



Mining Basics

 edge

@paullinator
edge.app

Purpose of Mining



Issuance of currency



Security of network

Types of Mining



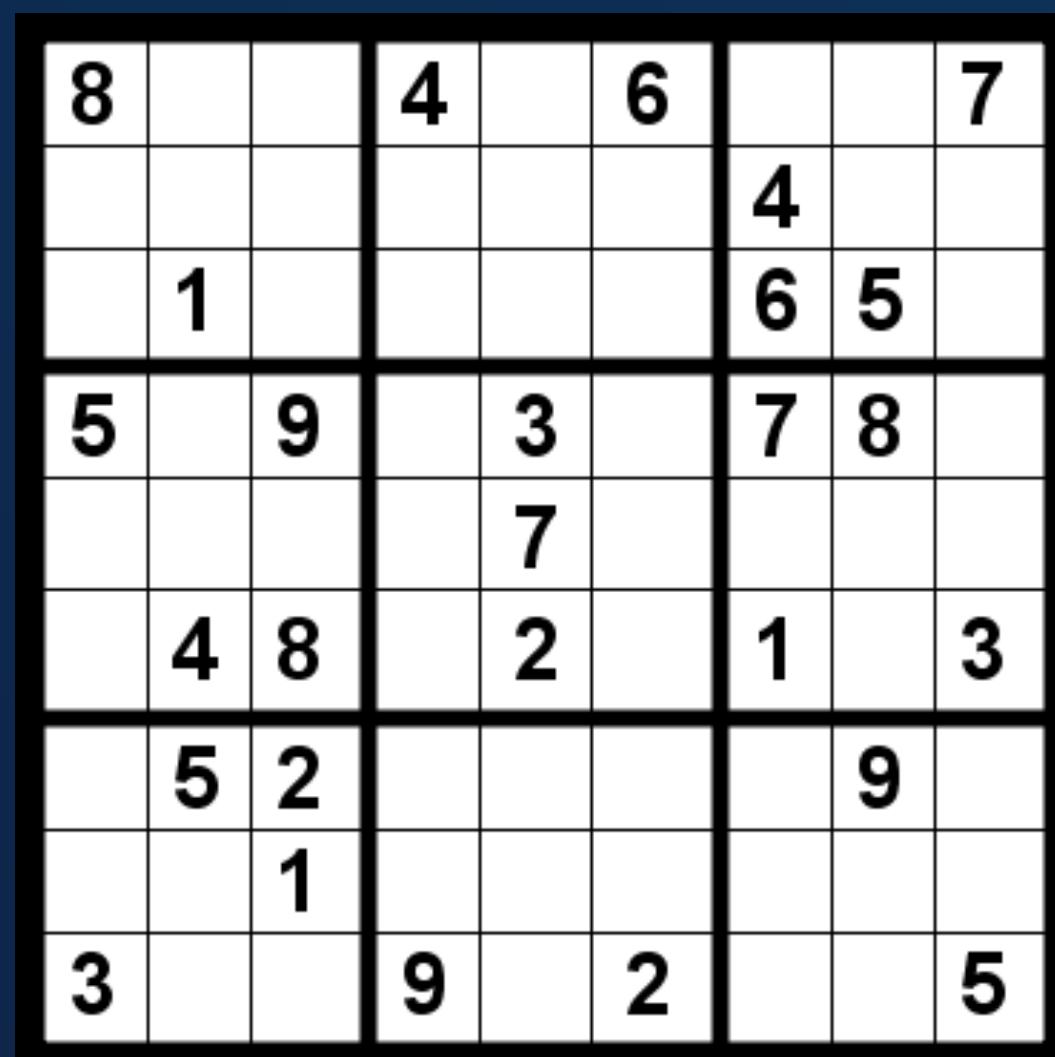
Proof of Work



Proof of Stake

Proof of Work

Think, Sudoku Puzzle...



