



Predictive Markets: A Software Security Application

Kushal Hebbar

Jon Oakley

December 3, 2018

Clemson University

Background

The Problem – Code Complexity

Background

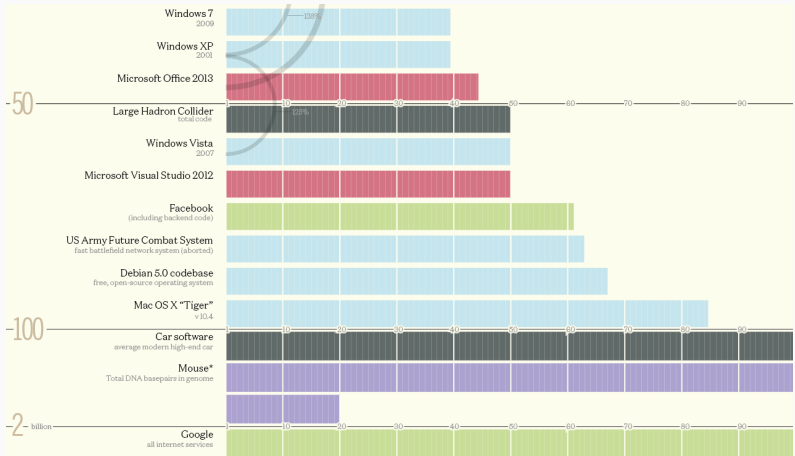
Our Solution

Architecture

Results

Conclusion

Backup Slides



The Problem – Internal Security Audits

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Backup Slides

- 0-day vulnerabilities¹
- Internet of Things
- Automotive Security

¹<https://www.fireeye.com/current-threats/recent-zero-day-attacks.html>

Our Solution

Goals

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Backup Slides

- Trustless decentralized metric for software security
- Financial feedback for software security
- *Emphasis on secure code*

Predictive Markets – Wisdom of Crowds

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Backup Slides

- Elections
- Stock Market
- Vegas Odds
- Artificial Swarm Intelligence²
 - Sports events
 - Elections
 - Deceit detection in facial expressions
- Augur

²<https://unanimous.ai/publications/>

The Solution

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Trustless decentralized metric for software security
based on predictive markets

Use Cases

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Backup Slides

- Security metric
- Crowd-sourced bug bounty
- Software insurance
- Developer incentive

Novel Contributions

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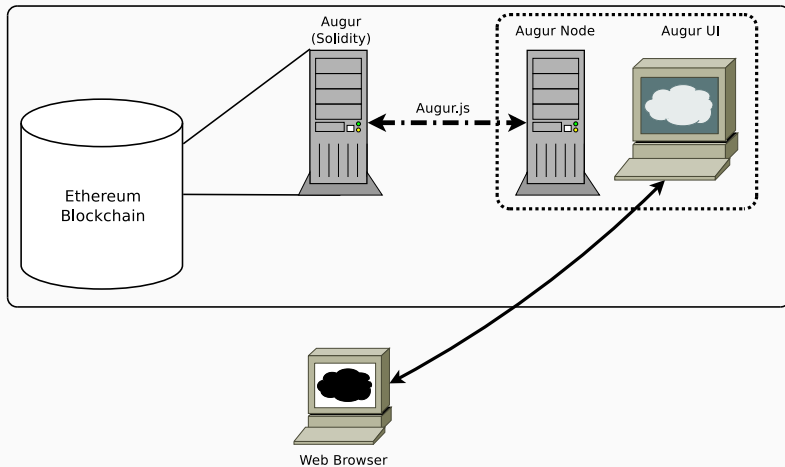
- ✓ Toolkit script to automate market creation
- ✓ Naive trading bots that simulate users³
- ~ Marketplace frontend

³for demonstration purposes

Architecture

Original Architecture

- Background
- Our Solution
- Architecture
- Results
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- Backup Slides



