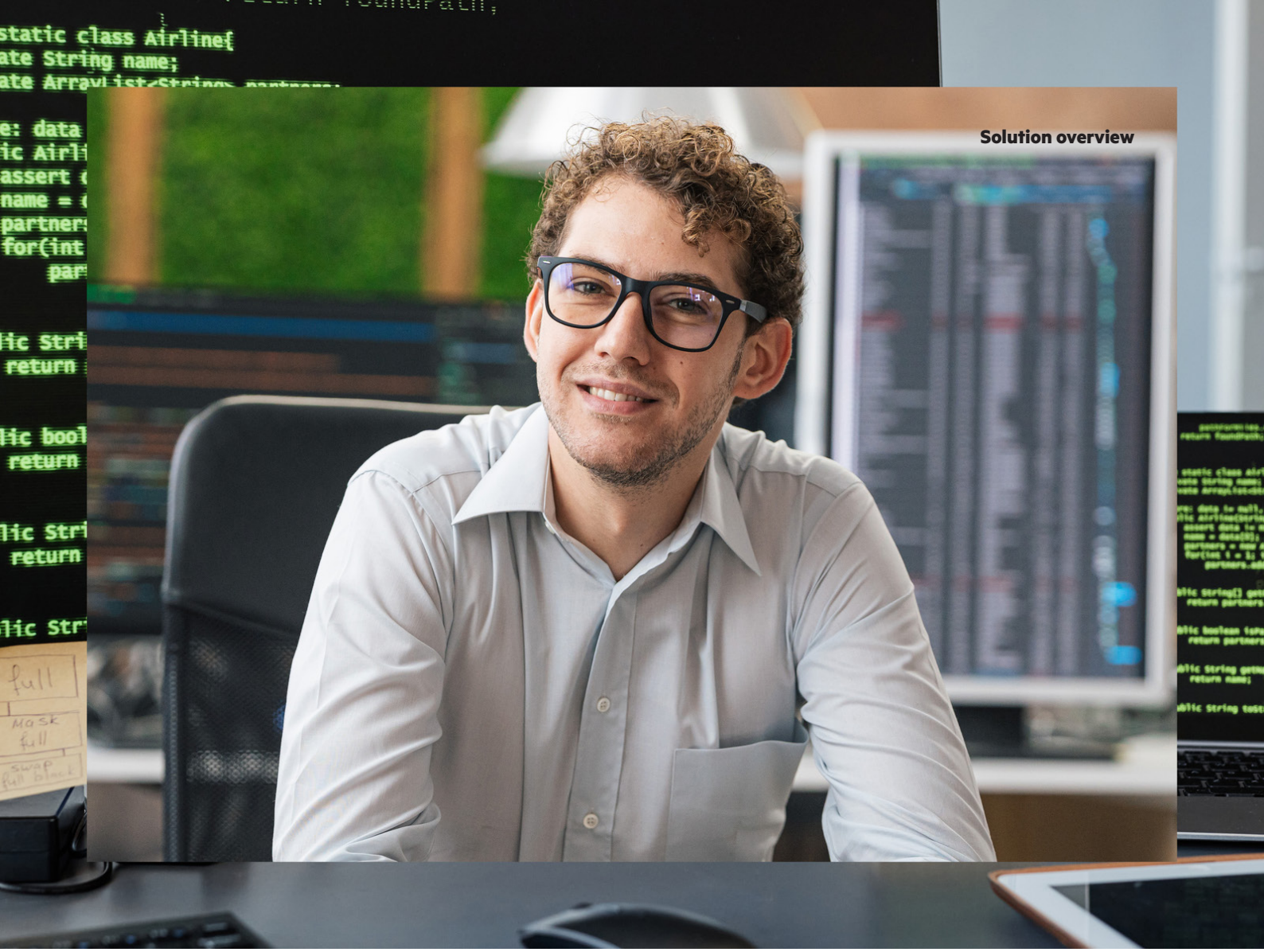
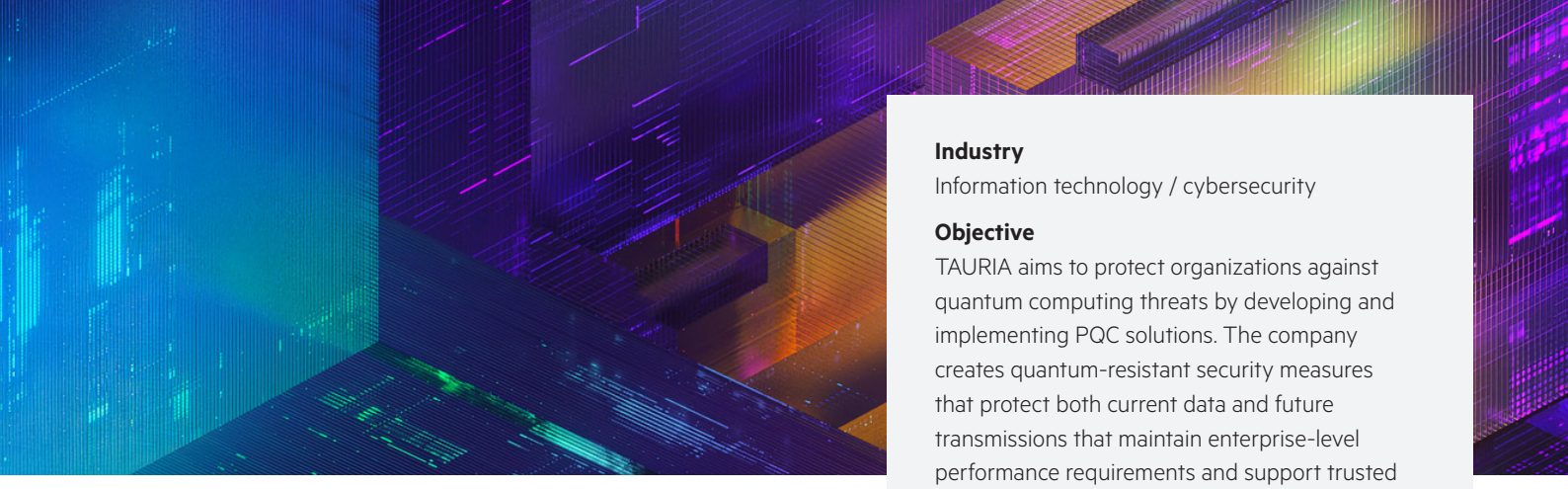


