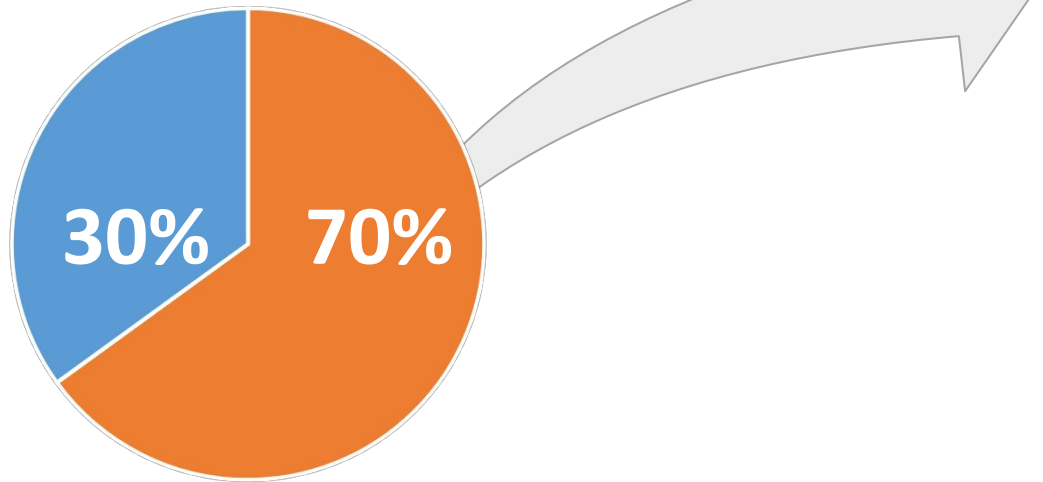


**30%**  
ON Prem Application

# Move-To-Cloud – why?

## NOT ONLY A TREND

Cloud is not more an option but is a real technology trend that help the organization to release services without having some limitation that are normal in a on prem solution





## Project Journey

**CARING  
FOR THE  
FUTURE**

# Principles of Cloud-Native

## *Service Based*

- Understand and apply a logical / functional segregation
- Respect EIP

## *API-Centric*

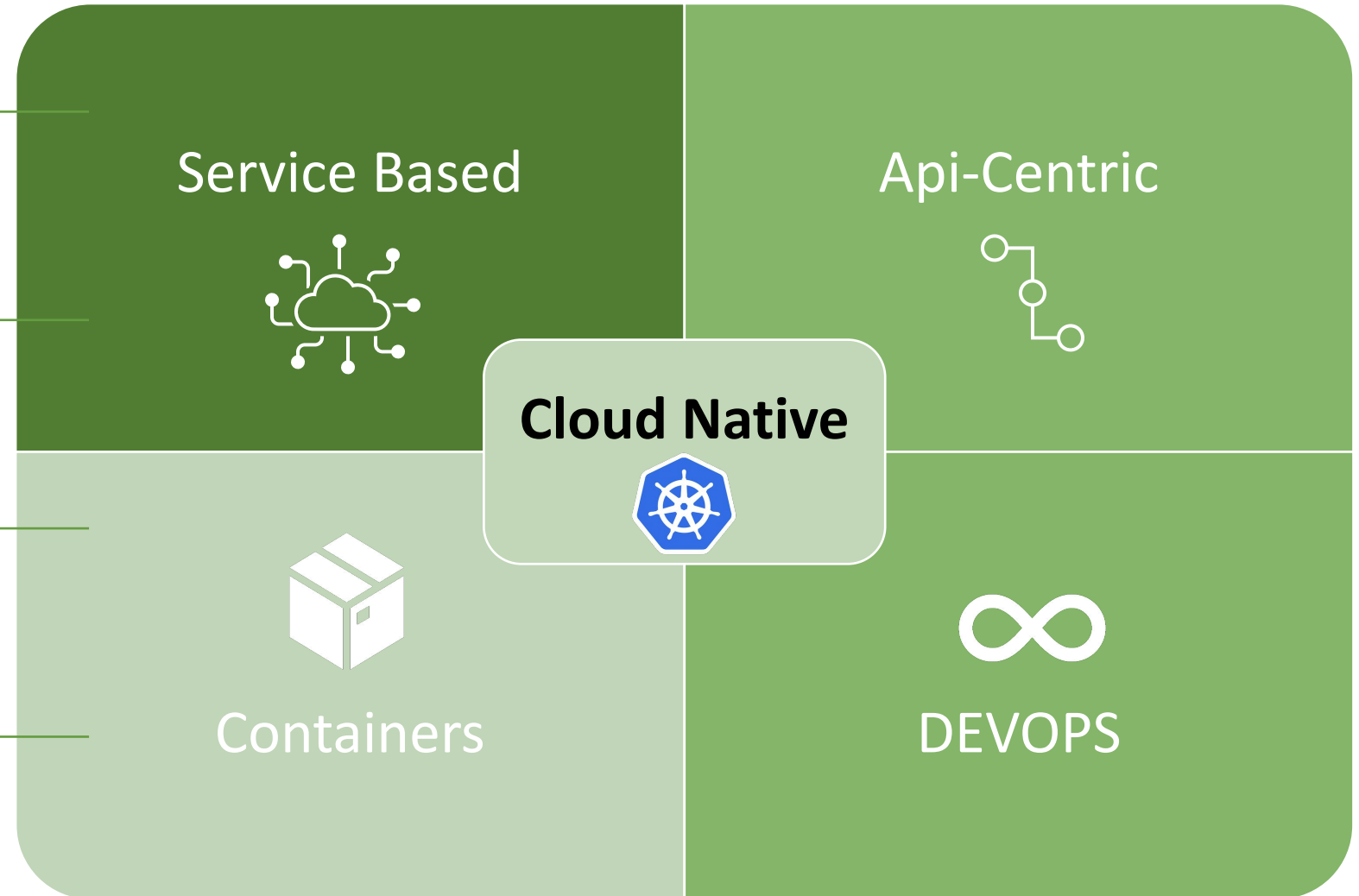
- Use standard communication protocols: REST APIs, Messaging, Queues, Streams