Architecture – Ethereum

Background

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Architecture

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Backup Slides

- Blockchain
- Transactions
- Smart Contracts (Solidity)



ethereum

Architecture – Augur

Background

Our Solution

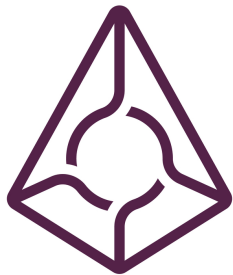
Architecture

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Backup Slides

- Augur Core
- Augur Node
- Augur UI
- Augur.js



Augur (REP)

Architecture – Markets

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Software Version (Commit Hash): Category
Long description of category

Architecture – Market Categories

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– Privacy

Does the referenced source code contain any vulnerabilities that knowingly (or unknowingly) leak the user's data to an untrusted third-party?

– Privilege Escalation

Does the referenced source code contain any vulnerabilities that allow a malicious user to escalate their privileges (giving them access to any commands they would not otherwise have access to)?

– Memory

– Input

– Race Conditions

Experimental Setup

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Backup Slides

- Server (130.127.249.39)
- Development VM (CentOS 7)
- Solidity (Augur Core)
- Node.js (Augur Node, Augur UI, Toolkit, Bots)



Results

Environment – Blockchain

Background	INFO [12-03 07:42:23] Commit new mining work	number=3997 txs=0 uncles=0 elapsed=377.943μs
Our Solution	DEBUG [12-03 07:42:23] Executing EVM call finished	runtime=946.895μs
	DEBUG [12-03 07:42:23] Executing EVM call finished	runtime=283.864μs
	DEBUG [12-03 07:42:23] Executing EVM call finished	runtime=390.515μs
	DEBUG [12-03 07:42:23] Executing EVM call finished	runtime=429.55μs
Architecture	DEBUG [12-03 07:42:23] Executing EVM call finished	runtime=1.796975ms
	DEBUG [12-03 07:42:23] Executing EVM call finished	runtime=424.296μs
Results	INFO [12-03 07:42:24] Successfully sealed new block	number=3997 hash=df99c8...e9b043
	DEBUG [12-03 07:42:24] Trie cache stats after commit	misses=0 unloads=0
Conclusion	DEBUG [12-03 07:42:24] Dereferenced trie from memory database 41kB	nodes=0 size=0.00B time=1.589μs gcnodes=2706
Backup Slides	INFO [12-03 07:42:24]  block reached canonical chain	number=3992 hash=e84299...ff95bc
	INFO [12-03 07:42:24]  mined potential block	number=3997 hash=df99c8...e9b043
	INFO [12-03 07:42:24] Commit new mining work	number=3998 txs=0 uncles=0 elapsed=440.55μs
	DEBUG [12-03 07:42:24] Reinjecting stale transactions	count=0
	DEBUG [12-03 07:42:24] Executing EVM call finished	runtime=383.82μs
	DEBUG [12-03 07:42:24] Executing EVM call finished	runtime=465.406μs
	DEBUG [12-03 07:42:24] Executing EVM call finished	runtime=264.981μs
	DEBUG [12-03 07:42:24] Executing EVM call finished	runtime=332.285μs
	DEBUG [12-03 07:42:24] Executing EVM call finished	runtime=275.964μs
	DEBUG [12-03 07:42:24] Executing EVM call finished	runtime=302.764μs
	DEBUG [12-03 07:42:24] Executing EVM call finished	runtime=273.87μs
	INFO [12-03 07:42:25] Successfully sealed new block	number=3998 hash=7f69d2...301c1e
	DEBUG [12-03 07:42:25] Trie cache stats after commit	misses=0 unloads=0
	DEBUG [12-03 07:42:25] Dereferenced trie from memory database 41kB	nodes=0 size=0.00B time=1.201μs gcnodes=2706
	INFO [12-03 07:42:25]  block reached canonical chain	number=3993 hash=ce4d14...4ffa70
	INFO [12-03 07:42:25]  mined potential block	number=3998 hash=7f69d2...301c1e
	DEBUG [12-03 07:42:25] Reinjecting stale transactions	count=0
	INFO [12-03 07:42:25] Commit new mining work	number=3999 txs=0 uncles=0 elapsed=377.103μs
	DEBUG [12-03 07:42:25] Executing EVM call finished	runtime=383.715μs

