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2019.11.22 // c-base berlin

10 Month of Grin Mining

A Recap and how to mine C32 today

Wilke Trei @lolliedieb



Q T U N





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SPARK POOL

Genesis



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Grin Block 0

- 2019-01-15 4:01 pm UTC
- Cuck**AR**oo-29
- Hash: 40adad0a... (Difficulty 7'346)
- Network Difficulty: 17'179'869'184
- **AR** Scale: 1'856

Two PoW styles

- Both derived from Cuckoo-Cycle
- CuckARoo(d)-29
 - Changes every 6 month in order to prevent ASIC development
 - Uses 2^{29} edges per graph
- CuckAToo-31+
 - No protection against the ASIC friendly lean edge trimming algorithm
 - CuckAToo-n uses 2^n edges per graph

Grin Difficulty Calculation

- Difficulty for each PoW: Network Difficulty / PoW Scale
- **AR** scale changes with every block to balance PoWs
- **AT**-n scale is constant $n * 2^{(n-23)}$ For example: **AT**-31: 7'936 **AT**-32: 16'384
- After Genesis:
Cuck**AR**oo-29 difficulty: $17'179'869'184 / 1'856 \approx 9'256'395$
Cuck**AT**oo-31 difficulty: $17'179'869'184 / 7'936 \approx 2'164'802$