Hewlett Packard Enterprise and TAURIA partner to deliver enterprise-scale quantum-safe security solutions

Advanced algorithms protect data against classical and quantum attacks

Hewlett Packard Enterprise | TAURIA



Industry
Information technology / cybersecurity

Objective
TAURIA aims to protect organizations against quantum computing threats by developing and implementing PQC solutions. The company creates quantum-resistant security measures that protect both current data and future transmissions that maintain enterprise-level performance requirements and support trusted supply chain legal requirements in Europe and the U.S.

Approach
Partner with HPE to manufacture and deploy specialized quantum-resistant encryption hardware, including PQUs and encryption accelerators, enabling organizations to implement quantum-safe security without compromising performance.

IT matters

- Delivers quantum-resistant encryption through specialized hardware accelerators integrated into enterprise systems
- TAURIA PQC cards ensure real-time performance while securing critical systems against quantum threats.
- Enables quantum-safe protection across entire infrastructure through multiple hardware formats
- Creates continuous, unbroken security shield around all data flows
- Supports secure workloads across hybrid cloud deployments
- Facilitates specialized solutions for AI systems, autonomous vehicles, and IoT networks

Business matters

- Protects organizations against both current and future quantum computing threats
- Ensures compliance with new federal quantum security mandates
- Maintains critical business performance while implementing quantum-safe security
- Enables protection of long-term sensitive data (more than 75 years) across industries
- Supports real-time operations while securing long-term assets
- Reduces power consumption while increasing encryption speed
- Establishes consistent security standards across global implementations

Founded in 2019 by Professor Jesse Van Griensven and his research team at the University of Waterloo in Ontario, Canada, TAURIA develops security solutions using post-quantum cryptography (PQC) algorithms that protect data against quantum computing attacks. TAURIA PQC software and hardware solutions safeguard against adversaries who capture encrypted data today for future decryption, defend critical infrastructure systems relying on soon-to-be-vulnerable encryption algorithms, and secure organizational data that must remain protected for decades beyond current encryption methods.

Through its strategic collaboration with HPE OEM Solutions, TAURIA transforms these breakthrough algorithms into practical enterprise solutions by integrating specialized quantum-resistant encryption accelerator hardware into HPE ProLiant servers, enabling organizations to achieve quantum-safe security while maintaining mission-critical performance requirements.

“Most organizations do not realize they face an immediate threat, not a future one. When quantum computers can break current encryption in seconds, every piece of encrypted data captured today becomes vulnerable. Adversaries do not need quantum computers now. They simply need to store the encrypted data until quantum capabilities catch up.”

