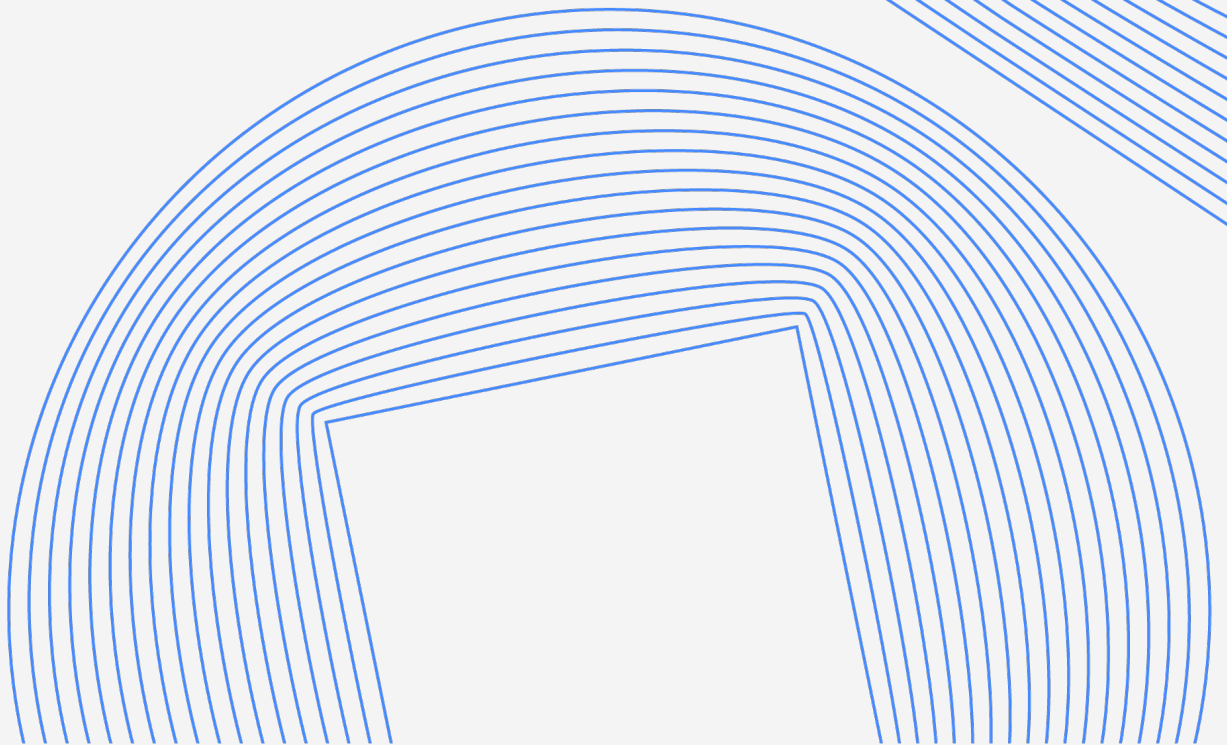
IBM *Quantum Alumni*

Qiskit Partners

Nate Earnest-Noble & Hwajung Kang

October 9th, 2021



Talk Overview

- Qiskit Partner Program Goals
- Initial Group of Qiskit Partners
- M3 Deepdive

Qiskit Partner Program Goals

- A collection of quantum hardware and software partners that ***extend*** and ***complement*** the Qiskit ***ecosystem***
- Ensure Qiskit satisfies the ***needs of our Qiskit Partners*** in a reliable manner
- Make sure ***Partners offering satisfy Qiskit quality standards*** with regular checks
- ***Drive adoption, engagement, and usage of partner tools*** and services using Qiskit

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We Need Standards of Integration,
Which are Well Organized and Informed by Partner's Needs

