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Research by University of Surrey and Arqit reveals Quantum Threat to Digital Assets

LONDON--(BUSINESS WIRE)-- A University of Surrey report co-authored by Stephen Holmes, Chief Product Officer at Arqit Limited (“Arqit”), a global leader in quantum encryption technology, and Professor Liqun Chen, Professor in Secure Systems at the University of Surrey, released today identifies the definitive threat posed to Digital Assets unless urgent changes are made to their cryptography.

With increasing global investment, quantum computing technology is developing quickly towards the point where it will have sufficient power to break the digital signatures used in digital assets. As central banks and large enterprises are now seriously considering the large- scale use of digital assets, this is more important than ever. This research assesses the attack mechanisms employed by a quantum computer and when they will arise. It covers:

- An overview of related work on digital asset vulnerability to quantum computer attack.
- Analysis and review of possible combined attacks to delay a transaction’s processing time, thereby prolonging its risk of quantum attack.
- Estimate of quantum computing resources required to solve the Elliptic Curve Discrete Logarithm Problem (ECDLP) using Shor’s algorithm.
- Assessment of quantum computing capacity required to execute Shor’s algorithm, while accounting for circuit size and error rates on a quantum computer.
- A new proposed approach to assess the relative quantum threat posed to a digital asset. This enables the tracking of risk against advances in quantum computers over time, regardless of the underpinning technologies used in a quantum computer.
- The research paper will be presented at an academic conference in New York, International Conference on Digital Currencies and Payment Systems due to be held between 9th and 10th August 2021.

Arqit’s Founder, Chairman and CEO, David Williams said, “The University of Surrey research paper highlights some critical issues that must be addressed and prioritised to ensure all digital assets are secure against quantum computer attacks. With mass digitisation of almost every aspect of our society already underway, and a number of governments considering the launch of their own digital currencies, this is now a global issue. The world needs stronger, simpler encryption to counter the major attacks seen daily today, and the quantum attack of tomorrow. We welcome this research which elaborates well the things that the digital assets community must consider to mitigate these cryptographic threats”.

- A copy of the full report can be downloaded from Cryptology ePrint Archive: Report 2021/967 - Assessment of Quantum Threat To Bitcoin and Derived Cryptocurrencies (iacr.org) as well as www.arqit.uk/investors
- Arqit will be publishing its response to the University of Surrey academic paper on Monday, 26 July, which will be available to view on www.arqit.uk/investors

About the researchers:
Stephen Holmes is Chief Product Officer at Arqit. He has 30 years of experience in IT, including appointments as CTO, consultant, enterprise architect, and product manager of disruptive innovation. He conducted his PhD research in post quantum cryptography applied to blockchain at the University of Surrey. Stephen has a wide range of experience in commercialising disruptive technologies and has worked at IBM laboratories, Hewlett Packard and was co-founder and CTO of Virtusa Xlabs. Stephen holds an MBA, specialising in marketing innovative products and services. Stephen has a passion for building secure systems and protecting privacy, and writes extensively about security, privacy, and quantum technologies. He represents the UK as a subject matter expert on ISO tc307 blockchain and DLT systems.

Prof Liqun Chen joined the Department of Computer Science at the University of Surrey as Professor in Secure Systems in 2016. Prior to this appointment, she was a Principal Research Scientist at Hewlett Packard Laboratories in Bristol, UK, which she joined in 1997. Before that, she worked at Royal Holloway, University of London, and the University of Oxford. Her research interests include applied cryptography, trusted computing, and network security.

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About Arqit Limited:
Arqit supplies a unique quantum encryption Platform-as-a-Service which secures the communications links of any networked device 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 of less than 200 lines of code, which can create keys in partnership with any other device. The keys are, computationally secure, don't exist until the moment they are needed and can never be known to a third party. 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. The addressable market for QuantumCloud™ is every connected device. The release of QuantumCloud™ 1.0 will launch to the first cohort of customers in the second half of 2021, with $130M in contracts already committed*.

**As of release date*

On May 12, 2021, Arqit entered into a definitive agreement to combine with Centricus Acquisition Corp (NASDAQ: CENHU, CENH, CENHUW), a special purpose acquisition company, which would result in Arqit becoming a publicly listed company on the NASDAQ Stock Market under the name Arqit Quantum Inc.

Additional Information
This communication is being made in respect of the proposed transaction involving Arqit Limited ("Arqit"), Centricus Acquisition Corp. ("Centricus") and Arqit Quantum Inc. ("Pubco"),

a newly formed Cayman holding company. This communication does not constitute an offer to sell or the solicitation of an offer to buy any securities or a solicitation of any vote or approval, nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such jurisdiction. In connection with the proposed transaction, Pubco has filed with the Securities and Exchange Commission ("SEC") a registration statement on Form F-4 that includes a proxy statement of Centricus in connection with Centricus' solicitation of proxies for the vote by Centricus' shareholders with respect to the proposed transaction and other matters as may be described in the registration statement. Pubco and Centricus also plan to file other documents with the SEC regarding the proposed transaction and a proxy statement/prospectus will be mailed to all holders of Centricus' Class A ordinary shares. BEFORE MAKING ANY VOTING OR INVESTMENT DECISION, INVESTORS AND SECURITY HOLDERS ARE URGED TO READ THE FORM F-4 AND THE PROXY STATEMENT/PROSPECTUS REGARDING THE PROPOSED TRANSACTION AND ANY OTHER RELEVANT DOCUMENTS FILED WITH THE SEC IN CONNECTION WITH THE PROPOSED TRANSACTION CAREFULLY IN THEIR ENTIRETY WHEN THEY BECOME AVAILABLE BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED TRANSACTION. The proxy statement/prospectus, as well as other filings containing information about Arqit and Centricus will be available without charge at the SEC's Internet site (http://www.sec.gov). Copies of the proxy statement/prospectus can also be obtained, when available, without charge, from Arqit's website at www.arqit.uk, or by directing a request to: Centricus Acquisition Corp., PO Box 309, Ugland House, Grand Cayman, KY1- 1104, Cayman Islands.

Participants in the Solicitations

Arqit, Centricus and certain of their respective directors, executive officers and other members of management and employees may, under SEC rules, be deemed to be participants in the solicitation of proxies from Centricus' shareholders in connection with the proposed transaction. Information about Centricus' directors and executive officers and their ownership of Centricus' securities will be set forth in the proxy statement/prospectus when available. Additional information regarding the participants in the proxy solicitation and a description of their direct and indirect interests will be included in the proxy statement/prospectus when it becomes available. Shareholders, potential investors and other interested persons should read the proxy statement/prospectus carefully when it becomes available before making any voting or investment decisions. You may obtain free copies of these documents from the sources indicated above.

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This communication includes forward-looking statements. These forward-looking statements are based on Arqit's and Centricus's expectations and beliefs concerning future events and involve risks and uncertainties that may cause actual results to differ materially from current expectations. These factors are difficult to predict accurately and may be beyond Arqit's and Centricus's control. Forward-looking statements in this communication or elsewhere speak only as of the date made. New uncertainties and risks arise from time to time, and it is

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