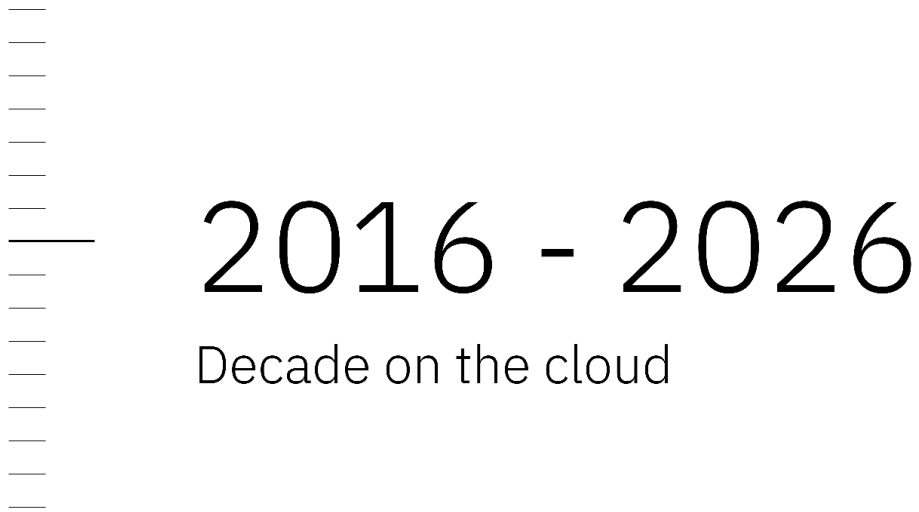


IBM: A Decade of Quantum on the Cloud

- Today, we celebrate ten years since IBM put the first quantum computer on the cloud, opening real hardware to a global community.
- Cloud access helped turn quantum computing from a niche research pursuit into a growing, real world industry.
- A decade of progress has delivered major advances in hardware and software, from early demos to 156 qubit systems and a mature programming stack.
- Most lasting is the human impact: the early users of cloud-accessible quantum computers are now the developers, founders, and partners shaping the field's future.



YORKTOWN HEIGHTS, N.Y., May 4, 2026 - On 4 May 2016, IBM (NYSE:[IBM](#)) put the first quantum computer on the cloud. It was a seminal moment in computing history, and for thousands of early users who would get their first experience with real quantum hardware in the months and years to follow.

Today, we celebrate a tremendous milestone: ten years of cloud-accessible quantum computing. Now, as day one of IBM's annual Think conference gets underway, our clients and partners reflect on what the first decade of the cloud has enabled—and what comes next.

Those early IBM Quantum users include Dr. Álvaro Nodar, Advocate for the Basque Quantum (BasQ) initiative and Quantum Technical Lead at Global Data Quantum:

"The first time I accessed a real quantum device through the cloud was in 2016, during my master's," said Nodar.

"I remember my professors telling us about its release, and that same afternoon I started running the circuits I had been working on in exercises, projects, and exams," he said. "It was mind-blowing to take all those pen-and-paper circuits and test them on a real device."

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Help shape the next decade of quantum computing on the cloud. Sign up for a free Open Plan account on IBM Quantum Platform, and run circuits today.