Environment – Augur Node

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Backup Slides

```
new block: 4026, 1543822973 (Mon Dec 03 2018 02:42:53 GMT-0500 (EST))
{"id":616,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822979,"outcome":"1"}}
new block: 4027, 1543822974 (Mon Dec 03 2018 02:42:54 GMT-0500 (EST))
{"id":617,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822980,"outcome":"1"}}
new block: 4028, 1543822975 (Mon Dec 03 2018 02:42:55 GMT-0500 (EST))
{"id":618,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822981,"outcome":"1"}}
new block: 4029, 1543822976 (Mon Dec 03 2018 02:42:56 GMT-0500 (EST))
{"id":619,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822982,"outcome":"1"}}
new block: 4030, 1543822977 (Mon Dec 03 2018 02:42:57 GMT-0500 (EST))
{"id":620,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822983,"outcome":"1"}}
new block: 4031, 1543822978 (Mon Dec 03 2018 02:42:58 GMT-0500 (EST))
{"id":621,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822984,"outcome":"1"}}
new block: 4032, 1543822979 (Mon Dec 03 2018 02:42:59 GMT-0500 (EST))
{"id":622,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822985,"outcome":"1"}}
new block: 4033, 1543822980 (Mon Dec 03 2018 02:43:00 GMT-0500 (EST))
{"id":623,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822986,"outcome":"1"}}
new block: 4034, 1543822981 (Mon Dec 03 2018 02:43:01 GMT-0500 (EST))
{"id":624,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822987,"outcome":"1"}}
new block: 4035, 1543822982 (Mon Dec 03 2018 02:43:02 GMT-0500 (EST))
{"id":625,"jsonrpc":"2.0","method":"getMarketPriceCandlesticks","params":{"marketId":"0xb4c2d1480226e413a6382aca3557593a4df7b74e","period":86400,"start":1543190400,"end":1543822988,"outcome":"1"}}
new block: 4036, 1543822983 (Mon Dec 03 2018 02:43:03 GMT-0500 (EST))
```

Environment – Augur UI

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Backup Slides

```
index.html 5.77 KiB
COMMITHASH 40 bytes
VERSION 19 bytes
BRANCH 6 bytes

Entrypoint assets/scripts/vendor = assets/scripts/vendor.fefd14dc3bee14571157.js
Entrypoint main = main.dfb2373c9b315feaf741.js
[./node_modules/moment/moment.js] 129 KiB {assets/scripts/vendor} {main} [built]
[./node_modules/react-datetime/DateTime.js] 12.2 KiB {assets/scripts/vendor} [built]
[./node_modules/react-dom/index.js] 1.33 KiB {assets/scripts/vendor} {main} [built]
[./node_modules/react-redux/es/index.js] 230 bytes {main} [built]
[./node_modules/react-router-dom/es/index.js] 925 bytes {main} [built]
[./node_modules/react/index.js] 190 bytes {assets/scripts/vendor} {main} [built]
[./node_modules/redux-thunk/es/index.js] 481 bytes {assets/scripts/vendor} {main} [built]
[./node_modules/redux/es/index.js] 1.05 KiB {assets/scripts/vendor} {main} [built]
[./src/main.jsx] 1.5 KiB {main} [built]
[./src/modules/app/containers/app.js] 3.37 KiB {main} [built]
[./src/modules/common/components/main-error-boundary/main-error-boundary.jsx] 3.23 KiB {main} [built]
[./src/modules/modal/actions/update-modal.js] 159 bytes {main} [built]
[0] multi react react-dom redux redux-thunk moment react-datetime 88 bytes {assets/scripts/vendor} [built]
[./src/services/augurjs.js] 693 bytes {main} [built]
[./src/store.js] 3.76 KiB {main} [built]
+ 2910 hidden modules
Child html-webpack-plugin for "index.html":
  Asset      Size  Chunks  Chunk Names
  index.html  1.4 MiB      0
Entrypoint undefined = index.html
[./node_modules/html-webpack-plugin/lib/loader.js!./src/index.ejs] 6.09 KiB {0} [built]
[./node_modules/lodash/lodash.js] 527 KiB {0} [built]
[./node_modules/webpack/buildin/global.js] (webpack)/buildin/global.js 489 bytes {0} [built]
[./node_modules/webpack/buildin/module.js] (webpack)/buildin/module.js 497 bytes {0} [built]
i ｢wdm｣: Compiled successfully.
```