– Professor Jesse Van Griensven, CEO, TAURIA

Government recognition accelerates risk awareness and action

Moving quantum encryption from laboratory breakthrough to enterprise solution presents one of the most complex technical challenges in modern computing. Organizations face a perfect storm: quantum computers threaten to break current encryption standards while the solutions to this threat demand unprecedented processing power and precision. This creates a seemingly impossible technical paradox: how to implement quantum-resistant security without crippling the very systems it aims to protect.

“Most organizations do not realize they face an immediate threat, not a future one,” says Professor Jesse Van Griensven, chief executive officer of TAURIA. “When quantum computers can break current encryption in seconds, every piece of encrypted data captured today becomes vulnerable. Adversaries do not need quantum computers now. They simply need to store the encrypted data until quantum capabilities catch up.”

In May 2022, the United States took decisive action to address the quantum threat. First, President Biden issued two directives addressing quantum computing security risks, and in December of the same year, signed the Quantum Computing Cybersecurity Preparedness Act into law. This legislation required federal agencies to migrate to quantum-resistant cryptography.

Organizations must implement quantum-resistant security measures while maintaining the performance demands of modern business. Banks require zero-latency trading operations. Hospitals need instant access to patient records. Power plants demand uninterrupted real-time control systems. Standard computing platforms struggle with quantum-resistant encryption, creating significant performance bottlenecks.

“When the government formally acknowledges that quantum computers threaten the foundation of modern encryption, organizations must take notice,” says Professor Van Griensven. “These directives transformed quantum security from a theoretical concern into an immediate business imperative.”

Government mandates created a ripple effect throughout the technology sector, pushing organizations to reevaluate their security infrastructure. “The federal mandate created both challenges and opportunities,” says Dr. Jose Rosas, chief technology officer of TAURIA. “Organizations suddenly needed practical, deployable quantum-safe security that could protect their systems while ensuring compliance. This convergence of government action and market demand accelerated our partnership with HPE.”

Enterprise-scale security demands new hardware design

The path from innovation to implementation proved complex. While TAURIA had mastered breakthrough quantum-resistant encryption algorithms in hardware and software, a critical gap remained between laboratory success and enterprise deployment. The challenges spanned every major industry sector, each with its own demanding requirements for security and performance.

“Banks processing millions of transactions per second need uninterrupted operations with zero latency,” says Van Griensven. “Healthcare systems managing vast networks of patient data require instant access across multiple facilities. Power plants monitoring thousands of control points demand real-time response capabilities. Defense networks transmitting classified communications need complete security without detection.”

Standard software implementation alone could not address the scope and complexity of quantum-safe security at this scale. The solution required specialized hardware, designed and manufactured to exact specifications. “Manufacturing quantum-safe encryption components demands an entirely new approach,” says Dr. Rosas. “Every step must maintain rigorous security controls. We needed a partner with manufacturing processes that could withstand the most stringent security audits.”

Based on these requirements, TAURIA sought a partner with three essential capabilities: secure component manufacturing, enterprise platforms that could handle quantum-resistant encryption without performance loss, and global reach for worldwide implementation. HPE OEM Solutions met all three criteria, bringing both manufacturing expertise and enterprise-scale capabilities to the collaboration.

Specialized encryption accelerators achieve quantum-safe speeds

The TAURIA partnership with HPE quickly expanded beyond basic manufacturing into comprehensive solution development. “We have created what we call a secure drainpipe around all data transmissions,” says Rosas. “Unlike traditional encryption that protects data in segments, our quantum-safe solution creates a continuous, unbroken shield around all data flows. This approach ensures that no quantum computer, no matter how powerful, can intercept or decrypt sensitive information.”

At the heart of this collaboration lies the post-quantum unit (PQU), a specialized encryption accelerator that integrates directly into HPE ProLiant servers. These accelerators achieve what many thought impossible: maintaining sub-millisecond transaction speeds while providing quantum-safe security.

“HPE manufacturing extends beyond basic hardware production,” says Van Griensven. “Their certified processes include specialized security controls designed for sensitive technology components. This expertise is essential for producing our PQU accelerator cards, which require precise manufacturing tolerances while maintaining absolute security throughout production.”

The comprehensive solution encompasses PQU PCIe and M.2 encryption cards that protect organizational infrastructure through quantum-resistant security measures, spanning mobile devices with quantum-proof e-SIM cards and encryption modules for Internet of Things (IoT) devices and industrial control systems.