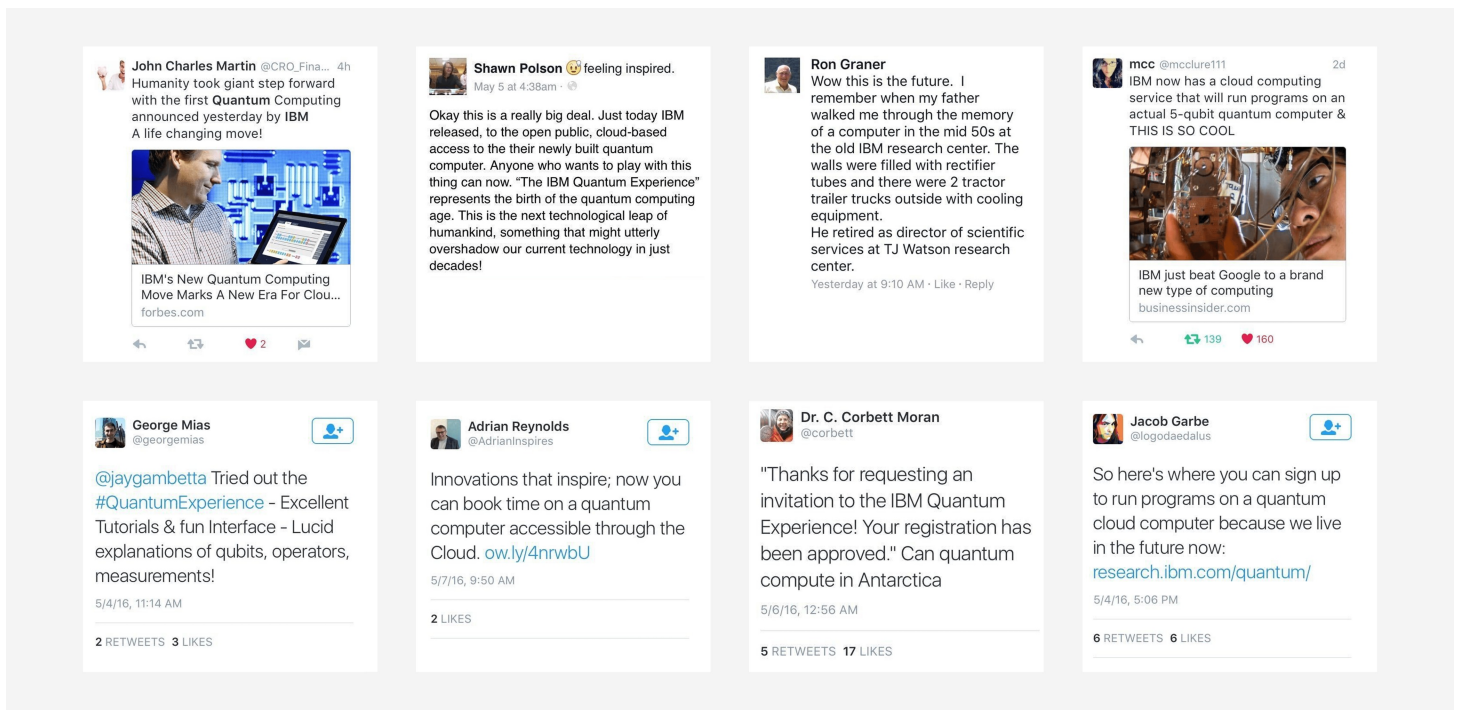
Democratizing access

In hindsight, IBM's decision to put a quantum computer on the cloud marked a profound shift for quantum information science, though at the time, few could fully appreciate how much it would change the trajectory of the field.

"The concept of putting a quantum computer on the cloud in 2016 was an absolute stroke of brilliance because it enabled everything that's happened since then," said **Jamie Garcia, Director of Growth & Strategic Partnerships at IBM Quantum** "Putting a quantum computer on the cloud was a big statement on IBM's behalf. It said: we want everyone to have access to a quantum computer."

Cloud-based quantum computing established a new paradigm in accessibility for quantum information science experiments.

That access mattered. For the first time, quantum computers were no longer reserved solely for institutions with deep resources. They became accessible to students, startups, researchers, and developers across the globe.



User reaction to the first quantum computer on the cloud in 2016.

"Cloud-based quantum computing established a new paradigm in accessibility for quantum information science experiments," said **Travis Humble, Director of the Quantum Science Center at Oak Ridge National Laboratory** an [inaugural member](#) of the IBM Quantum Network. "The impact of broad access to real quantum computers on the morale of the community cannot be overstated."

As access broadened over time, expectations changed. What started as a bold experiment became an essential resource for a global community.

“Those early moments of access...have now given way to the expectation that quantum computers should be available to the public,” Humble said.