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IBM **Quantum**

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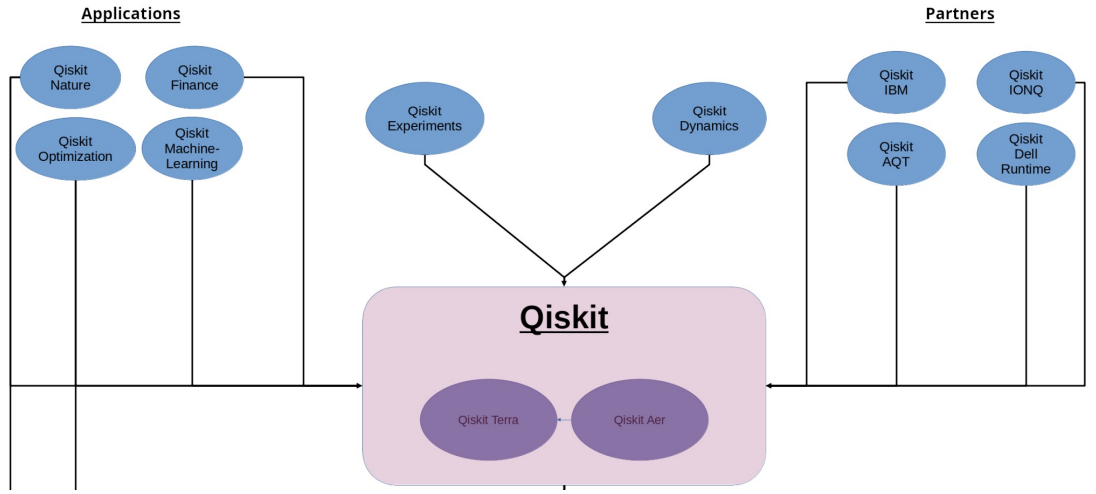

Qiskit Partners

There are ***3 categories of potential partners***:

a. Quantum Hardware

b. Quantum Simulators/Runtime Emulators

c. Software (Hardware Focused & Quantum Application)

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AQT IONQ IBM **Quantum**

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DELL

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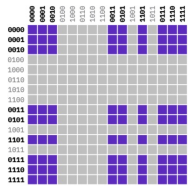
Qiskit Runtime

M3



Qiskit Partners

Having a Standard for Hardware Providers Integration

a. Quantum Hardware

Trapped Ions

Superconducting Circuits

IBM **Quantum**

b. Quantum Simulators/Runtime Emulators

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Qiskit Runtime

M3

Qiskit Standard Provider Interface:

```
from qiskit_ionq import IonQProvider
provider = IonQProvider()

backend = provider.get_backend()
```

Hardware Providers Should Support:

- System status queries
- System calibration data in backend.properties()
- On system job time

