

# Blockchains – An Alcatraz for Digital Values

## 3. Digital Real Estate Summit 2017 – FH Nordwestschweiz Brugg



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# Daniel Gasteiger

- 20+ Jahre praktische Erfahrung auf MD Stufe im Finanzdienstleistungssektor (CS und UBS)
- Devisenhandel und FX Ecommerce im B2B Umfeld
- Verschiedene Strategierollen in Group Technology und Office of the Chairman
- Mitgründer von Nexusquared (September 2015)
- Gründer von Procivis (September 2016)



# Blockchain's Beginnings

The Financial Crisis of 2008 and Bitcoin's Birth

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DJIA 10917.51 ▼ 504.48 -4.4% NASDAQ 2179.91 ▼ 3.6% NIKKEI Closed(12214.76) DJ STOXX 50 2744.81 ▼ 4.0% 10-YR TREAS ▲ 2 3/32, yield 3.482% OIL \$95.71 ▼ \$5.47 GOLD \$783.10 ▲ \$22.80 EURO \$1.4310 YEN 104.88

## AIG, Lehman Shock Hits World Markets

Focus Moves to Fate of Giant Insurer After U.S. Allows Investment Bank to Fail; Barclays in Talks to Buy Core Lehman Unit

The convulsions in the U.S. financial system sent markets across the globe tumbling, as two of Wall Street's biggest firms looked set to exit the scene and insurance titan American In-

By Susanne Craig,  
Jeffrey McCracken,  
Jon Hilsenrath and  
Deborah Solomon

ternational Group Inc. turned to the Federal Reserve and the state of New York for assistance.

The U.S. stock market suffered its worst daily point plunge since the first day of trading after the Sept. 11, 2001, terrorist attacks. Financial markets were rattled by the rushed sale Sunday of Merrill Lynch & Co. and the bankruptcy-court filing of Lehman Brothers Holdings Inc., which scrambled Monday to sell its most-prized businesses before too many employees and customers walk out the door. (Please see related article on Page C1.)

All day Monday, top Lehman officials were huddled in Manhattan at their Seventh Avenue headquarters negotiating a sale of the U.S. investment bank—the core part of Lehman—to Barclays PLC of the U.K. People involved in the discussions were increasingly hopeful late Monday that a deal would be struck.

In stock markets from Sydney to London to New York, the news was greeted with immediate sell-

ing. For much of the day, the major U.S. market indexes were down 2%, which, while a good-sized decline, was smaller than many had thought would be the case. But in the final hour of trading, a wave of selling hit, driven by concerns about the fate of AIG. The Dow Jones Industrial Average ended down 504.48 points on Monday, off 4.4%, at its daily low of 10917.51, down 18% on the year. Of the Dow industrials' 30 components, all but one—Coca-Cola Co.—fell, led by a 60.8% plunge in AIG.

In Europe, London's FTSE 100 index dropped 3.9%. Several Asian markets, including Japan and China, were closed Monday due to holiday. By Tuesday, Tokyo shares were down 5.1% in early trading, and Hong Kong's Hang Seng index was down 6.1%.

Monday's action was the latest fallout in a widening financial crisis that began a year ago with the fall of American housing prices and is now reordering the U.S. financial system. Steps unveiled by the Federal Reserve to expand its emergency lending arsenal did little to snap the sense of gloom.

Plenty of potential land mines remain. Banks are increasingly hoarding cash, curbing lending at a time when the economy is slowing. They are also starting to dump assets to raise capital. A mass sale of assets by

Please turn to page A2



Traders around the world react to sharp selloffs after one of the most turbulent days in Wall Street's history.

### AIG Faces Cash Crisis As Stock Dives 61%

By Matthew Karnitschnig,  
Liam Plevin  
and Serena Ng

American International Group Inc. was facing a severe cash crunch last night as ratings agencies cut the firm's credit ratings, forcing the giant insurer to raise \$14.5 billion to cover its obligations.

