

Distributed Hybrid Computing in the Industry

Javier Hernanz Zajara
Quantum Advisory Team
Strategy & Architecture

1.

We are challengers

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Quantum Aware

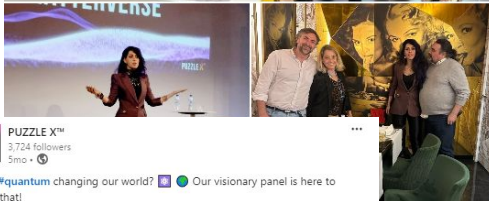
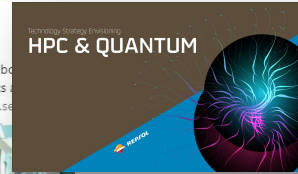


"The Spanish Quantum Communications ecosystem meets in Bilbao to discuss the future Spanish strategy for EuroQCI".



Zina Jarrahi Cinkar, Ph.D. • 2nd Director General at MATTER | PUZZLE X™ Chief Creator | Visit my website 10mo •

Another quick trip to Madrid. Speaking at Repsol Trends Summit 2023 about how Exponential Technologies like quantum, frontier materials, genomics & exotic comoute will change our future.



QUANTUM CRUDE OIL BLENDING

Quantum Inspired Technology

¿Nos estamos perdiendo algo en la planificación actual?
¿Y+SI la Tecnología Quantum Inspired nos ayudara a conseguir este gap?
¿Y+SI probamos y salimos de la duda?



QBN Meeting on Quantum Computing & Applications

USER ACCESS, BENCHMARKING & USE CASES IN ENERGY & FINANCE

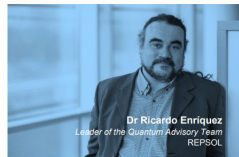
15 JUNE 2023 BARCELONA, SPAIN

mezcla de crudo para la generación de buques, restricciones, etc.), mensual.

cantidad de restricciones. El tiempo de ejecución de 30-60 días y los costos de operación y calidades de

basada en un enfoque heurístico que optimiza el proceso de búsqueda. El costo de los modelos MILP fueron evaluados y

MIT Sloan
Management Review



aplicaciones like catalyst design or the capture and subsequent use of carbon dioxide. In this case, the advantage will be more in the medium term, due to the much more demanding nature of computational capabilities. Finally, data-driven applications, such as machine learning, which is technology used in customer-centric services delivery. Quantum computing has great potential for application in the industry as well. However, the ambitious programmes for digitisation and AI applications have not yet been fully implemented, due to their inapplicability in the case to observe the results of these implementation programmes, in order to then use the type of application in which to gain the much desired quantum advantage.

Quantum computing is experiencing a time of burgeoning expectations in different industrial sectors. By the end of this decade, we can anticipate the development of full-blown quantum computers. In the meantime, we will have access to specialized devices that lack error correction, but can still access to exploring applications within our industries and advancing our research efforts.

EMPRESA emprendedores INVESTIGACIÓN innova

RETOS I+D+I UC3M 2023 para innovar juntos LA ERA CUÁNTICA, DE LAS COMUNICACIONES A LA COMPUTACIÓN

#ONline

UC3M - Nosotros apoyamos los Objetivos de Desarrollo Sostenible

How is #quantum changing our world? Our visionary panel is here to answer that!



ALBA CERVERA LIERTA
REPLA SUPERCOMPUTING CENTER

COLIN KAI-UWE BECKER
FRAUNHOFER FOKUS

GEORGE GESEK
QMWare

HIRO NAKATA
JJI

JORGE LUIS HITA
BBVA

MICHAEL MARTHALER
HQ5 QUANTUM SIMULATIONS

RICARDO ENRIQUEZ MIRANDA
REPSOL

LUIGI PAZIENZA
MINSAIT

Tendencias en tecnologías digitales
Computación cuántica
Ricardo Enriquez Miranda
Científico Senior
Juliá Díaz García
Data Scientist Sr. Manager
Javier Hernandez Zafra
Analista Sr. Arquitectura Especialidades

REPSOL
Nuestra Sede

Hosted by
QUANTUM JOURNALS
QUANTUM SPAIN



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Technology agnostics

CUCO

Quantum Computing in Strategic Industries

Key: Benchmark

- Where can I use it?
- When will it be ready?
- Why should I use it?

