Bitcoin and Beyond

William J. Luther

Florida Atlantic University

@WilliamJLuther

I. What is bitcoin?
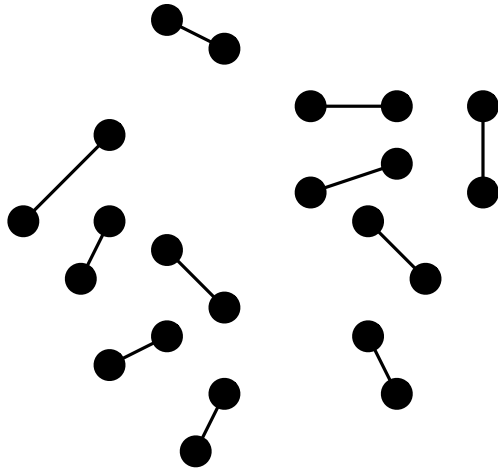
Bitcoin /'bɪt·kɔɪn/

1. an unbacked digital currency that enables individuals to make and receive payments over the Internet, processing these transactions through a distributed clearing system.

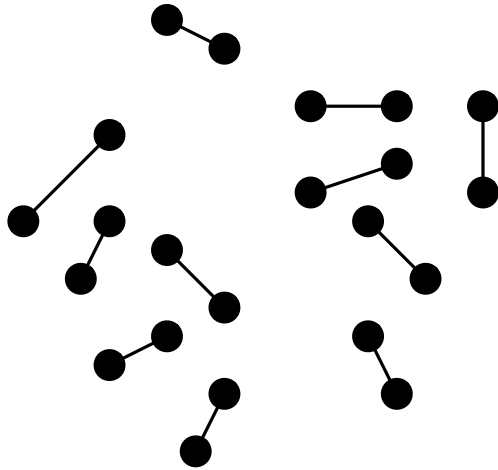2. a unit of Bitcoin, equal to 100,000,000 satoshis.

Three Ways to Process Transactions

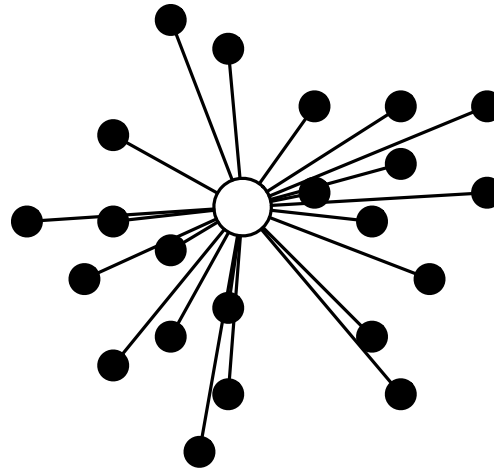# Three Ways to Process Transactions

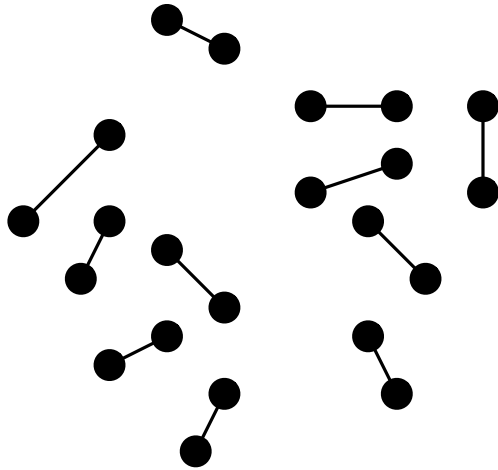
Decentralized
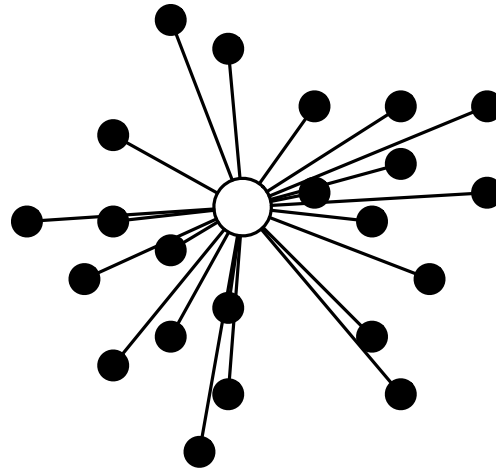
Three Ways to Process Transactions