With AIG now tottering, a crisis that began with falling home prices and went on to engulf Wall Street has reached one of the world's largest insurance companies, threatening to intensify the financial storm and greatly complicate the government's efforts to contain it. The company, whose stock fell 61% yesterday, is such a big player in insuring risk for institutions around the world that its failure could shake the global financial system.

AIG has been scrambling to raise as much as \$75 billion to weather the crisis, and people close to the situation said that if



## Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto  
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**Abstract.** A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

### 1. Introduction

Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. Completely non-reversible transactions are not really possible, since financial institutions cannot avoid mediating disputes. The cost of mediation increases transaction costs, limiting the minimum practical transaction size and cutting off the possibility for small casual transactions, and there is a broader cost in the loss of ability to make non-reversible payments for non-reversible services. With the possibility of reversal, the need for trust spreads. Merchants must be wary of their customers, hassling them for more information than they would otherwise need. A certain percentage of fraud is accepted as unavoidable. These costs and payment uncertainties can be avoided in person by using physical currency, but no mechanism exists to make payments over a communications channel without a trusted party.

What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party. Transactions that are computationally impractical to reverse would protect sellers from fraud, and routine escrow mechanisms could easily be implemented to protect buyers. In this paper, we propose a solution to the double-spending problem using a peer-to-peer distributed timestamp server to generate computational proof of the chronological order of transactions. The system is secure as long as honest nodes collectively control more CPU power than any cooperating group of attacker nodes.



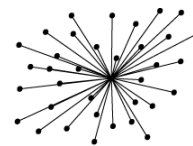
«...online payments to be sent directly from one party to another **without going through a financial institution.**»

# **Public Blockchains**

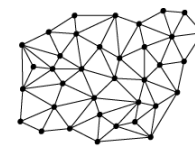
Understanding the Basic Concepts



**Public**



centralised



distributed

**Distributed**



**Database**



**Synchronized**



**Cryptography**

# Quote

“This **decentralized** system of **trust** can record information in a way that cannot be altered. The concept of digital **immutability** which is a new concept changes a lot of things.

‘Written in stone’ will be ‘written in blockchain’ in 100 years”

Andreas Antonopoulos, Author “The Internet of Money” and “Mastering Bitcoin”





# Benefits & Challenges



- Disintermediation
- Security  
(Transparency and Immutability)
- Speed of Transactions
- Infrastructure Cost Savings

