



Martin Roetteler, Ph.D.

Vice President, Quantum Solutions

Quantum in CAE, Logistics, and AI

Quantum is Now: Cutting Engineering Simulation Costs Today

Up to 15%

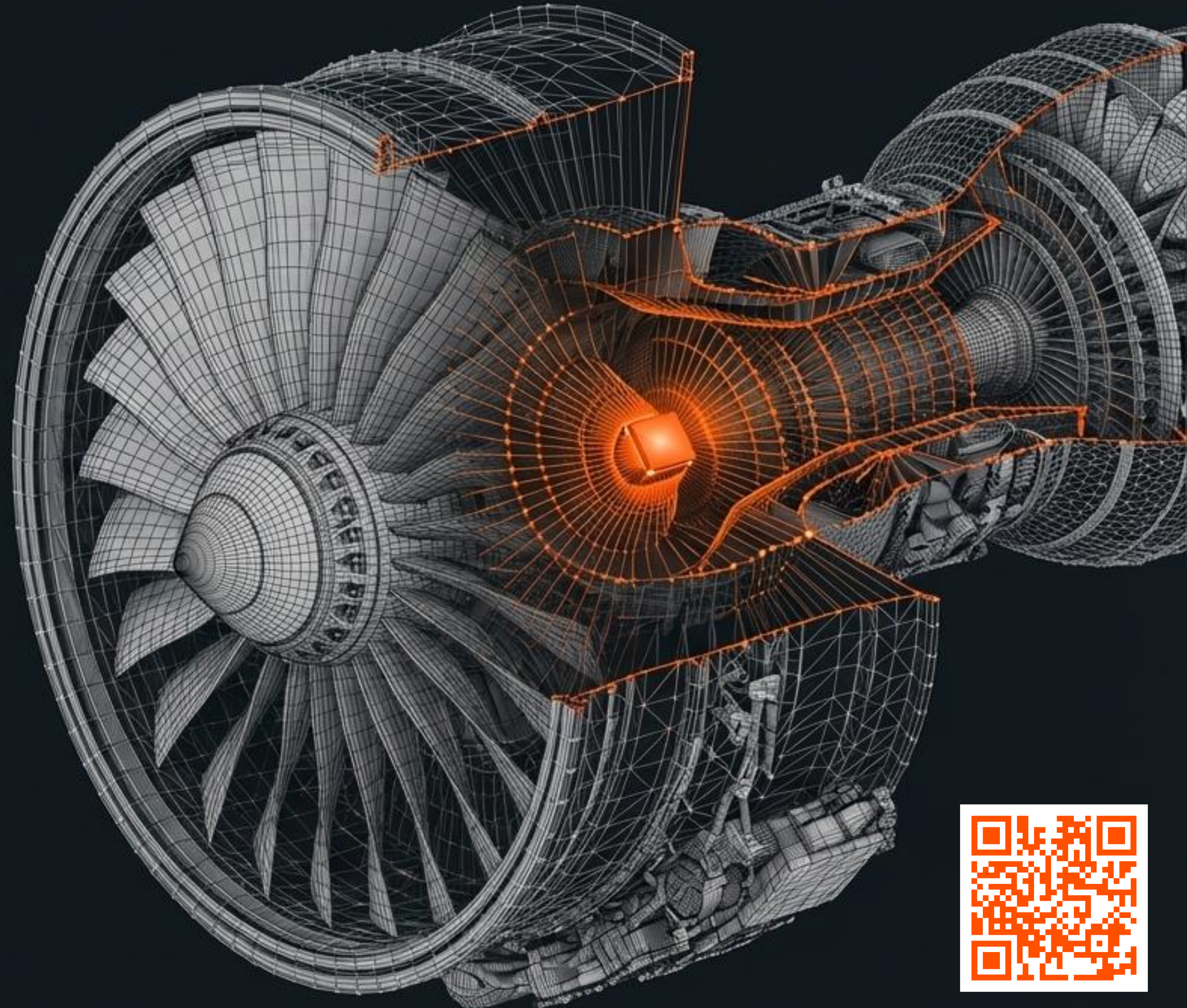
Reduction in time-to-solution for large-scale structural models