QCDI

Quantum Cognitive Digital Industry

Key: Proof of Concept

- What do I need to be ready?
- Who is going to do what?
- How can I use

2.

We are an industrial company

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QCDI Overview



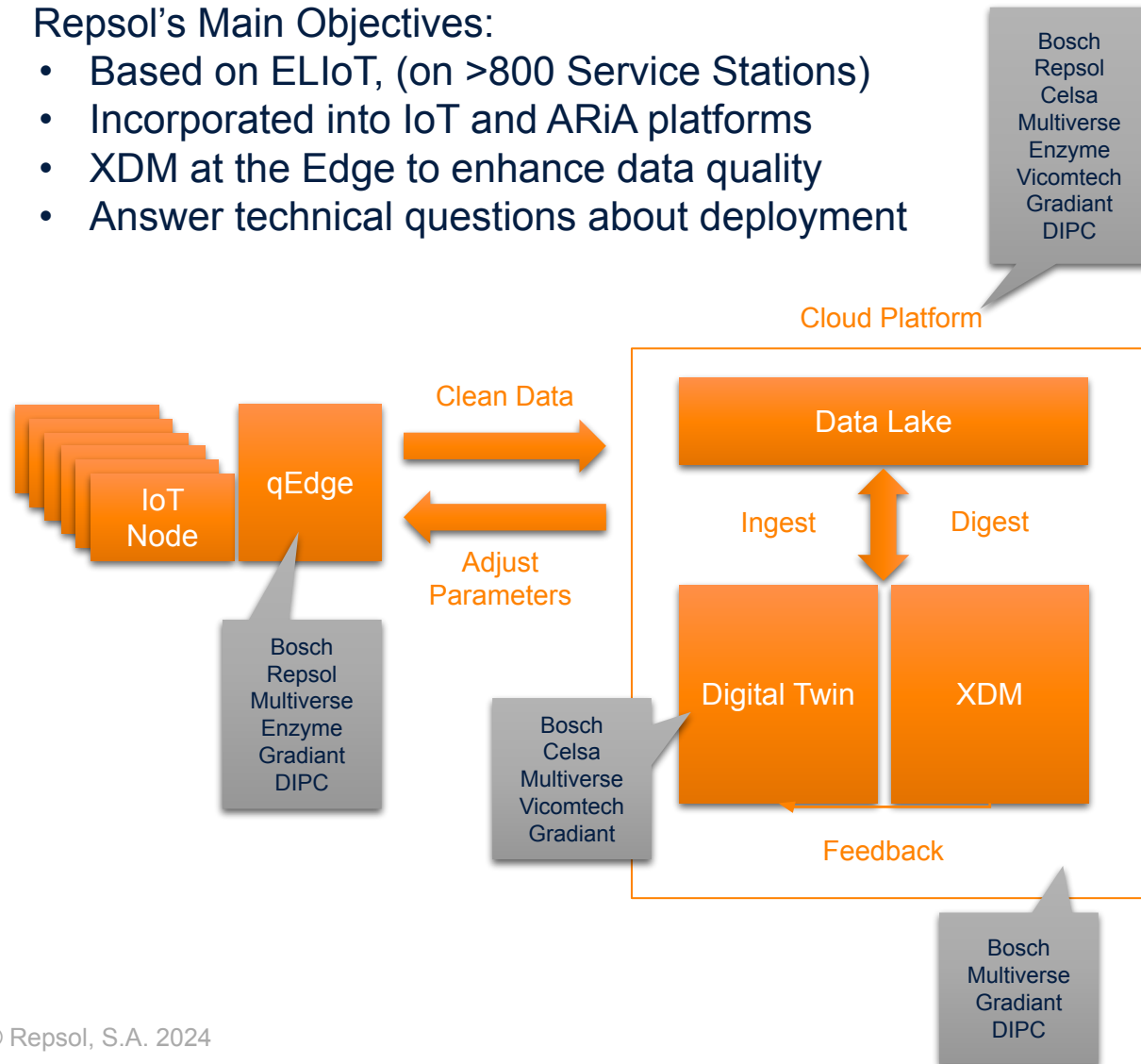
“A Hyper Automated, Accesible and Cyber-Secure (Quantum-Resistant) Digital Twin Based On Extreme Data Mining (XDM)”

2. We are an industrial company

QCDI Overview

Repsol's Main Objectives:

- Based on ELIoT, (on >800 Service Stations)
- Incorporated into IoT and ARiA platforms
- XDM at the Edge to enhance data quality
- Answer technical questions about deployment

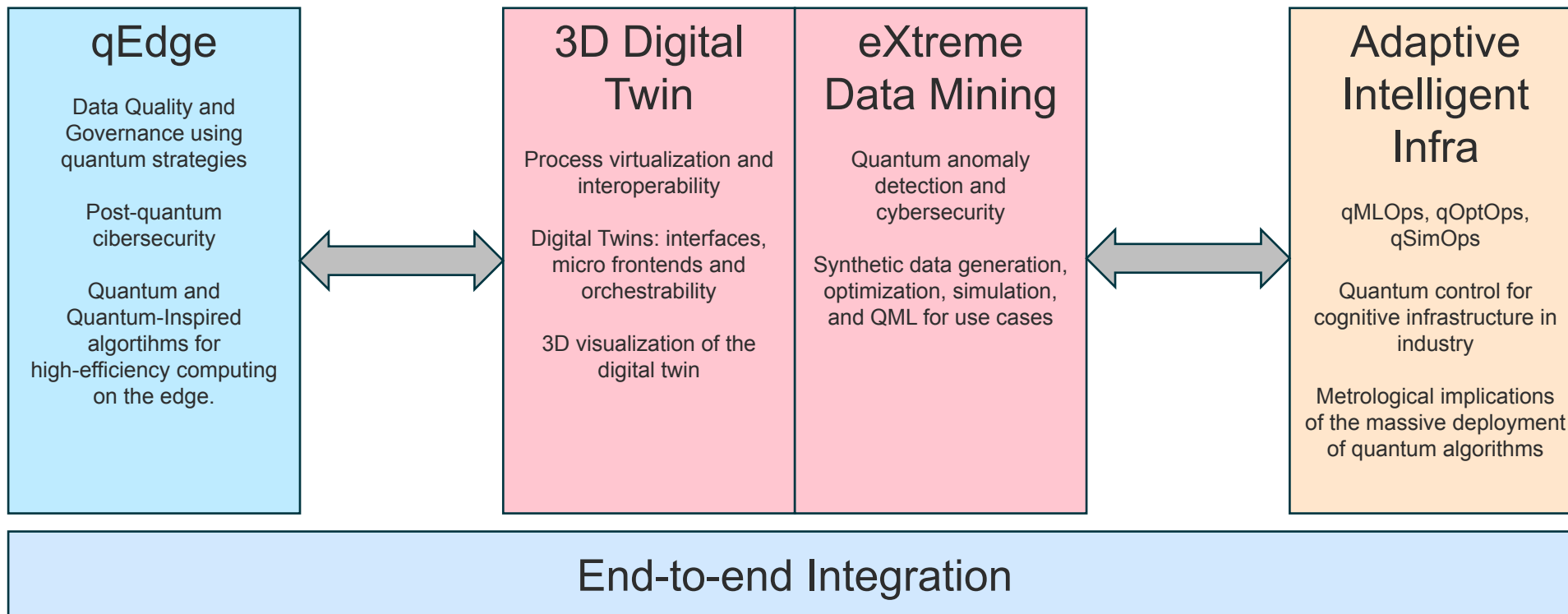


#RepsolDigital

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QCDI Overview

The project covers the following fields of research and development:

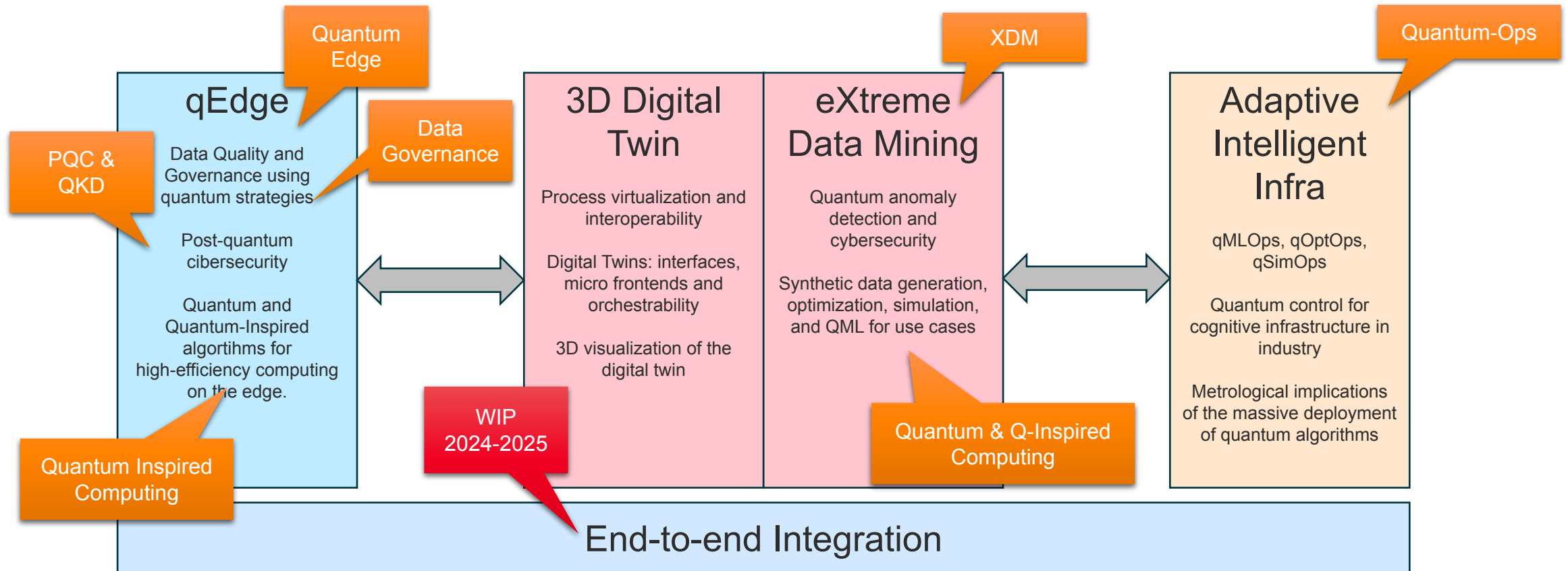


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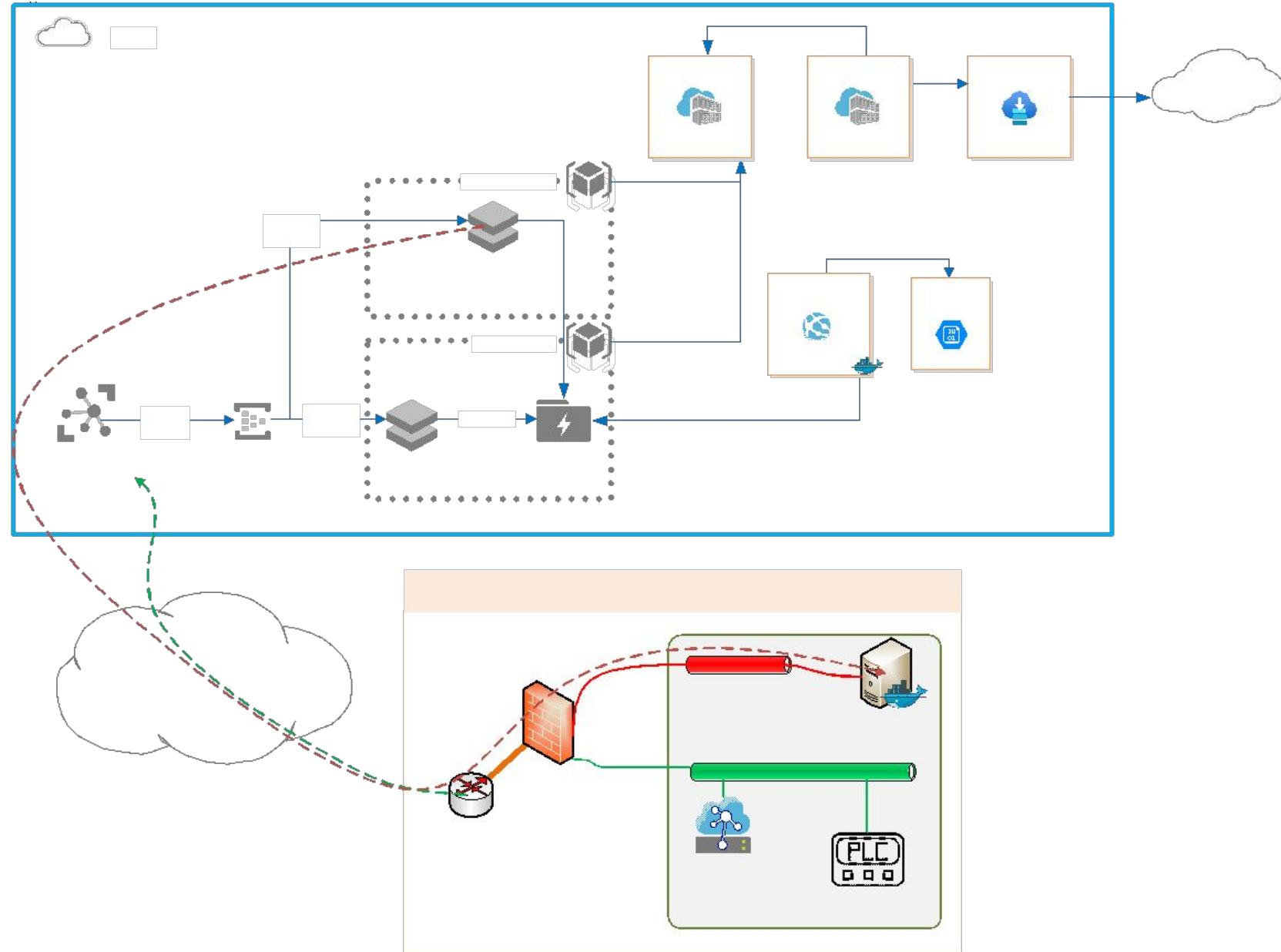
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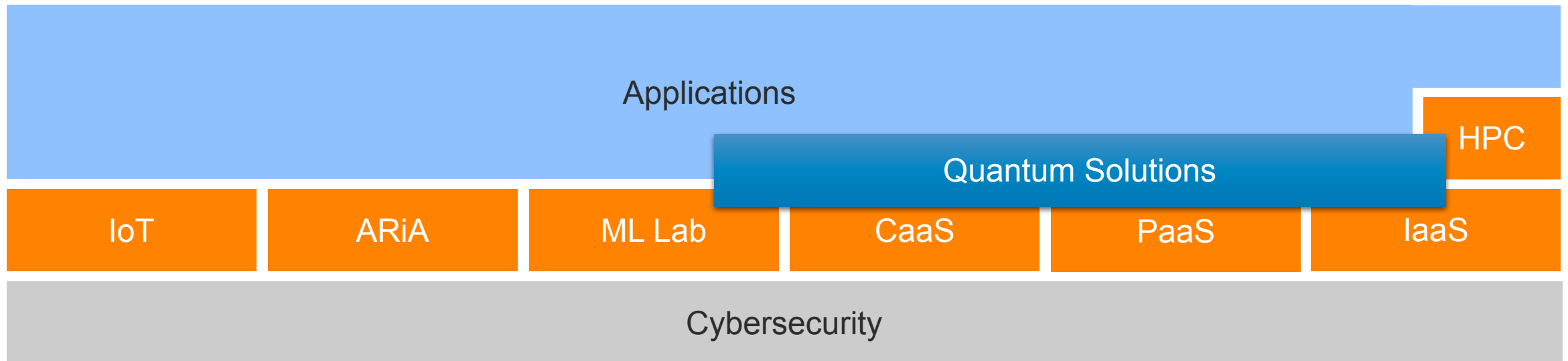
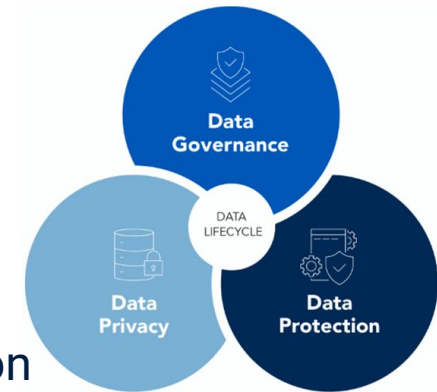
Products, Platforms & Operations

Our DevSecOps includes:

- Multicloud (Infra. as Code)
- LDTAP Environments
- Zero manual operation & Zero Trust
- No hardcoded configurations/passwords/...
- Test, Quality & Security Assurance

DevSecOps implemented by:

- Azure DevOps Pipelines (CI/CD)
- Templates, patterns and resources
- Good Architectures
- Data Governance, Privacy and Protection
- Focus on Products & Platforms



Thanks

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QCDI Overview