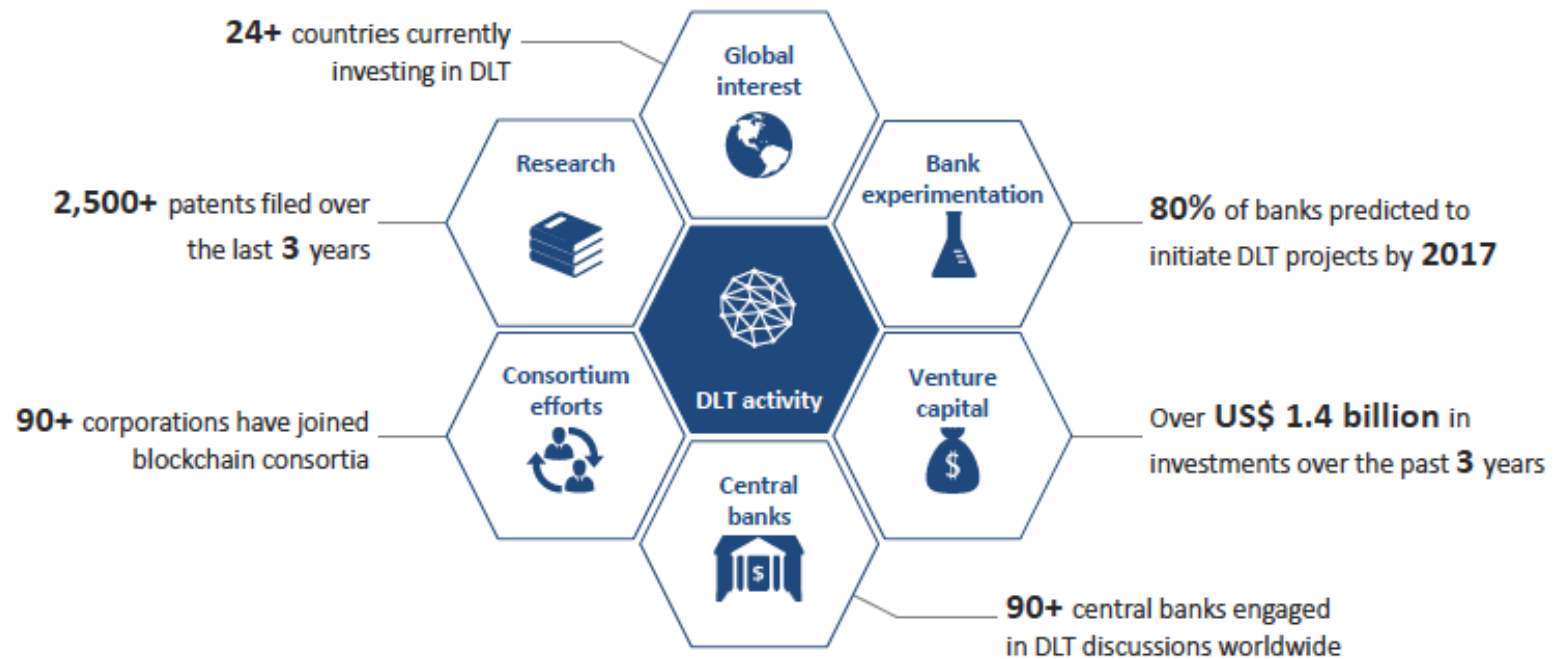


- Nascent Technology
- Regulatory & Political Uncertainty
- Dependency on 'Network' (Scale / 'Chicken & Egg')
- Energy Consumption (Consensus Process)

# Blockchain Reality in 2017

Trends and Use Cases

# WEF Study August 2016



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# BRINGING BITCOIN TO EVERYDAY LIFE

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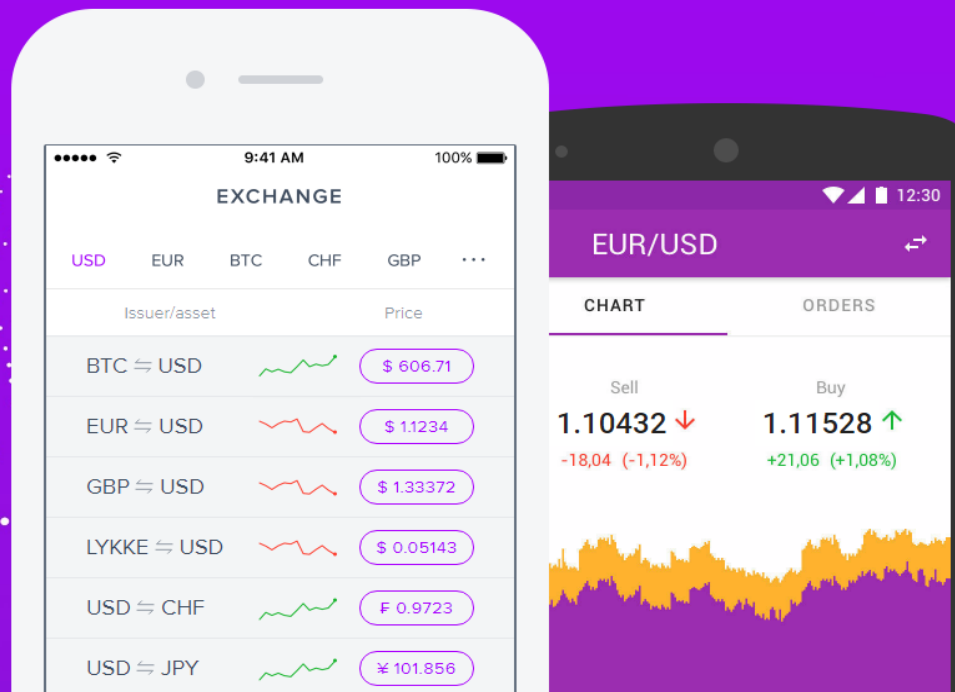
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# Blockchain's Future