Building an industry

Today, IBM quantum computers have evolved into high-performance tools for scientific discovery, with researchers pitting them against leading classical methods through open-source initiatives like [the Quantum Advantage Tracker](#). That evolution contrasts sharply with the early days of having access to a quantum computer online.

“A decade ago, running a handful of qubits in the cloud felt like a novelty. Today Kipu solves industrial-scale problems on all 156 qubits of IBM Quantum Heron.” said **Enrique Solano, CEO and Co-founder of Kipu Quantum**. “The jump—from demo circuits to end-to-end enterprise workflows—reflects how much the ecosystem has matured around real-life industrial use cases.”

For quantum startups like Kipu and Q-CTRL, the ability to run experiments on real hardware accelerated the pace of innovation.

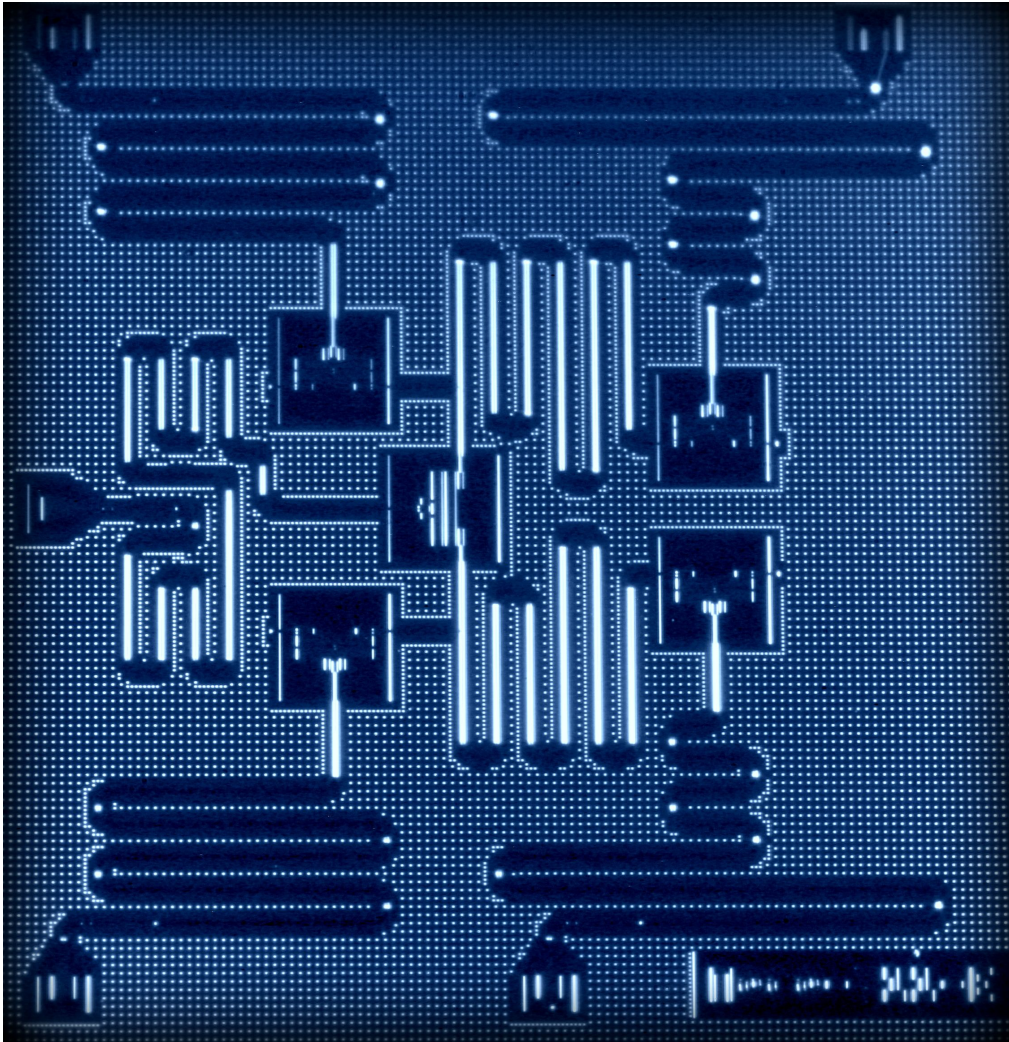
“Cloud accessible quantum computing has made it possible for a whole new class of software businesses to innovate at speed and help drive the quantum industry forward,” said **Michael Biercuk, CEO and Founder of Q-CTRL**. “Where previously machine access was only available to machine builders, IBM’s pioneering efforts helped spawn an entirely new segment of the quantum industry.”