The first day of Grin

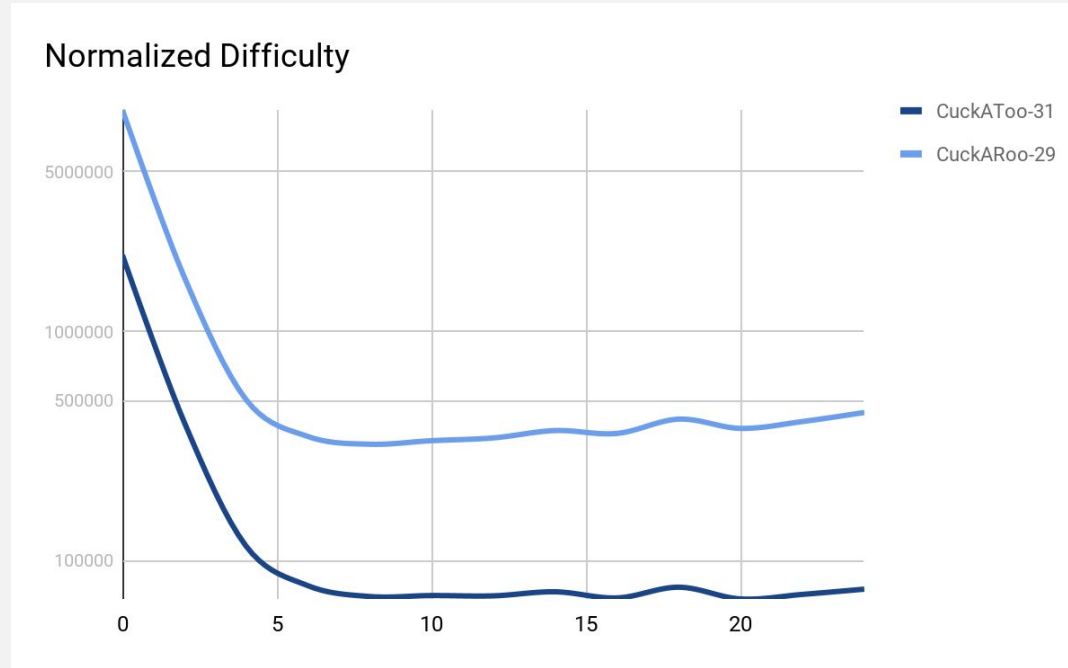


- It took 1h and 36 minutes until block 1 appeared - another Cuck**AR**oo-29

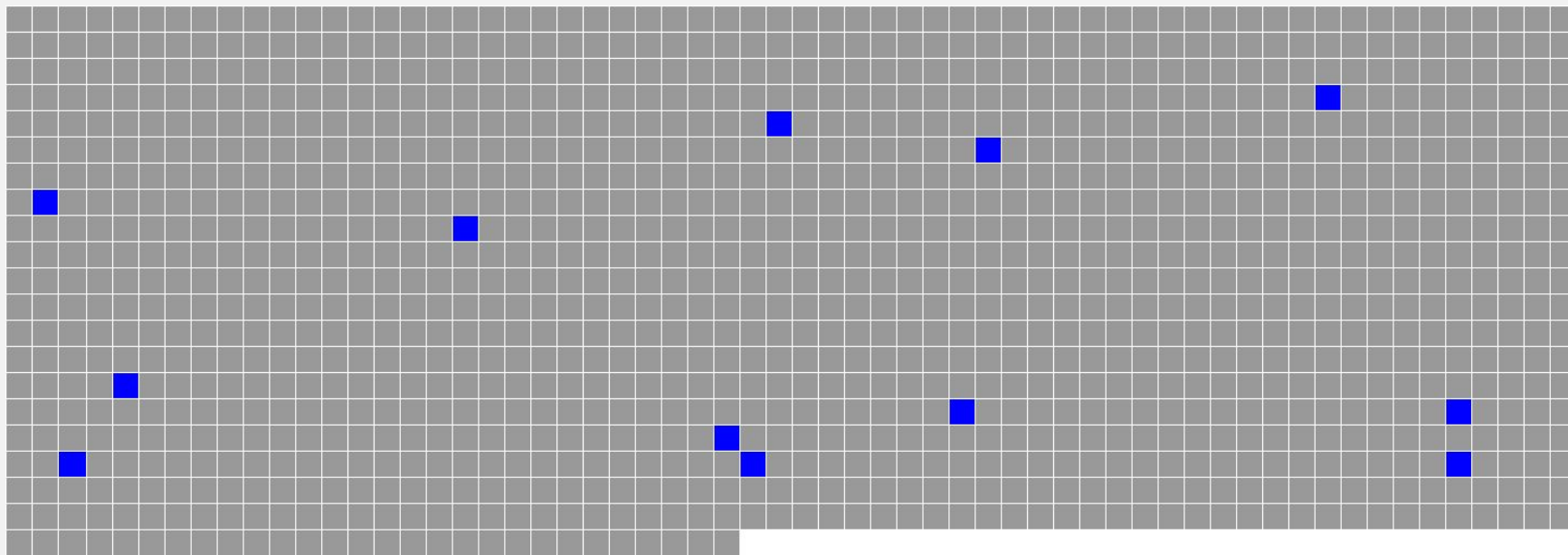


- The first Cuck**AT**oo-31 block was mined after 7 hours and 27 minutes and already had height 230!