Decentralized   Centralized

Three Ways to Process Transactions

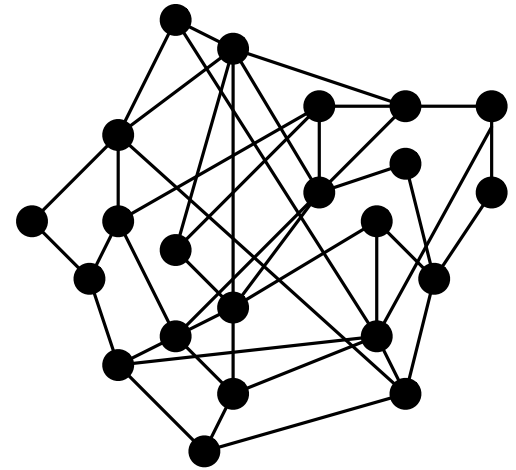Decentralized   Centralized   Distributed

k 50

f work:
432qrza1

s block:
7rz52xc

action
pi76s

action
nccw

action
xc25

Block 51

Proof of work:
0009857vvv

Previous block:
000000432qrza1

Transaction
lk54lfvx

Transaction
09345w1d

Transaction
vc4232v32

k 50

f work:
432qrza1

s block:
7rz52xc

| action |
| bi76s |

| action |
| nccw |

| action |
| xc25 |

Block 51

Proof of work:
0009857vvv

Previous block:
000000432qrza1

| Transaction |
| lk54lfvx |

| Transaction |
| 09345w1d |

| Transaction |
| vc4232v32 |

| Transaction |
| dd5g31bm |

| Transaction |
| 22qsx987 |

| Transaction |
| 001hk009 |

k 50

f work:
432qrza1

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> xc25

Block 51

Proof of work:
0009857vvv

Previous block:
000000432qrza1

> Transaction
> lk54lfvx

> Transaction
> 09345w1d

> Transaction
> vc4232v32

Block 52

Proof of work:
000000zzxvzx5

Previous block:
0009857vvv

> Transaction
> dd5g31bm

> Transaction
> 22qsx987

> Transaction
> 001hk009

Block 50

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Proof of work:
0009857vvv

Previous block:
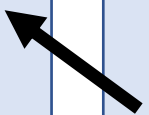000000432qrza1

Transaction
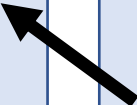lk54lfvx

Transaction
09345w1d

Transaction
vc4232v32

Block 52

Proof of work:
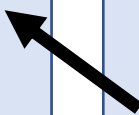000000zzxvzx5

Previous block:
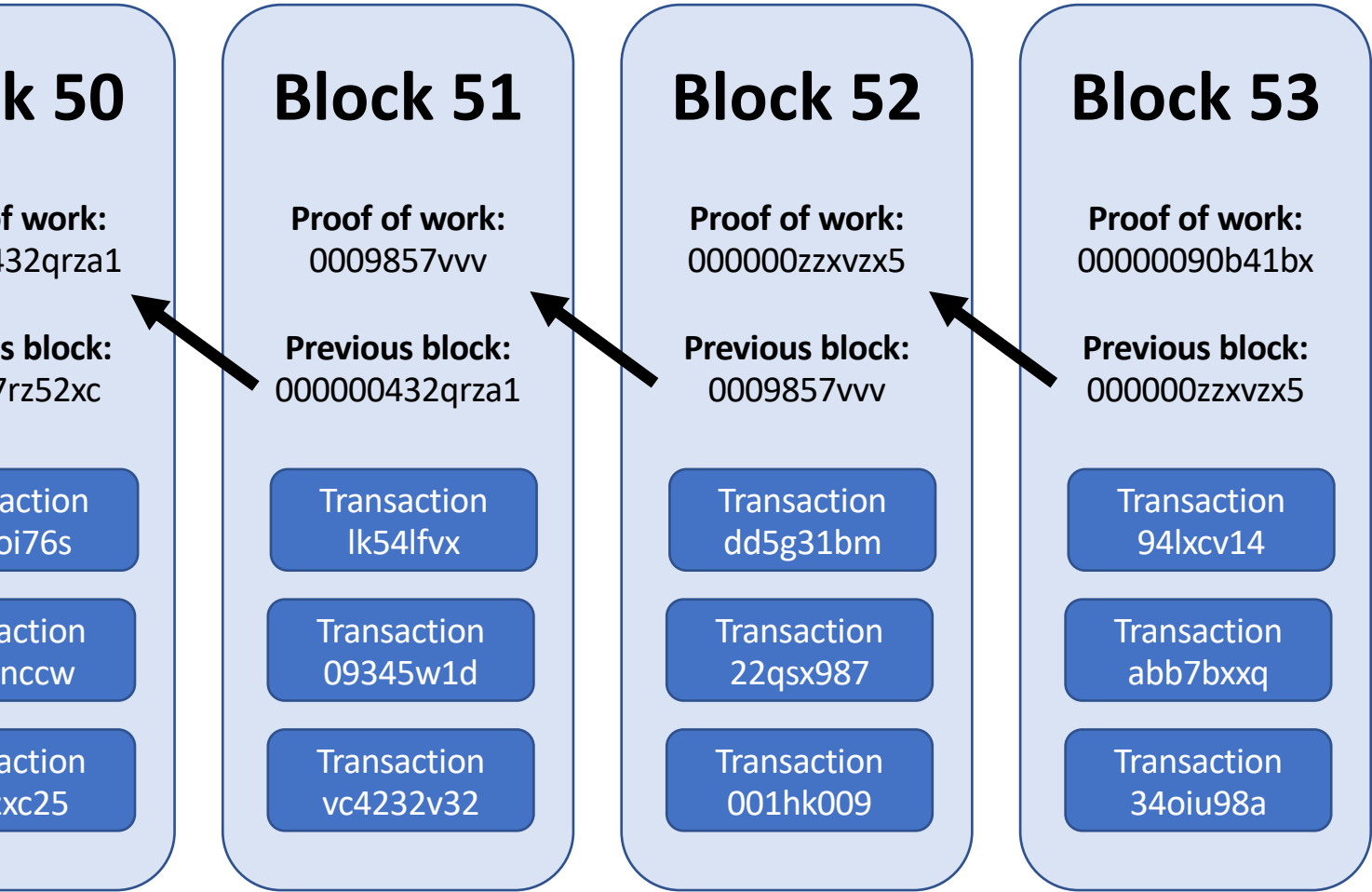0009857vvv

Transaction
dd5g31bm

Transaction
22qsx987

Transaction
001hk009

Transaction
94lxcv14

Transaction
abb7bxxq

Transaction
34oiu98a

k 50

f work:
432qrza1

s block:
7rz52xc

action oi76s

| action
nccw |

| action
xc25 |

Block 51

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Transaction lk54lfvx

| Transaction
09345w1d |

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Proof of work:
000000zzxvzx5

Previous block:
0009857vvv

Transaction dd5g31bm

| Transaction
22qsx987 |

| Transaction
001hk009 |

Block 53

Proof of work:
00000090b41bx

Previous block:
000000zzxvzx5

Transaction 94lxcv14

| Transaction
abb7bxxq |

| Transaction
34oiu98a |

II. Is bitcoin essential?

Essentiality of Money and Bitcoin

In general, economists think money is essential because it allows us to:

- Overcome double coincidence of wants

- Reduce information costs

- Achieve a more desirable set of allocations

Essentiality of Money and Bitcoin

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In order to be essential, bitcoin must be a *better* money than the available alternatives.

