For Immediate Release

New paper from the SWIFT Institute examines the instability of large Bitcoin mining pools

SWIFT Institute research shows that smaller Bitcoin mining pools may lead to a more stable ecosystem for the digital currency

Brussels, 14 July 2015 – The SWIFT Institute announces the availability of a new paper that investigates Bitcoin mining pools and considers whether an evolution towards smaller mining pools might stabilise the Bitcoin system. The report, entitled "Bitcoin – the Miner's Dilemma" by Ittay Eyal from Cornell University, focuses on inherent dangers of mining pools, an essential part of the bitcoin ecosystem.

Bitcoin introduced the mechanism of an open distributed system that can be secured by requiring participants to present proof of work and rewarding them for participation. A natural process leads participants of such systems to form pools, where members aggregate their power and share the rewards. Mining pools enable small miners to operate with a reasonable business risk. However, when these pools grow too big, they pose a great danger to the entire bitcoin system. The dismantling of overly large pools is one of the most important and difficult tasks facing the Bitcoin community.

It is well-known that a pool can attack another open pool by pretending to work on its behalf, and thereby taking a cut of its proceeds, but never contributing by discovering blocks. Since these attacks do not appear to be prevalent, it looks as if pools make the right choice and agree to refrain from attacking each other.

However, the research shows that this is an unstable balance. It is worthwhile for a pool to refrain from attacking only as a part of an overall truce agreement in which it is not attacked. If a single pool starts attacking its peers, it will force them to retaliate. Once this happens, the profitability of public pools will deteriorate, leading miners to choose other pooling options, for example closed pools of miners that trust one another. Such trust circles are naturally going to be much smaller than open public pools.

The dismantling of overly large pools will bring Bitcoin to a safer footing than what we have today, where a handful of large pools dominate mining. The research shows that short-term incentives can cause this dismantling to occur spontaneously, making the Bitcoin infrastructure more distributed, and therefore more robust and secure.

Peter Ware, Director of the SWIFT Institute says: "Bitcoin is a hot topic in the industry at the moment and our latest research gives interesting insight into the Bitcoin system using game theory to highlight potential pitfalls and suggest ways in which to improve overall stability of the currency."

Please click here to download a full copy of the paper. For any questions on this or other SWIFT Institute research papers, please contact Peter Ware.

About SWIFT Institute

Launched in April 2012, the SWIFT Institute fosters independent research to extend the understanding of current practices and future needs across the financial industry. Managed by SWIFT, and working in close collaboration with academics from top international universities, the SWIFT Institute brings the financial industry and academia together to explore ideas and share knowledge on topics of global importance.

The research covers various aspects of transaction banking, including the following areas: Payments, Clearing / Settlement, Cash Management, Trade Finance, Trust and Securities.

For more information, please follow us on LinkedIn: SWIFT Institute or Twitter: @SWIFTInstitute or visit http://www.swiftinstitute.org/.

About SWIFT

SWIFT is a member-owned cooperative that provides the communications platform, products and services to connect more than 10,800 banking organisations, securities institutions and corporate customers in more than 200 countries and territories. SWIFT enables its users to exchange automated, standardised financial information securely and reliably, thereby lowering costs, reducing operational risk and eliminating operational inefficiencies. SWIFT also brings the financial community together to work collaboratively to shape market practice, define standards and debate issues of mutual interest.

For more information, visit www.swift.com or follow us on Twitter: @swiftcommunity and LinkedIn: SWIFT

Contacts:
Cognito
swift@cognitomedia.com
+44 (0)20 7426 9400