Critical industries achieve quantum-level protection at processing speed

The HPE-TAURIA partnership transforms how organizations prepare their data security for quantum computing threats. Financial institutions now protect both immediate transactions and long-term contracts with equal efficiency. Major global banks process billions in daily trades through HPE supported TAURIA solutions while simultaneously securing 30-year mortgage contracts with quantum-safe encryption. This dual capability—protecting both real-time operations and long-term assets—marks a fundamental advance in financial security.

Healthcare providers protect electronic health records with TAURIA quantum-resistant encryption, ensuring patient confidentiality for generations while maintaining instant access to records. Critical infrastructure operators implement quantum-safe security to protect their control systems and operational technology, safeguarding essential services against quantum computing threats.

“Each industry faces unique challenges in protecting sensitive data from quantum threats,” says Van Griensven. “Our partnership with HPE enables us to deliver tailored quantum-safe solutions that address these specific industry needs while maintaining consistent security standards across all implementations.”

Innovation and global impact drive quantum security standards

The HPE-TAURIA collaboration drives innovation in three key areas: advanced hardware acceleration for demanding applications, secure workloads across hybrid cloud deployments, and specialized solutions for artificial intelligence (AI) systems, autonomous vehicles, and IoT networks. Manufacturing excellence drives these achievements through HPE certified production processes while the worldwide network of 50,000 HPE partners expands the global reach of the solution.

This comprehensive approach helps TAURIA maintain market leadership on advancing quantum capabilities while establishing new standards for data security worldwide. The next generation of TAURIA PQUs are expected to deliver 40% faster encryption and reduce power by 30%, enabling quantum-safe security across more devices and applications.

“We do not just solve today’s quantum security challenges—we prepare for tomorrow’s threats,” says Van Griensven. “Our partnership with HPE enables us to develop next-generation solutions that stay ahead of quantum computing advances. When intelligence agencies report new quantum breakthroughs, our customers’ systems are already protected.”

Quantum protection delivers enterprise-scale results

Through successful implementations across banking institutions, medical centers, and defense agencies, the TAURIA platform has demonstrated its ability to handle intensive security demands at enterprise scale. The post-quantum cryptography system can protect financial systems processing over 10 million daily transactions while maintaining sub-millisecond performance. This advanced encryption technology promises to secure healthcare records for more than 75 years without compromising access speed and provide defense organizations with 100-year-rated encryption that can process over 100,000 communications daily without detection.

“Innovation never stops in quantum security,” says Dr. Rosas. “While our current solutions protect against projected quantum capabilities, we constantly advance our technology. This proactive approach ensures our customers remain protected regardless of how quantum technology evolves.”

The HPE-TAURIA collaboration continues to expand its quantum-safe solutions across new industries and applications, from autonomous vehicles to AI systems.

“Through our collaboration with HPE, we enable organizations worldwide to face the quantum future with confidence. Every transaction, every patient record, every classified communication remains protected regardless of how quantum computing capabilities advance,” says Professor Van Griensven.

About HPE OEM Solutions

Through strategic manufacturing partnerships and an integrated worldwide partner network, HPE OEM Solutions helps transform innovative technologies into enterprise-ready solutions. Certified production facilities and stringent controls help ensure component integrity from design through implementation, enabling rapid deployment with consistent quality across all markets.

HPE OEM Solutions provides manufacturing expertise and infrastructure support across the technology spectrum. Partner engineering teams gain direct access to HPE expertise, technology road maps, and early testing opportunities to accelerate innovation.

About TAURIA

TAURIA, founded in 2019 and based in Waterloo, Ontario, specializes in post-quantum cryptography (PQC) and quantum technologies. The company has developed a comprehensive PQC platform validated by major enterprise and government organizations. With five granted patents and multiple pending submissions, the TAURIA portfolio spans quantum AI, quantum internet, and related technologies. Through its collaboration with the University of Waterloo—ranked first globally in quantum computing research—TAURIA has established itself in providing quantum-safe solutions that integrate with existing infrastructure, offering protection against quantum hacking threats.

Customer at a glance

Post-quantum cryptography pioneer delivering enterprise-scale quantum-resistant security solutions

Hardware

- HPE ProLiant DL360 Gen11 Servers

HPE services

- HPE OEM Solutions

About HPE

Hewlett Packard Enterprise is the edge-to-cloud company that helps organizations accelerate outcomes by unlocking value from all of their data, everywhere. Built on decades of reimagining the future and innovating to advance the way people live and work, HPE delivers unique, open, and intelligent technology solutions, with a consistent experience across all clouds and edges, to help customers develop new business models, engage in new ways, and increase operational performance.

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