Smart Contracts or Blockchain 2.0



# ethereum

## HOMESTEAD RELEASE

BLOCKCHAIN APP PLATFORM

## Build unstoppable applications

Ethereum is a **decentralized platform that runs smart contracts**: applications that run exactly as programmed without any possibility of downtime, censorship, fraud or third party interference.

These apps run on a custom built **blockchain, an enormously powerful shared global infrastructure that can move value around and represent the ownership of property**. This enables developers to create markets, store registries of debts or promises, move funds in accordance with instructions given long in the past (like a will or a futures contract) and many other things that have not been invented yet, all without a middle man or counterparty risk.

The project was bootstrapped via an ether pre-sale during August 2014 by fans all around the world. It is developed by the [Ethereum Foundation](#), a Swiss nonprofit, with contributions from great minds across the globe.



# PROTECTION.

We are a fraud detection system, overlaying big data from closed sources like insurers and law enforcement.

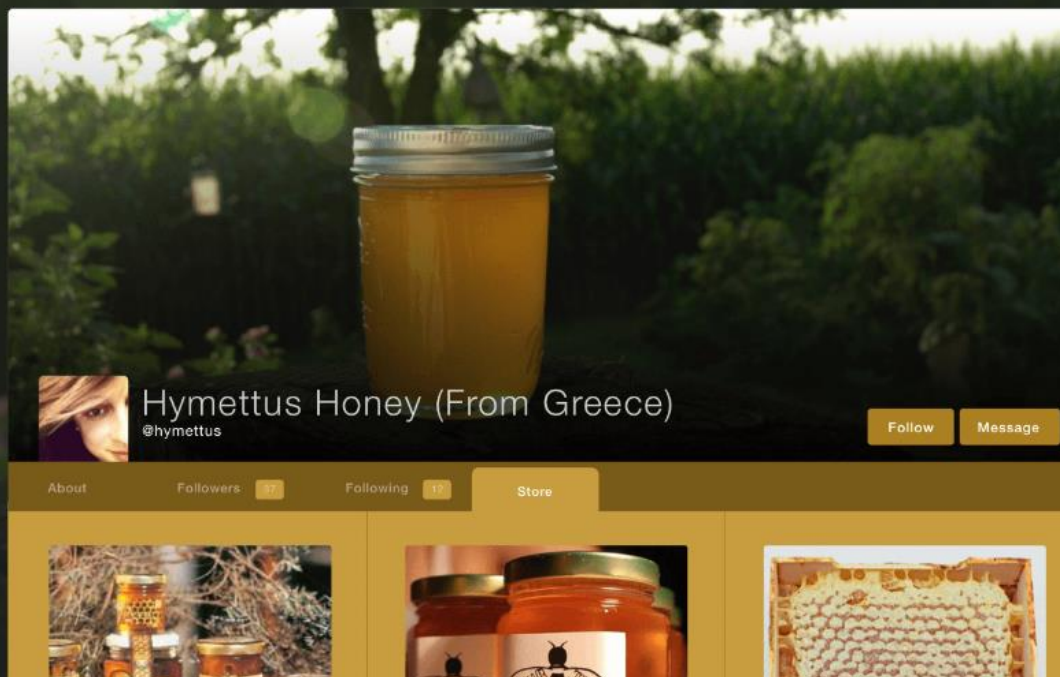




# A Free Market for all. No Fees. No Restrictions.

DOWNLOAD

[It's open source.](#) [View the code.](#)