Toolkit

Background

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Backup Slides

```
$ init-market.py <git repo>
```

– Python wrapper for Node.js functions

Demos

Background

Our Solution

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Backup Slides

- Market creation
- Trading response

Conclusion

Overview

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Backup Slides

0. Set up Augur environment
 1. Automatic market creation using Augur.js API
 2. Trading bots to simulate real users
 3. Modified marketplace
 4. Augur development environment (CentOS VM)

Future Work

Background

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Backup Slides

- Real people
- Refine market definitions (Economist/Lawyer)
- Continue modifying Augur's UI (metamask)

QUESTIONS

FOUND IN GOOGLE AUTOCOMPLETE

WHY DO WHALES JUMP

WHY ARE WITCHES GREEN

WHY ARE THERE MIRRORS ABOVE BEDS

WHY DO I SAY UH

WHY IS SEA SALT BETTER

WHY ARE THERE TREES IN THE MIDDLE OF FIELDS

WHY IS THERE NOT A POKEMON MMO

WHY IS THERE LAUGHING IN TV SHOWS

WHY ARE THERE DOORS ON THE FREEWAY

WHY ARE THERE SO MANY SUICIDES RUNNING

WHY AREN'T THERE ANY COUNTRIES IN ANTARCTICA

WHY ARE THERE SCARY SOUNDS IN MINICRAFT

WHY IS THERE KICKING IN MY STOMACH

WHY ARE THERE TWO SLUSHIES AFTER HTTP

WHY ARE THERE CELEBRITIES

WHY DO SNAKES EXIST

WHY DO OYSTERS HAVE PEARLS

WHY ARE DUCKS CALLED DUCKS

WHY DO THEY CALL IT THE CLAP

WHY ARE KYLE AND CARTMAN FRIENDS

WHY IS THERE AN ARROW ON PIANO'S HEAD

WHY ARE TEXT MESSAGES BLUE

WHY ARE THERE MUSTACHES ON CLOTHES

WHY ARE THERE MUSTACHES ON CARS

WHY ARE THERE MUSTACHES EVERYWHERE

WHY ARE THERE SO MANY BIRDS IN OHIO

WHY IS THERE SO MUCH RAIN IN OHIO

WHY IS OHIO WEATHER SO WEIRD

WHY ARE THERE MALE AND FEMALE BIKES

WHY ARE THERE TINY SPIDERS IN MY HOUSE

WHY DO SPIDERS COME INSIDE

WHY ARE THERE HUGE SPIDERS IN MY HOUSE

WHY ARE THERE LOTS OF SPIDERS IN MY HOUSE

WHY ARE THERE SPIDERS IN MY ROOM

WHY ARE THERE SO MANY SPIDERS IN MY ROOM

WHY DO SPIDER BITES ITCH

WHY IS DYING SO SCARY

WHY IS THERE NO GPS IN LAPTOPS

WHY DO KNOCKS CLICK

WHY AREN'T THERE E. GRAPIDES

WHY IS ISOLATION BAD

WHY DO BOYS LIKE ME

WHY DON'T BOYS LIKE ME

WHY IS THERE ALWAYS A DRUM UPDATE

WHY ARE THERE RED DOTS ON MY FINGER

WHY IS LYING GOOD

WHY AREN'T ECONOMISTS RICH

WHY DO AMERICANS CALL IT SOCCER

WHY ARE MY EARS RINGING

WHY ARE THERE SO MANY AVENGERS

WHY ARE THE AVENGERS FIGHTING THE X MEN

WHY IS WOLVERINE NOT IN THE AVENGERS

WHY ARE THERE SO MANY CROUS IN ROCHESTER

WHY IS PSYCHIC WEAK TO BUG

WHY DO CHILDREN GET CANCER

WHY IS POSEIDON ANGRY WITH ODYSSEUS

WHY IS THERE ICE IN SPACE

WHY ARE THERE ANTS IN MY LAPTOP

WHY IS THERE AN OWL IN MY BACKYARD

WHY IS THERE AN OWL OUTSIDE MY WINDOW

WHY IS THERE AN OWL ON THE DOLLAR BILL

WHY DO OWLS ATTACK PEOPLE

WHY ARE AK 47s SO EXPENSIVE

