Computer Sciences

Researcher identify secure, anonymous, easy way to pay for online content

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Luxembourg, 13 May 2015 – Page views and "likes" are great for journalists' and webmasters' egos, but they don't pay the bills. Researchers at the University of Luxembourg may have found a solution. They have identified a secure, anonymous way for readers, viewers and gamers to pay for online content without them having to make a cash payment. "Any online website could participate, whether they are a news site, a blog, a video streaming service, a gaming site, or social media," remarked Alex Biryukov, Professor of Computer Science at the University of Luxembourg.

The system would work as follows. Every time a user "likes" internet content they could also chose to donate a small amount of their PC's spare computing power. Virtual currencies (e.g. Bitcoin) pay to use this spare processing power for the billions of calculations they need to build and maintain their virtual ledgers. This donation would thus generate virtual currency payments to the content providers. This could then be converted into standard "fiat" currencies to remunerate authors, artists and other content generators.

Users could agree to donate up to 10%-20% of their computing power without adversely affecting their computer's performance. Modern PCs have several processing cores which are frequently idle during normal use. The only cost to the user would be a slight increase in electricity use to power the extra processing, but this would be a negligible sum.

But how to make this process completely anonymous and secure, enabling users to avoid being identified or hacked after participating? Research* by the University of Luxembourg shows for the first time how this is possible. When the computation is completed, a verifiable "proof of work" certificate is generated and sent to the content provider using an anonymous network (such as the widely used Tor network) thus guaranteeing user privacy. The content provider then gets paid in virtual currency for the amount of computation performed by the user.

"Each transaction would only be a micro-payment of a fraction of a cent, but this could become an important source of revenue for very popular content providers," noted Prof Biryukov, a specialist in cryptology and security of information systems. Not only have people grown used to receiving content free of charge online, but there are many concerns about privacy and security. "At the moment there is a strong psychological barrier against paying for online content," he pointed out. To encourage more cash-generating likes, the content provider might chose to offer additional services or content for loyal users. "This new method could be potentially revolutionary since it can be done in a perfectly secure and private manner without the bother of making a standard money transfer."

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Notes to editor

*"Proof-of-Work as Anonymous Micropayment: Rewarding a Tor Relay". For more details see here.

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