7% Minimum

Consistent improvement across every industrial model tested

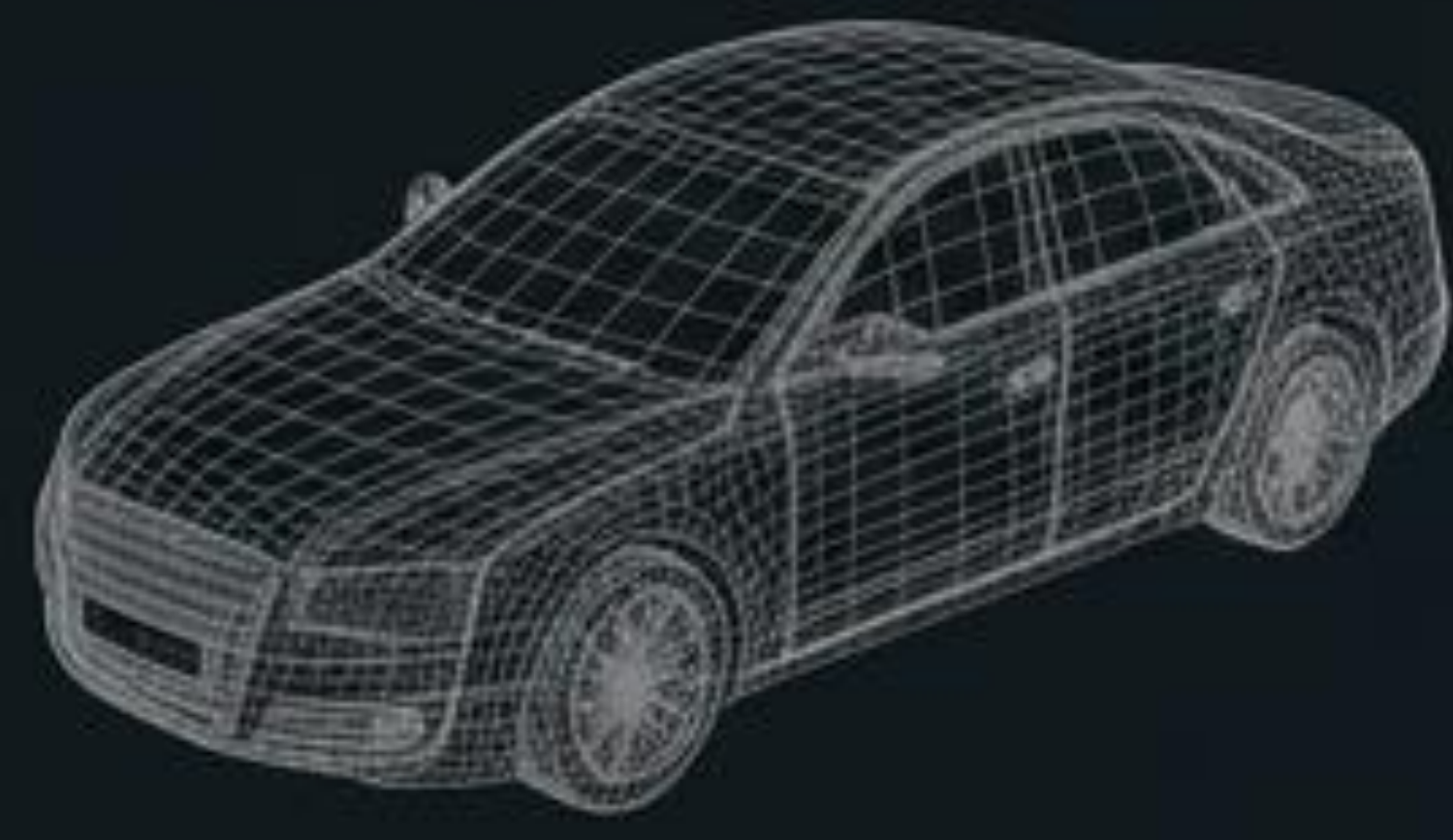
Zero

New infrastructure required (end-to-end cloud workflow)



Not a lab experiment. Validated on IonQ Forte and scaled to 150 qubits via NVIDIA CUDA-Q on real-world industrial models.