WHY ARE THERE HELICOPTERS CIRCLING MY HOUSE

WHY ARE THERE GODS

WHY ARE THERE TWO SPOOKS

WHY ARE MY BOOBS ITCHY

WHY ARE CIGARETTES LEGAL

WHY ARE THERE DUCKS IN MY POOL

WHY IS JESUS WHITE

WHY IS THERE LIQUID IN MY EAR

WHY DO Q TIPS FEEL GOOD

WHY DO GOOD PEOPLE DIE

WHY ARE DOGS AFRAID OF FIREWORKS

WHY IS THERE NO KING IN ENGLAND

WHY ARE ULTRASOUNDS IMPORTANT

WHY ARE ULTRASOUND PHONES EXPENSIVE

WHY IS STEALING WRONG

WHY AREN'T MY QUAIL LAYING EGGS

WHY AREN'T MY QUAIL EGGS HATCHING

WHY AREN'T THERE ANY FOREIGN MILITARY BASES IN AMERICA

WHY DO TESTICLES MOVE

WHY ARE THERE PSYCHICS

WHY ARE HATS SO EXPENSIVE

WHY IS THERE CRAFTING IN TV SHOWS

WHY DO YOUR BOOBS HURT

WHY ARE THERE SLAVES IN THE BIBLE

WHY DO TWINS HAVE DIFFERENT FINGERPRINTS

WHY ARE AMERICANS AFRAID OF DRAGONS

WHY IS HTTPS CROSSED OUT IN RED

WHY IS THERE A LINE THROUGH HTTPS

WHY IS THERE A RED LINE THROUGH HTTPS ON FACEBOOK

WHY IS HTTPS IMPORTANT

WHY AREN'T MY ARMS GROWING

WHY ARE THERE LIES

WHY DO I FEEL DIZZY

WHY ARE THERE SO MANY CROUS IN ROCHESTER

WHY IS PSYCHIC WEAK TO BUG

WHY DO CHILDREN GET CANCER

WHY IS POSEIDON ANGRY WITH ODYSSEUS

WHY IS THERE ICE IN SPACE

WHY ARE THERE ANTS IN MY LAPTOP

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WHY IS STEALING WRONG

WHY AREN'T MY QUAIL LAYING EGGS

WHY AREN'T MY QUAIL EGGS HATCHING

WHY AREN'T THERE ANY FOREIGN MILITARY BASES IN AMERICA

WHY AREN'T THERE DINOSAUR GHOSTS

WHY IS EARTH TILTED

WHY IS SPACE BLACK

WHY IS OUTER SPACE SO COLD

WHY ARE THERE PHANTOMS ON THE MOON

WHY IS NASA SHUTTING DOWN

WHY ARE THERE GHOSTS

WHY IS THERE AN OWL IN MY BACKYARD

WHY IS THERE AN OWL OUTSIDE MY WINDOW

WHY IS THERE AN OWL ON THE DOLLAR BILL

WHY DO OWLS ATTACK PEOPLE

WHY ARE AK 47s SO EXPENSIVE

WHY ARE THERE HELICOPTERS CIRCLING MY HOUSE

WHY ARE THERE GODS

WHY ARE THERE TWO SPOOKS

WHY ARE MY BOOBS ITCHY

WHY ARE CIGARETTES LEGAL

WHY ARE THERE DUCKS IN MY POOL

WHY IS JESUS WHITE

WHY IS THERE LIQUID IN MY EAR

WHY DO Q TIPS FEEL GOOD

WHY DO GOOD PEOPLE DIE

WHY ARE DOGS AFRAID OF FIREWORKS

WHY IS THERE NO KING IN ENGLAND

WHY ARE ULTRASOUNDS IMPORTANT

WHY ARE ULTRASOUND PHONES EXPENSIVE

WHY IS STEALING WRONG

WHY AREN'T MY QUAIL LAYING EGGS

WHY AREN'T MY QUAIL EGGS HATCHING

WHY AREN'T THERE ANY FOREIGN MILITARY BASES IN AMERICA

Backup Slides

Development Environment

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Backup Slides

```
jon@ares:~$ ./augur.js -l 70x42
e=2.068ms gcnodes=240 gcsz=49.83kB gctime=620.038µs livenodes=400 liveness=242.23kB
INFO [10-29]02:32:15] block reached canonical chain number=199 hash=7a224f.b
cf650
INFO [10-29]02:32:15] mined potential block number=204 hash=901145.6
5f25c
DEBUG[10-29]02:32:15] Reinjecting stale transactions count=0
INFO [10-29]02:32:15] Commit new mining work number=205 txs=0 uncles=
0 elapsed=1.007ms
