



CUSTOMER STORY

Leading Quantum Computing Company Selects Jama Connect® to Decrease Review Cycles, Reduce Rework, and Improve Communication and Collaboration

With a return on their investment in less than six months, the IonQ team is confident they made the right selection.

- Founded in 2015 by Chris Monroe and Jungsang Kim to “build the world’s best quantum computers to solve the world’s most complex problems.”
- Leveraging 25 years of academic research to build the world’s leading quantum computers.
- Expanding quantum computing availability to the cloud through partnerships with Microsoft and Amazon Web Services, and Google Cloud Platform.
- Headquartered in Maryland.

IonQ, Inc. is a leader in quantum computing, with a proven track record of innovation and deployment. IonQ’s latest generation quantum computer, IonQ Forte, is the latest in a line of cutting-edge systems, boasting an industry-leading 29 algorithmic qubits. And IonQ Aria is the most powerful commercially available quantum system, with 25 algorithmic qubits. Along with record performance, IonQ has defined what it believes is the best path forward to scale.

IonQ is the only company with its quantum systems available through the cloud on Amazon Braket, Microsoft Azure, and Google Cloud, as well as through direct API access. IonQ was founded in 2015 by Dr. Christopher Monroe and Dr. Jungsang Kim based on 25 years of pioneering research. IonQ began trading on the New York Stock Exchange in 2021, making it the world’s first public pure-play quantum computing company.

CUSTOMER STORY OVERVIEW

Growing fast in an emerging market, IonQ has implemented an ever-growing number of engineering best practices. The company’s team became frustrated managing requirements with Google Sheets and needed to solve core problems, such as linking between levels of requirements without extensive lookup tables. After rigorous evaluation, they selected Jama Connect® and are very pleased with the outcome.

CHALLENGES

- Linking between levels of requirements without extensive lookup tables
- Lack of clear traceability
- Managing complexities across hardware and software
- Lengthy review cycles

EVALUATION

- Easy-to-use platform with an intuitive interface
- Ability to view relationships between requirements
- Change control and a review and locking function for requirements
- Within budget

OUTCOMES

- 25% decrease in review cycle time
- 20% savings of systems engineers’ time (previously spent on manual processes)
- 25% improvement in communication and collaboration
- ROI in less than six months

As a leader in the quantum computing industry, IonQ requires the ability to innovate and scale quickly while delivering stellar performance. However, with fast, consistent growth, the company faced difficulty implementing an increasing number of standard systems engineering practices while they were using Google Sheets.

While IonQ was successfully delivering the world's most advanced quantum computers, internally the team was facing challenges such as:

- Linking between levels of requirements without extensive lookup tables
- Lack of clear traceability
- Managing complexities across hardware and software
- Lengthy review cycles

“We were keeping our requirements in Google Sheets, which was frustrating because you can’t link between the various levels of requirements without extensive lookup tables,” says Hannah Potter, Systems Engineer at IonQ. “We were spending far too much time on these tasks, and managing revisions was difficult. Within Google Sheets, you can’t see when your requirements are locked or complete.”

IonQ knew they needed a requirements management platform with linking capabilities and a review function that supported configuration management. The company also needed a solution that would support its goal of delivering stellar computing power to customers with results that are both replicable and well-documented.

“When building our computers, timing and quality are top priorities,” says Potter. “So, we want to build the computers quickly and want them to have amazing performance. To accomplish this, we need tools that support us with doing great systems engineering work and prevent constant rework cycles and last-minute additions to our design.”





From the start, IonQ knew they needed a robust, intuitive, and secure requirements management platform to support their dedication to process rigor and delivering high-performance quantum computing power.

The company evaluated various tools and received input from individuals inside and outside the company, including consultants. Ultimately, they narrowed their options to IBM® DOORS® and Jama Connect.