## *Containers*

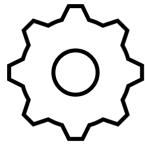
- Inglebe and package through Docker Containers and native compilations

## *Devops*

- Fast, automatic, secure, controlled and monitored software lifecycle



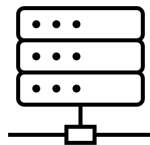
# Principles of Cloud-Native



Cloud-native applications refer to collections of independent, small-sized, loosely coupled services, which are designed for enhancing the speed of building new applications along with optimizing the existing ones as well as for connecting all of these. The term “cloud-native” indicates anything that exists and runs in the cloud.

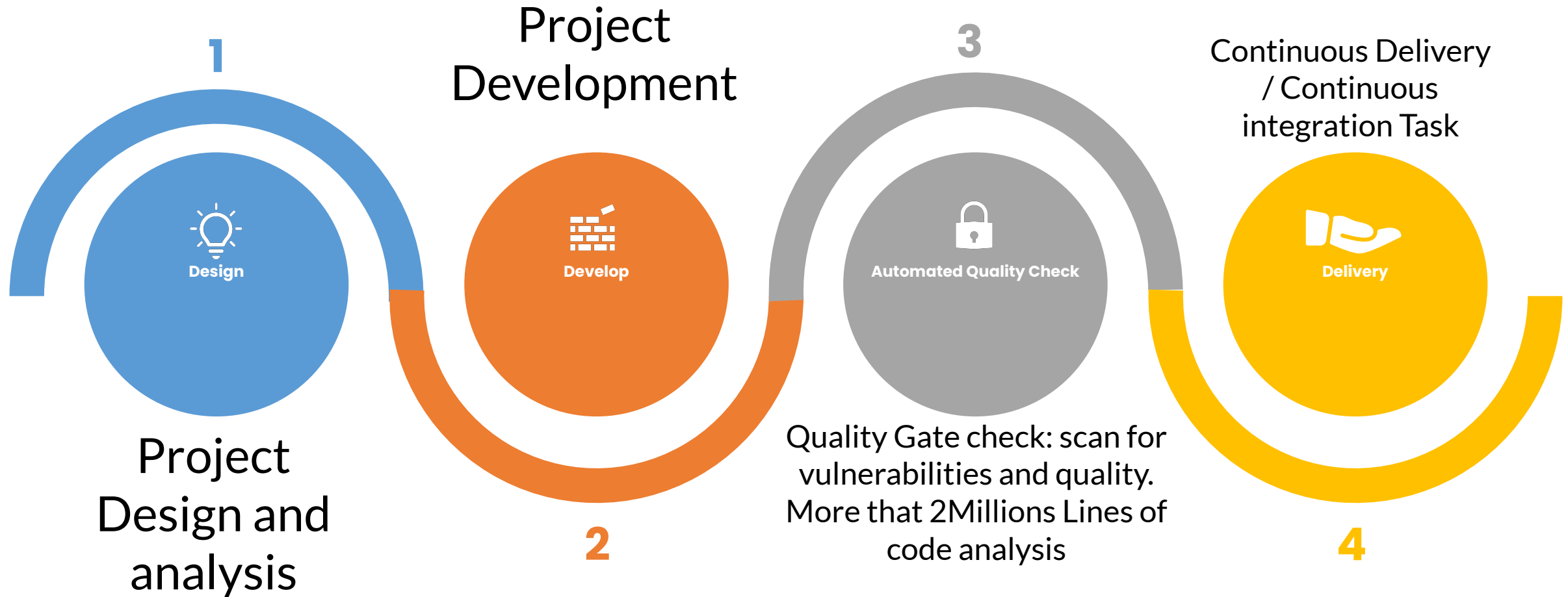


A cloud-native app is designed to ensure an experience across public, private and hybrid clouds that provides automated management and consistent development. Cloud computing serves the purpose of increasing scalability as well as the availability of apps. These benefits are delivered through resources’ on-demand provisioning and by enabling automation of an application’s life cycle.



To digress, cloud technology is used in cloud hosting for hosting a website. Cloud hosting is a web hosting service which makes websites accessible.