1	2	3	4	12	6	7
8			7	3		9 10 6 11
12	10	1	13	11		14
3	15	2	14		9	12
13		8	10	12 2	1	15
11	7	6		16	15	5 13
10		5 15		4	8	11
16	5	9	12	1		8
2			13	12 5	8	3
13		15	3	14 8	16	
5	8	1		2	13 9	15
12	4	6	16	13	7	5
3		12		6	4 11	16
7		16	5	14	1	2
11	1	15	9	2		14
14			11	2	13 3	5 12

2	9	7	6	5	8	4	3	1
5	6	1	2	3	4	7	8	9
8	3	4	9	1	7	2	5	6
3	7	5	1	8	6	9	4	2
9	2	6	3	4	5	8	1	7
1	4	8	7	9	2	3	6	5
7	8	9	4	6	1	5	2	3
4	1	3	5	2	9	6	7	8
6	5	2	8	7	3	1	9	4
						8	7	1
						9	6	4
						8	7	2
						4	1	5
						2	6	3
						7	3	8
						1	4	9
						4	1	9
						2	5	6
						7	8	3
1	3	6	7	8	5	9	4	2
8	4	9	1	3	2	7	5	6
2	5	7	4	9	6	3	1	2
3	7	5	6	4	1	2	9	8
6	2	4	8	5	9	1	7	3
9	8	1	2	7	3	4	6	5
5	9	2	3	6	7	8	1	4
7	1	8	5	2	4	6	3	9
4	6	3	9	1	8	5	2	7

edge

Proof of Work

Let's Play!

Each row, column,
and 2x2 region must
contain 1-4

	3	4	
4			2
1			3
	2	1	

Proof of Work

Let's Play!

Each row, column,
and 2x2 region must
contain 1-4

2	3	4	1
4	1	3	2
1	4	2	3
3	2	1	4

@paullinator
edge.app

Proof of Work

Let's Play!

Each row, column,
and 2x2 region must
contain 1-4

3		4	
	1		2
	4		3
2		1	

@paullinator
edge.app

Proof of Work

Let's Play!

Each row, column,
and 2x2 region must
contain 1-4

3	2	4	1
4	1	3	2
1	4	2	3
2	3	1	4

@paullinator
edge.app

Cryptographic Hashing

Irreversible data fingerprint

00010101
11110101
01000101
01010110



11111010
00010101
01010000
10101001



Actual Proof of Work

Uses SHA256 Hashing Algorithm

Given Numbers

1df925af43f1da52
7fa4d5a3f12a54f9

Miners Generated Nonce

23da3f52ad36f8a1

1df925af43f1da527fa4d5a3
f12a54f9 23da3f52ad36f8a1

SHA256 ()

c27d43333d0b485a
48e3c129df4d16d5
4bee4de7633745cf
a90aa05d99de96a7



@paullinator
edge.app

Actual Proof of Work

Difficulty Adjustment

Result Hash

c27d43333d0b485a48e3c129df4d16d54bee4de7633745cf90aa05d99de96a7

Difficulty



@paullinator
edge.app

Workshop

Let's Mine! 

sha256.edge.app

Starting Value



143XX



Your Guess



@paullinator
edge.app

Workshop

SHA-256 hash calculator

SHA-256 produces a 256-bit (32-byte) hash value.