That impact extends far beyond the quantum startup community, reaching large enterprise organizations as well.

“As advances from IBM and others have pushed the frontier of science and technology, Boeing has been able to mature our capabilities in step,” said **Marna Kagele, Technical Fellow and Program Manager at the Boeing Company**. “Over the past seven years we’ve run demonstrations that surface new techniques and applications each year. Those demonstrations let us focus on high value use cases with real business impact.”

Evolving the stack

Quantum hardware has advanced even faster than predicted in [the original announcement](#) of IBM’s first cloud-accessible quantum processor, which anticipated up to 100-qubit devices by 2026.



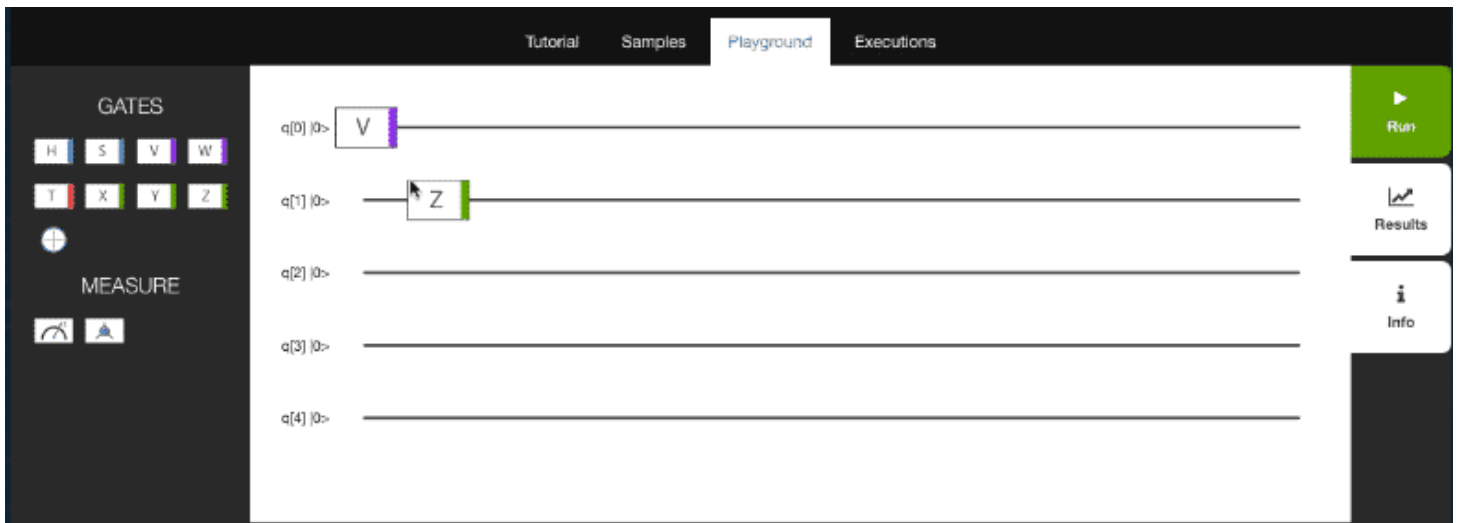
Layout of IBM's first cloud-accessible quantum processor, which had just five qubits.

