



2025 Analyst Day

September 12, 2025

Cautionary Notes



This presentation contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Some of the forward-looking statements can be identified by the use of forward-looking terms. Statements that are not historical in nature, including the terms “accelerating,” “access,” “accessible,” “anticipate,” “available,” “believe,” “can,” “capable,” “deliver,” “designed to,” “deployable,” “enabling,” “estimate,” “expect,” “expected,” “future,” “goal,” “growth,” “increased scale,” “intend,” “impact,” “latest,” “leader,” “leading,” “may,” “pending,” “planned,” “scale,” “target,” “will,” “winning,” “potential,” and other similar expressions are intended to identify forward-looking statements. These statements include those related to the company’s expansion in the quantum computing, security, and networking market segments; the company’s technology driving commercial advantage or delivering scalable, fault-tolerant quantum computing in the future; the ability for third parties to implement IonQ’s offerings in their data centers and to reduce their compute costs; the energy efficiency and sustainability of the IonQ’s offerings; the efficacy of new applications of quantum computing; the relevance and utility of quantum algorithms and applications run on IonQ’s quantum computers; the size of quantum computing, security, and networking market segments in the future; IonQ’s quantum computing, security, and networking capabilities and plans; future deliveries of and access to IonQ’s quantum services, computers, and networking devices; access to IonQ’s quantum computers including hybrid-enabled functionality; increases in algorithmic qubit achievement; future purchases of IonQ’s offerings by customers using congressionally-appropriated funds from the U.S. government; IonQ closing anticipated acquisitions; the success of partnerships and collaborations between IonQ and other parties, including development and commercialization of products and services with such parties; and the scalability, reliability, performance, modularity, commercial-readiness, and architectural advantages of IonQ’s offerings. Forward-looking statements are predictions, projections and other statements about future events that are based on current expectations and assumptions and, as a result, are subject to risks and uncertainties. Many factors could cause actual future events to differ materially from the forward-looking statements in this presentation, including but not limited to: changes in the competitive industries in which IonQ operates, including development of competing technologies; any inadequacies in the overall pace of technology development in the quantum industry, including inadequate advances in the state of quantum networking and quantum systems; IonQ’s relatively limited history in developing quantum networks; the capability of our quantum systems and quantum networks to provide transformative applications and commercial quantum advantage; changes in laws and regulations affecting IonQ’s business; IonQ’s ability to enter new markets and exploit new technologies; IonQ’s ability to implement its business plans, forecasts and other expectations, identify and realize partnerships and opportunities, and to engage new and existing customers; changes in U.S. government spending or policy that may affect IonQ’s customers; changes to U.S. government goals and metrics of success with regard to implementation of quantum computing; risks associated with U.S. government sales, including availability of funding and provisions that allow the government to unilaterally terminate or modify contracts for convenience; satisfaction of conditions to close acquisitions by IonQ and counterparties; IonQ’s inability to effectively integrate its acquisitions; IonQ’s ability to attract and retain key personnel, including Lightsynq personnel joining IonQ; IonQ’s ability to utilize the technology of acquired companies to accelerate the development and scale of IonQ’s systems and offerings; and IonQ’s ability to work effectively with collaborators in existing or planned partnerships, including the effectiveness of integration of IonQ’s technology with collaborators’ technology. You should carefully consider the foregoing factors and the other risks and uncertainties disclosed in the Company’s filings, including but not limited to those described in the “Risk Factors” section of IonQ’s filings with the U.S. Securities and Exchange Commission, including but not limited to the Company’s most recent Annual Report on Form 10-K and reports on Form 10-Q. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and IonQ assumes no obligation and does not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise. IonQ does not give any assurance that it will achieve its expectations. IonQ may or may not choose to practice or otherwise use the inventions described in the issued patents in the future.

Today's Agenda

- 01** Welcome: IonQ Quantum Leadership
- 02** Quantum Computing Roadmap
- 03** Lowering Cost-Per-Qubit
- 04** Creating an Ecosystem: Photonic Interconnect
- 05** Quantum Networking Ecosystem & Quantum Networking Demonstration

Question & Answer Session

- 06** Enterprise-Grade Applications & Ecosystem
- 07** Customer & Partner Momentum
- 08** Financial Updates
- 09** Fireside Chat: Why I Joined IonQ
- 10** Concluding Comments

12:30pm *Lunch & Tour of the NYSE Floor*

01

IonQ Quantum Leadership: How IonQ Leads the Industry – and Stays Ahead



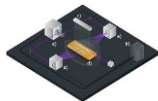
Niccolo de Masi
Chairman & CEO

IonQ's Proven Quantum Leadership: The Last Decade

Historic First-Mover Advantages Cemented Decade of Leadership



Hardware & Software Leadership



APR 2017

OCT 2018

**IonQ System
Powered On**

Yb trapped ion
system (Room
Temp, 15 ions)

**IonQ Compiler
Software Built**

World's premier
compiler based on
published results

Commercial Leadership



**Amazon
Braket**



**Microsoft
Azure**



Google Cloud

AUG 2020

OCT 2020

APR 2021

**Deployed on
AWS Braket**

Commercially
available QC on
AWS's Cloud

**Deployed on
Microsoft Azure**

Commercially
available on
Microsoft's Cloud

**Deployed on
Google Cloud**

Only
commercially
available QC
on all 3 major
public clouds

Applications Leadership

Ansys



MAR 2025

**Milestone
Materials App**

12% speedup
on engineering
simulation

aws

AstraZeneca

NVIDIA

APR 2025

**Milestone
Quantum AI App**

3% edge with
LLM quantum fine-
tuning model

JUN 2025

**Milestone
Pharma App**

>20x faster time-
to-solution with
hybrid workflow

Unprecedented Momentum Positions IonQ to Lead the Next Decade



Revenue growth nearly
doubling YoY since IPO



\$100M+ AFRL deals pioneering
enterprise-grade quantum networking



Historic strategic acquisitions fueling
1,000+ patent portfolio moat¹



Orders-of-magnitude hardware
error reduction



36 Quadrillion times larger
computational space than IBM



Largest \$1.075B quantum deal to
acquire Oxford Ionics

1. Includes owned or controlled patents granted and pending as of May 2025, including those from IDQ (in which IonQ owns a majority stake), and Oxford Ionics (which IonQ intends to acquire pending closure pursuant to terms aligned in June 2025)

IonQ Secures Regulatory Approval from the UK Investment Security Unit for the Acquisition of **Oxford Ionics**



The Best Solution Across Every Unit Economic Vector



Superconducting

Business Impact

Cost per System
(2 million physical qubits)

<\$30M
BOM Cost

>\$1B
BOM Cost

Others have no public plans to reach 2M physical qubits. Their estimated **BOM costs are >30X more expensive vs. IonQ's**

Power



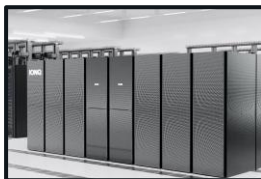
Wall Socket
Minimal Cooling



Dilution Refrigerators / Cryostats
Nuclear Reactors

Other systems require massive, specialized infrastructure **driving up energy costs and limiting deployment**

Footprint



Standard Datacenter Racks



Football Field

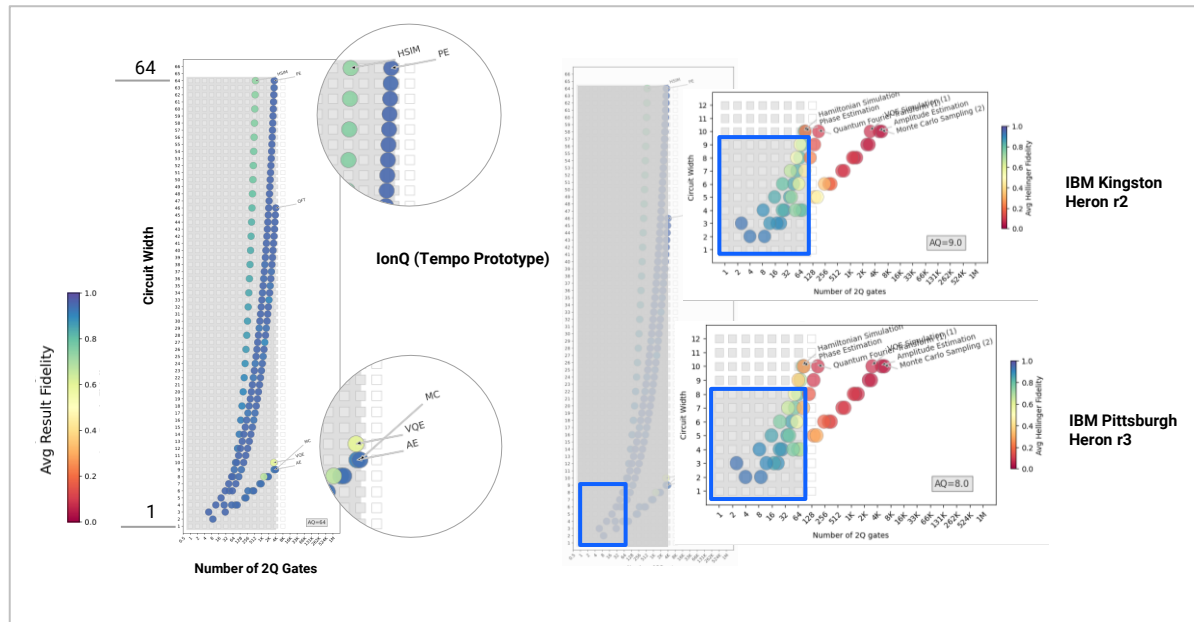
Other systems demand room-sized or football field-scale facilities, **blocking datacenter integration and slowing adoption**

Source: IonQ BOM cost estimates by Kearney; Superconducting data taken from publicly available information using reasonable extrapolation assumptions

36 Quadrillion Times Larger Computational Space



Algorithm Qubit Comparisons



IonQ #AQ 64
prototype system
has a computational
space **36 quadrillion
times larger than**
IBM's current
highest performing
quantum system

IonQ's Enduring Quantum Leadership: The Next Decade and Beyond

Integrating the **World's Best Talent & Technology**



Quantum World Record Holders



Dr. Chris Ballance

CEO, Oxford Ionics
Oxford Ionics



World Records:

99.999%

1Q Fidelity

99.97%

2Q Fidelity



Dr. Chris Monroe

Chief Scientific Advisor & Co-Founder
Duke University | NIST University of Maryland



World Records:

First Demonstration

of quantum logic gate
& multi-qubit entanglement



Dr. Mihir Bhaskar

Head of Distributed Computing, IonQ
(formerly CEO, Lightsynq Technologies)
Harvard University | AWS Center for Quantum Networking



World Records:

First Demonstration

of memory-enhanced quantum
communication

Domain Leadership



Marco Pistoia

SVP, Industry Relations
JP Morgan Chase | IBM



Rick Muller

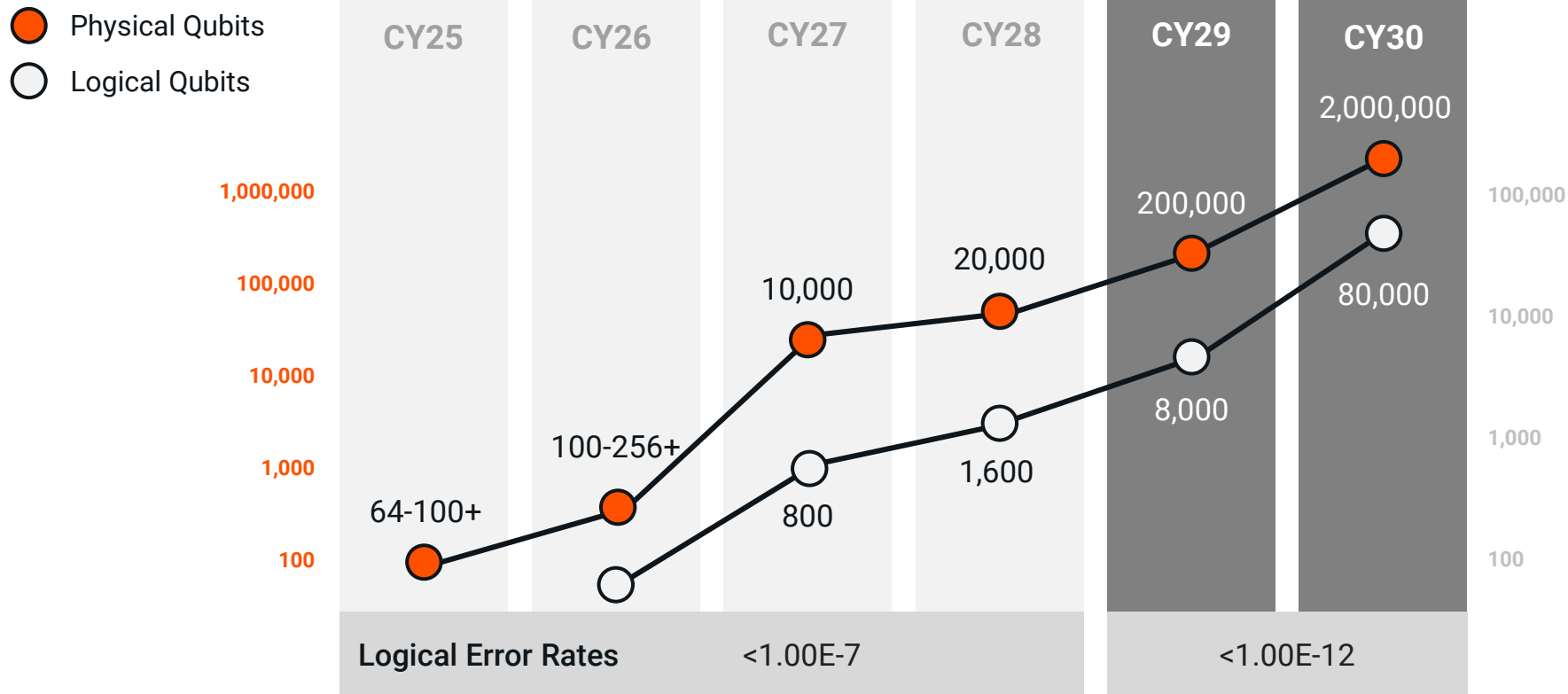
VP, Quantum Systems
IARPA | Sandia National Labs



Robert Cardillo

Executive Chairman of IonQ Federal
National Geospatial-Intelligence Agency (NGA)

Leading Quantum Computing Technology Roadmap



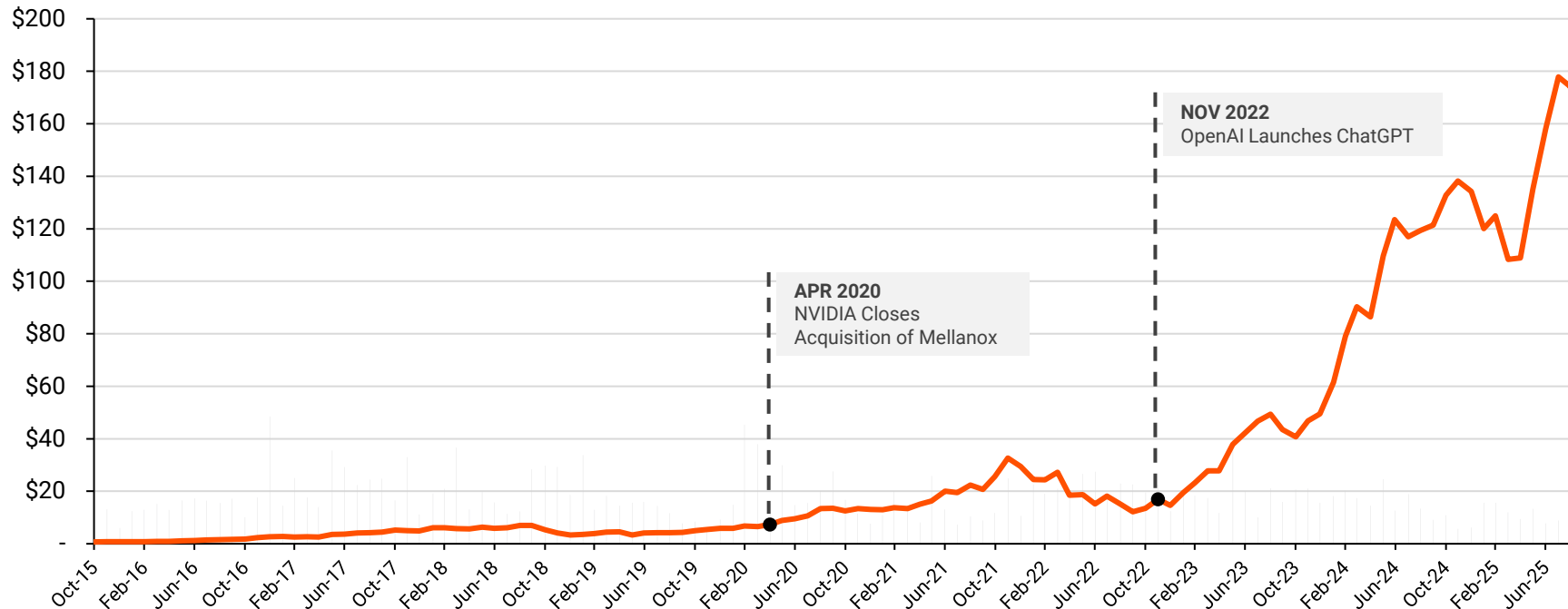
Datacenter Scalability Matters



Building the Hardware and Software Stack to Support Quantum Cloud Growth at Scale