INFO [10-29]02:32:16] Successfully sealed new block number=205 hash=8f447a.62
2e0f
DEBUG[10-29]02:32:16] Trie cache stats after commit misses=0 unloads=0
DEBUG[10-29]02:32:16] Dereferenced trie from memory database nodes=0 size=0.808 tim
e=2.27µs gcnodes=240 gcsz=49.83kB gctime=621.832µs livenodes=400 liveness=242.23kB
INFO [10-29]02:32:16] block reached canonical chain number=200 hash=28b0f4.6
27100
INFO [10-29]02:32:16] mined potential block number=205 hash=8f447a.6
22e0f
DEBUG[10-29]02:32:16] Reinjecting stale transactions count=0
INFO [10-29]02:32:16] Commit new mining work number=206 txs=0 uncles=
0 elapsed=1.052ms

[./src/reducers.js] 4.5 KiB [main] [built]
[./src/services/augur.js] 693 bytes [main] [built]
[./src/store.js] 3.76 KiB [main] [built]
[0] multi react react-dom redux redux-thunk moment react-datetime 88 bytes (assets/scrip
ts/vendor) [built]
+ 2063 hidden modules
Child html-webpack-plugin for "index.html":
  Asset      Size  Chunks  Chunk Names
  index.html  1.4 KiB          0
Entrypoint undefined = index.html
[./node_modules/html-webpack-plugin/lib/loader.js!./src/index.ejs] 6.09 KiB (0) [bui
lt]
[./node_modules/lodash/lodash.js] 527 KiB (0) [built]
[./node_modules/webpack/buildin/global.js] (webpack)/buildin/global.js 489 bytes (0)
[built]
[./node_modules/webpack/buildin/module.js] (webpack)/buildin/module.js 497 bytes (0)
[built]
[./main] Compiled successfully.

[./src/services/augur.js] 693 bytes [main] [built]
[./src/store.js] 3.76 KiB [main] [built]
[0] multi react react-dom redux redux-thunk moment react-datetime 88 bytes (assets/scrip
ts/vendor) [built]
+ 2063 hidden modules
Child html-webpack-plugin for "index.html":
  Asset      Size  Chunks  Chunk Names
  index.html  1.4 KiB          0
Entrypoint undefined = index.html
[./node_modules/html-webpack-plugin/lib/loader.js!./src/index.ejs] 6.09 KiB (0) [bui
lt]
[./node_modules/lodash/lodash.js] 527 KiB (0) [built]
[./node_modules/webpack/buildin/global.js] (webpack)/buildin/global.js 489 bytes (0)
[built]
[./node_modules/webpack/buildin/module.js] (webpack)/buildin/module.js 497 bytes (0)
[built]
[./main] Compiled successfully.

[./src/services/augur.js] 693 bytes [main] [built]
[./src/store.js] 3.76 KiB [main] [built]
[0] multi react react-dom redux redux-thunk moment react-datetime 88 bytes (assets/scrip
ts/vendor) [built]
+ 2063 hidden modules
Child html-webpack-plugin for "index.html":
  Asset      Size  Chunks  Chunk Names
  index.html  1.4 KiB          0
Entrypoint undefined = index.html
[./node_modules/html-webpack-plugin/lib/loader.js!./src/index.ejs] 6.09 KiB (0) [bui
lt]
[./node_modules/lodash/lodash.js] 527 KiB (0) [built]
[./node_modules/webpack/buildin/global.js] (webpack)/buildin/global.js 489 bytes (0)
[built]
[./node_modules/webpack/buildin/module.js] (webpack)/buildin/module.js 497 bytes (0)
[built]
[./main] Compiled successfully.
```