Difficulty Adjustment



C31+ blocks were quite lonely



Cuck**AR**oo-29: 1215

Cuck**AT**oo-31: 12

The next Months



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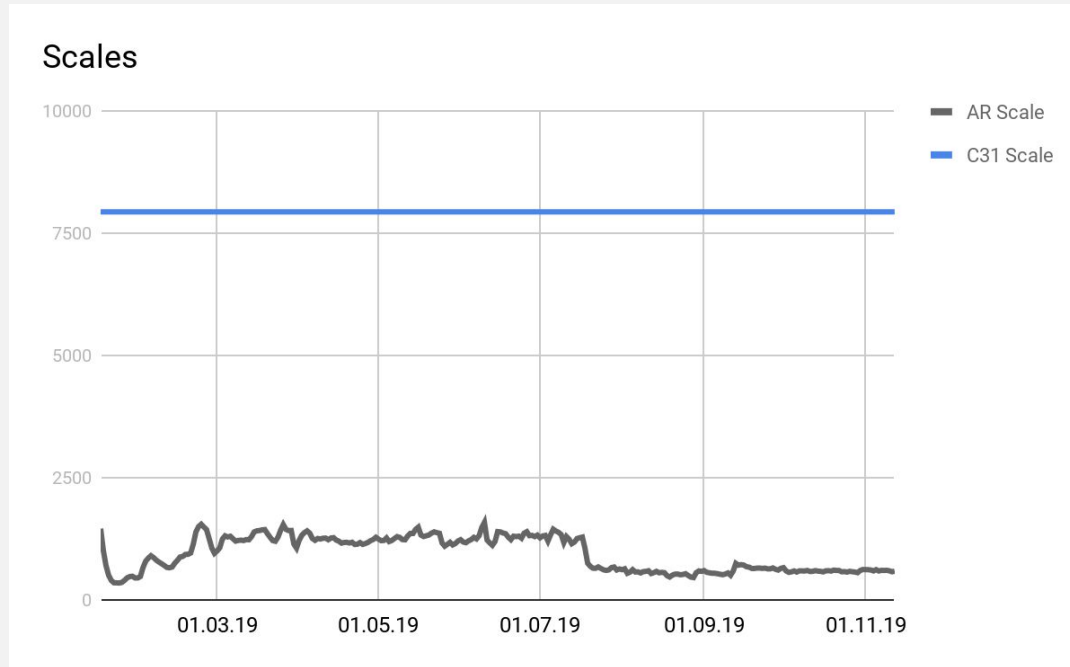
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Grin Mining Software

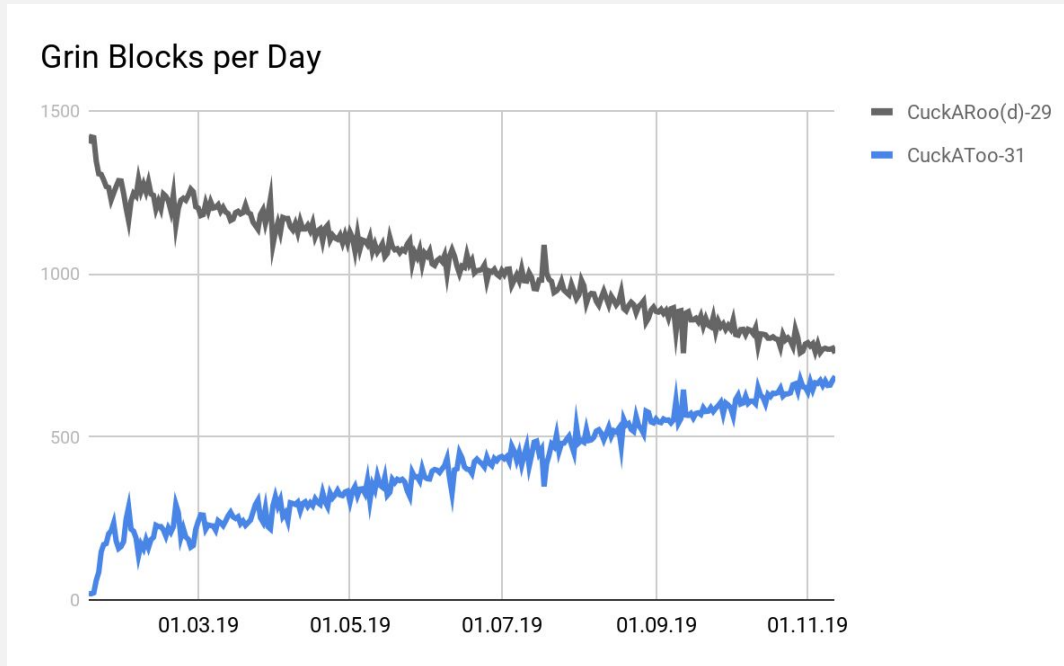


Cuck AR oo(d)		Cuck AT oo
01-15 Grin-Miner 01-15 Grin-Gold-Miner 01-15 Bminer 01-17 GMiner 02-21 NBMiner	03-06 KBMiner (discon.) 07-16 lolMiner	01-15 Grin-Miner 02-05 GMiner 02-10 BMiner 03-06 KBMiner 04-18 lolMiner (discon.)
01-15 Grin-Gold-Miner 02-22 GrinPro (discon.) 03-01 BMiner (discon.) 03-06 KBMiner (discon.) 03-07 GMiner (discon.)	04-12 nanominer 07-16 lolMiner 08-05 TeamRedMiner	02-12 ePic Boost Miner 03-06 KBMiner 04-18 lolMiner 07-07 TeamRedMiner