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Qiskit Runt

```
from dell_runtime import DellRuntimeProvider
provider = DellRuntimeProvider()

job = provider.runtime.run()
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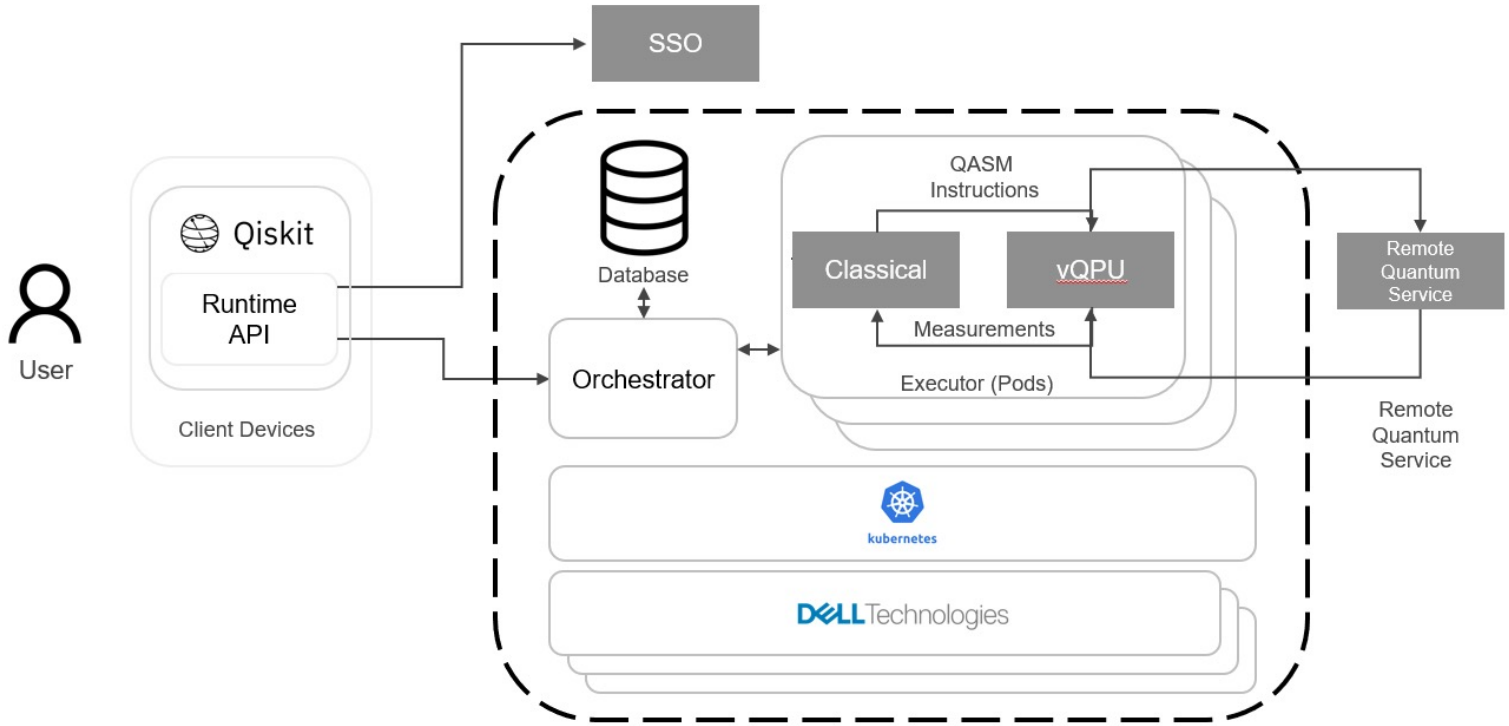

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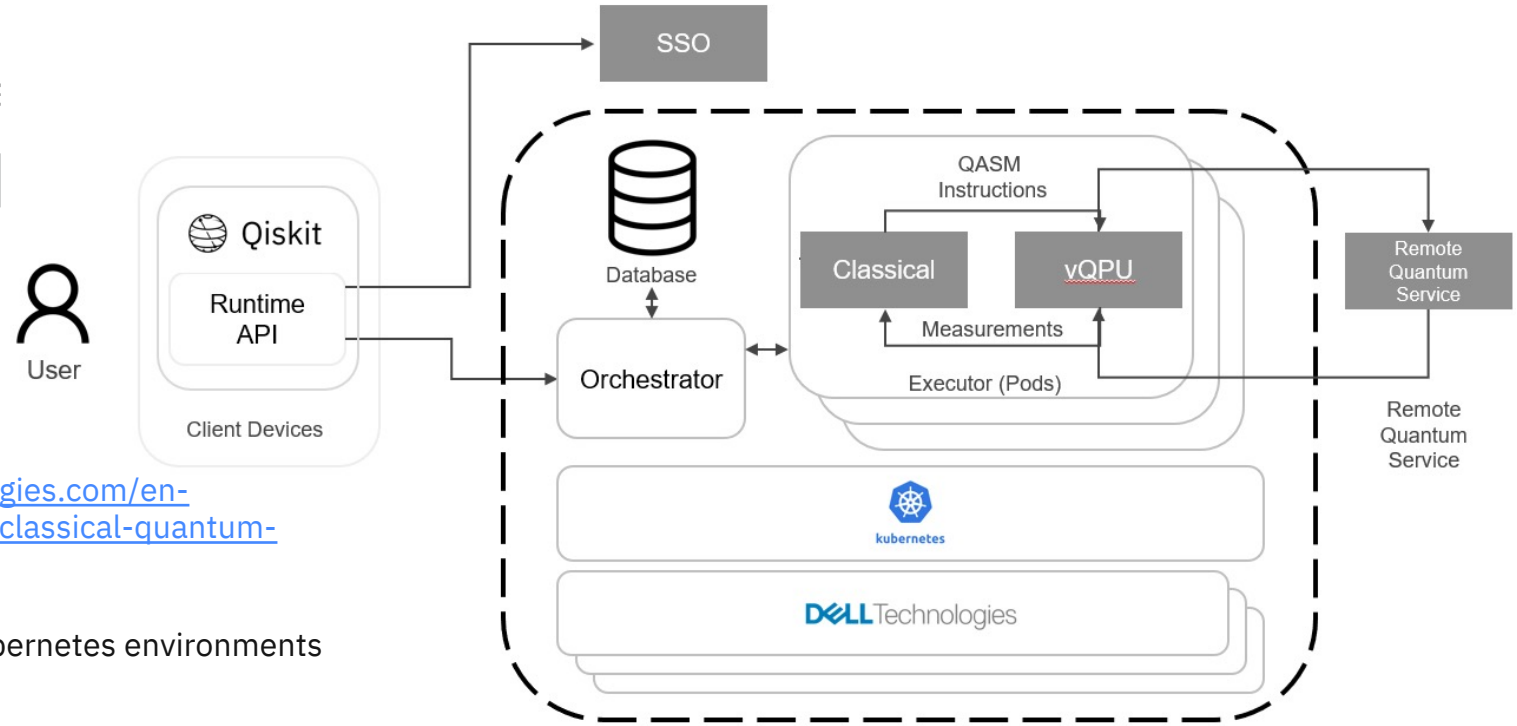

Read the Blog:

https://www.delltechnologies.com/en-us/blog/exploring-hybrid-classical-quantum-compute/

Can test out your own Kubernetes environments with Dell runtimes

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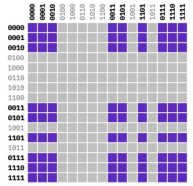