Today, all IBM Quantum computers have more than 100 qubits. The [IBM Quantum Heron r3](#) boasts 156 qubits with a median two-qubit error rate of just $1.17E-3$, over an order of magnitude lower than early devices, and we've successfully demonstrated [quantum chips with up to 1,121 qubits](#)

"Increasingly performant hardware now lets us routinely run algorithms with 156 qubits," said Q-CTRL's Michael Biercuk. "It's almost unimaginable how far the systems have come over such a short time."

Progress in quantum hardware has been remarkable, but those gains only tell part of the story.

"What's changed in a dramatic way is the maturity of the software stack," said **Scott Crowder, Vice President of Adoption at IBM Quantum**. "Ten years ago, you dragged and dropped a circuit and hit run. Now, you're truly programming quantum computers with a few lines of code."



Animation of dragging and dropping gates in the original IBM Quantum Experience Circuit Composer circa 2016.

Dragging and dropping gates in the original IBM Quantum Experience Circuit Composer circa 2016.

That shift is visible across the ecosystem.

“The software stack is much more stable with detailed documentation, the developer and user community is larger, and there is a plethora of educational material available for people to dive in at any level,” said **Osama Raisudden, Research Scientist at Rensselaer Polytechnic Institute.**

Today, those tools and resources come together on [IBM Quantum Platform](#), an [industry-leading](#), enterprise-grade quantum computing cloud service built to support exploration of practical, industrial-scale use cases. As the platform has matured, improvements in usability and infrastructure have translated into tangible performance gains.

“Better job management led to massive speedups,” said **BasQ’s & Global Data Quantum’s Álvaro Nodar.** “The transition felt like flying a paper plane and suddenly finding yourself piloting a jet at full speed.”

Enabling partners

As quantum hardware and software has evolved, so too has IBM’s approach to partnership and services in its quantum offering.

“We’ve built layers of support—people, tools, services—that allow partners to do things they simply couldn’t do otherwise,” Garcia said. “We didn’t always have an enablement team, for example, and few if any other hardware providers do. That came from experience, from seeing where people got stuck and deciding to solve for it.”



IBM Head of Quantum + HPC and Principal Research Scientist Antonio Corcoles uses the newly debuted IBM Quantum Experience on a tablet in the IBM Quantum Lab while standing next to a dilution refrigerator, 2016. (Jon Simon/Feature Photo Service for IBM)

Experience makes a difference. Working with IBM Quantum today means benefitting not just from a rapidly advancing technology stack, but also from a decade of accumulated insight into how organizations succeed in quantum adoption.

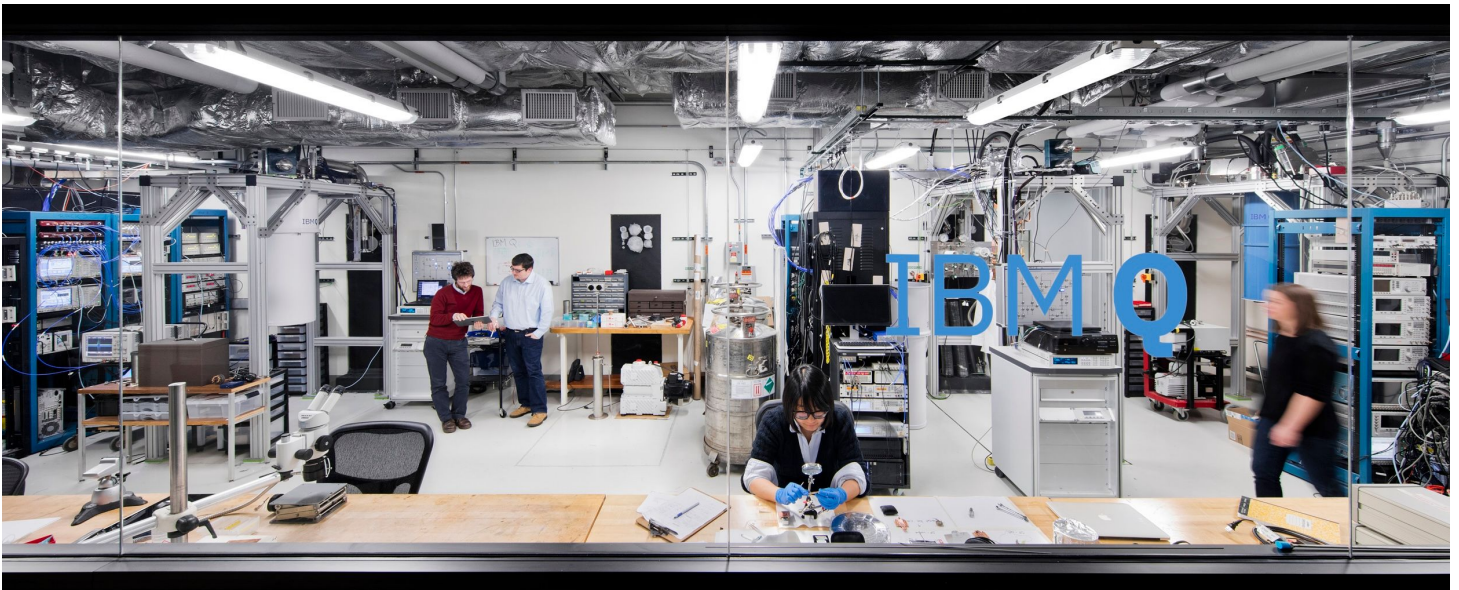
We aren't the only ones benefitting from those years of experience. After becoming home to Japan's first IBM Quantum System Two in 2024, our partners at the national research laboratory RIKEN have become leaders in the emerging field of quantum-centric supercomputing.