NVIDIA Share Price

(in US\$)



Source: Capital IQ

We Are Delivering Early Quantum Advantage **Today**



PHARMA



Drug Discovery

20X

Faster time-to-solution
than best previously
published
implementation
by AWS

SIMULATION



Computer Aided Engineering

Up to **12%**

Improvement over
classical heuristics |
2.6M vertices & 40M
edges
by AWS

AUTOMOTIVE



QML and Chemistry

**Landing and
Expanding**
Relationship &
Capabilities

QUANTUM NETWORKING

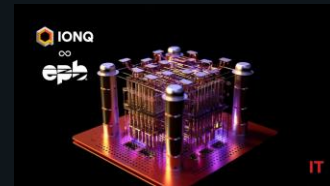


Military-Grade Networking

\$54.5M

Project for commercial
quantum networking
over next 4 years

QUANTUM NETWORKING

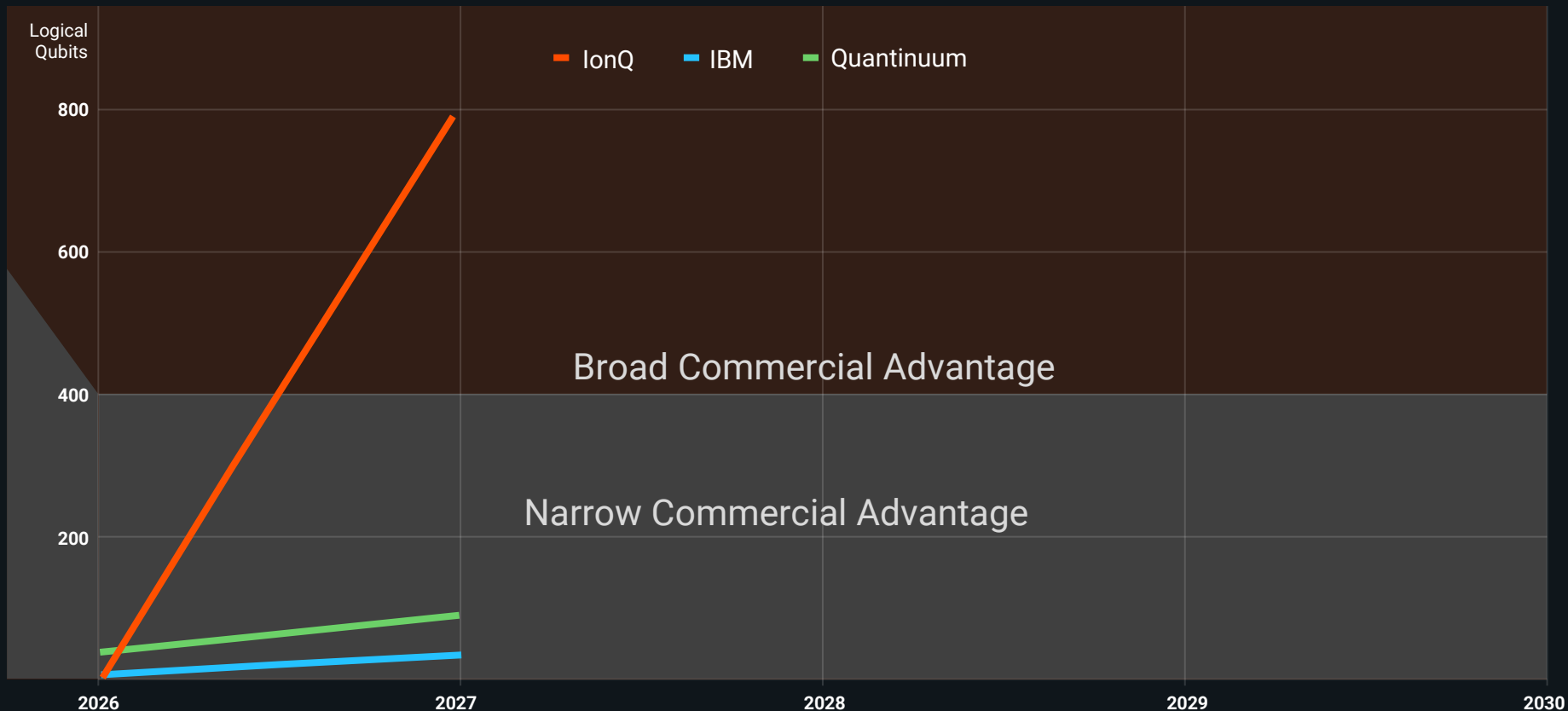


QC Economy Networking Hub

**IonQ Forte
Enterprise**

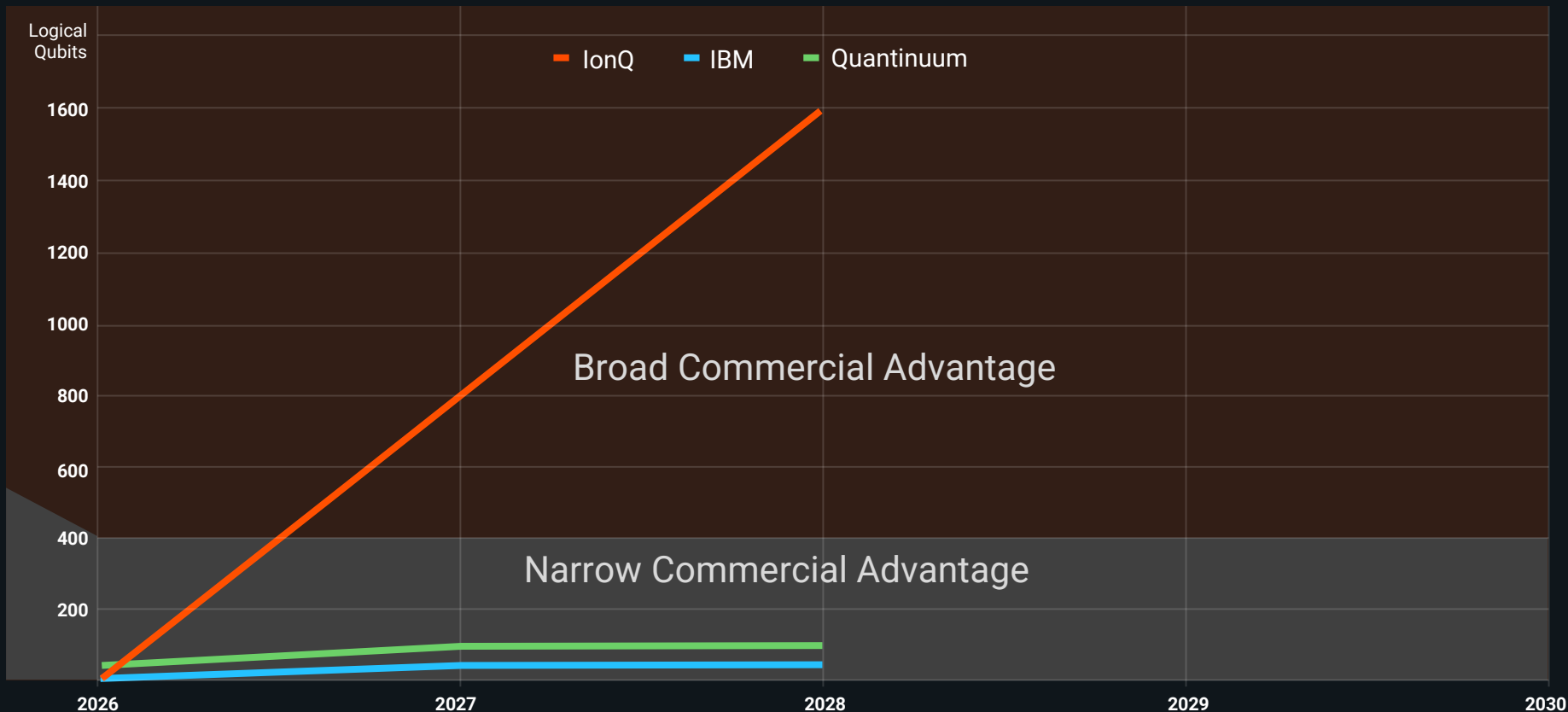
Nation's first
networking hub

Exponential Edge in Logical Qubits and Fault Tolerance Race



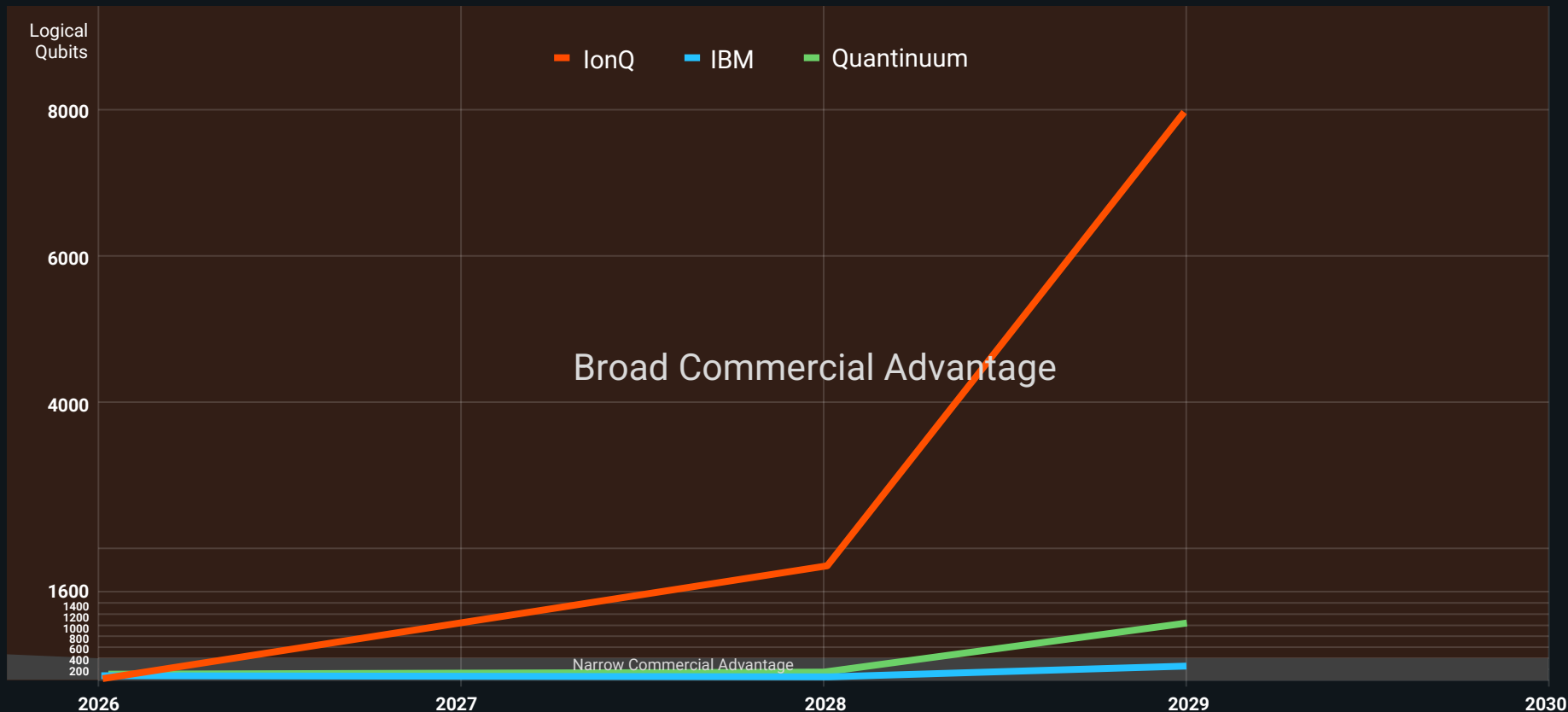
Note: Figures derived from publicly available roadmaps from IBM and Quantinuum, with reasonable approximations used where data was unavailable.

Exponential Edge in Logical Qubits and Fault Tolerance Race



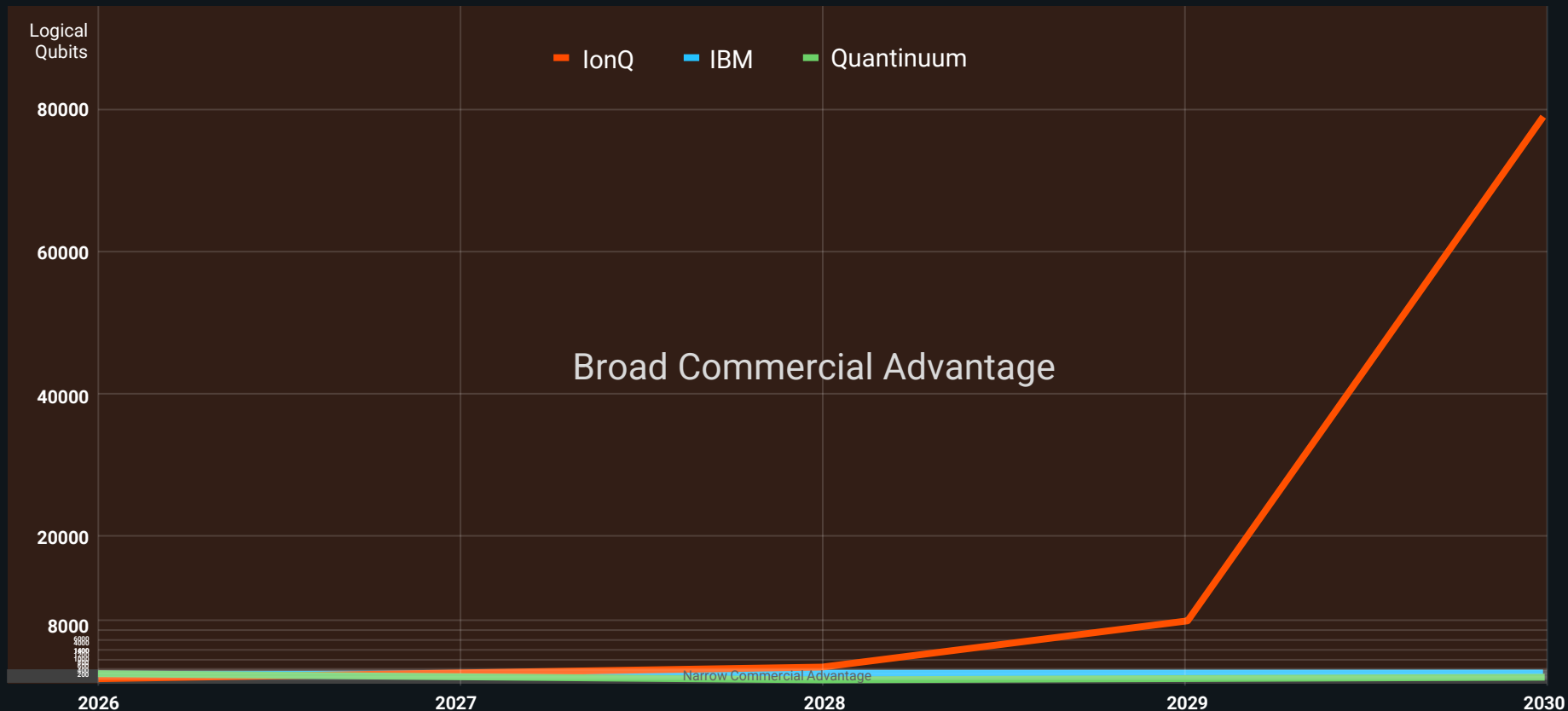
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Exponential Edge in Logical Qubits and Fault Tolerance Race