# DEVOPS in a box



# API Design



Provide a valuable service



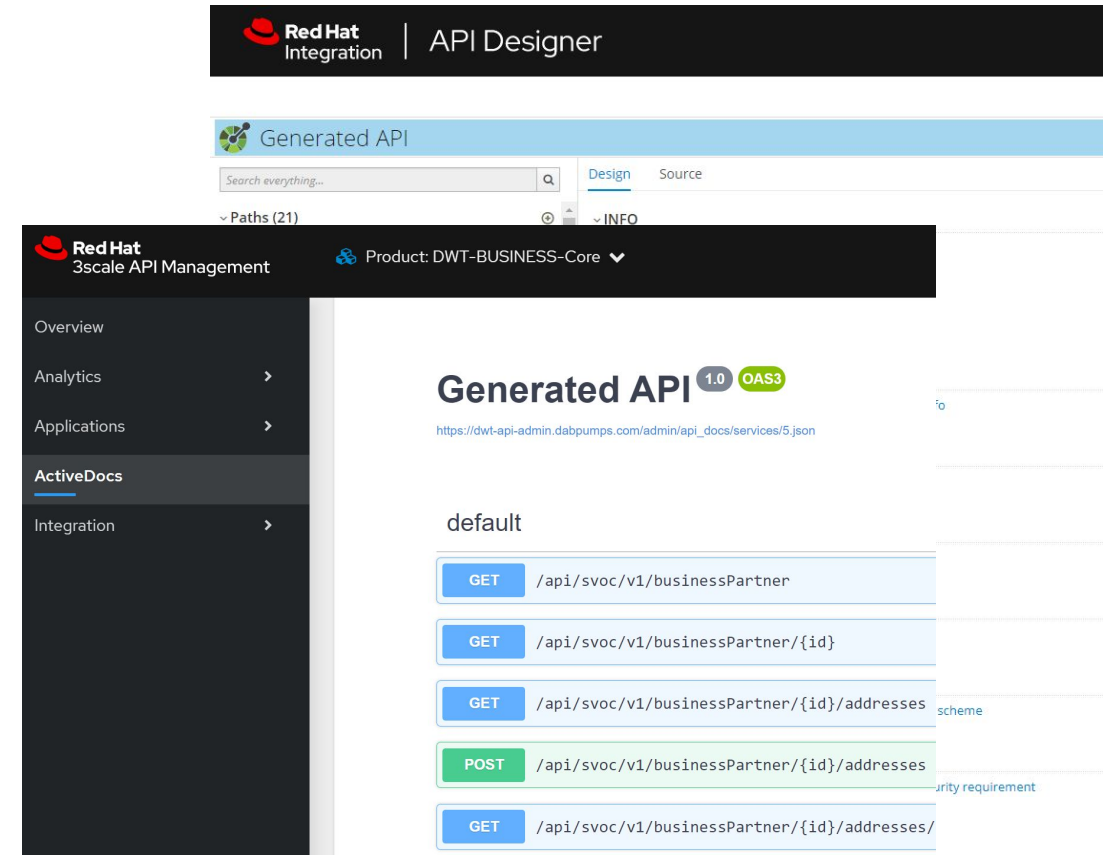
Have a business plan and model an API that is simple, flexible and easy to use



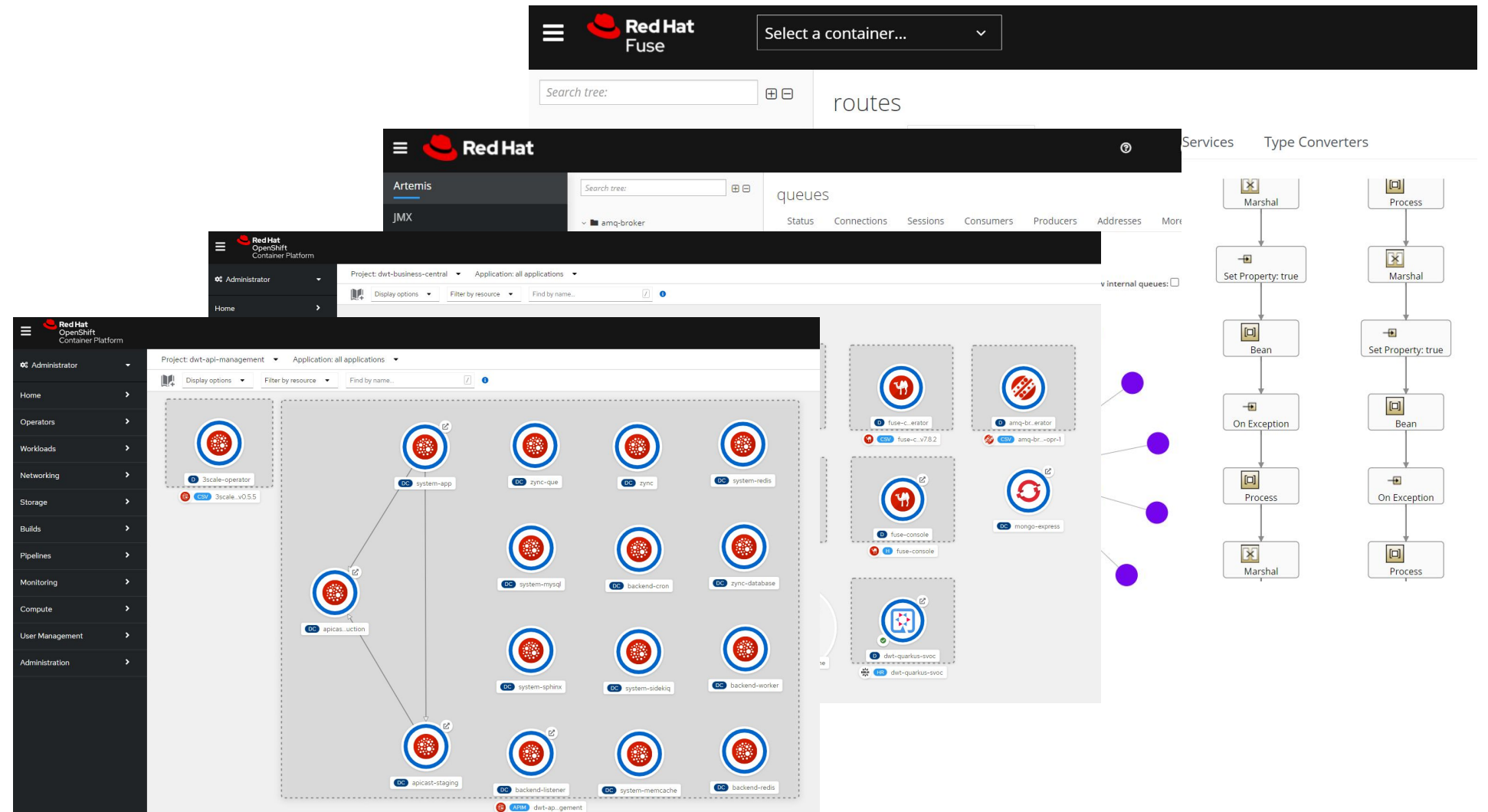
Make sure that it is also manageable and measurable