Real-World Performance



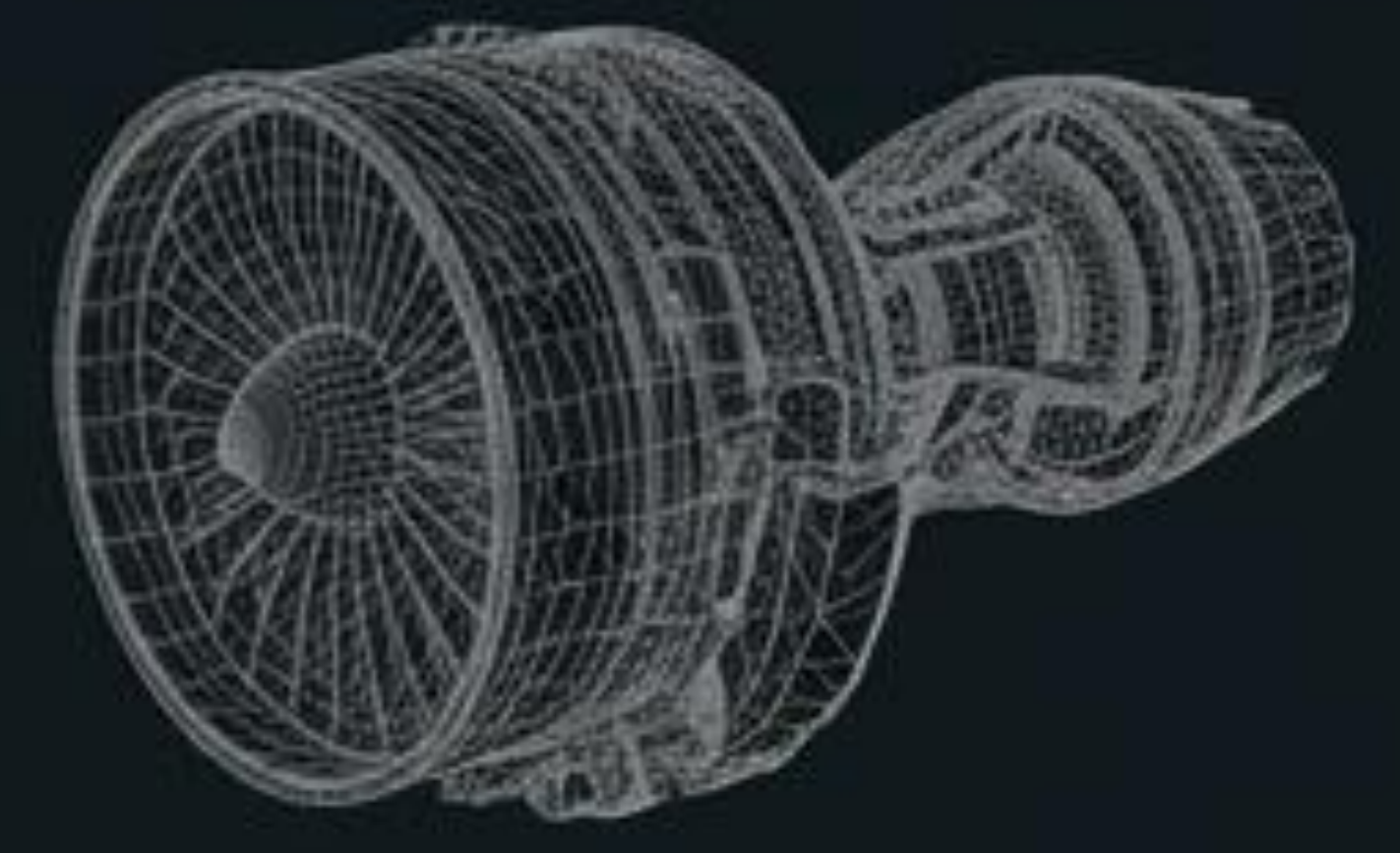
Sedan Car



Drill



Impeller



Jet Engine

Scale
(Complexity)

5.9M Vertices
55.3M Edges

3.6M Vertices
101.2M Edges

7.0M Vertices
182.5M Edges

34.9M Vertices
870.6M Edges

Wall Clock Time
Savings

7%
Faster

15%
Faster

10%
Faster

15%
Faster

Consistent E2E Performance: By compressing million-node engineering problems to fit today's hardware, the hybrid workflow delivers a consistent 7% minimum efficiency gain across all geometries, up to 15%.

Built for Today. Scaled for Tomorrow.

TODAY (Validated)

IonQ Forte (36 qubits) & NVIDIA
CUDA-Q Emulators (up to 150 qubits).

Million-node engineering problems
are compressed, solved, and scaled
back up, right now.

2026 (Accelerated)

IonQ Tempo