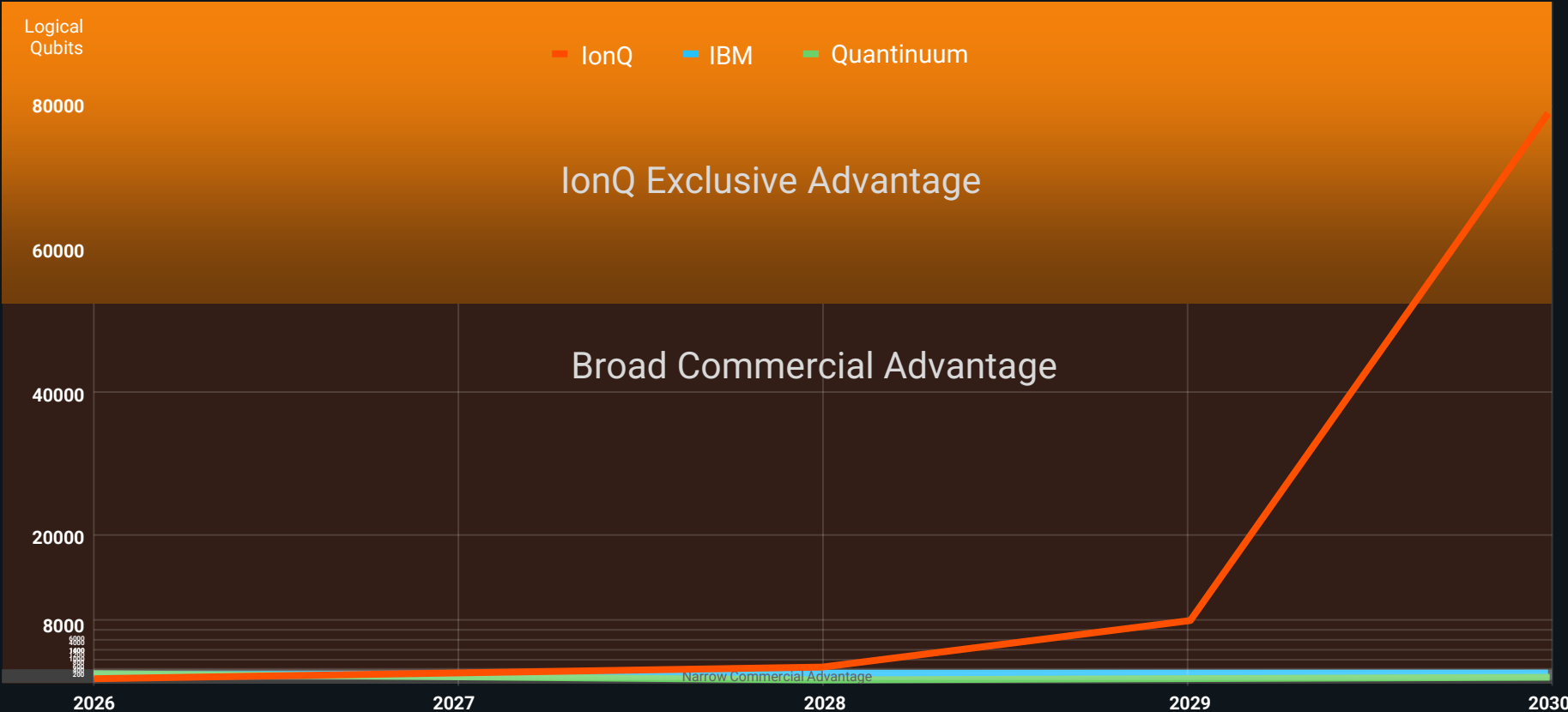
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Exponential Edge in Logical Qubits and Fault Tolerance Race



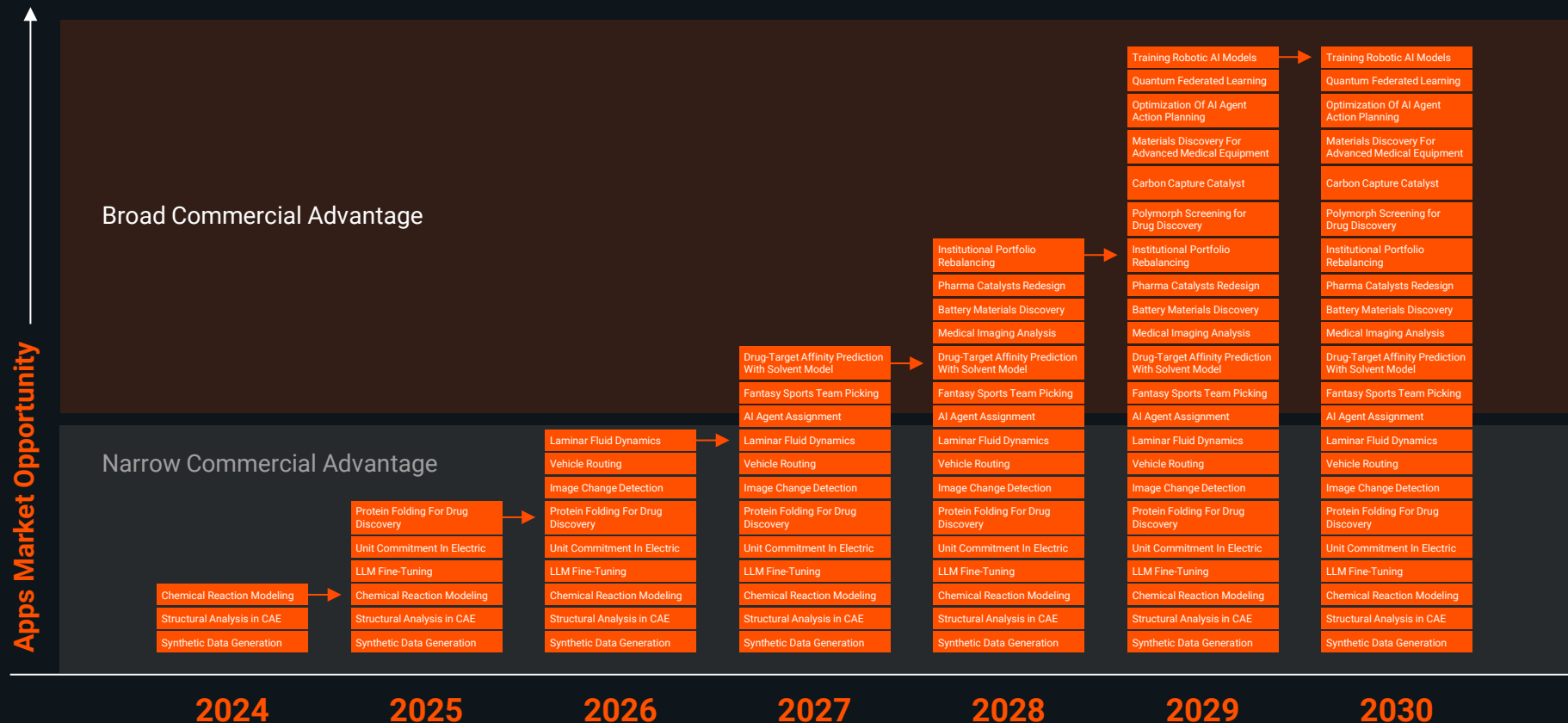
Note: Figures derived from publicly available roadmaps from IBM and Quantinuum, with reasonable approximations used where data was unavailable.

Exponential Edge in Logical Qubits and Fault Tolerance Race



Note: Figures derived from publicly available roadmaps from IBM and Quantinuum, with reasonable approximations used where data was unavailable.

Exponential Edge: Logical Qubits Unlock Vast Application Space



Ticketmaster confirms data breach in email to users



National Defense Corporation victim of ransomware attack; discloses breach and declines ransom.

2025 by Dissent

CrowdStrike shares slip as forecast reflects lingering effects of tech outage

By Reuters

August 28, 2025 7:58 AM EDT · Updated August 28, 2025

Disney to stop using Salesforce-owned Slack after hack exposed company data,

An Egyptian cyber attack on Ethiopia by hackers is the latest strike over the Grand Dam

Zecharias Zelalem

Sat, June 27, 2020 at 7:46 AM EDT · 3 min read

Finnish parliament website targeted in cyber attack

Boeing confirms attempted \$200 million ransomware extortion attempt

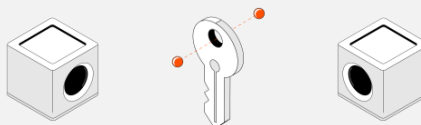
one of multiple “extremely large” ransom demands made by said.

Networking to Create the Global Quantum Internet

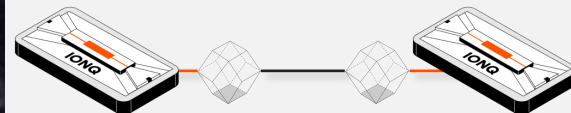
Delivering the **Comprehensive Suite** of Quantum Safe Communications



Poised to **Lead Globally** in Quantum Entanglement Distribution



Optimal Architecture for **Distributed Quantum Computing**



02

Quantum Computing Roadmap



Dr. Dean Kassmann
SVP, Engineering & Technology

Industry Leading Commercial Product Portfolio



Harmony
2019

Aria
2021

Forte
2023

Forte Enterprise
2024

Selling

Tempo
2025

256 Qubit System
2026

Planned

10K - 2M+ Qubit Systems
2027 - 2030+



IonQ Full Stack Quantum Innovation



IonQ Applications Development

Commercial
Applications



AIRBUS



GE Research



AFRL

Oak Ridge
National Laboratory

On-Prem or Cloud Access



IonQ Quantum
Software

IonQ Hybrid Services

SDKs, APIs, Compilers,
Cross-Platform Libraries

IonQ Quantum OS

IonQ Quantum
Hardware

Aria



Forte



Forte Enterprise



Tempo



Future Systems



IonQ Quantum Networking



End-to-end
Quantum Networks

Quantum
Internet

Distributed
Quantum Computing

Quantum Key
Distribution (QKD)



Algorithmic Qubits Explained

Historic application-driven measure of customer value

Qubit count, performance, and architecture all combine to give usable performance

#AQ is defined as *useable qubits* in a quantum computer

Defining #AQ based on QED-C benchmarking

Optimization

Problems involving complex routing, sequencing and more

- ✓ Amplitude Estimation
- ✓ Monte Carlo Simulation

Quantum Simulation

Understand the nature of the very small

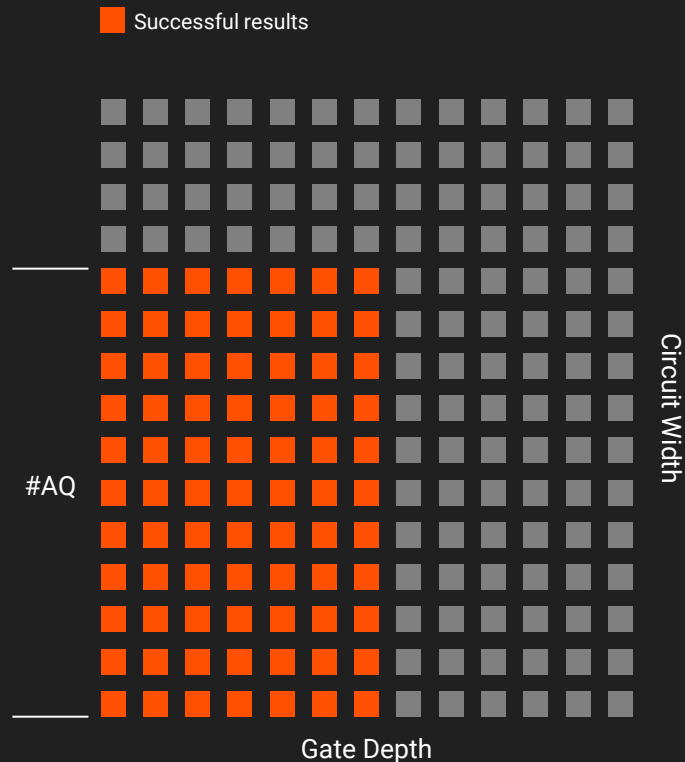
- ✓ Hamiltonian
- ✓ Variational Quantum Eigensolver

Quantum Machine Learning

Problems involving complex routing, sequencing and more

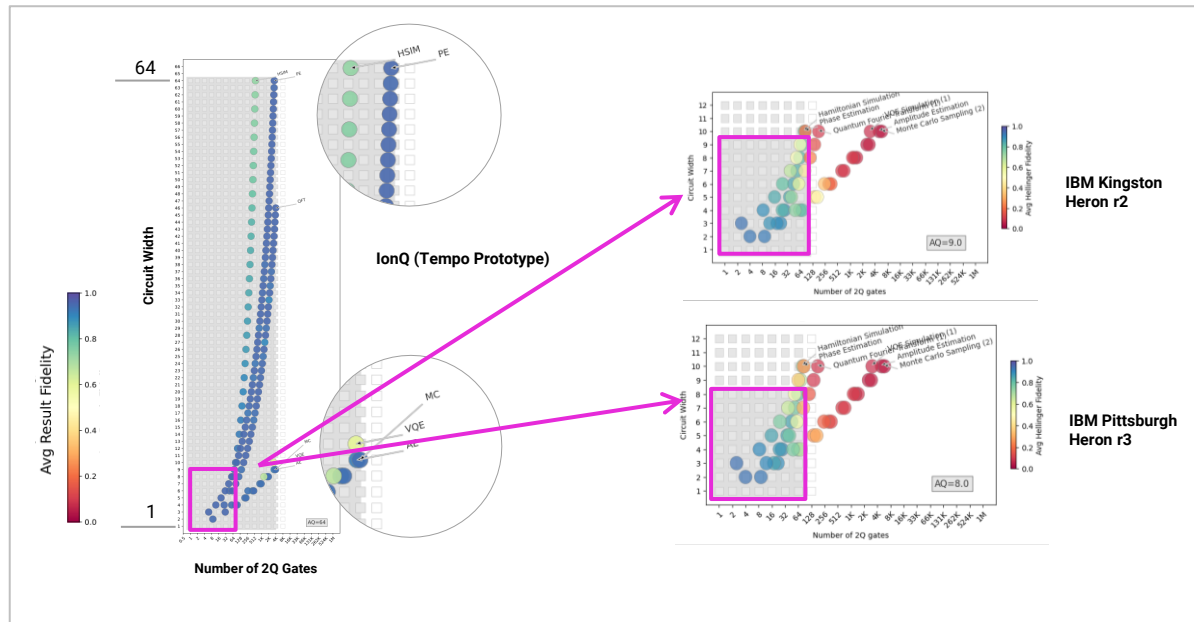
- ✓ Quantum Fourier Transform
- ✓ Phase Estimation

Note: Graph is illustrative and not representative of actual results



36 Quadrillion Times Larger Computational Space

Algorithm Qubit Comparisons



IonQ #AQ 64
prototype system
has a computational
space **36 quadrillion
times larger than**
IBM's current
highest performing
quantum system

Evolving and Expanding Quantum Benchmarking Methodology

Focusing on the metrics with real-world impact

Physical Benchmarks



Number of **Physical Qubits**



2 Qubit Gate **Fidelity**

- Number of Logical Qubits
- Gate Depth
- Connectivity

Application Benchmarks



Accuracy of Solution



Time to Solution



Cost to Solution



Energy to Solution

Delivering the World's Most Powerful Quantum Computers



	IONQ		
	Physical Qubits	Logical Qubits	Error Rate
2025	64-100+		
2026	100-256+		<1.00E-7
2027	10,000	800	<1.00E-7
2028	20,000	1,600	<1.00E-7
2029	200,000	8,000	<1.00E-12
2030	2,000,000	80,000	<1.00E-12

