CRYSTAL

BITFURY

USE CASE

Crystal™ Tracking Ransomware Payments

CRYSTAL

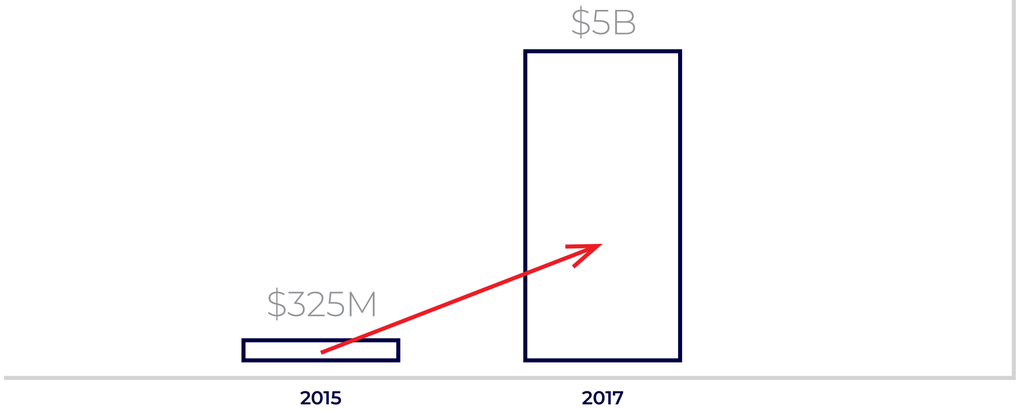
BITFURY

The Issue

CRYSTAL
BITFURY

These days, the world faces a special kind of cybercrime called **“Ransomware”**, a type of software that extorts payments for the safe return of user files. Ransomware works by using a virus software to encrypt the users’ files (making them inaccessible), and requiring the user to pay a certain amount to get the files back. Ransomware criminal distributors often use the Bitcoin Blockchain in an attempt to hide the final recipient of the payments and avoid responsibility for the crime.

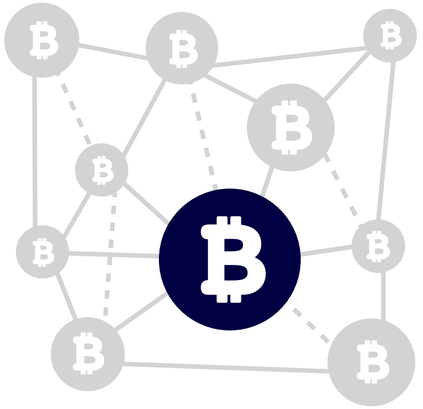
According to Cybersecurity Ventures’s report, global ransomware damage costs are predicted to exceed **$5 billion in 2017, up from $325 million in 2015.** Ransomware targets all industries, and it can compromise much more than just computer data. Anything digital is now at risk: health care, banks, logistic operators, state organizations, motion pictures — ransomware does not discriminate.



CRYSTAL
BITFURY

The Bitcoin Blockchain itself is not anonymous, and all transactions are visible to every participant on the blockchain. All information about payers, recipients and fund flows are there on blockchain, immutable and readily accessible by any participant.

However, each digital block may contain several transactions between different parties, who are represented on the blockchain only by their digital address—a string of letters and numbers. Given this somewhat limited information, the main challenge is finding the real-world identity tied to digital addresses and collecting evidence of relations between victims, payments and criminals.

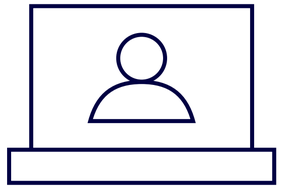


CRYSTAL

BITFURY

WannaCry Attack

The best-known virus attack is the WannaCry attack, which started early in the morning on Friday, May 12, 2017. Two of the first prominent victims were the UK's National Health Service (NHS) and Telefónica, the largest telecom company in Spain. The outbreak quickly spread across Europe and the rest of the world. By late Friday evening, it had taken root in 150 countries, including the United States (where shipping giant FedEx was infected) and China, which had the largest number of unlicensed PCs.