Exponentially handling larger
Problem sets directly on the QPU as
quantum volume grows.

2027+ (Transformative)

Fault-Tolerant Systems
(256 → 10k qubits)

Massive, unconstrained quantum
advantage for the world's hardest
engineering challenges.

Because this algorithm compresses massive classical meshes to fit available quantum hardware, customers do not need to wait for next-generation systems to realize immediate ROI. The integration path is production-ready today.

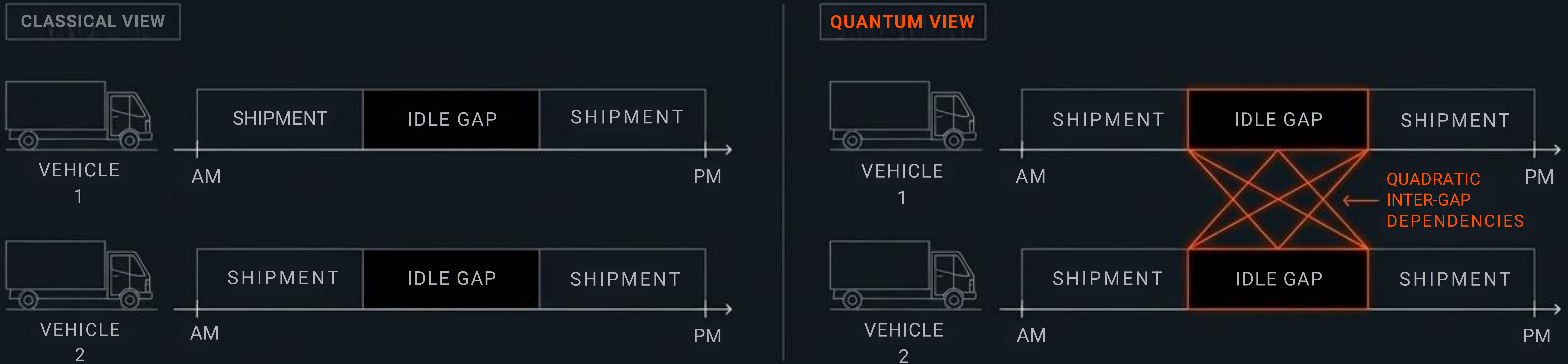


Mind the Gaps

Quantum Optimization for
Electric Freight Dispatch

The Exponential Cost of EV Logistics

Optimizing EV fleets can increase shipments delivered and reduce Total Cost of Ownership, if the system can dynamically recover from daily disruptions.