5+ Years Ahead

**36 Quadrillion Times Larger
Computational Space**

Strongest Unit Economics

03

Lowering Cost-per-Qubit

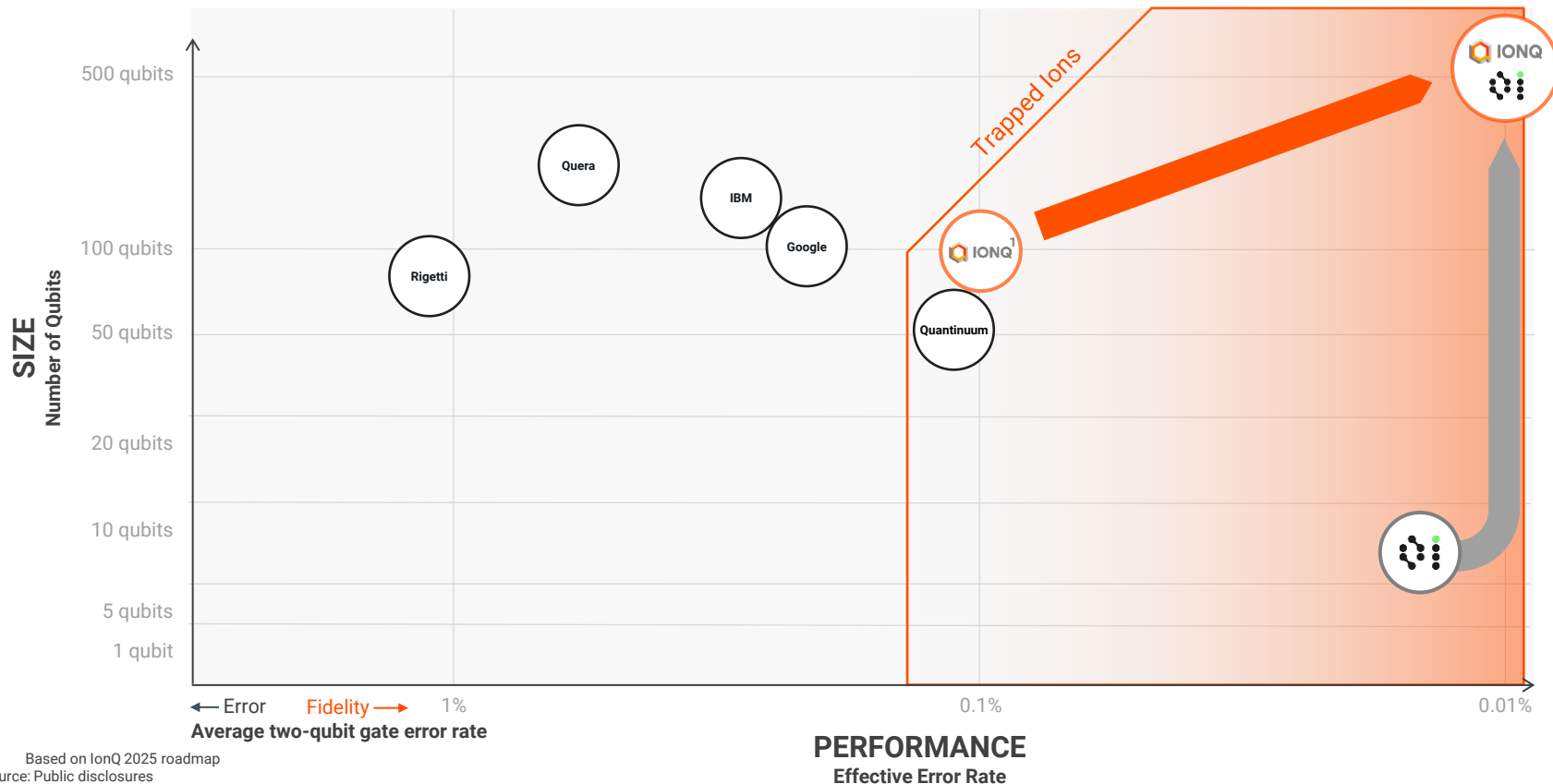


Dr. Chris Ballance

CEO, Oxford Ionics

Two Key Ingredients to Scale Quantum Computers

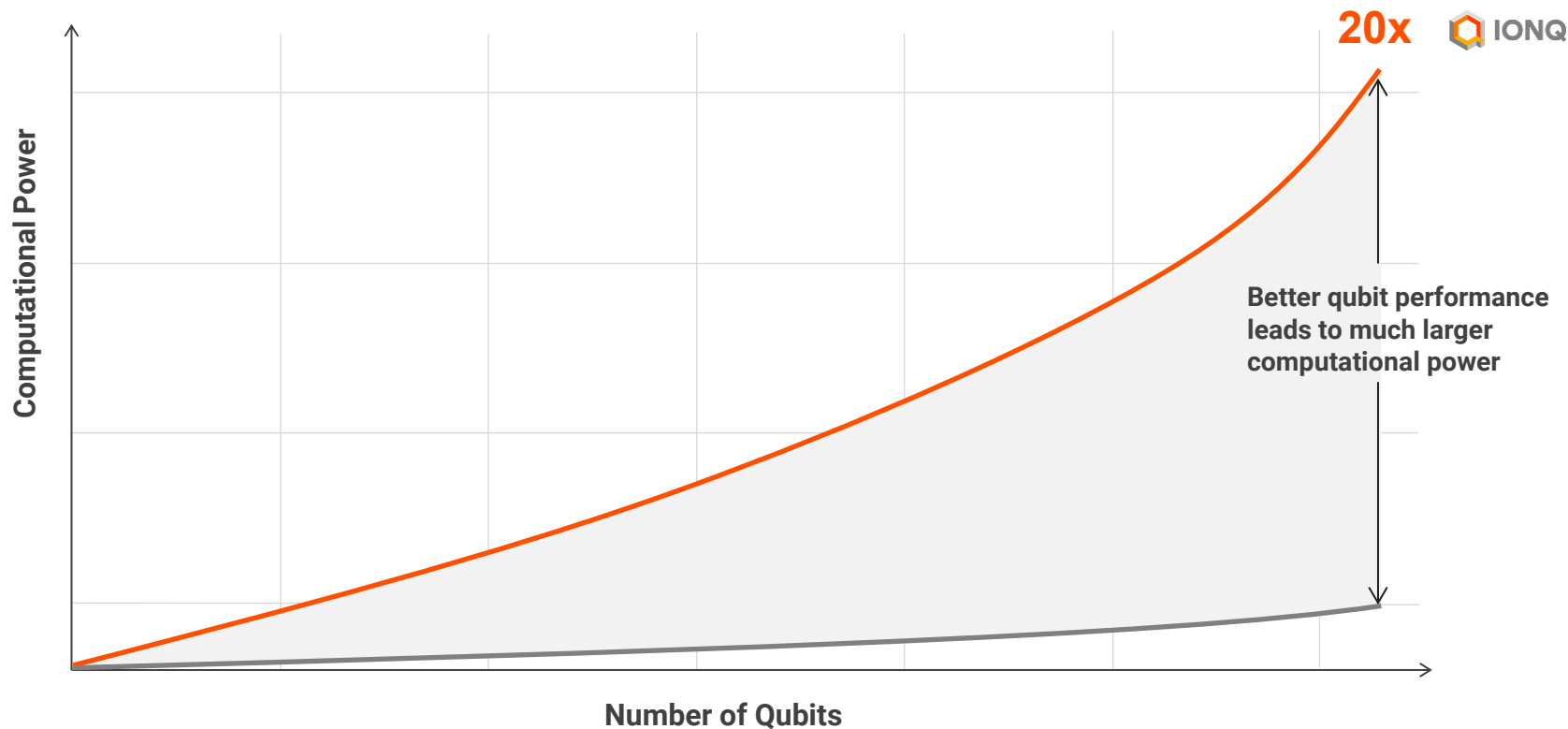
Size *and* performance are needed to unlock value



Better Qubit Performance **Unlocks Value Sooner**



Quantum error correction is not a free lunch



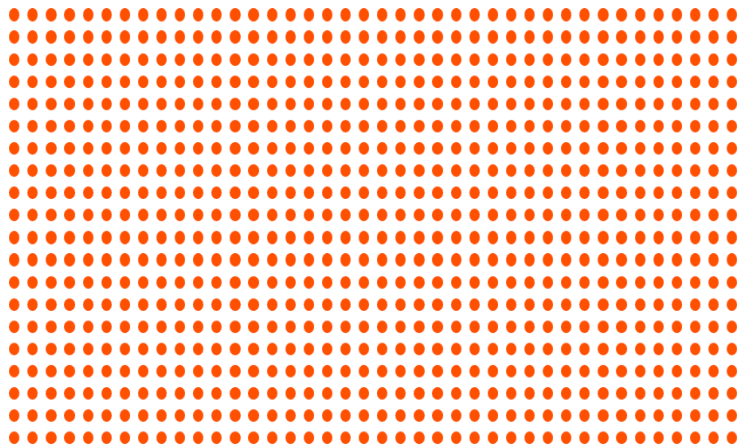
Better Qubit Performance **Unlocks Value Sooner**



We can achieve 20x more than competitors with the same resources



800 Logical qubits



10,000

Physical qubits

(IonQ 2027 roadmap target)

Other Approaches²

41 Logical qubits



1. For logical error rate 10^{-7} , see e.g., <https://arxiv.org/abs/2308.07915>, <https://arxiv.org/abs/2503.22071> with 99.99% fidelity physical qubits

2. For logical error rate 10^{-7} , based on distance-11 surface code with 99.9% fidelity physical qubits

99.97%

Two Qubit Gate Fidelity

Achieving Record Breaking

99.99%

Two Qubit Gate Fidelity¹

1. Oxford Ionics findings from a forthcoming study; details will be made available upon publication

Electronic Qubit Control: The Winning Secret Sauce

Using Silicon & Existing Semiconductor Supply Chain



Most Scalable



World's Highest Fidelity



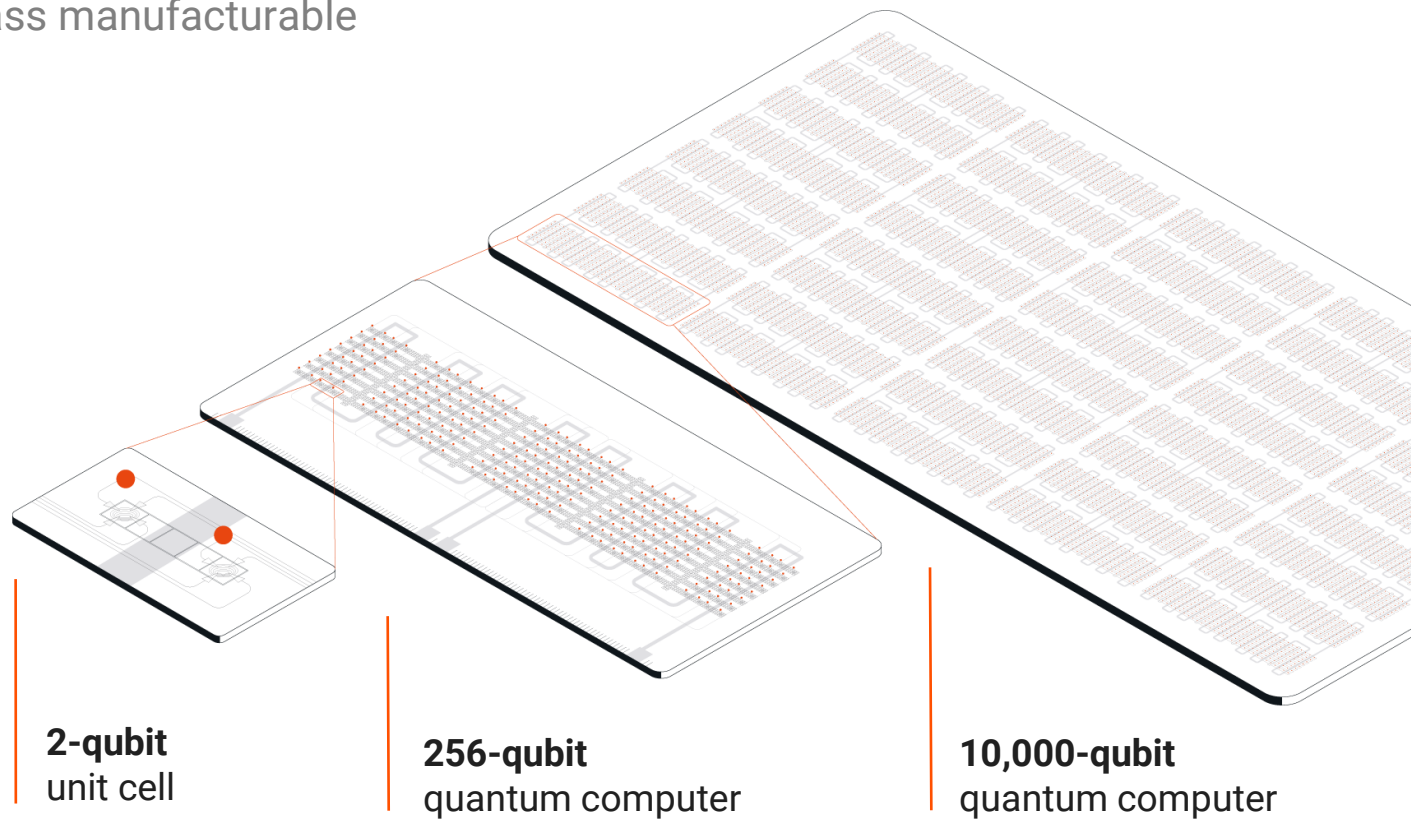
Fastest Time to Solution



Mass Manufacturable

Scaling Quantum the Semiconductor Way

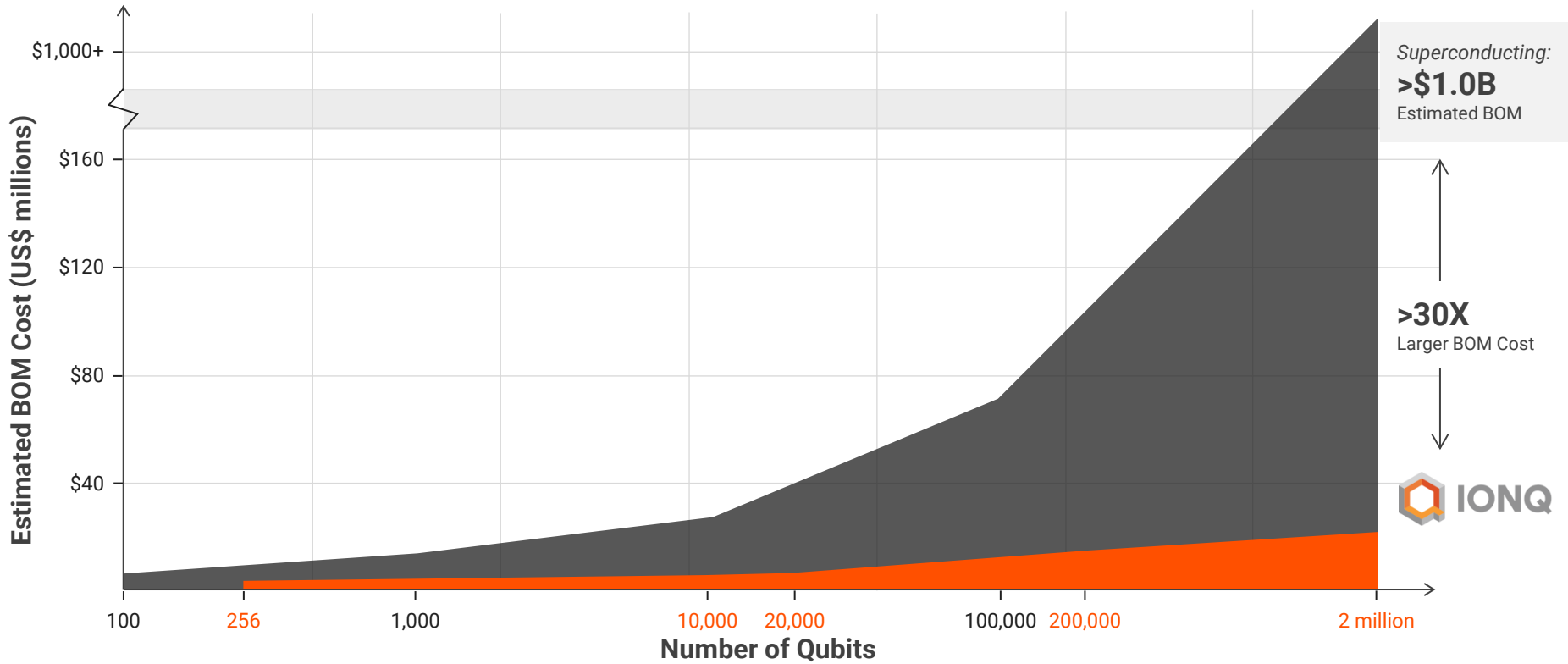
Simple, scalable and mass manufacturable



Best-in-Class Economics



Lowers cost per logical qubit



Source: IonQ data estimated by Kearney; Superconducting data taken from publicly available information using reasonable extrapolation assumptions
Note: x-axis represented on a log scale

04

Creating An Ecosystem: Photonic Interconnect



Dr. Chris Monroe
Chief Scientific Advisor & Co-Founder

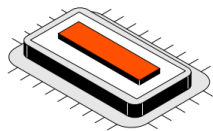


Dr. Mihir Bhaskar
Sr. Director, Quantum Interconnects

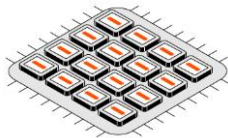
Quantum Compute Follows the Path of Cloud Compute

We are building the most efficient on-ramp for mass adoption

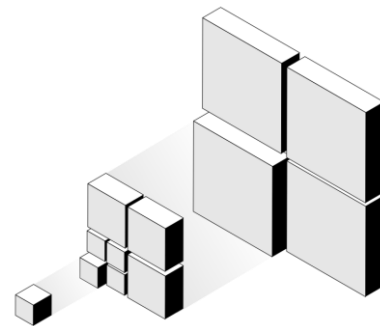
Cloud Computing



Single Core

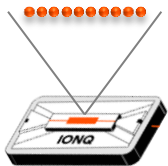


Multi-Core

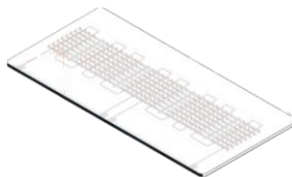


Compute Cluster

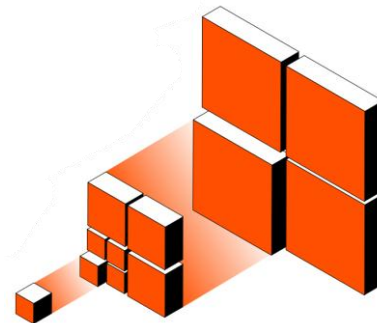
Trillion Dollar Cloud



Single Chain



Multi-Unit Cell



QPU Cluster

Quantum Datacenter Cloud

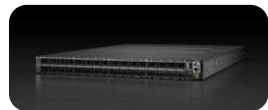
Interconnect Enabling **Datacenter Scale**