Provide great developer support



# Service Design



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**Cloud Native: a bold leap forward**



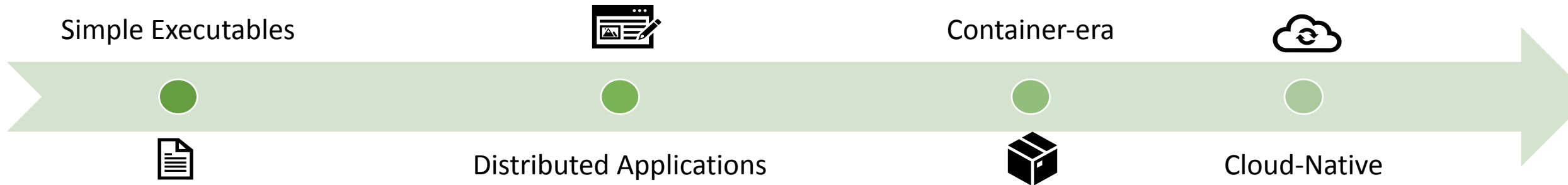
# Cloud-Native: a bold leap forward

## Back to origin

Before enterprise application there were standalone applications: simple executables compiled for target environment (Windows / Linux etc.). Enterprise Applications introduced a new approach for distribution: Web Based Applications. They were and currently are built on a “distributed” pattern, running acquiring dependencies over application server. Highly complex and multi-layered. Server Maintenance, backups, restore, balancing were highly complex to be applied.

Container-era reduced management complexity but application granularity was still the same.

A cloud-native application takes all the best from StandAlone, the best from Enterprise Applications and the best from Containers.