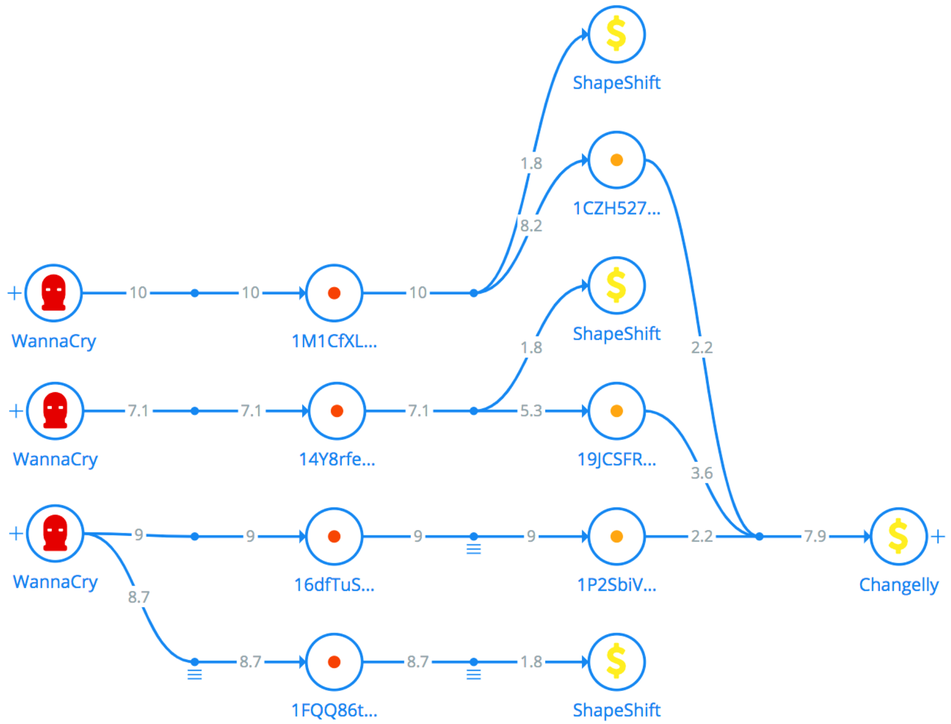


As of the end of 2017, the WannaCry ransomware attack is the largest we have ever seen of its kind, demonstrating in real time that ransomware is a global problem. The estimated damage caused by WannaCry in just the initial 4 days exceeded a billion dollars, due to the massive downtime caused for large organizations worldwide.

By the end of August 2017, the attackers had collected 53.46 BTC, (around US $200K), approximately 52 BTC of which were transferred further.

CRYSTAL
BITFURY

The picture below is an example of **Crystal** visualization for a chain of transactions from attackers' bitcoin wallets to withdrawal points — Changelly and ShapeShift exchanges.



If law enforcement agencies had had the proper tool to find criminals on the Bitcoin Blockchain, they could have quickly cornered the criminals and prevented further global damage.

CRYSTAL

BITFURY

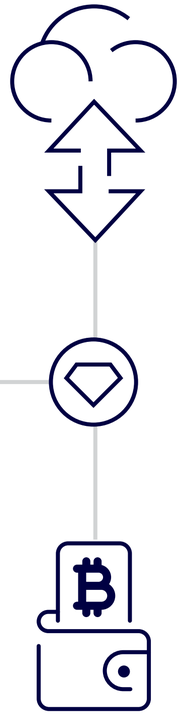
Making the Case Clear... or Crystal Clear

CRYSTAL
BITFURY

With **Crystal**, law enforcement bodies can effectively carry out cryptocurrency investigations with digital evidence by:

- Watching a suspect's wallets, including where funds originate and where they go
- Seeing the suspect's common internet account name
- Auto-tracing the suspect's fund flow to a final point of destination
- Highlighting connections between victims and the suspect

Crystal is the tool law enforcement agencies need to prevent or mitigate the effectiveness of ransomware cyberattacks like WannaCry. With **Crystal**, investigators could catch the perpetrators of such crimes much more efficiently, potentially preventing significant damage.



CRYSTAL

BITFURY

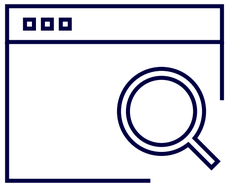
About Crystal

CRYSTAL

BITFURY

Crystal is the all-in-one blockchain investigative tool for law enforcement. As public blockchains and cryptocurrencies become more widely used, a broader set of tools is needed to track criminal behavior. Powered by the expertise of the Bitfury Group, **Crystal** can:

- Help investigators identify and track criminal activities, like ransomware payments.
- Link pseudonymous bitcoin payments to real-word entities, including exchanges, individuals and mixer services and reveal the real-world names of those entities in a user-friendly format.
- Identify ownership of bitcoin wallets and the interaction of different Blockchain entities.
- Provide substantial evidence for legal pursuance of charges.



Crystal is available as a web application, but can also be deployed on internal servers for added privacy.

You can find more information on **Crystal** at: **crystalblockchain.com**

CRYSTAL

BITFURY

The Bitfury Group

BITFURY

CRYSTAL

BITFURY

Crystal is the result of development by the Bitfury Group's software team, consisting of world-class blockchain analysts, award-winning mathematicians and professional software developers—united by the idea of leveraging blockchain technology to build a better, safer future. We have been turning this idea into a reality, designing best-in-class blockchain solutions for people all around the world.

Founded in 2011, the Bitfury Group is the leading full service blockchain technology company and one of the largest private infrastructure providers in the blockchain ecosystem. The Bitfury Group develops and delivers both the software and the hardware solutions necessary for businesses, governments, organizations and individuals to securely move an asset across the blockchain. The expertise of the Bitfury Group ensures successful, easy, fast, secure and cost-effective connectivity to the blockchain. The Bitfury Group is a global team of experts in technology, business, communications, security and civil society.

The Bitfury Group believes the blockchain can and will open new doors for global economic opportunity and prosperity, and its mission is to create and advance blockchain applications that will further promote innovation and the advancement of the peer-to peer economy.

Company's website: **bitfury.com**

You can find us on Twitter: **@BitfuryGroup**