Interconnect as a sustainable competitive advantage



H100 GPU



Infiniband



Datacenter Scale GPU Computing



**Powerful
Compute
Module**

**Differentiated
Datacenter
Interconnect**

**Scalable
System
Design**



Ion trap QPU



Quantum Interconnect



Datacenter Scale Quantum Computing

Datacenter Scale

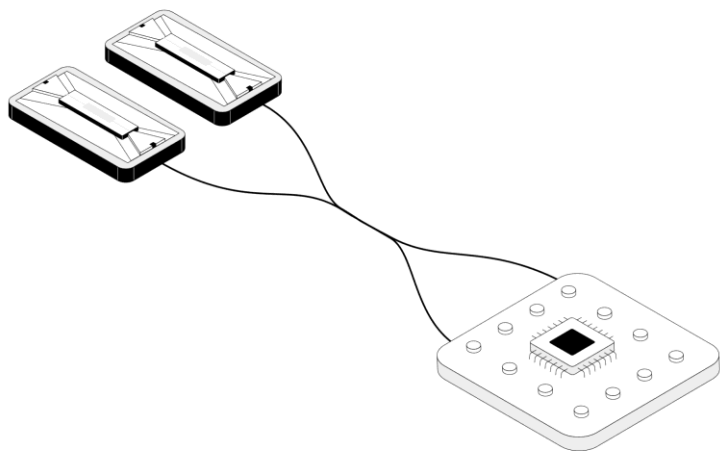
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Ecosystem Advantage

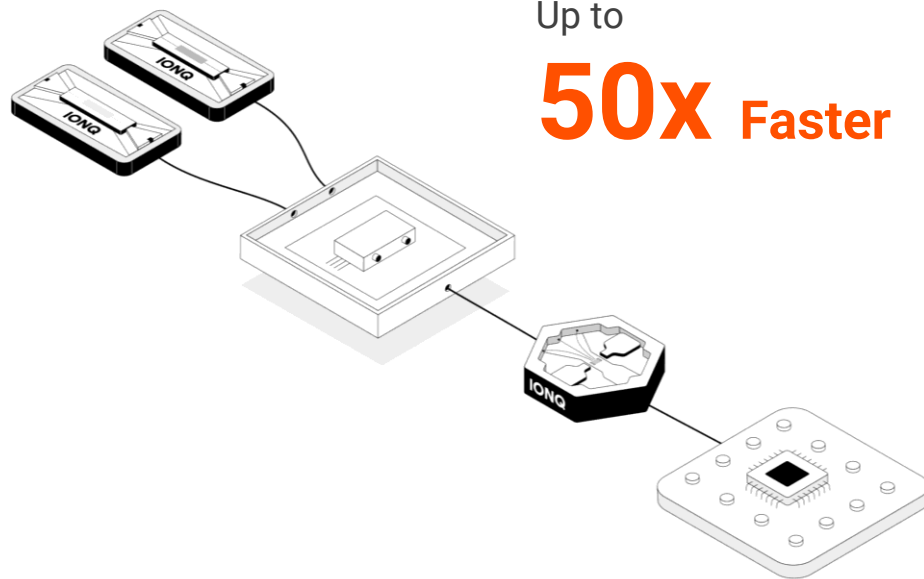
Source: NVIDIA product images

Quantum Memories Increase Interconnect Speed

No Memory

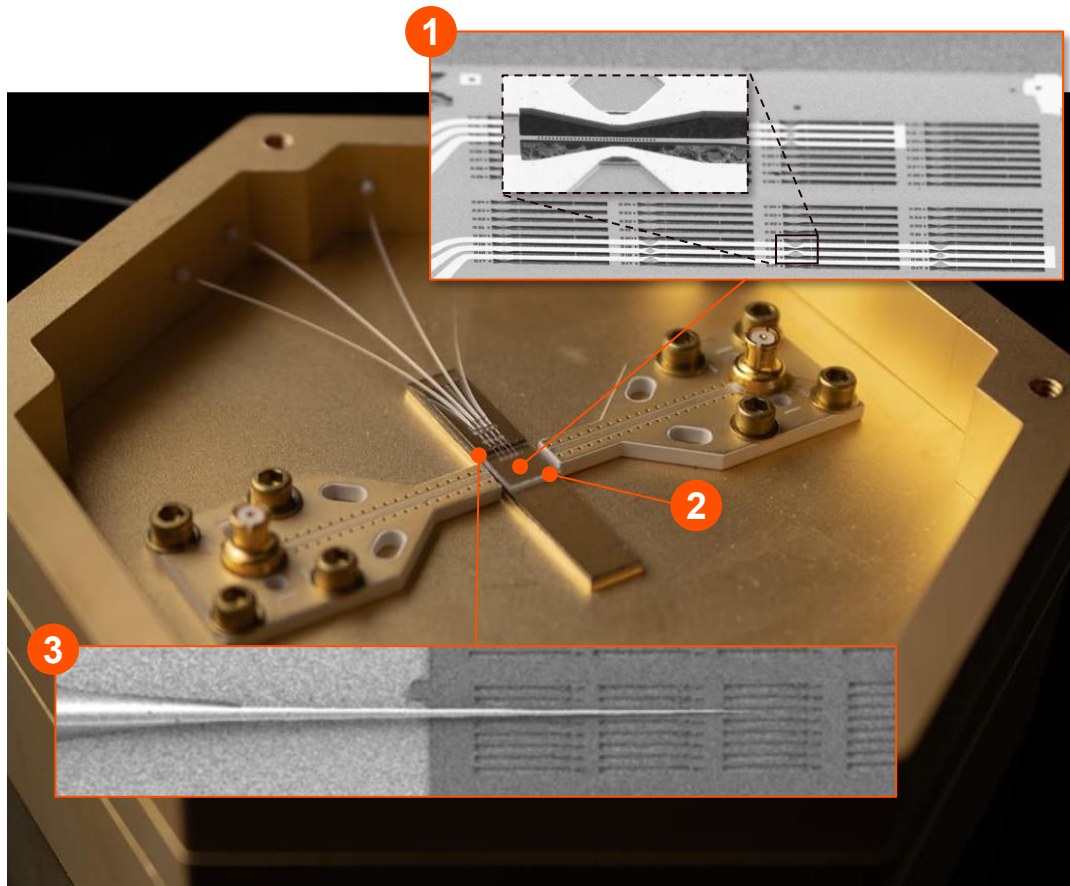


With Memory



Lightsynq Quantum Memory

- 1 Leading quantum memory**
Proven to enhance networking rates over quantum channels
- 2 Integrated Photonics Approach**
Foundry-compatible nanofabrication for performance at scale
- 3 Proprietary Fiber-to-Chip Coupling**
Insertion loss 10x+ better than industry standard techniques



Built for Scalability



Faster Transmission



Optimal Performance



Scalable Design & Foundry

05

Quantum Networking



Jordan Shapiro
President & GM, Networking



Dr. Grégoire Ribordy
CEO, ID Quantique

Ticketmaster confirms data breach in email to users



National Defense Corporation victim of ransomware attack; discloses breach and declines ransom.

CrowdStrike shares slip as forecast

2025 by Dissent

Today's best classical security technology is still exposed to **crippling** data breaches

By Reuters

August 28

An Egyptian cyber attack on Ethiopia by hackers is the latest strike over the Grand Dam

Zecharias Zelalem

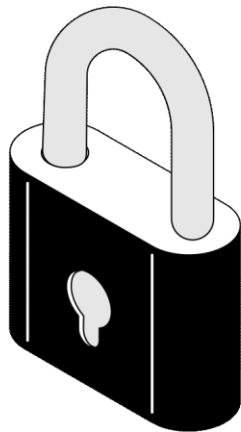
Sat, June 27, 2020 at 7:46 AM EDT · 3 min read

Finnish parliament website targeted in cyber attack

Boeing confirms attempted \$200 million ransomware extortion attempt

one of multiple "extremely large" ransom demands made by said.

Quantum Computing Progress **Creating Risk** to Traditional Networking



*“Cryptographically relevant quantum computers (CRQC) may be possible in **as soon as three years**. CRQCs would break all current encryption keys—posing an **existential threat** to national security and the global economy.”*

– US Department of War Research & Engineering



Quantum Key Distribution Is Today's Solution



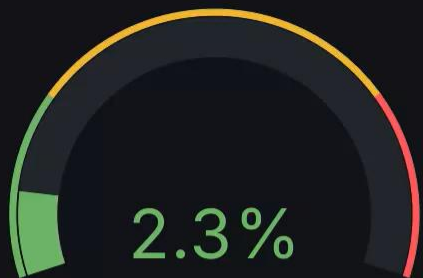


Alice

Eve

Bob



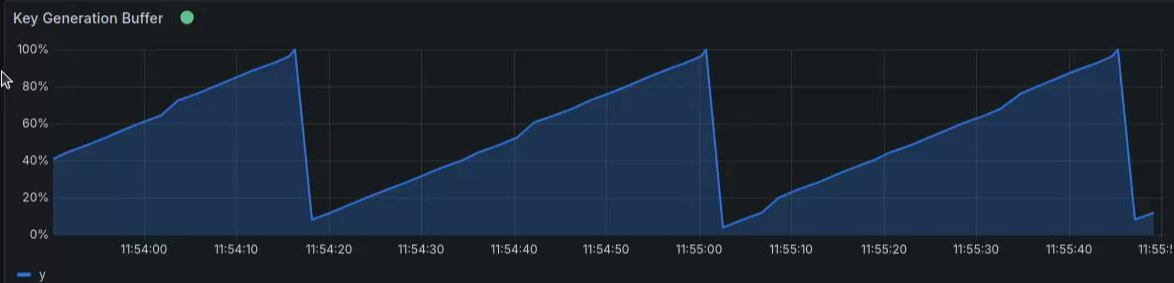


12%



IONQ

ID Quantique, an IonQ Company



QKD Logs ●

```
> 2025-09-05T11:54:23.120 DEBUG [cervino::communicator::QberRegulation] QBER = 0.0227347
> 2025-09-05T11:54:23.120 INFO [cervino::communicator::QberRegulation] Regulating QBER: modulator bias = 3.55808 V, QBER = 0.0245991
> 2025-09-05T11:54:23.120 DEBUG [cervino::communicator::VisibilityRegulation] Visibility = 0.942552
> 2025-09-05T11:54:22.123 DEBUG [cervino::communicator::QberRegulation] QBER = 0.02746
> 2025-09-05T11:54:22.123 DEBUG [cervino::communicator::VisibilityRegulation] Visibility = 0.93895
> 2025-09-05T11:54:22.123 INFO [cervino::communicator::VisibilityRegulation] Regulating visibility: IF temperature = 30.0201°C, visibility = 0.941756
> 2025-09-05T11:54:22.138 INFO [cervino::communicator::PrivacyAmplification] Key-block filling percentage: 12.1%
> 2025-09-05T11:54:21.121 DEBUG [cervino::communicator::QberRegulation] QBER = 0.0273747
> 2025-09-05T11:54:21.121 DEBUG [cervino::communicator::VisibilityRegulation] Visibility = 0.938938
> 2025-09-05T11:54:20.125 DEBUG [cervino::communicator::QberRegulation] QBER = 0.0289808
> 2025-09-05T11:54:20.125 DEBUG [cervino::communicator::VisibilityRegulation] Visibility = 0.952723
> 2025-09-05T11:54:20.143 INFO [cervino::communicator::PrivacyAmplification] Key-block filling percentage: 8.0%
> 2025-09-05T11:54:19.117 DEBUG [cervino::communicator::QberRegulation] QBER = 0.0242226
> 2025-09-05T11:54:19.117 DEBUG [cervino::communicator::VisibilityRegulation] Visibility = 0.947478
> 2025-09-05T11:54:18.126 INFO [cervino::communicator::PrivacyAmplification] Current compression ratio: 0.221439
```

Delivering Quantum Key Distribution Products **Today**

Commercially Available Quantum Security Products



Clavis XG QKD System
Technology Readiness Level 9



First Certified QKD System **in the World**



Commercial Adoption Driving Value Creation

Leading Telecom, Financial and Government Customers Worldwide

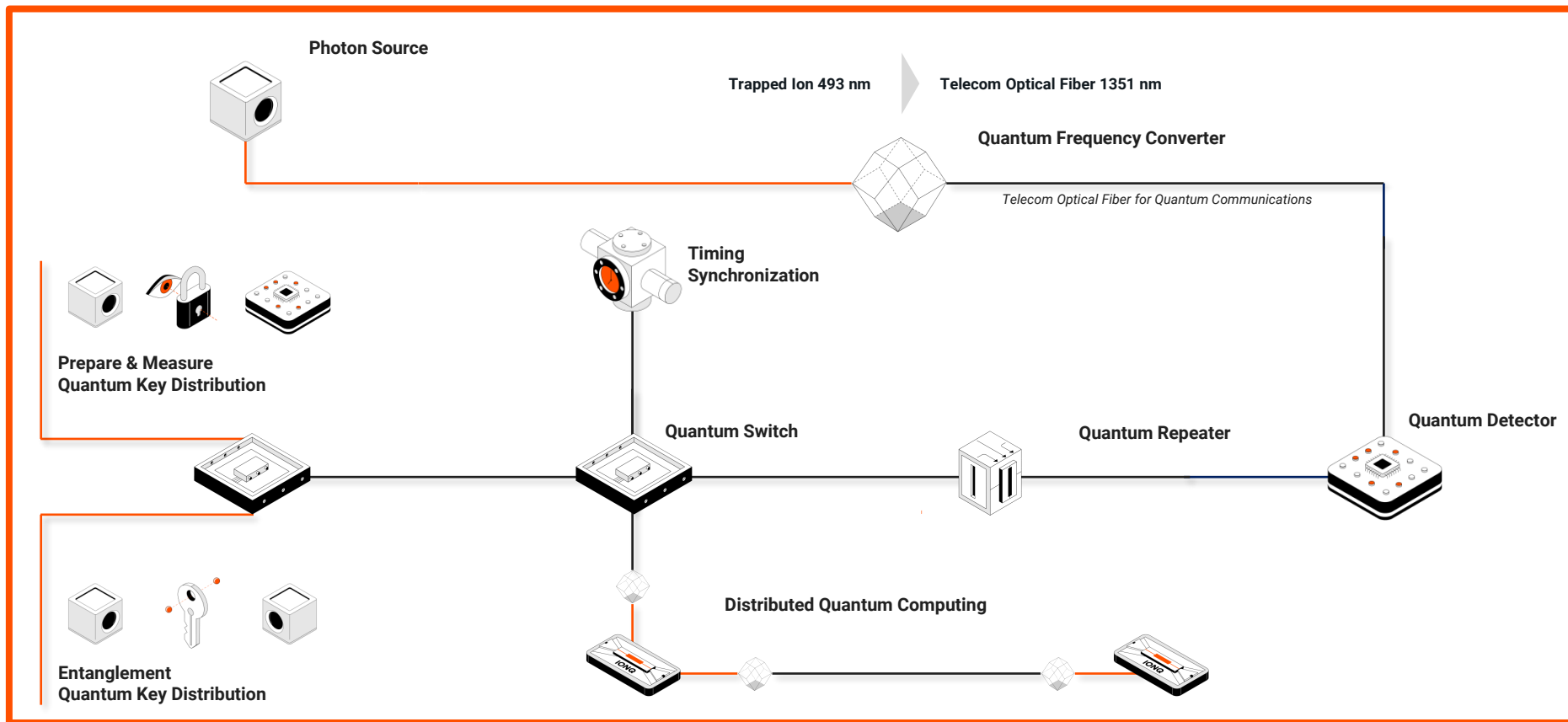


Interoperability Partnerships with Global Networking Giants

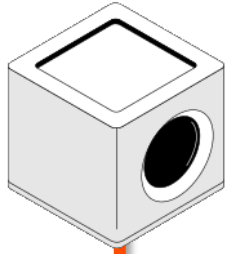


Building the Comprehensive Suite of Networking Products to Enable Quantum Data Centers