Creating a Market

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Create Market | Augur - Mozilla Firefox

localhost:8080/#/create-market

ETH: 158,456,324,923.5301
USD: 11,098,999.6553

MARKETS
CREATE
PORTFOLIO
MARKET STATS
MARKET HISTORY

CATEGORY / SOFTWARE TAGS / VERSION CONTROL

Git: 2.19.1

Outcome

VOLUME	FEE	CURRENCIES
- ETH	MARKET CREATOR FEE (0%) + REPORTING FEE (0.0000%)	-

MARKET QUESTION

GR: 2.19.1

The Augur platform does not work well for markets that are subjective or ambiguous. If you're not sure that the market's outcome will be known beyond a reasonable doubt by the expiration date, you should not create this market.

GREGORY

Software

SUGGESTED CATEGORIES

TAGS

Version Control

Tag 2

NEXT: OUTCOME

Creating a Market

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Create Market | Augur - Mozilla Firefox

localhost:8080/#/create-market

ETH: 158.456, 324.923, 5301
USD: 11,098,599.653

Category / Software: Git: 2.19.1

Tags / Version Control: 0% 100%

VOLUME	FEE	EXPIRES
- ETH	MARKET CREATOR FEE (0%) + REPORTING FEE (0.0008%)	-

MARKET TYPE

☒ Yes/No ☐ Multiple Choice ☐ Numerical Range

ADDITIONAL DETAILS

Optional: Include any additional information that traders should know about this market.

PREVIOUS: DEFINE NEXT: RESOLUTION

Creating a Market

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The screenshot shows a web browser window titled "Create Market | Augur - Mozilla Firefox" with the address bar showing "localhost:8080/#/create-market". The page has a dark purple sidebar on the left with navigation icons. The main content area is white and contains the following form elements:

- Category:** SOFTWARE
- Version Control:** 1.400
- Git:** 2.19.1
- Fee:** 100 ETH
- Market Creator Fee:** 0% (0.0000%)
- Reporting Fee:** 0.0000%
- Start Date:** Nov 12, 2018 12:00 AM
- Resolution Source:**
 - ☒ General knowledge
 - ☐ Outcome will be detailed on a public website
- Resolution Method:**
 - ☒ Myself
 - ☐ Someone Else
- Resolution Date:** Nov 12, 2018
- Resolution Time:** 12:00 AM
- Buttons:** PREVIOUS OUTCOME, NEXT LIQUIDITY