## FAQ

How does OpenBazaar work? *It's a peer-to-peer marketplace...*

How are there no fees/restrictions? *OpenBazaar isn't a company...*

Is Bitcoin the only supported payment method? *Yes, currently...*

How do I create a store and sell items? *Download the OpenBaz...*

## Links

[Blog](#)

[Documentation](#)

[Tutorial](#)

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YOUR READING LIST



The First Government To Secure Land Titles On The Bitcoin Blockchain Expands Project



Grads of Life: Ask Not What Your Career Can Do For You, Ask What You Can Do For Your Career



The Limit Does Not Exist: Leah Gilliam Is A Creative Who Codes

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Any Dip In Stocks Will Be A Gift To Buy


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Are You A First Time Home Buyer? Be Aware Of These Mortgage Programs

# The First Government To Secure Land Titles On The Bitcoin Blockchain Expands Project



Laura Shin,  CONTRIBUTOR

I cover Bitcoin, blockchain, fintech, personal finance and career [FULL BIO](#) ✓  
Opinions expressed by Forbes Contributors are their own.

In a vote of confidence for a fledgling technology, the Republic of Georgia committed in a signing ceremony in Tbilisi on Tuesday to use the bitcoin network to validate property-related government transactions.

In April last year, the government and bitcoin hardware and software firm [Bitfury Group](#) launched a project to register land titles via a private blockchain, which is a tamper-proof ledger, and then to make those transactions verifiable using bitcoin's blockchain, which is public.

It is the first time a national government has used the bitcoin blockchain to secure and validate official actions, signifying a vote of confidence for a technology still somewhat tainted by an early association with illicit activity.

Having so far built the software and tested it with a couple dozen land title registrations, Bitfury and the Georgian National Agency of Public Registry have now signed a new memorandum of understanding to expand the service to purchases and sales of land titles, registration of new land titles, demolition of property, mortgages and rentals, as well as notary services.

The Bitfury and Republic of Georgia initiative is just one of several collaborations aimed at creating blockchain-based land-titling services. (Such software is also being created in Sweden, Honduras and Cook County in Chicago with startups [ChromaWay](#), [Factom](#) and [Velox](#), respectively.) Peruvian economist Hernando DeSoto, who has also been involved in the project, has estimated that worldwide, the value of "dead capital" — in which people do not have legal title to their houses, cars and other assets — at \$20 trillion.







## Rent, sell or share anything - without middlemen

With Slock.it, Airbnb apartments become fully automated, wifi routers can be rented on demand and unused office spaces get a new lease on life. It's the future infrastructure of the Sharing Economy.

A wide-angle photograph of a sunset or sunrise over a flat, green field. The sun is low on the horizon, creating a bright, golden glow that reflects on the wet ground. The sky is filled with dramatic, dark clouds, with rays of light breaking through near the horizon.
