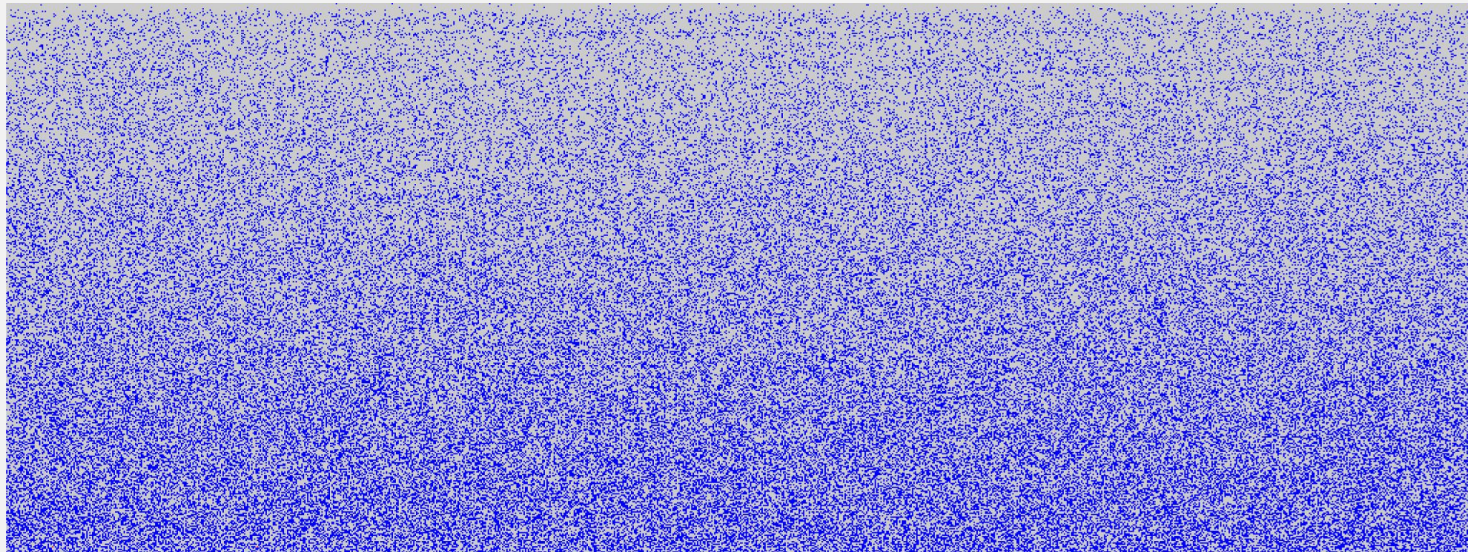
Grin Scale Adjustment



Blocks per Day



C31+ blocks were quite lonely



Cuck**AR**oo-29: 311'430 Cuck**AT**oo-31: 124'571

