



Arqit's product QuantumCloud™ can make 58% energy saving

A new academic study confirms that the use of Arqit's software can reduce energy consumption by 58% compared with alternatives

London, UK – 11th November 2022 – Arqit Quantum Inc. (Nasdaq: ARQQ, ARQQW), a leader in quantum-safe encryption, supported a recent study by Dr Basel Halak and Dr Yildiran Yilmaz of Southampton University and Arqit Chief Cryptographer Dr Daniel Shiu called [Comparative Analysis of Energy Costs of Asymmetric vs Symmetric Encryption-Based Security Applications](#) comparing the energy consumption between asymmetric and symmetric key applications. The study confirms that Arqit's technology can reduce the carbon footprints for operationally deployed cryptography.

Forecasters (A. Andrae and T. Edler) predict that communication technology will contribute up to 23% of the global greenhouse gas emissions in 2030. The imminence of the quantum threat requires quantum encryption solutions to safeguard data against this ominous cyber threat. While these solutions are urgently needed to protect our communication technology, they are also known to be computationally intensive, hence energy demanding.

The academic study found that global adoption of symmetric key systems could save 58% of energy in comparison to the energy required for asymmetric encryption alternatives. So as the migration to quantum safe encryption begins, symmetric key agreement from Arqit offers the environmentally superior alternative, as well as being the only method with independently verified security proof in the market demonstrating zero trust provable quantum safety.

Arqit Founder, Chairman and CEO David Williams, said: "Arqit's mission is to keep safe the data of our governments, enterprises and citizens. The Security Proof published recently demonstrates that Arqit is uniquely well positioned to do this. Our customers also tell us that they care about the impact of their operations on the environment and since some of them are amongst the biggest cloud vendors, small improvements are relevant. As world leaders at COP27 this week consider how to transition to a low carbon economy it is relevant that we can help our customers to contribute to this mission whilst also becoming provably quantum safe."

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About Arqit

Arqit supplies a unique quantum safe encryption Platform-as-a-Service which makes the communications links or data at rest of any networked device or cloud machine secure against current and future forms of attack – even from a quantum computer. Arqit's product, QuantumCloud™, enables any device to download a lightweight software agent, which can create encryption keys in partnership with any number of other devices. The keys are computationally secure, optionally one-time use and zero trust. QuantumCloud™ can create limitless volumes of keys in limitless group sizes and can regulate the secure entrance and exit of a device in a group. Arqit believes it is the only company in the market to have achieved Independent Assurance Review of its Security Proof demonstrating that the software can produce encryption keys which are zero trust and provably secure, i.e. permanently safe against attack from even a full scale quantum computer. This review was conducted by the GCHQ Accredited Centre of Excellence In Cyber Security at the University of Surrey. The addressable market for QuantumCloud™ is every connected device. Arqit was recently awarded the Innovation in Cyber award at the National Cyber Awards.

About Dr Halak

Dr Basel Halak is the director of the embedded systems and IoT program at the University of Southampton, a visiting scholar at the Technical University of Kaiserslautern, a visiting professor at the Kazakh-British Technical University, an industrial fellow of the royal academy of engineering, and a national teaching fellow of the Advance Higher Education (HE) Academy. Dr Halak's publications include over 100-refereed conference and journal papers and authored six books on the security and reliability of electronics systems, including the first textbook on Physically Unclonable Functions. His research expertise includes evaluation of security of hardware devices, development of appropriate countermeasures, the development of mathematical formalisms of reliability issues in CMOS circuits (e.g., crosstalk, radiation, ageing), and the use of fault tolerance techniques to improve the robustness of electronics systems against such issues. Dr Halak lectures on digital design, Secure Hardware, and Cryptography, supervises several MSc and PhD students. He is also leading European Masters in Embedded Computing Systems (EMECS), a two-year course run in collaboration with Kaiserslautern University in Germany and the Norwegian University of Science and Technology in Trondheim (electronics and communication). Dr Halak serves on several technical program committees such as HOST, IEEE DATE, IVSW, ICCCA, ICCCS, MTV and EWME. He is an associate editor of IEEE access and an editor of the IET circuit devices and system journal. He is also a member of the hardware security-working group of the World Wide Web Consortium (W3C). The study can be found at [https://www.researchgate.net/publication/362185996 Comparative Analysis of Energy Costs of Asymmetric vs Symmetric Encryption-based Security Applications](https://www.researchgate.net/publication/362185996_Comparative_Analysis_of_Energy_Costs_of_Asymmetric_vs_Symmetric_Encryption-based_Security_Applications)

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Unlisted factors may present significant additional obstacles to the realisation of forward-looking statements.