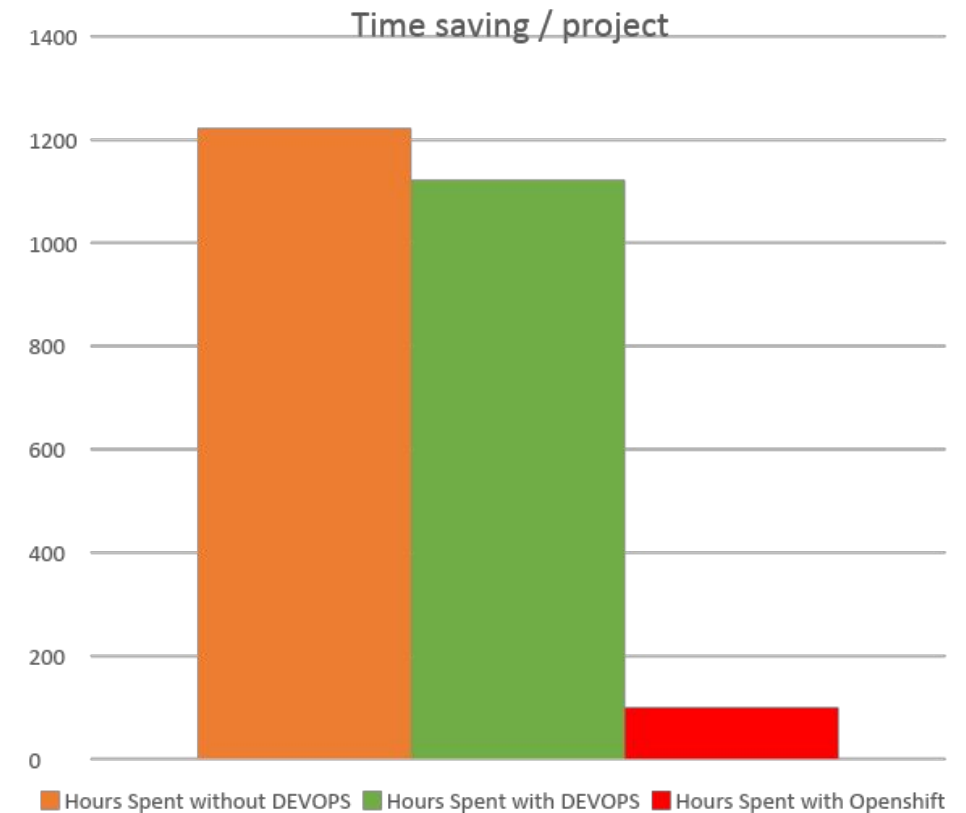


# Cloud-native: *Time and cost saving*

## Metrics

By adopting a cloud native application it makes possible to speed-up devops processes, by implementing DEVOPS processes and new technologies

Task	Time Spent Without DEVOPS	Time Spent with DEVOPS	Time Spent with OpenShift	Hours
System Requirements Collection	8	8	0	
Machine Preparation	3	3	0	
Environment Configuration	24	24	0	
Security check	8	0	0	
Vulnerability assessment	8	0	0	
3rd party support	24	24	0	
DEV - Deployment	2	0	0	
DEV - Testing	280	200	100	
DEV - MTP (Move-To-Production)   Go Live	2	0	0	
System Follow-up	240	240	0	
System Backup Plan	3	3	0	
System Maintenance	260	260	0	
System Update	360	360	0	
	Hours Spent without DEVOPS	Hours Spent with DEVOPS	Hours Spent with OpenShift	
	1222	1122	100	



# Cloud-Native: Architecture



## Requirements

- Each country has its own vertical e-sales system, deferred to B2C and B2B, with different behavior in terms of price list, catalog, legal regulations etc.
- 



## Identity-First

- The entire solution is built with an "identity-first" approach, covered by a distributed SSO system and - in some specific cases - dedicated to specific countries of the corporate group to meet particular legal requirements.
- The SSO layer is also widely used for APIs access by output platforms and for the implementation of servitization projects.
- All the activities carried out by the user, access to the system, auditing etc., are tracked through a private Blockchain network (Corda R3).



## Openshift

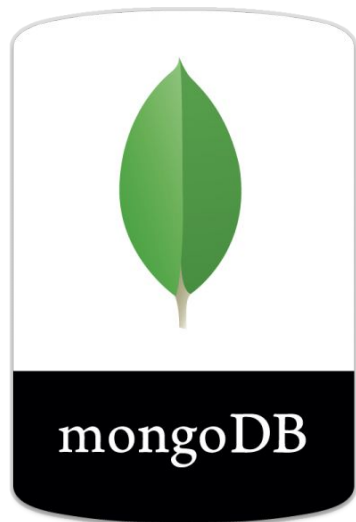
- The middleware component plays a very important role, making communication between B2B platforms and legacy systems (ERP, CRM etc.) possible, in a 24/7 service context.



## CloudNative solutions

- The greatest effort was focused on the implementation of a scalable, reliable and cloud-ready architectural solution.
- Our solution is based on RedHat OpenShift components and internally developed with cloud-native technologies.

# Cloud-Native: Architecture



## Frameworks

- Red Hat build of Quarkus
- Red Hat fuse (up to 7.8)

## Tracing, access and monitor

- 3 Scale Api Management

## Components

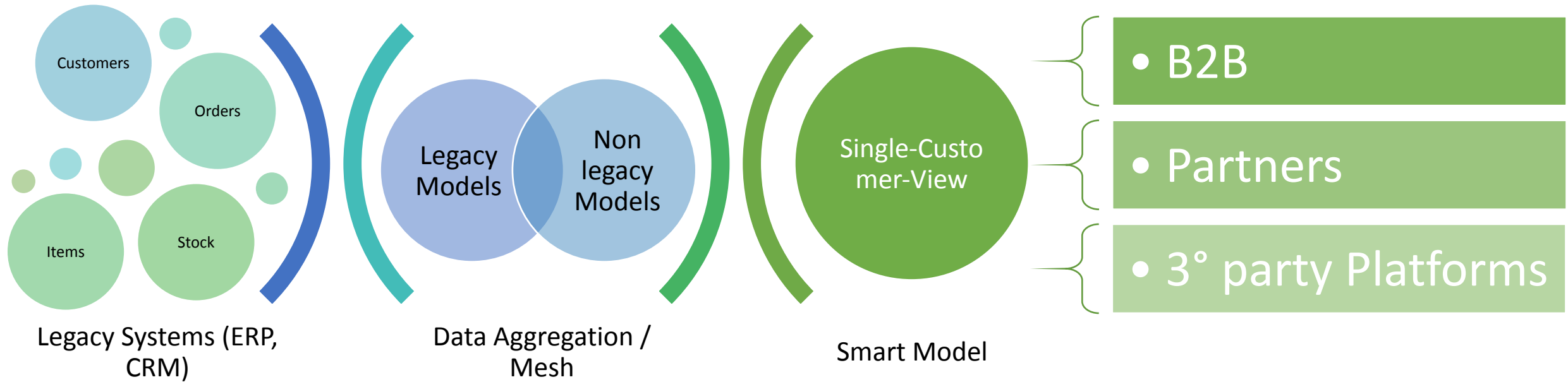
- Red Hat AMQ
- Red Hat AMQ Stream
- Debezium