Creating a Market

Background

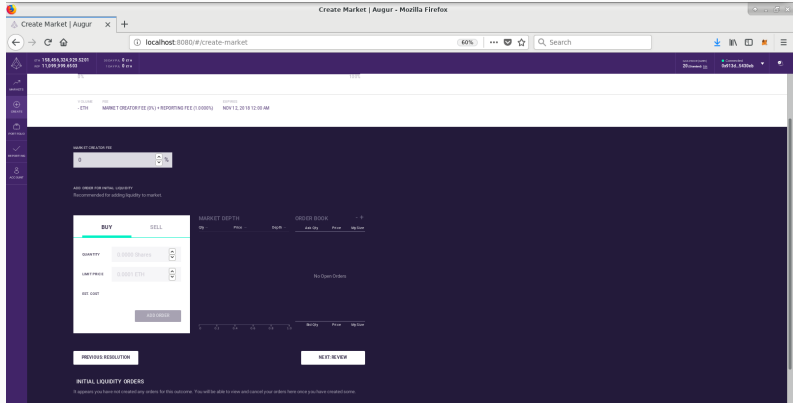
Our Solution

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Creating a Market

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Create Market | Augur - Mozilla Firefox

localhost:8080/#/create-market

70%

Search

ETH: 158,456,324,923.5301
USD: 11,098,999.6553

30 DAY FEE: 0 ETH
1 DAY FEE: 0 ETH

MAX PRICE (USD): 20 (Threshold)
Guaranteed: 0x913d...5430ab

Git: 2.19.1

70%

VOLUME	FEE	CURREN
- ETH	MARKET CREATOR FEE (7%) + REPORTING FEE (1.0000%)	NOV 12, 2018 12:00 AM

CONFIRM MARKET

MARKET CREATION		MARKET LIQUIDITY	
VALUITY BOND	0.0100 ETH	ETHER	0.0000 ETH
NO SHOW BOND	0.3497 REP	EST SAS	0.0000 ETH
EST SAS	0.0513 ETH		

RESOLUTION SOURCE

General Information

DESIGNATED REPORTER

Myself

ADDITIONAL DETAILS

None

PREVIOUS LIQUIDITY

SUBMIT

Trading

Background

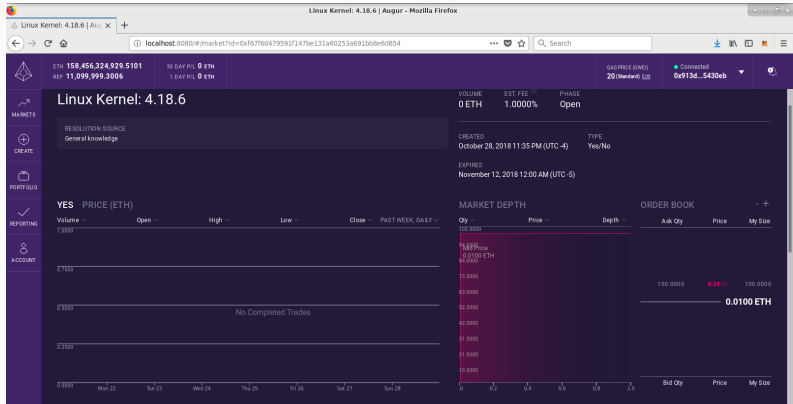
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Trading

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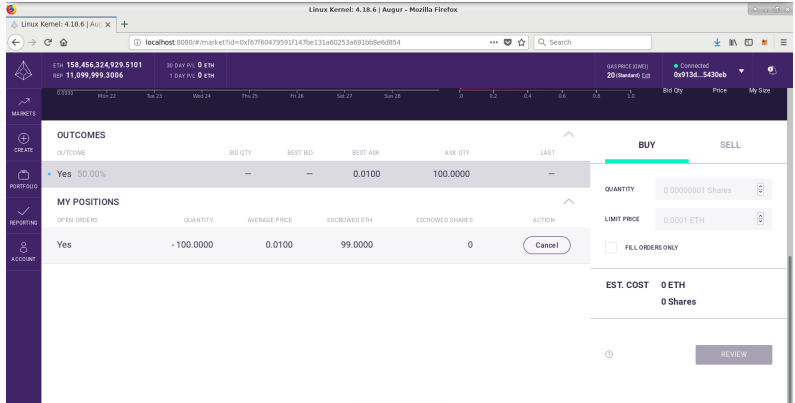
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