"We have gained valuable insights into how to more effectively utilize quantum computers," said **Professor Mitsuhsa Sato, Division Director at the RIKEN Center for Computational Science**, "specifically, how to combine on-premises quantum systems with HPC to maximize their potential, and how best to operate them in practice."

"I still remember seeing the installation of the first IBM quantum computer below my office in 2023," said **Dr. Jun Qin, staff member in the department of Cardiovascular & Metabolic Sciences at Cleveland Clinic**. "This computer is now being used for many exciting projects that may lead to breakthroughs and innovations in medical treatment and drug discovery."

Quantum systems, human impact

The advent of cloud accessible quantum computing changed how we access quantum computers—and who could participate.



A glimpse inside the IBM Quantum Lab circa 2017. (Credit: Connie Zhou for IBM)

A glimpse inside the IBM Quantum Lab circa 2017.

“For me, this anniversary is more about the impact on people than on institutions,” IBM’s Scott Crowder said. “You’ve got organizations like the Unitary Foundation running annual open-source quantum developer surveys. There was no such thing as a quantum developer 10 years ago.”

Today, the students and researchers who began experimenting on IBM quantum computers in 2016 have grown into founders, engineers, and leaders—like BasQ Advocate and Global Data Quantum Technical Lead Álvaro Nodar, who had his first experiences working with real quantum hardware that same year. Together, they are shaping the trajectory of a field that IBM helped open to the world.

The significance of that May 4, 2016 decision is clear. Putting quantum computing on the cloud did more than just launch a platform—it launched a community, a profession, and an industry whose impacts extend far beyond the technology that brought it to life.

Help shape the next decade of quantum computing on the cloud. Sign up for a free Open Plan account on [IBM Quantum Platform](#), and run circuits today.

About IBM

IBM is a leading provider of global hybrid cloud and AI, and consulting expertise. We help clients in more than 175 countries capitalize on insights from their data, streamline business processes, reduce costs and gain the competitive edge in their industries. Thousands of governments and corporate entities in critical infrastructure areas such as financial services, telecommunications and healthcare rely on IBM’s hybrid cloud platform and Red Hat OpenShift to affect their digital transformations quickly, efficiently and securely. IBM’s breakthrough innovations in AI, quantum computing, industry-specific cloud solutions and consulting deliver open and flexible options to our clients. All of this is backed by IBM’s long-standing commitment to trust, transparency, responsibility, inclusivity and service.

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