One-Stop-Shop for Full Quantum Networks



Photon Source

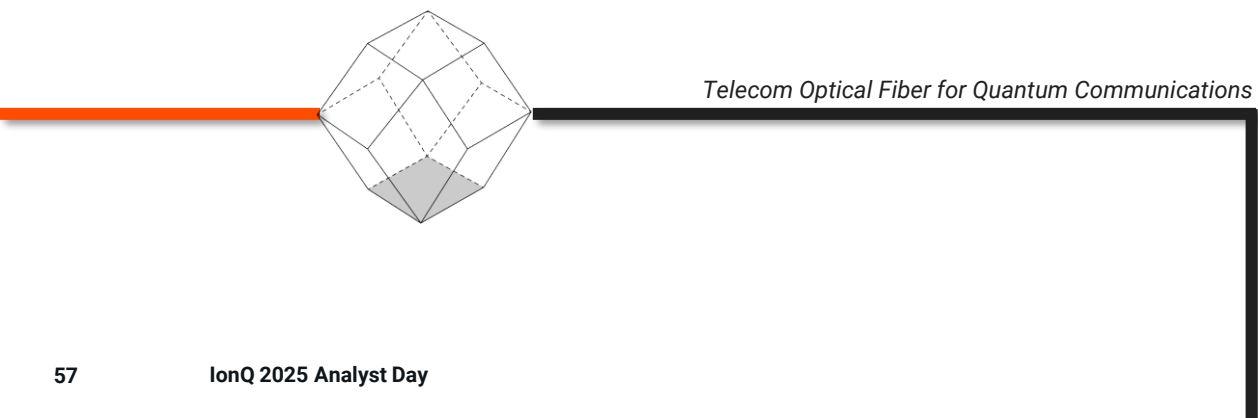


Quantum Frequency Converter

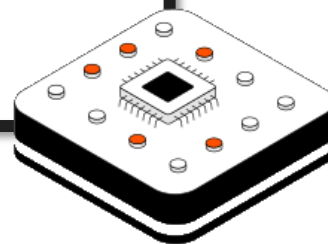
Trapped Ion
493 nm



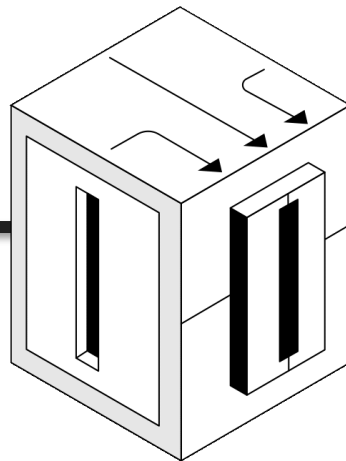
Telecom Optical Fiber
1351 nm



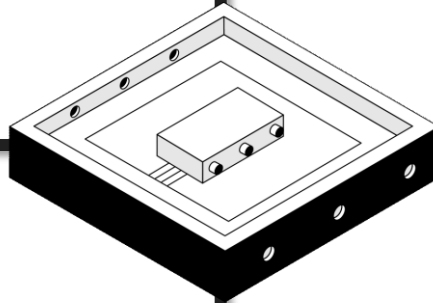
Quantum Detector



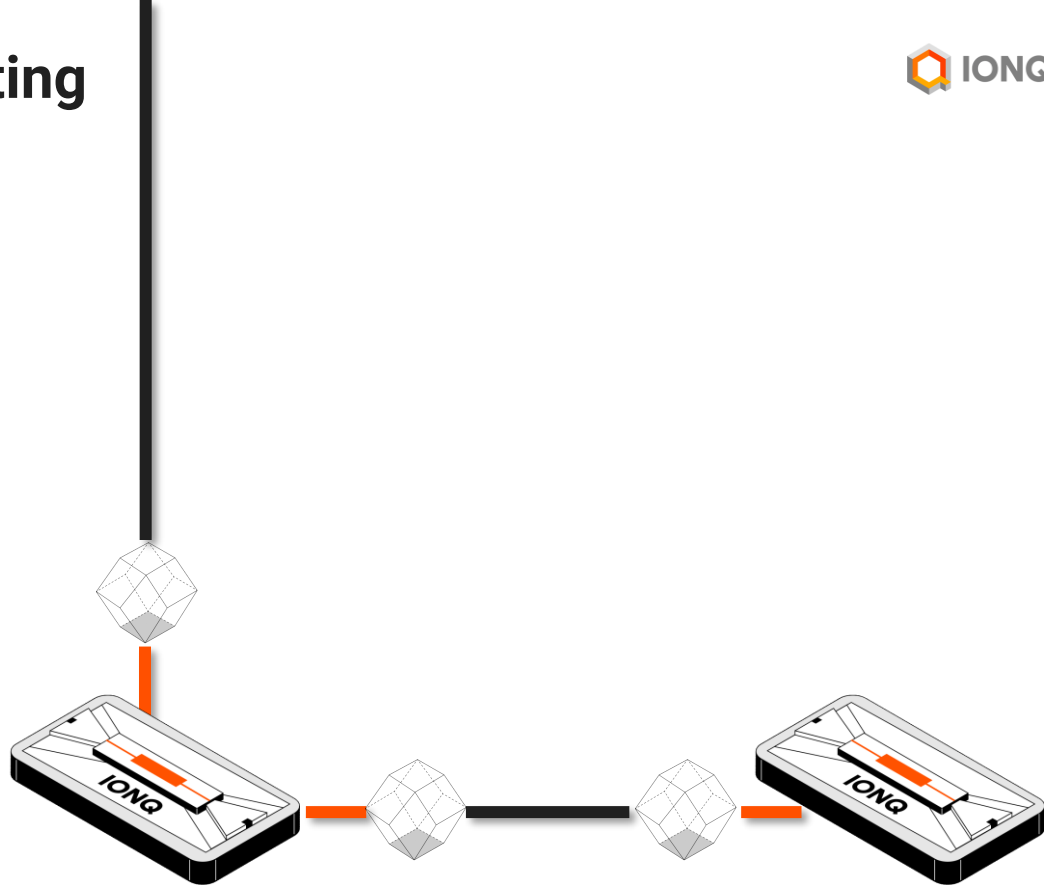
Quantum Repeater



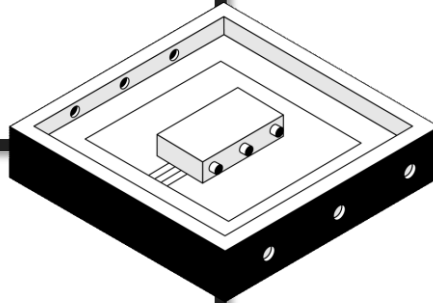
Quantum Switch



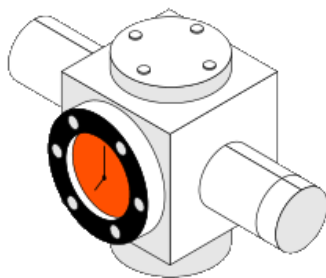
Distributed Quantum Computing



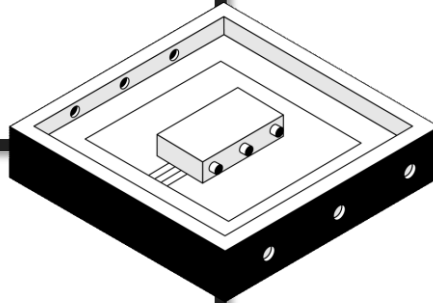
Quantum Switch



Timing Synchronization



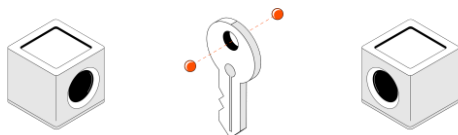
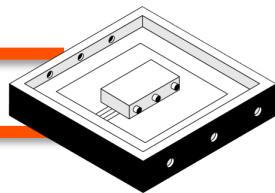
Quantum Switch