## Storages and data persistence

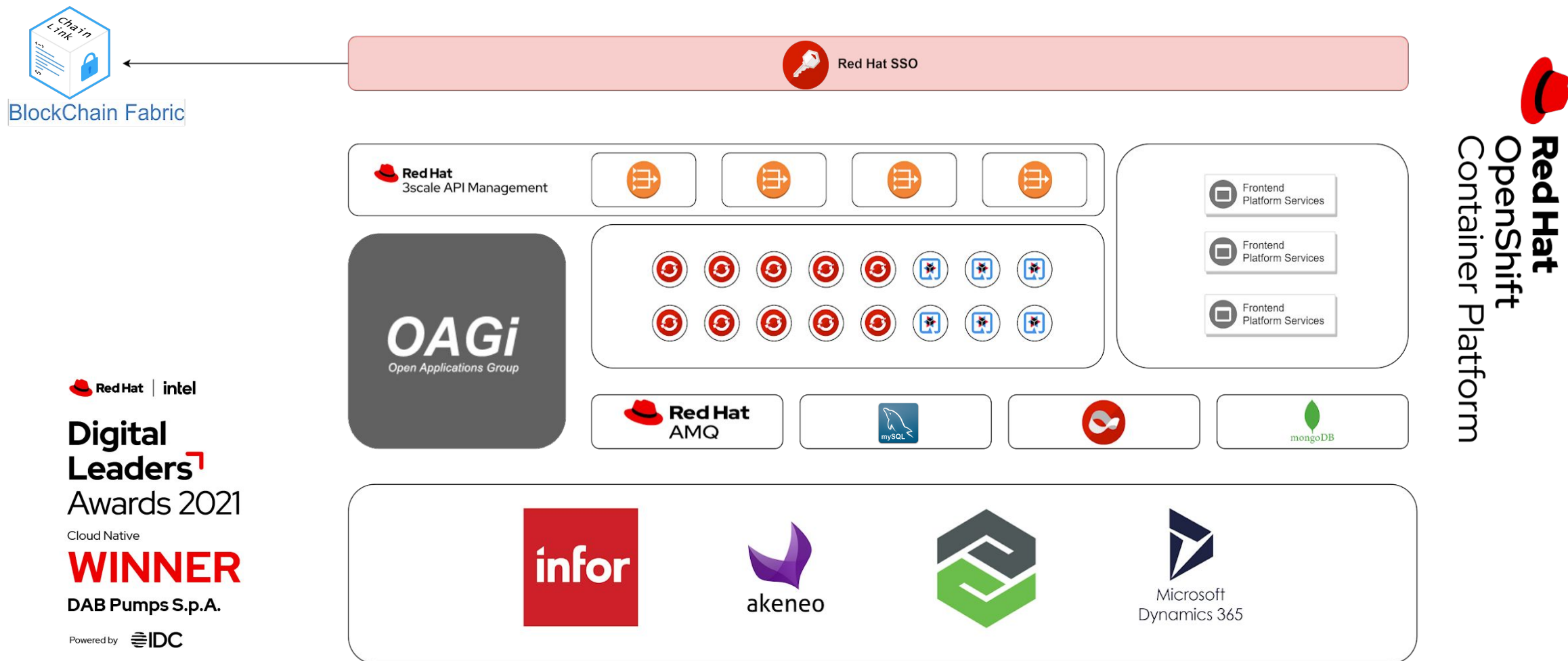
- MySQL
- MongoDB
- Red Hat Datagrid

# Cloud-Native: our target

Making data available, accessible, readable at any-time in zero-time



# Cloud-Native: Architecture

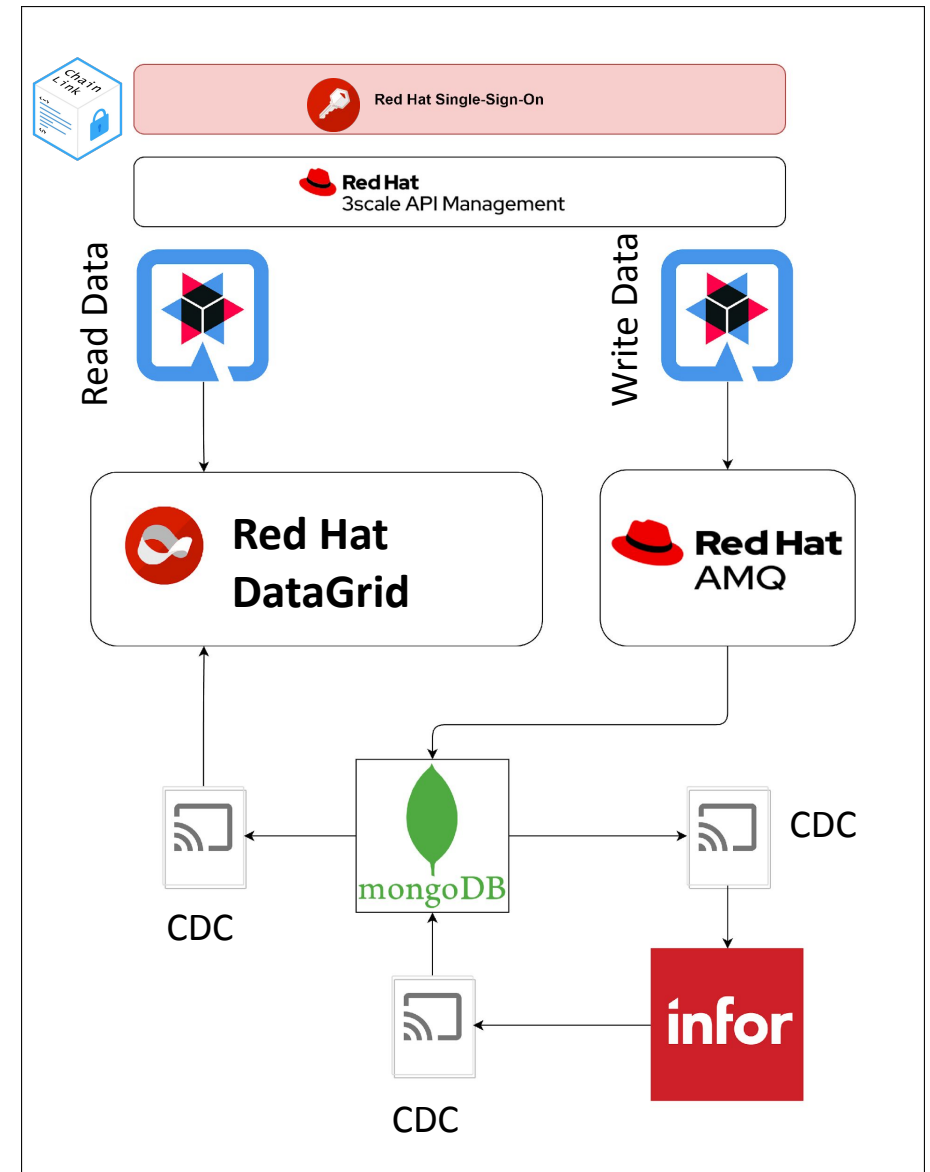


# Cloud-Native: Application Workflow

Our solution implements horizontal and vertical scaling strategies, to maximize