As part of their evaluation process, they compared the two based on the following criteria:

- Ease of use
- Ability to view relationships between requirements
- Change control and a review and locking function for requirements
- Cost

Through this evaluation, IonQ found Jama Connect much easier to pick up and use quickly. “I used IBM DOORS at my previous job, so I actually knew more about DOORS than Jama Connect,” says Potter. “With DOORS, I had to learn coding skills to write DXL and capture volatility metrics. With Jama Connect, I haven’t had to write a single line of code to do exactly what I need to do, which is great.”

IonQ also found Jama Connect’s grouping structure was more intuitive for projects with house sets of requirements. DOORS required that dozens of modules be opened to view the full set of requirements, which created additional complexity compared to Jama Connect.

“Jama Connect helped us to create a requirements tree structure with lower-level requirements correctly being derived from and allocated from our higher ones,” says Potter. “Multiple users can work in the tool concurrently, whereas in DOORS, when modules or sections of requirements are in use, they’re locked by only one user.”

Easily linking between requirements was also a critical capability, and Potter knew from prior experience with DOORS that this would be problematic.

“The linking structure in DOORS can cause problems because all of your different levels of requirements are stored in completely different third modules,” says Potter. “So, when you create and delete links, sometimes this gets overly complex, and you need to hunt for problems. For example, someone less experienced with DOORS may accidentally delete or create a link they shouldn’t have.”

Additionally, security was critical to IonQ, so they needed to ensure that whichever solution they selected was highly secure. They appreciated that Jama Connect offered complete transparency into their rigorous processes, and that it’s the only requirements management platform that’s SOC 2 Type 2 certified at the application level so IonQ knew their data was safe.

After implementing Jama Connect, it didn't take long for the IonQ team to start seeing significant benefits. In fact, they reported that they were able to see a return on their investment in 3-6 months after purchasing Jama Connect.

After onboarding the new solution, they team easily identified the following outcomes:

- 25% decrease in review cycle time
- 20% savings of systems engineers' time (previously spent on manual processes)
- 25% improvement in communication and collaboration
- ROI in less than six months

The team also mentioned that they have significantly decreased rework and increased reuse of design requirements.

On a weekly basis, Potter has recaptured a sizable amount of time. "Personally, I probably save a day out of each week," says Potter. "Before using Jama Connect, I was in Google Sheets managing requirements and constantly linking lookup tables, which was a nightmare. Jama Connect has been a lifesaver and given me back so much time."

The new solution also enabled IonQ to speed up workflows to stay on track with tight deadlines. For example, doing anything with the data — like creating test plans — was challenging with Google Sheets. But Jama Connect makes using that information for the necessary tasks more straightforward.

"The review function has been a lifesaver to get concurrence on requirements quickly and meet tight deadlines," says Potter. "It's also a great way to document requirements and test plans, which I appreciate. As we move forward, we'll be able to use our requirements and test plans for the basis of future designs that target our goal of continuing to build better and faster computers."

Jama Connect will also be a critical tool supporting IonQ's existing and future growth.

IonQ has plans to expand their use of Jama Connect, upgrading their subscription to include Atlassian Jira integration. This capability will enable them to write Jira tickets that directly reference requirements, so they know that their work directly enables and satisfies requirements.

"Overall, I am just so much happier using Jama Connect, where everything is simplified, and the user interface is extremely intuitive," says Potter.





Jama Software is focused on maximizing innovation success. Numerous firsts for humanity in fields such as fuel cells, electrification, space, autonomous vehicles, surgical robotics, and more all rely on Jama Connect® to minimize the risk of product failure, delays, cost overruns, compliance gaps, defects, and rework. Jama Connect uniquely creates Live Traceability™ through siloed development, test, and risk activities to provide end-to-end compliance, risk mitigation, and process improvement. Our rapidly growing customer base of more than 12.5 million users across 30 countries spans the automotive, medical device, life sciences, semiconductor, aerospace & defense, industrial manufacturing, financial services, and insurance industries. To learn more, please visit us at jamasoftware.com.