Data

14300

SHA-256 hash

8494797552c7a953dff9226fecf9e80db0c8cbd52abac62f97d33a10ff832686

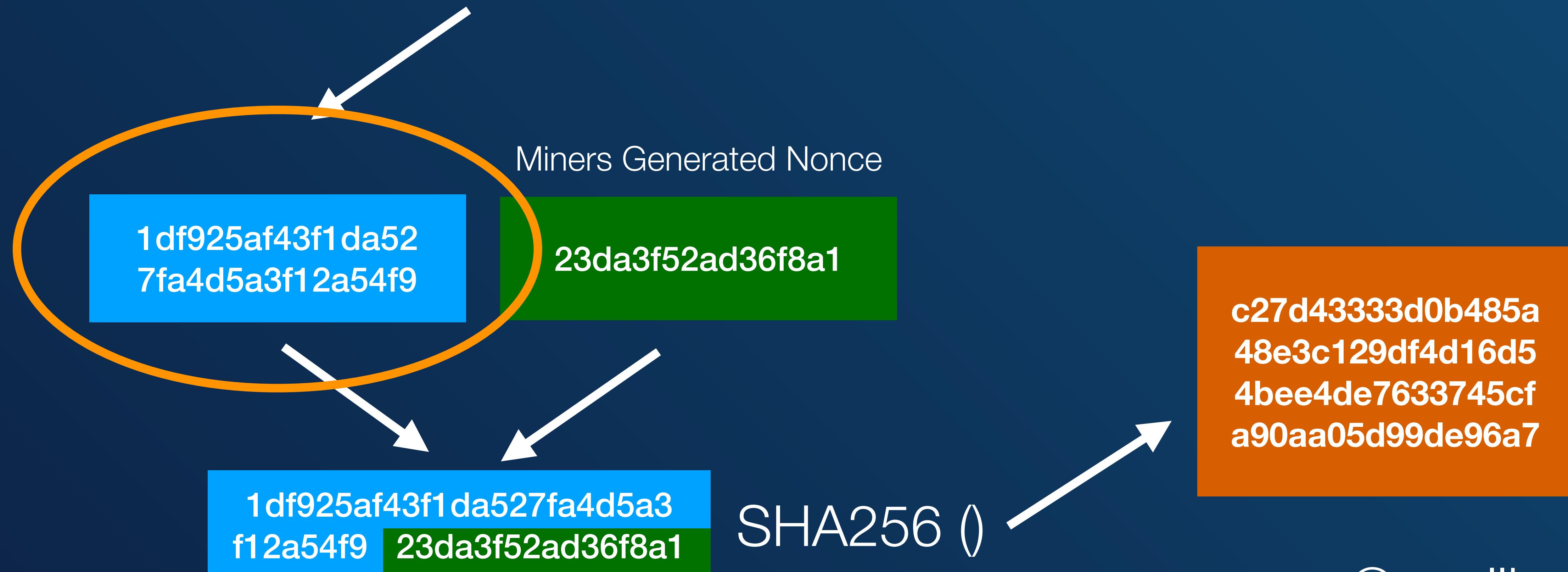
Calculate SHA256 hash



@paullinator
edge.app

Securing the Network

What Are the “Given Numbers?”



@paullinator
edge.app

Securing the Network

Pending Transactions = Given Numbers

Source	Destination	Amount
3a12d45df112341d	1bc69ad13e6e3ac5	2.356
3a1b112c1a7df91c	5dac431aed6d8a9a	12.890
1ac492cb3a1d89b2	3adbc35b4c9a12a2	5.712
2df2d581afd341cb	2db7812d2b4a1a4d	3.901
1ad567cbd23a4a71	1e65ad567c7c1a4a	4.984

SHA256 →

Given
Numbers

Various Hashing Algorithms



@paullinator
edge.app

ASIC Resistance

Good or Bad?



 edge

The logo consists of a stylized green 'e' icon followed by the word 'edge' in a white sans-serif font.