performance and minimize response time (mainly due to the use of non-relational databases and caches).

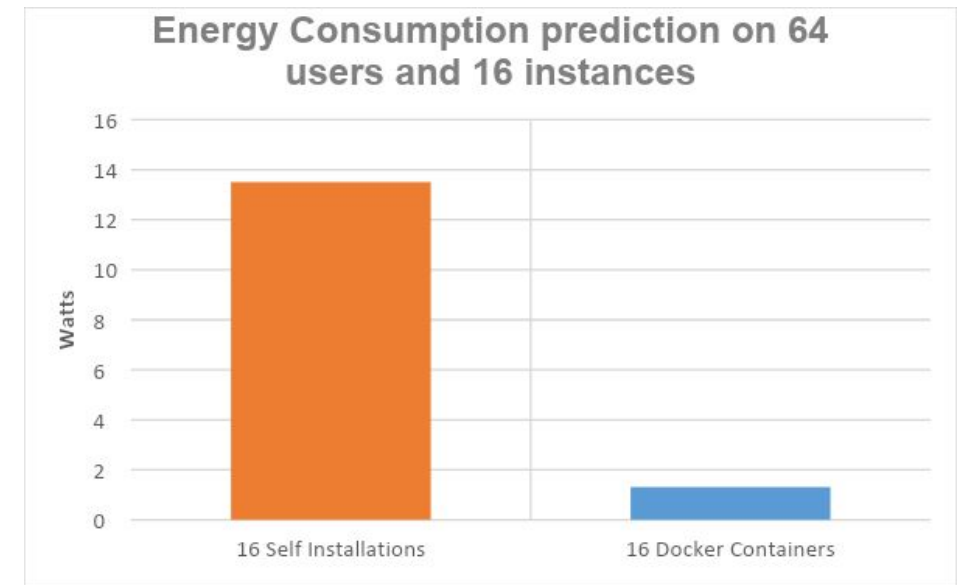
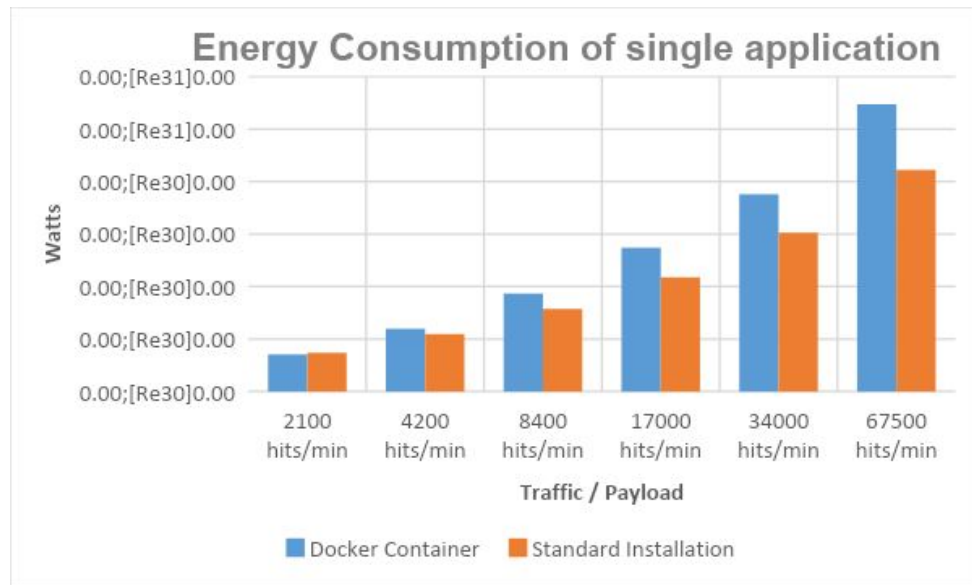
Our solution, defined SDP (Single-Data-Point), through the implementation of the CDC strategy, allows the delivery of business data in real time and its distribution to different output channels in Stream or Rest mode.