The All-Or-Nothing Fallacy

The all-or-nothing fallacy is a type of false dichotomy, where only two outcomes are presented (all, nothing) while a spectrum of outcomes is possible.

0%   100%

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Niche
Uses

0%   100%

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Niche
Uses

Global
Reserve
Currency

0%   100%

Important Features

- Global
- Pseudonymous
- Final
- Predictable (Supply)

Important Features

- Global

- Pseudonymous

- Final

- Predictable (Supply)

Actual Supply ——————

Projected Supply - - - - - - -

20 Million
c. 2029

21 Million
c. 2140

18.53 Million
November 2020

January 2009

# ▲	Name	Price	24h	7d	Market Cap ⓘ
☆ 1	Bitcoin BTC	$13,794.12	▲ 0.11%	▲ 5.90%	$255,627,172,497
☆ 2	Ethereum ETH	$402.33	▲ 4.09%	▼ 0.94%	$45,565,078,504
☆ 3	Tether USDT	$1.00	▲ 0.03%	▼ 0.02%	$16,679,125,930
☆ 4	XRP XRP	$0.242915	▲ 1.37%	▼ 4.07%	$11,000,334,492
☆ 5	Bitcoin Cash BCH	$270.01	▲ 3.21%	▼ 0.28%	$5,011,501,153
☆ 6	Chainlink LINK	$11.62	▲ 3.51%	▼ 4.35%	$4,538,392,296
☆ 7	Binance Coin BNB	$29.02	▲ 2.21%	▼ 3.62%	$4,190,307,752
☆ 8	Litecoin LTC	$56.54	▲ 1.78%	▼ 3.63%	$3,719,833,258
☆ 9	Polkadot DOT	$4.25	▲ 1.69%	▼ 1.91%	$3,625,943,847
☆ 10	Cardano ADA	$0.099630	▲ 7.10%	▼ 6.24%	$3,099,751,610

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Smart Contracts

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Dollar Stability

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Smart
Contracts

Dollar
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Centralized
Governance

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Smart Contracts

Dollar Stability

Centralized Governance

Transactions Capacity

III. Is the blockchain technology essential?

A partial list of blockchain applications

- Identity Documents
  - Birth certificates
  - Death certificates
  - Social security numbers
  - Voter registration cards
- Voting mechanism
- Property title transfers
- Sharing medical data

- Supply chain and logistics monitoring
- Music royalties tracking
- Real-time IoT operating systems
- Advertising insights
- Original content creation

… and much, much more!

Can-Should Confusion

Just because one *can* use a blockchain does not mean one *should* use a blockchain.

Instead, one should consider the application and ask whether the unique features of the blockchain technology make it preferable to other ledger-keeping technologies.

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