Quantum Key Distribution

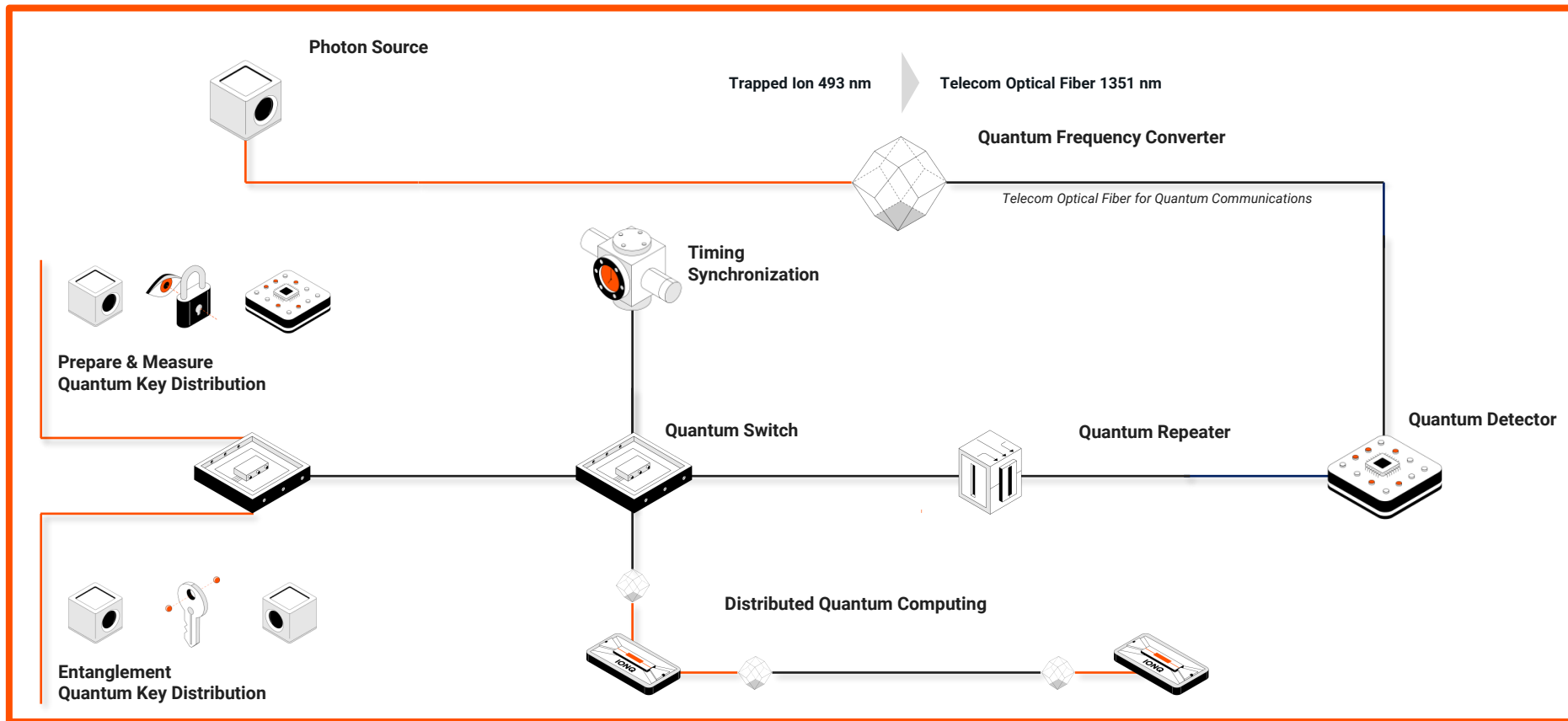


**Prepare & Measure
Quantum Key Distribution**



**Entanglement
Quantum Key Distribution**

One-Stop-Shop for Full Quantum Networks

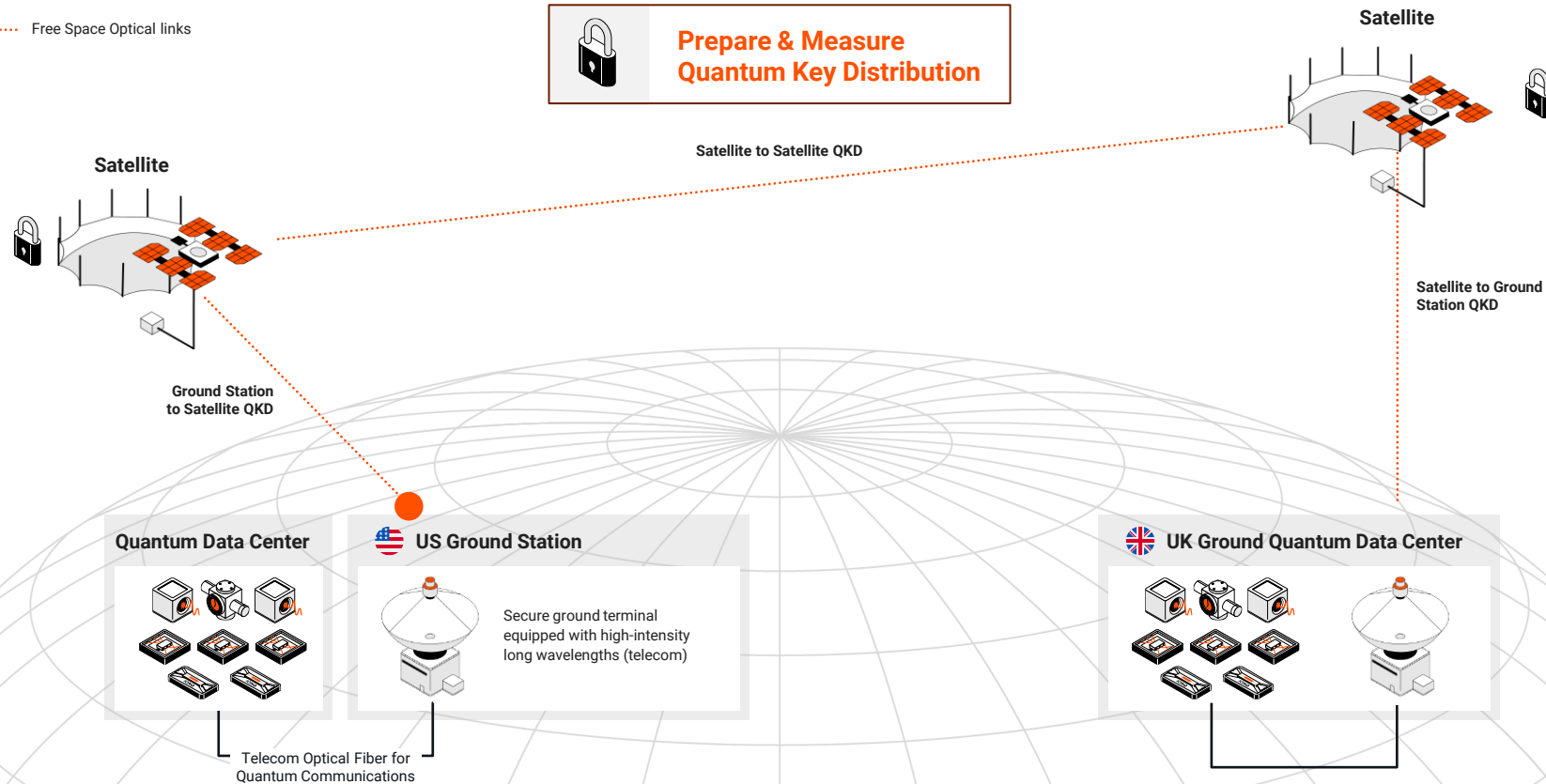


Vision for the Global Quantum Internet

..... Free Space Optical links



**Prepare & Measure
Quantum Key Distribution**

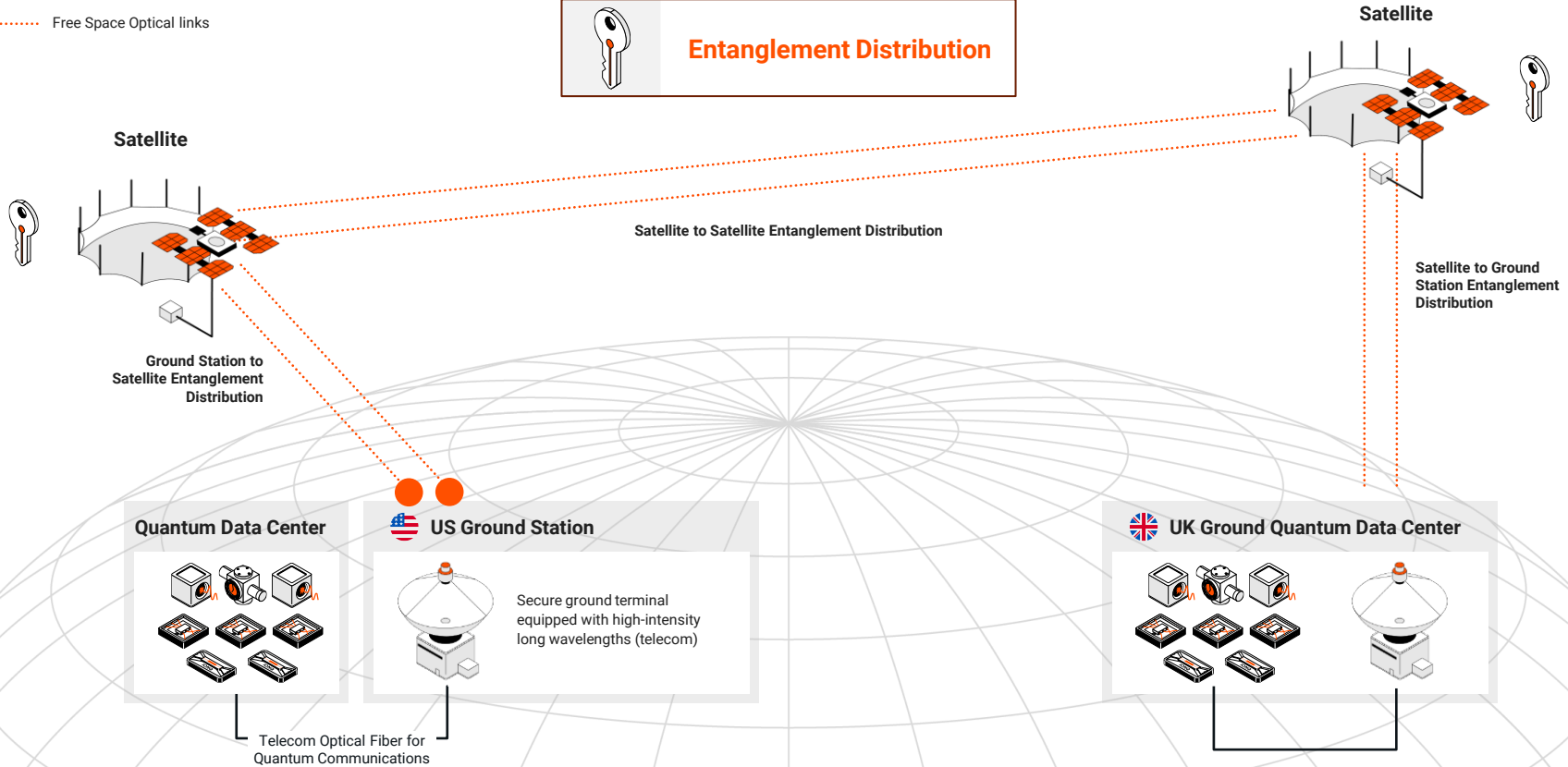


Vision for the Global Quantum Internet

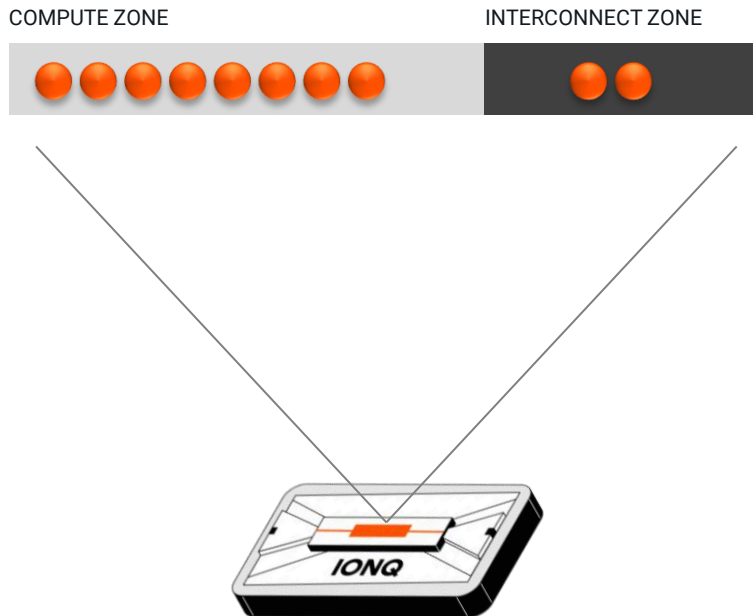
..... Free Space Optical links



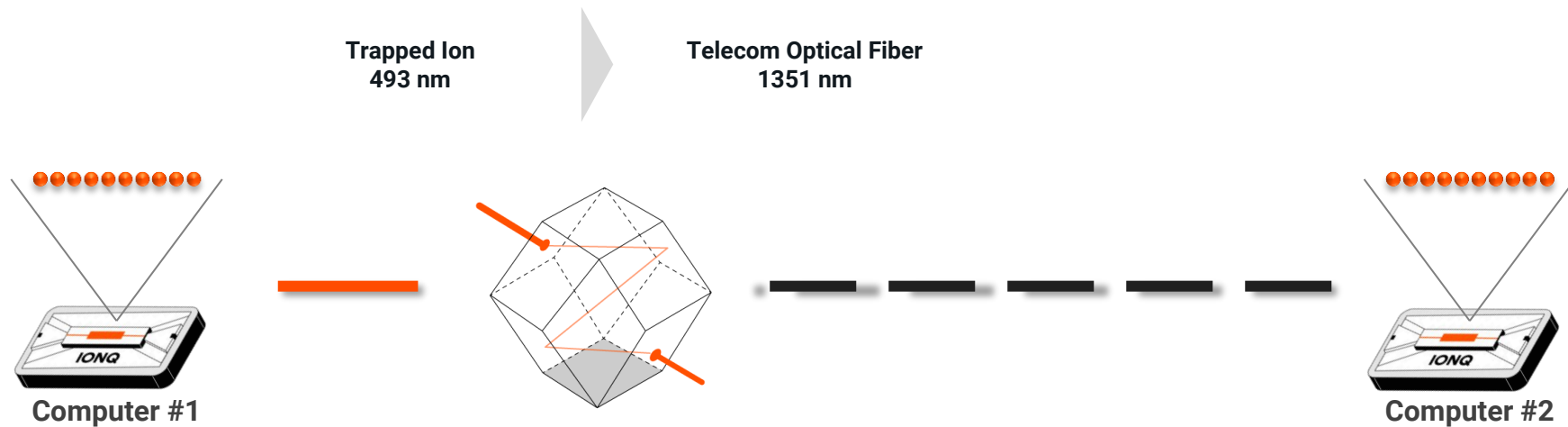
Entanglement Distribution



Case Study: Achieving Remote Entanglement Distribution Milestones with AFRL

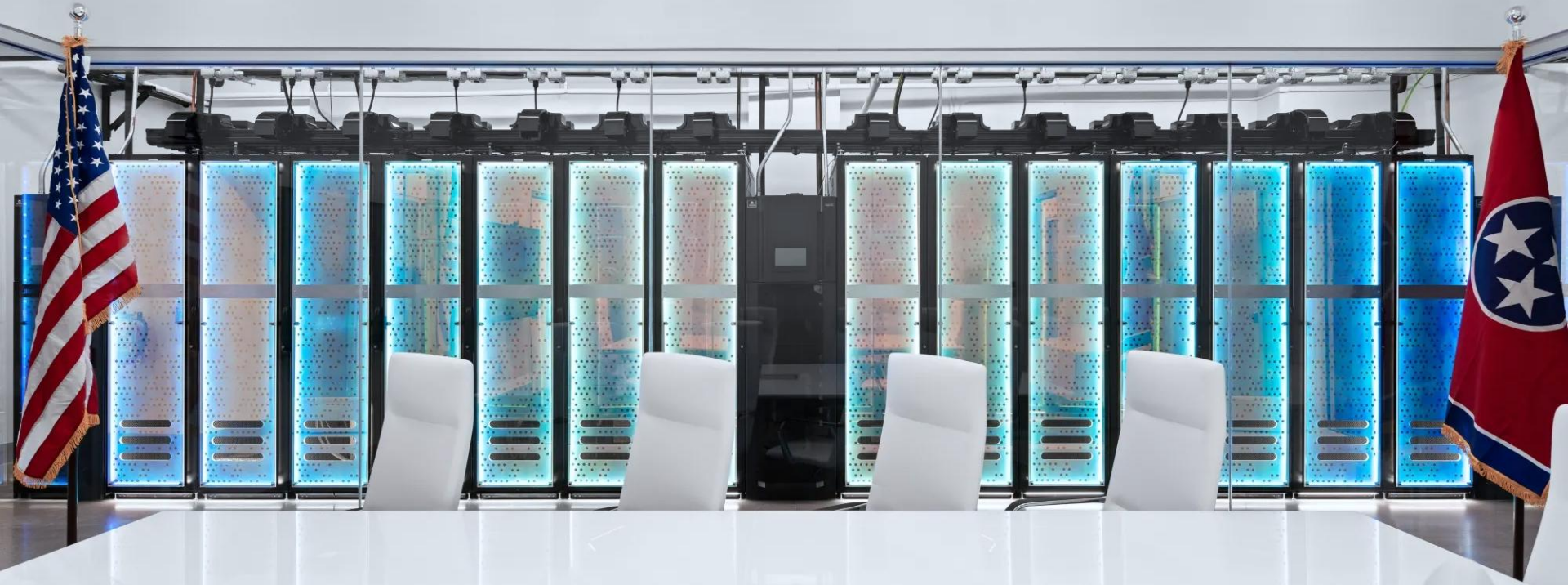


Case Study: Achieving Remote Entanglement Distribution Milestones with AFRL



Commercially Deployed Quantum Networks

IonQ Quantum Network Installed at Electric Power Board of Chattanooga



Commercially Deployed Quantum Networks



IonQ Quantum Network
Installed at SK Telecom

Q&A Session

06

Enterprise-Grade Applications



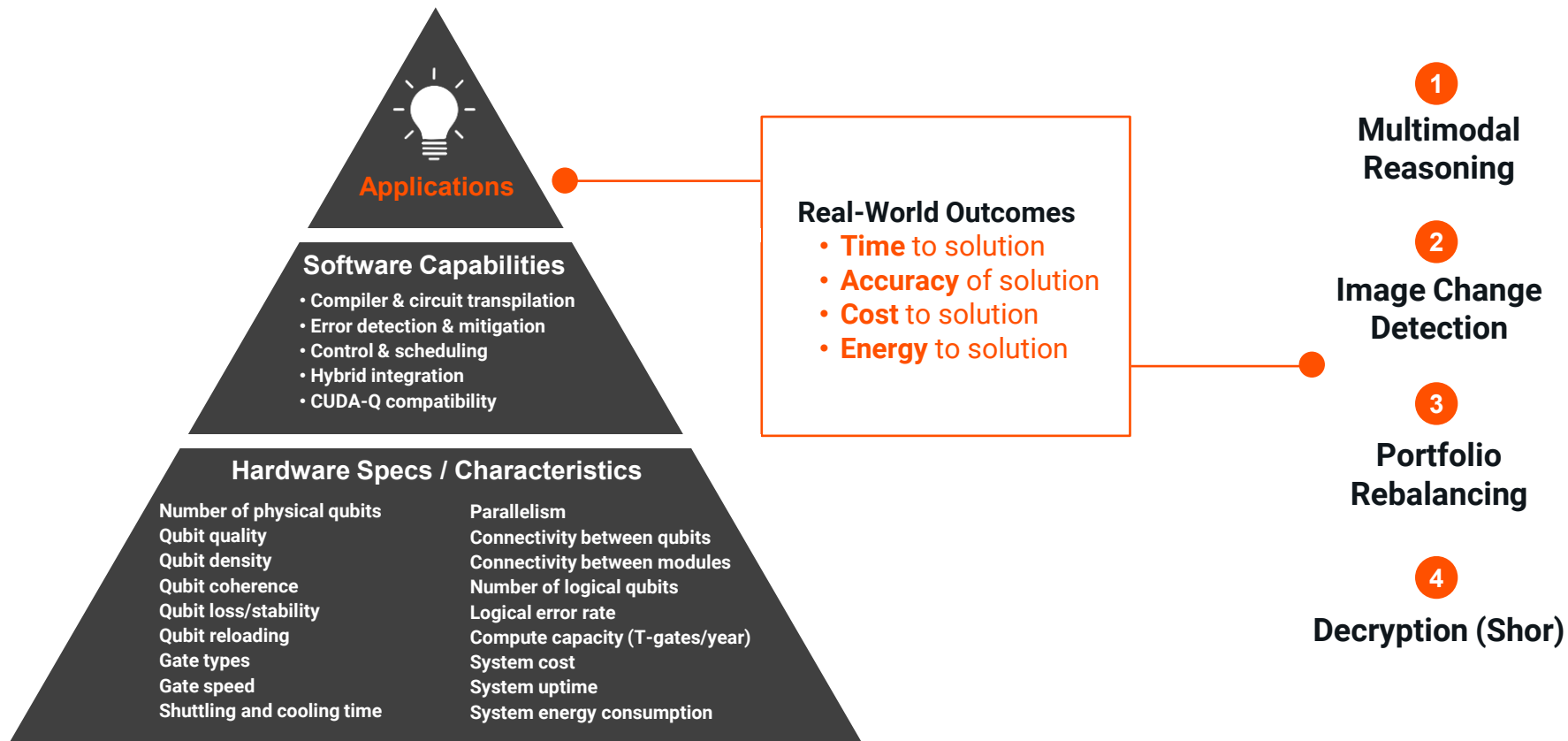
Ariel Braunstein

SVP, Product

Quantum Applications

Making The Right Technology Choices

Application Results Driven by System Capabilities



Leading in Accuracy, Speed, Cost, and Energy to solution



Meaningful fault tolerant application of increasing complexity (2030 estimation)

1 AI Multimodal Reasoning

Enables medical diagnostics, sensor fusion, video and text reasoning, sentiment analysis, etc.

40x faster time to solution

2 Image Change Detection

Applicable to satellite imaging, insurance, environmental monitoring, and intelligence

20x lower energy consumption

3 Portfolio Rebalancing

Enable more efficient, resilient, and optimized portfolios

170x lower energy consumption

✗ Quantinuum
✗ Infleqion

4 Decryption (Shor's Algorithm)

Cybersecurity & blockchain: RSA-2048 (TLS/SSL/Web), ECC-256 (Bitcoin, stablecoins)

2.5x better cost to solution

✗ Quantinuum
✗ IBM
✗ Infleqion
✗ PsiQuantum

Source: Implied future performance based on publicly available roadmaps

Winning in Today's Mission-Critical Application Benchmarks

Outperforming Peers With Real-World Applications

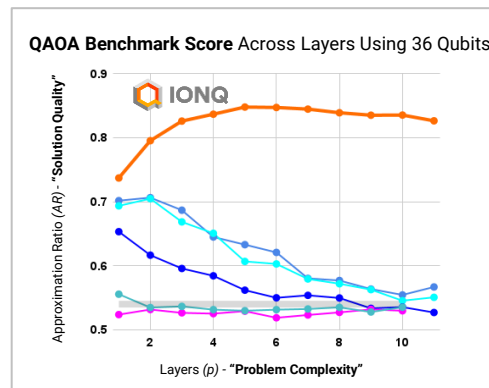


IonQ is leading on mission-critical application benchmarks

34.7%

improvement in solution quality compared to IBM's current highest performing quantum system

11 layers

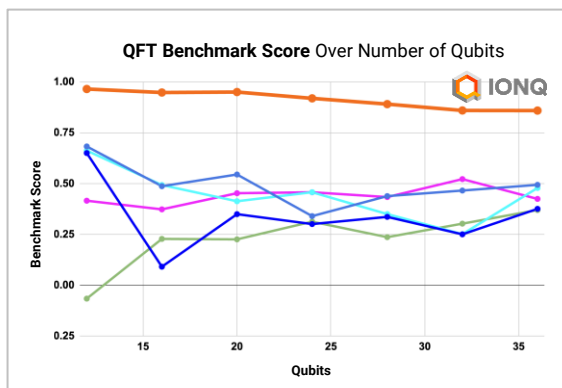


Solving complex optimization problems where exact solutions are intractable.

73.9%

improvement in solution quality compared to IBM's current highest performing quantum system

At 36 qubits

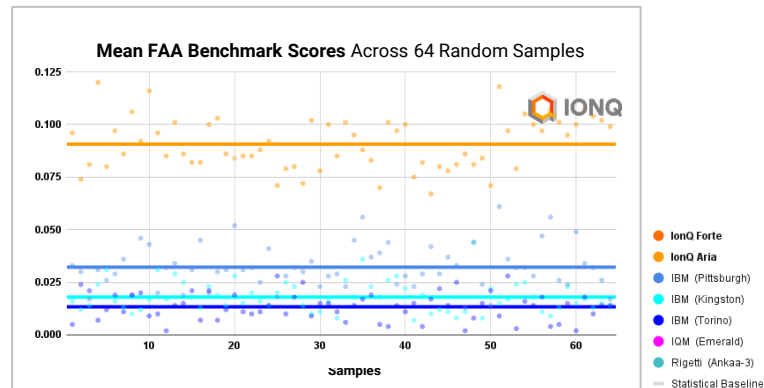


Foundation for algorithms like Shor's, mapping quantum states into frequency space.

181.6%

improvement in average score compared to IBM's current highest performing quantum system

Across 64 samples



Finds optimal solutions in large or noisy datasets for real-world performance.

Source: IonQ preliminary internal data; 3rd party independent research

Early Applications Massive Opportunities



Pharma & Healthcare

Protein folding



Lead optimization



Drug synthesis catalysts



Logistics

Logistics center location



Carrier shipment selection



Vehicle dispatching



Service Industries

Contact center AI model



Anomaly detection



More to come...