Our solution is able to expose core-business services which extend the data acquisition channels of ERP, CRM, PLM and PIM systems.



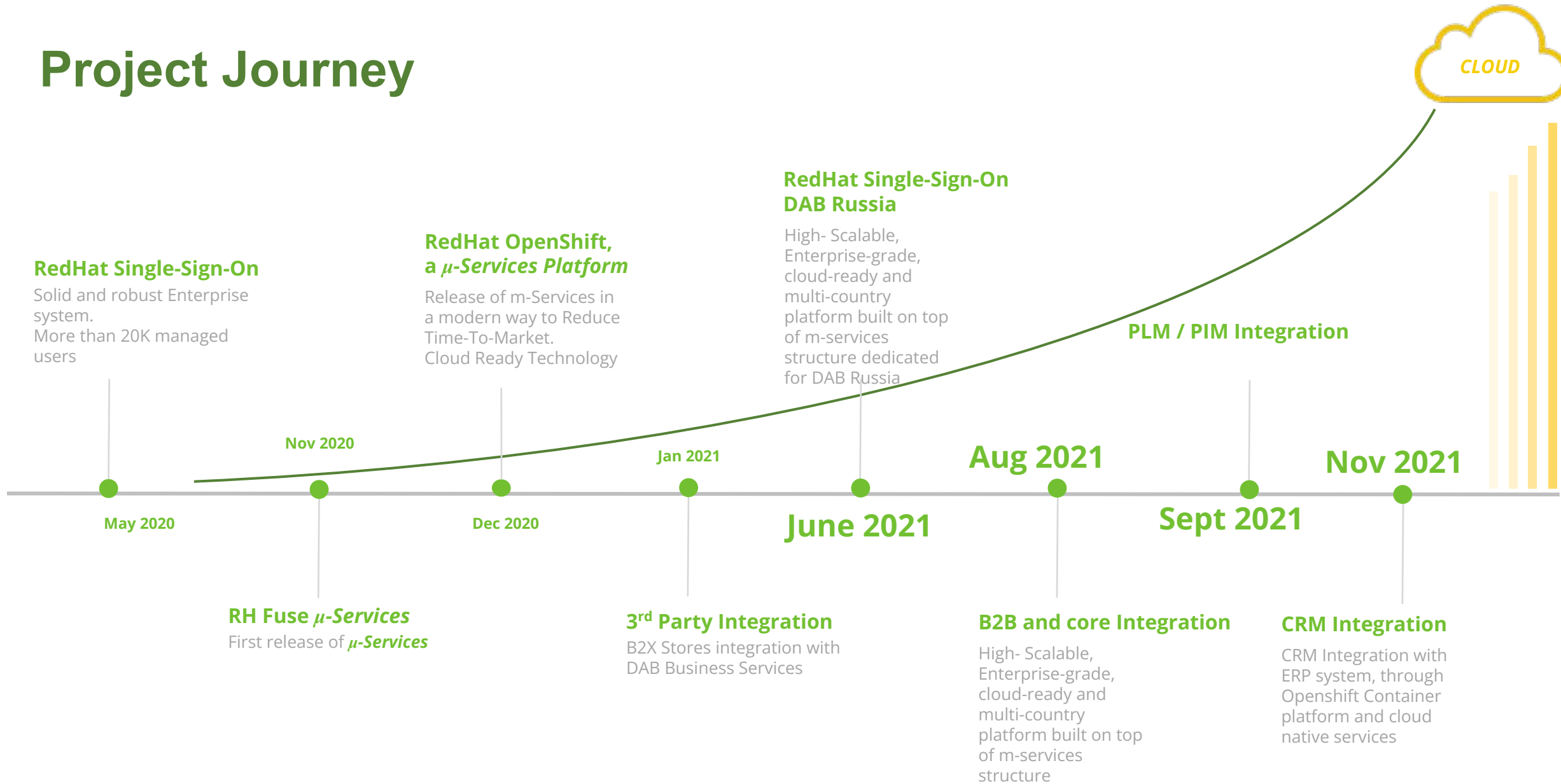
# Cloud-native: *Stay Green*

	2100 hits/min	4200 hits/min	8400 hits/min	17000 hits/min	34000 hits/min	67500 hits/min	
Docker Container	0,1414	0,2386	0,3731	0,5482	0,7523	1,0952	Watts
Standard Installation	0,1477	0,2196	0,3152	0,4357	0,6057	0,8444	



Source: <https://www.mdpi.com/>

# Project Journey





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