THE TRIGGER

Shipment cancellations create idle vehicle gaps, representing fixed costs with zero revenue.

THE CLASSICAL LIMIT

Traditional linear solvers repair schedules one truck at a time. They cannot efficiently calculate the compounded risk when filling multiple gaps concurrently.

THE HIDDEN COST

Ignoring spatial proximity, temporal overlap, and shared charging constraints leads to fragile schedule repairs and diminished fleet utilization.

Real-World Commercial Validation

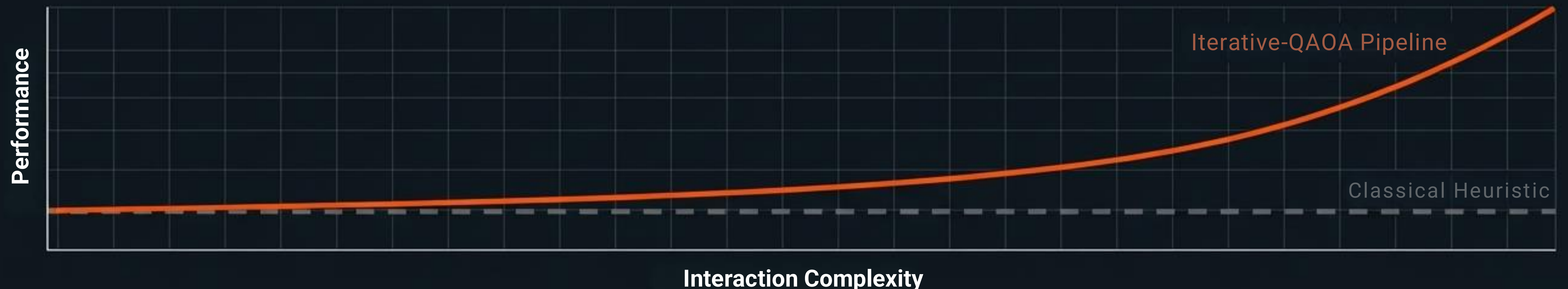
Evaluated using anonymized logistics data and historical cancellation logs from active Einride operations across up to 52 qubits

Zero Overhead

No retraining overhead. Fixed-schedule quantum parameters allow continuous, real-time schedule re-optimization.

1.5%

Average increase in Shipments Delivered across all weekly schedules, representing massive revenue recovery at fleet scale.



Accelerating Drug Development and Synthesis with Enhanced Simulations

Business and Technical Challenges:

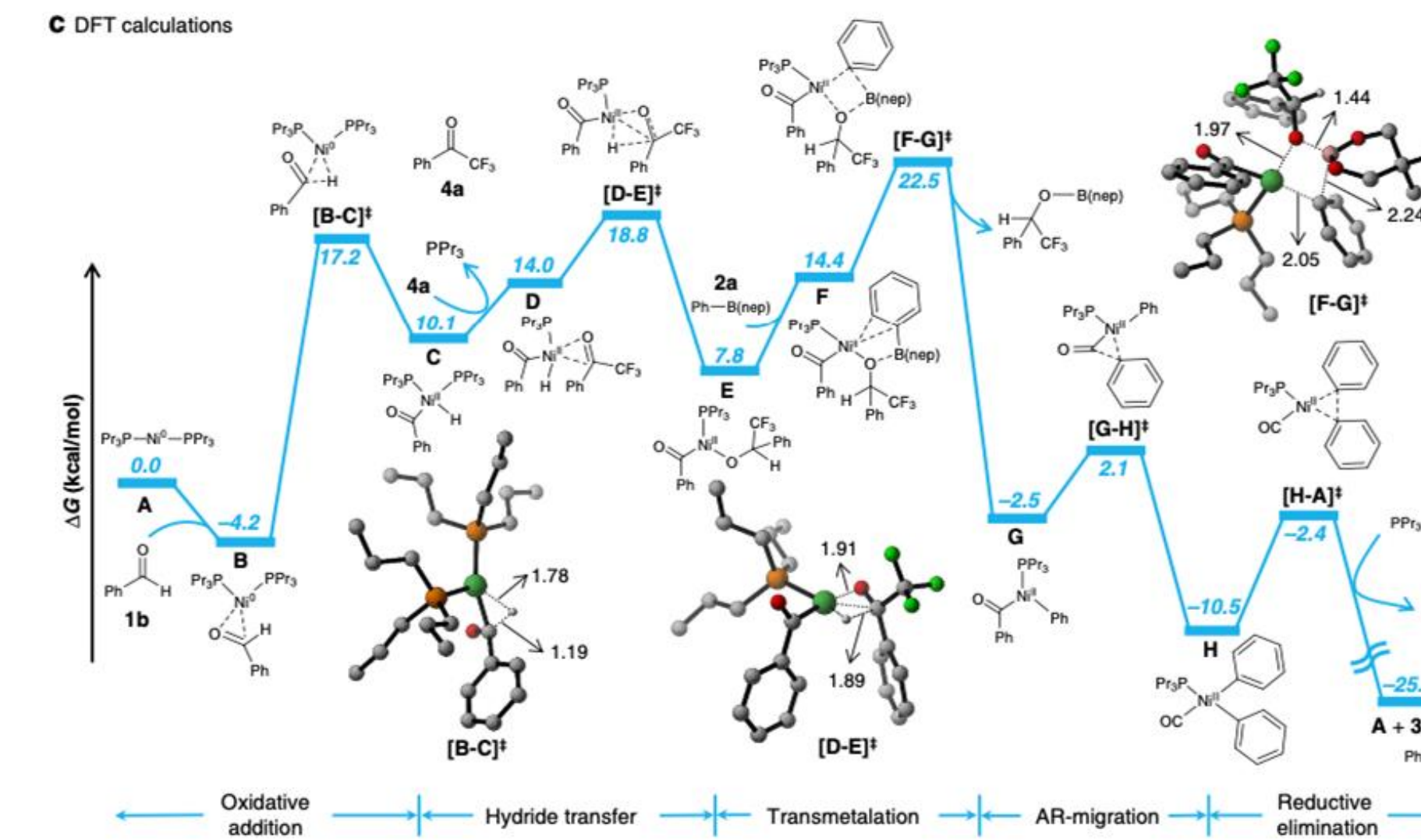
Traditional computational methods struggle to efficiently and accurately simulate complex transition metal catalysis

IonQ's Quantum Solution:

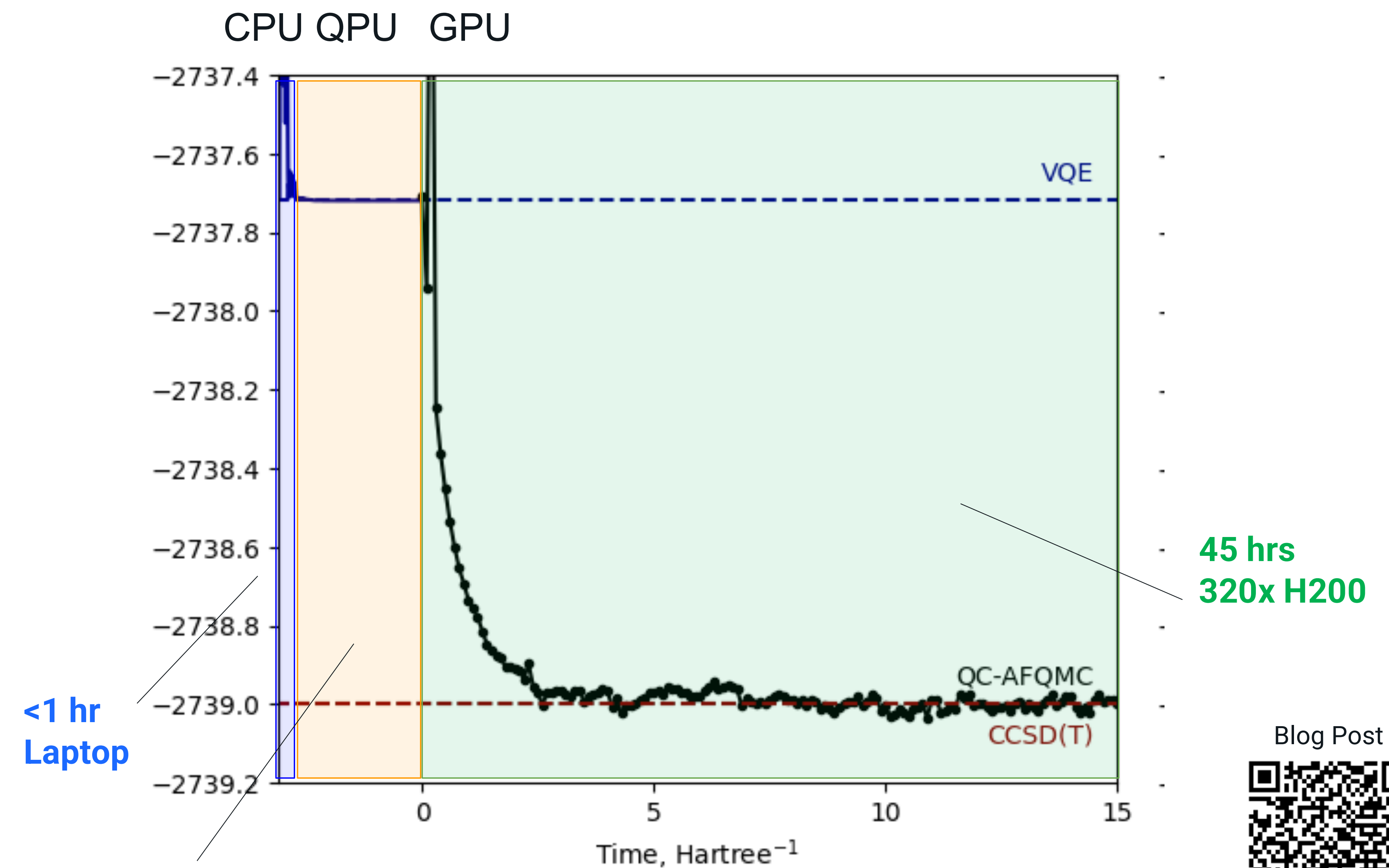
QC-AFQMC approach can efficiently model reaction energetics at scale with high accuracy

Business Impact:

Enable faster, more cost-effective drug development and material design by reducing compute time and resources



656X
Faster time-to-solution than best previously published implementation



Blog Post



QC-AFQMC Runtime Estimator

Calibrated on obsidian-8xA100 · March 25, 2026

PRESETS

Ni-B (reactant)
Ni-[B-C]† (TS)
Ni-C (product)
C₆H₆ CAS(6,6)

C₆H₆ CAS(8,8)
C₆H₆ CAS(10,10)
C₆H₆ CAS(12,12)
H₂O CAS(4,4)

N₂ CAS(6,6)

SYSTEM

| | |
|--|----------------------------------|
| num_basis_functions | active_orbitals |
| <input type="text" value="130"/> | <input type="text" value="8"/> |
| active_electrons | num_electrons |
| <input type="text" value="8"/> | <input type="text" value="168"/> |
| num_cholesky_vectors | |
| <input type="text" value="~1273"/> | |
| <i>heuristic from 130 basis functions (±30%)</i> | |

AFQMC CONFIGURATION

ESTIMATE

2d 9h
\$30k

wall time
7377 GPU-hrs · AWS p4d on-demand

128× A100 · 16 nodes · 10 walkers/rank

HARDWARE & PRICING

| | |
|--------------------------------------|--|
| Nodes (8 GPUs each) | GPU type |
| <input type="text" value="16"/> | <input type="text" value="A100 (calibrated)"/> |
| Cloud SKU | \$/node-hr |
| <input type="text" value="AWS p4d"/> | <input type="text" value="32.77"/> |