@paullinator
edge.app

Effect on Global Energy

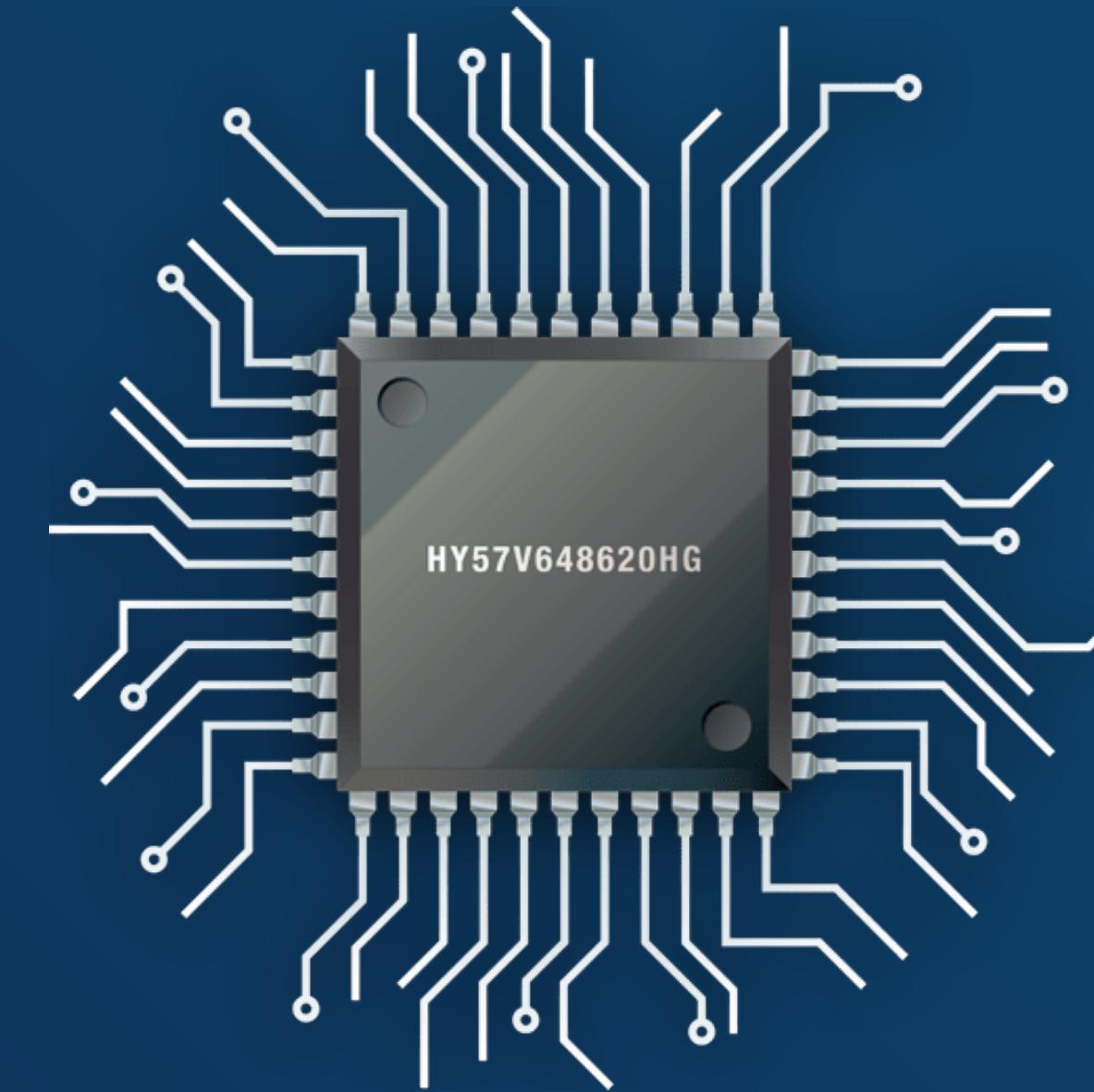
- Cheap Energy
- Cheap Cooling
- Excess Capacity
- Remote Energy



@paullinator
edge.app

How to Mine

Competitive Advantage



 **edge**

@paullinator
edge.app

Types of Mining



VS



Proof of Work

Proof of Stake

Types of Mining



Proof of Work
VS
Expend Value via Energy



Proof of Stake

Types of Mining



Proof of Work
Expend Value via Energy

VS

Proof of Stake
Expend Value via Risk





Mining Basics

 edge

@paullinator
edge.app