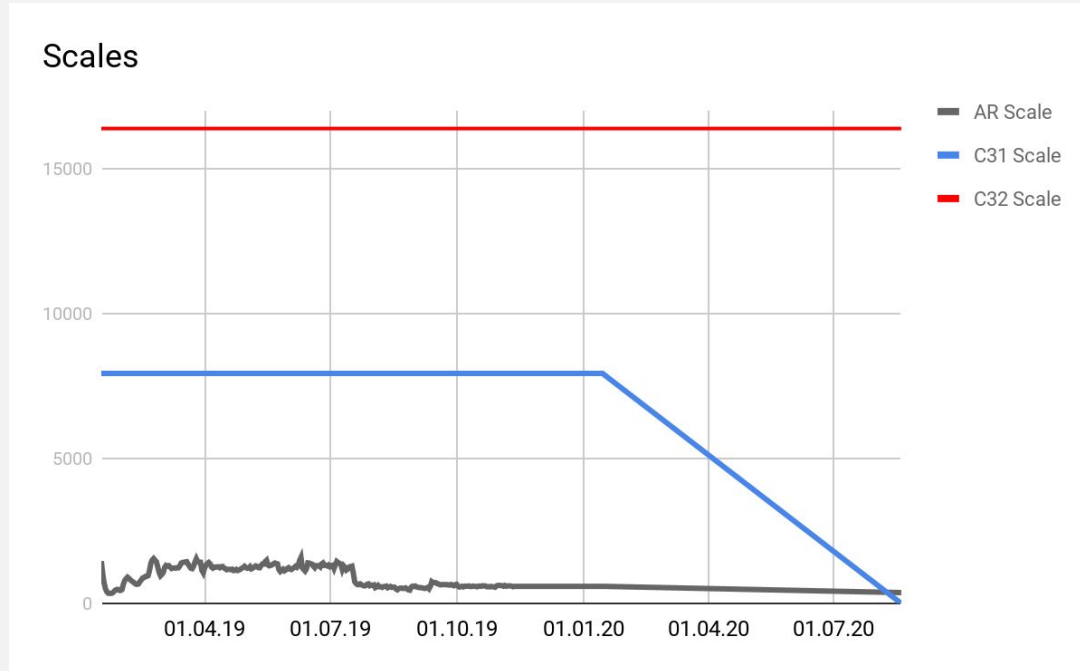
The Future



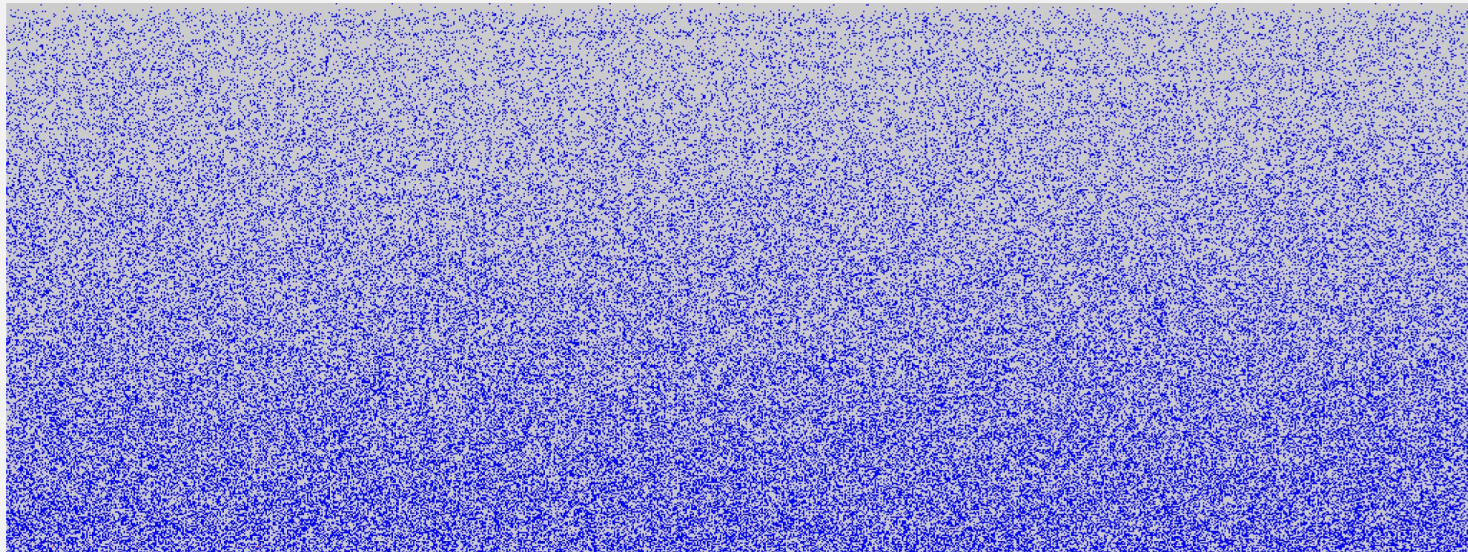
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Grin Scale Adjustment