** Not an exhaustive list*

Accelerating Drug Development through Enhanced Simulations with AstraZeneca

Business and Technical Challenges

Traditional computing struggles to accurately and efficiently model complex transition metal catalysis

IonQ's Quantum Solution

QC-AFQMC delivers scalable, high-accuracy simulation of reaction energetics

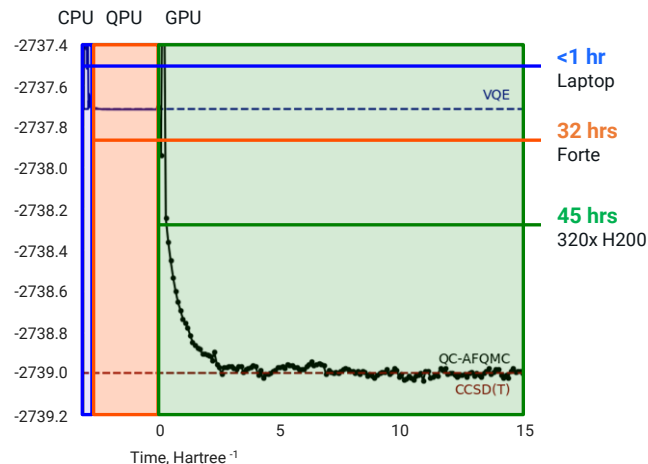
Business Impact

Enables faster, more cost-effective drug development and material design



20x

Faster time-to-solution than best previously published implementation



arXiv:2404.18303

Quantum AI Case Study

Quantum Hybrid LLM Fine-Tuning Boosts Accuracy and Efficiency

Business and Technical Challenges:

Classical LLMs struggle with sparse, complex, or proprietary data

IonQ's Quantum Solution:

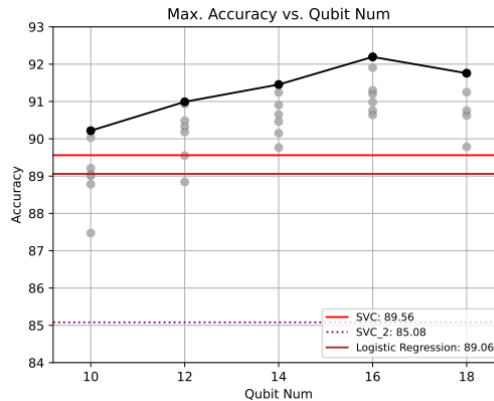
Hybrid fine-tuning adds quantum layers to pre-trained LLMs, improving small dataset learning and outperforming classical ML models

Business Impact:

Improves accuracy by 3.14% and reduces energy use at scale, delivering practical quantum benefits from 46 qubits

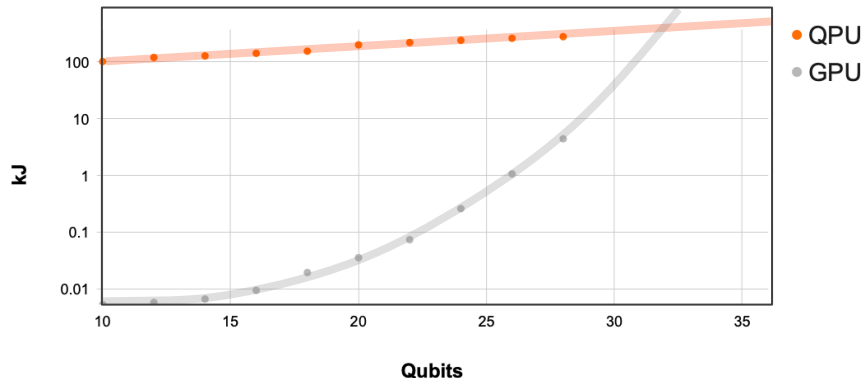


Scaling Efficiently Beyond Classical



arXiv:2504.08732

Average Inference Energy Consumption of Fine-Tuning Circuit





Quantum AI **in Action**

Smarter, More Energy Efficient, Less Resource Intensive

07

Customer and Partner Momentum



Rima Alameddine
Chief Revenue Officer



Margaret Arakawa
Chief Marketing Officer

From Insight to Impact

Two Types of Buyers



Mission Driven



ROI Driven

Go-To-Market Pillars



Building Quantum Economies



Enabling Governments



Creating Commercial Value



Scaling Through Partnerships

Quantum is Now.

IonQ Driving the Quantum Revolution

1970s - present



**Distributed
Computers**

**Compute in
the hands** of
millions of
consumers and
businesses

1993 - present



Internet

Network to
communicate,
collaborate, and
**transact
securely and
quickly**

2002 - present



Cloud

**Massive compute
power at much
lower costs** for
developers and
organizations

2022 - present



AI

**Intelligent
compute** leading
to massive
productivity
gains

TODAY



IonQ Quantum

Leveraging 50+ years
of tech innovation to
solve complex
problems with the:

- Highest performance
- Lowest cost
- Greatest scalability
- World class security

IonQ Full Stack Quantum Innovation



IonQ Applications Development

Commercial
Applications



AIRBUS



GE Research



AFRL

Oak Ridge
National Laboratory

On-Prem or Cloud Access



IonQ Quantum
Software

IonQ Hybrid Services

SDKs, APIs, Compilers,
Cross-Platform Libraries

IonQ Quantum OS

IonQ Quantum
Hardware

Aria



Forte



Forte Enterprise



Tempo



Future Systems



IonQ Quantum Networking



End-to-end
Quantum Networks

Quantum
Internet

Distributed
Quantum Computing

Quantum Key
Distribution (QKD)



Trusted by Top Global Customers and Partners

Enabling breakthroughs with leading enterprises and organizations

Enterprise



Ecosystem Partners



Government | National Labs | Universities





Aug
2024

University of Maryland **\$9M** **Partnership**

IonQ and the University of Maryland
sign partnership to drive quantum
innovation



Sept
2024

United States Air Force Research Lab Awards **\$54.5M Contract**

IonQ awarded largest 2024 U.S. quantum contract by the United States Air Force Research Lab to enable **scaling and networking** of quantum systems

Nov  NVIDIA
2024

New Chemistry Application with **NVIDIA CUDA-Q**

Application demonstrates the seamless workflow behind hybrid quantum-classical approaches to calculate the **specific properties of a molecule's electronic structure**



Dec 2024

IonQ Flagship Quantum Computer in **Europe**

IonQ flagship system, Forte
Enterprise inaugurated at
**QuantumBasel tech hub in
Switzerland**



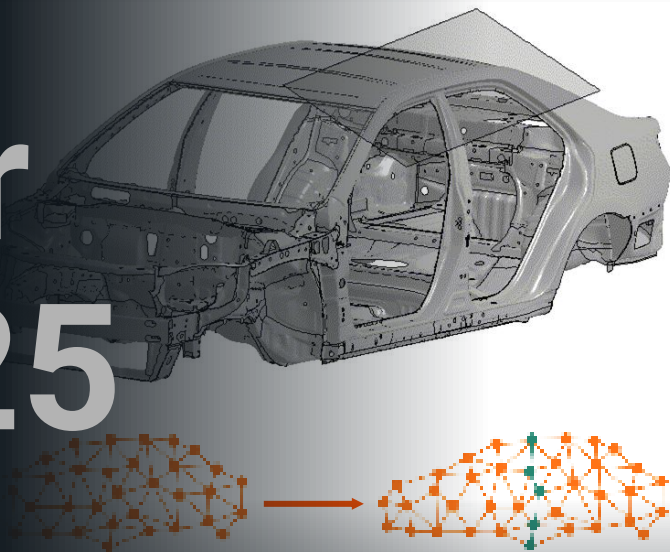
Jan
2025

IonQ Anchors Maryland's **\$1 Billion** “Capital of Quantum” Initiative

Governor Wes Moore announced
“Capital of Quantum” initiative **with**
IonQ as the anchor of a state-of-the-
art quantum intelligence campus



Mar 2025



Showcasing Quantum Outperforming Classical with **Ansys**

Demonstration on an IonQ production system shows **12% faster performance** over the classical computing alternative

○ Apr
2025



Global Availability of IonQ Forte Enterprise Through **Amazon Braket**

IonQ's flagship quantum computer
with #AQ36 performance accessible
**globally in production via IonQ
Quantum Cloud and Amazon Braket**

○ Apr
2025



Shaping the future of quantum computing with **DARPA**

IonQ selected by DARPA for
Quantum Benchmarking Initiative (QBI)
to advance quantum computing



Apr 2025

\$22M Partnership with EPB to create Quantum Computing & Networking Hub in US

IonQ partnering with EPB to be the **first utility company in the world** to commercially offer quantum computing, networking, and app development



○ Apr
2025

Japan's National Institute of Advanced Industrial Science (AIST) Signs MOU with IonQ

IonQ is partnering with AIST's to develop advanced hybrid-quantum computing technologies to build a **global quantum business ecosystem.**



May 2025

IonQ Partners with Sweden's Einride on Logistics for Autonomous Driving Solutions

IonQ and Einride to develop
quantum solutions for **fleet routing,**
logistics optimization, and supply
chain solutions



Jun 2025

IonQ Announces Collaboration with **AstraZeneca**

IonQ will be leveraging the power of their **quantum experts and AstraZeneca's world-class scientists** to jointly develop applications



Jul
2025 KISTI

Primary Quantum Partner for Korea's National Quantum Center of Excellence

IonQ will partner with Korea Institute of Science and Technology Information (KISTI) to develop their quantum center of excellence **designed to support academic and enterprise applications**

Sep
2025

elementsix™
DE BEERS GROUP

Diamond Materials Breakthrough with Element Six (DeBeers Group)

Advancement marks pivotal move toward **diamond-based quantum devices** that will **accelerate IonQ's roadmap** toward scalable, fault-tolerant quantum systems

08

Financial Update



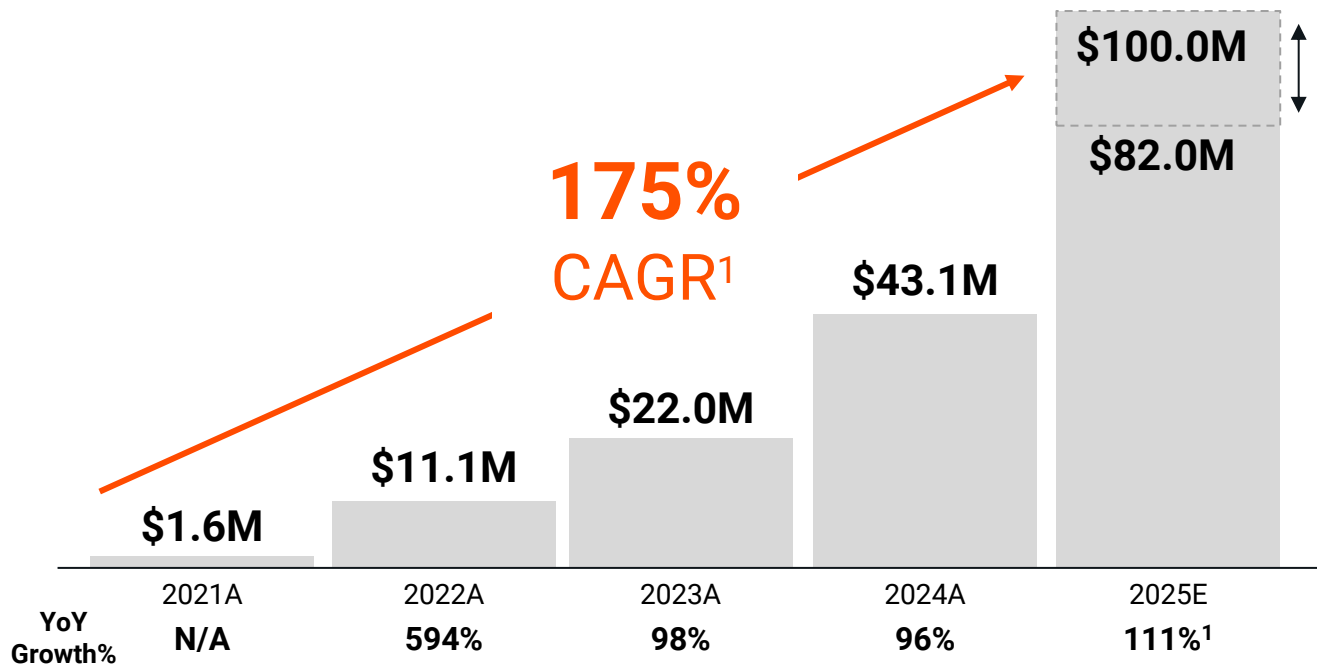
Inder Singh

Chief Financial Officer and
Chief Operating Officer

Strong Adoption and Expanded Opportunity Set Drive Growth



IonQ has been approximately doubling GAAP revenue year-over-year



- 1 Growing customer adoption
- 2 Diversified business (compute, networking, space)
- 3 Broader opportunity set than ever before

1. CAGR and year-over-year growth represented based on midpoint of 2025 revenue guidance range (\$91.0M)



Unit Economics Secure Our Long-Term **Margin Opportunity**



Our total cost of ownership and lower BOM costs give us a natural competitive advantage



Cost of Acquisition

Cheapest cost per logical qubit



Cost to Compute

Lowest energy consumption



Deployment Viability

Less space required for safe operation

IonQ Is Practical For Datacenter Scale Deployment



Note: Figures as compared to average of competitor landscape

Our Strong Cash Position Fuels Our **Growth Mindset**

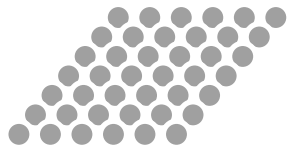


IonQ is well-capitalized to expand our quantum ecosystem

Capital Structure

\$1.68 Bn

in cash and equivalents



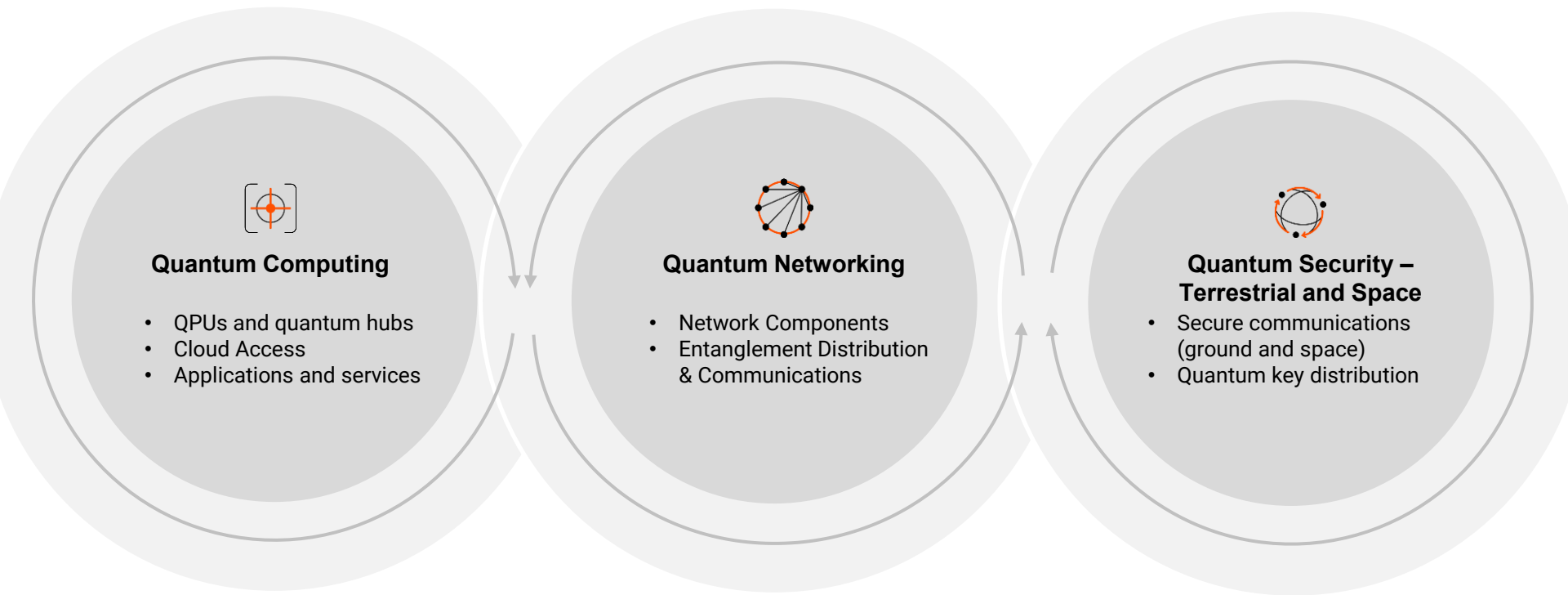
\$0

in debt

- 
- 1 Invest in R&D
 - 2 Scale the infrastructure
 - 3 Build applications
 - 4 Attract talent
 - 5 Maintain flexibility

We Are Developing **The Quantum Ecosystem**

Our multi-product strategy creates a flywheel effect



Global Footprint Enables Our Go-To-Market



Boston, MA, USA
Acquired Lightsynq in **May 2025**

Chattanooga, TN, USA
Acquired Qubitekk in **Dec 2024**

Seattle, WA, USA
Opened manufacturing facility in **June 2023**

San Francisco, CA, USA
Acquired Capella in **July 2025**

Vista, CA, USA
Acquired Qubitekk in **Dec 2024**

Louisville, CO, USA
Acquired Capella in **July 2025**



Oxford, England
Pending acquisition of Oxford Ionics signed in **June 2025**

Toronto, Canada
Acquired Entangled Networks in **Jan 2023**

Washington DC, USA
Acquired Capella in **July 2025**

College Park, MD, USA
IonQ Headquarters since **2015**

Seoul, South Korea
Acquired majority stake of ID Quantique in **April 2025**

Basel, Switzerland
Quantum data center through partnership with QuantumBasel in **July 2023**

Geneva, Switzerland
Acquired majority stake of ID Quantique in **April 2025**

Key Takeaways



IonQ is the leader in quantum computing and quantum networking delivering value to enterprise and government customers today

- 1 Secures Regulatory Approval from the UK Investment Security Unit for the Acquisition of Oxford Ionics
- 2 **36 Quadrillion Times** Larger Computational Space than IBM
- 3 Roadmap to 2 million Qubits on a Chip, **Scaling the Same Way as Semiconductors**
- 4 Achieves 99.99% 2 Qubit Gate Fidelity, the **World Record Fidelity** & Needed for Scaling Better Qubits
- 5 "Cryptographically relevant quantum computers may be possible in as soon as **three years**" – Dept. of War
- 6 We are **Building and Deploying** Quantum Applications Today

09

Fireside Chat



Niccolo de Masi
Chairman & CEO



Martin Roetteler
VP of Quantum Solutions
Microsoft



Marco Pistoia
Senior VP of Industry
Relations
JP Morgan | IBM



Rick Muller
VP of Quantum Systems
IARPA | Sandia National Labs



Robert Cardillo
Executive Chairman of
IonQ Federal
National Geospatial-
intelligence Agency (NGA)



10

Concluding Comments