Qiskit Runtime

M3 – A Scalable Error Mitigation Approach



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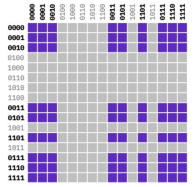
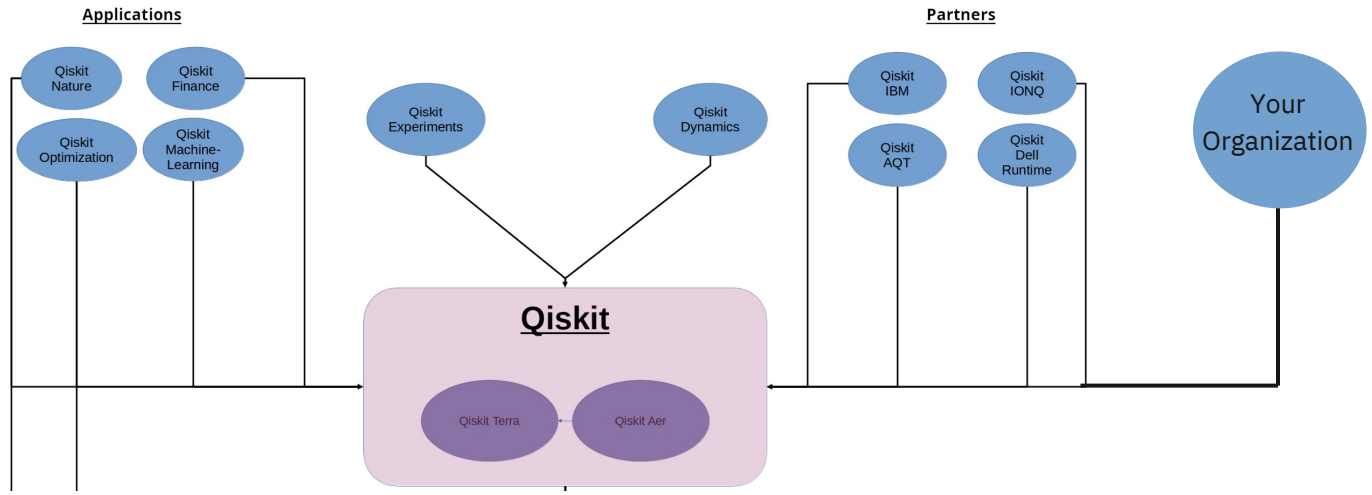


Hwajung to speak about this next!

Qiskit Partners: Make your contribution!

Requirements:

1. High Quality Code and Technical Documentation
2. Provides an Extension to Qiskit's functionality
3. Contributions help Advance Quantum Information Sciences broadly
4. Has institutional support



Qiskit Partners:

Let us know your

Qiskit needs!

Thanks!