Verify rates: [AWS](#) · [Azure](#) · [GCP](#)

COST BREAKDOWN

150 blocks × 10 steps/block = 1500 steps · 138.255 s/step
 · 1382.6 s/block

The Connective Tissue of a **Full-Stack Quantum Ecosystem**

Establishing the universal infrastructure required for large-quantum technology deployments.

Quantum is Now



Important Information and Where to Find it

In connection with IonQ, Inc.'s ("IonQ") proposed acquisition of SkyWater Technology, Inc. ("SkyWater") (the "Transaction"), IonQ has filed with the SEC a Registration Statement on Form S-4 (the "Registration Statement") which includes a prospectus with respect to the shares of IonQ common stock (the "IonQ Shares") to be issued in the Transaction and a proxy statement (the "Proxy Statement/Prospectus") for stockholders of SkyWater and SkyWater has filed with the SEC the proxy statement (the "Proxy Statement"). The definitive Proxy Statement has been mailed to stockholders of SkyWater. Each of IonQ and SkyWater may also file with or furnish to the SEC other relevant documents regarding the Transaction. This presentation is not a substitute for the Registration Statement, the Proxy Statement/Prospectus or any other document that IonQ or SkyWater may file with the SEC or mail to SkyWater's stockholders in connection with the Transaction.

INVESTORS AND SECURITY HOLDERS OF IONQ AND SKYWATER ARE URGED TO READ THE REGISTRATION STATEMENT, THE PROXY STATEMENT/PROSPECTUS INCLUDED WITHIN THE REGISTRATION STATEMENT, THE PROXY STATEMENT AS WELL AS ANY OTHER RELEVANT DOCUMENTS FILED WITH THE SEC IN CONNECTION WITH THE TRANSACTION OR INCORPORATED BY REFERENCE INTO THE REGISTRATION STATEMENT, THE PROXY STATEMENT/PROSPECTUS AND THE PROXY STATEMENT (INCLUDING ANY AMENDMENTS OR SUPPLEMENTS THERETO), BECAUSE THEY CONTAIN IMPORTANT INFORMATION REGARDING IONQ, SKYWATER, THE TRANSACTION AND RELATED MATTERS.

The documents filed by IonQ with the SEC also may be obtained free of charge at IonQ's website at investors.ionq.com. The documents filed by SkyWater with the SEC also may be obtained free of charge at SkyWater's website at ir.skywatertechnology.com.

Participants in the Solicitation; No Offer or Solicitation

IonQ, SkyWater and certain of their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from the stockholders of SkyWater in connection with the Transaction under the rules of the SEC. Information about the interests of the directors and executive officers of IonQ and SkyWater and other persons who may be deemed to be participants in the solicitation of stockholders of SkyWater in connection with the Transaction and a description of their direct and indirect interests, by security holdings or otherwise, is included in the Proxy Statement/Prospectus, which was filed with the SEC on March 31, 2026. Information about SkyWater's directors and executive officers is set forth in SkyWater's proxy statement for its 2025 Annual Meeting of Stockholders on Schedule 14A filed with the SEC on April 8, 2025, SkyWater's Annual Report on Form 10-K for the year ended December 28, 2025 and any subsequent filings with the SEC. Information about certain of IonQ's directors and executive officers is set forth in IonQ's proxy statement for its 2025 Annual Meeting of Stockholders on Schedule 14A filed with the SEC on April 28, 2025 and any subsequent filings with the SEC. Additional information regarding the direct and indirect interests of those persons and other persons who may be deemed participants in the Transaction may be obtained by reading the Proxy Statement/Prospectus regarding the Transaction. Free copies of these documents may be obtained as described above.

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