# GET A REWARD FOR PRODUCING **SOLAR** ENERGY

**GET REWARD**



## Components for Digital Society:

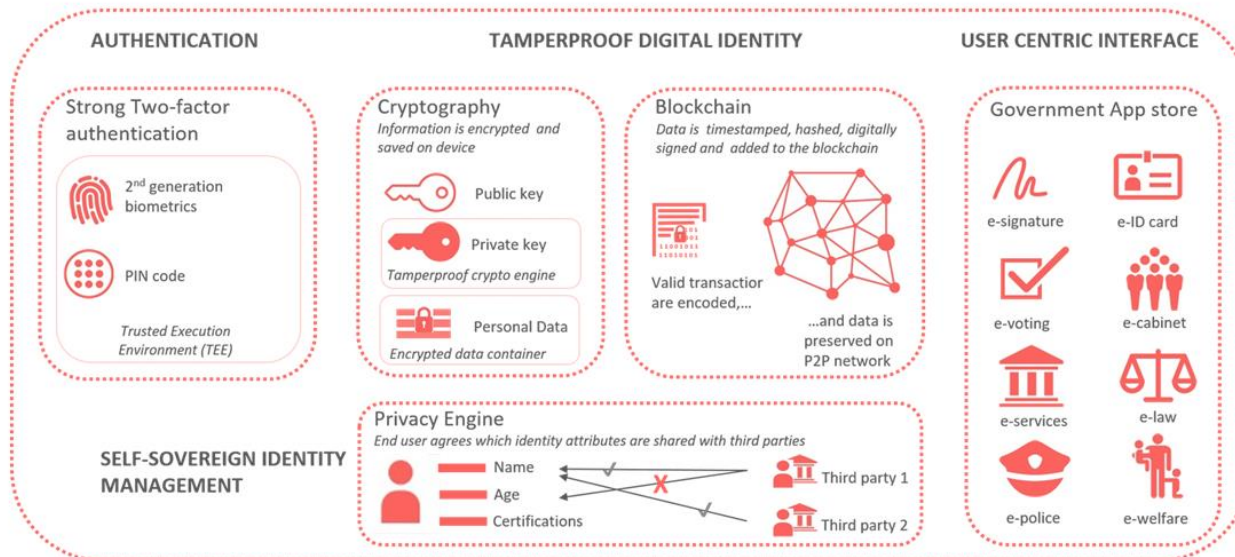
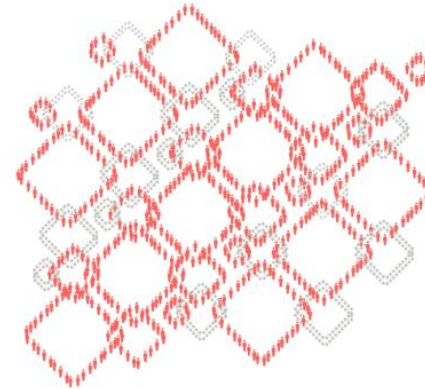
e-Estonia's digital society components are the building-blocks that power Estonia's integrated e-services. The modular nature of e-Estonia's flexible component systems means it's easy to add e-services in the future, allowing government systems to grow.

BUSINESS	CITIZENS	EDUCATION	FINANCIAL-SERVICES	GOVERNMENT	HEALTHCARE	INFRASTRUCTURE	PUBLIC-SAFETY	UTILITIES
 <b>DigiDoc</b>  DigiDoc is a system that's widely-used in Estonia for storing, sharing and digitally signing documents.	 <b>Digital Signature</b>  Digital signature enables secure, legally-binding, electronic document signing	 <b>e-Business Register</b>  Enables entrepreneurs to register their new business online in minutes	 <b>e-Cabinet</b>  A powerful tool used by the Estonian government to streamline its decision-making process	 <b>e-Court</b>  Enables electronic court procedures administration including: submission of claims online; electronic process management and participation in proceedings over the web.				
 <b>e-Law</b>  Allows public access to every piece of draft law that has been submitted since February 2003	 <b>e-Police</b>  Revolutionizes police communication and coordination, maximizing effective policing.	 <b>e-Prescription</b>  A centralized, paperless system for issuing and handling medical prescriptions	 <b>e-Residency</b>  Estonian e-Residency is a digital identity that allows everyone in the world to do business online with ease.	 <b>e-School</b>  Allow students, teachers and parents to collaborate in the learning process				
 <b>e-Tax</b>  e-Tax has drastically reduced the time spent by individuals and entrepreneurs on filing taxes	 <b>Electronic Health Record</b>  Integrates data from healthcare providers into a national record for each patient	 <b>Electronic ID Card</b>  e-ID acts as definitive proof of ID in secure electronic environments	 <b>Electronic Land Register</b>  A one-of-a-kind information system for storing real estate and land data	 <b>i-Voting</b>  i-Voting allows voters to cast their ballots over the internet, from anywhere in the world.				

## Vision

«We empower citizens by providing  
eGovernment applications built around  
self-sovereign digital identities and  
personal data security»

*pro civis* latin 'for the citizen'





nexussquared

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