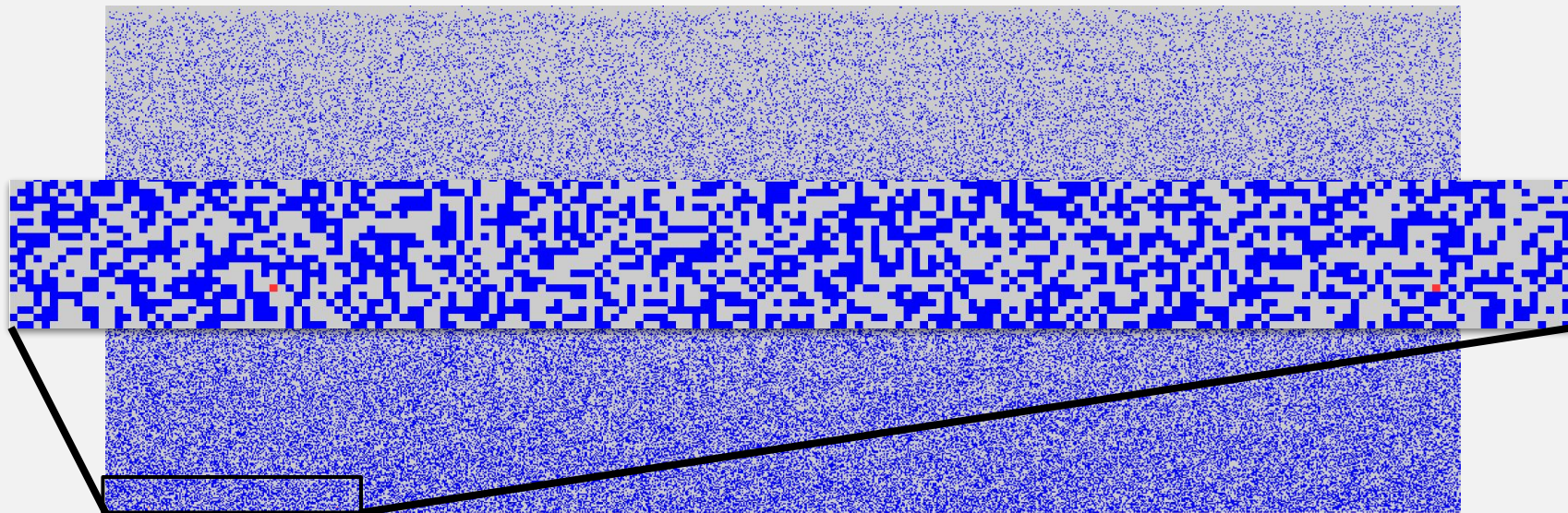


Where's Waldo?



Cuck**AR**oo-29: 311'430 Cuck**AT**oo-31: 124'571

C32 blocks are quite lonely



Cuck**AR**oo-29: 311'430 Cuck**AT**oo-31: 124'571 Cuck**AT**oo-32: 2

First C32 Blocks

430112₄₃₀₂₅₅

Mined: Mon Nov 11th, 14:14 UTC / 16:32 UTC

Hashes: 00004c78... / 00002f25...

GPU Used: AMD Radeon RX 580 8G, Luck (for both): 588% 

Special Thanks

430112₄₃₀₂₅₅

Mirelle Dismenol, CTO of Helvetic Mine SA

Philipp Andreas and Dobromir Dobrev, Founders of MMP OS

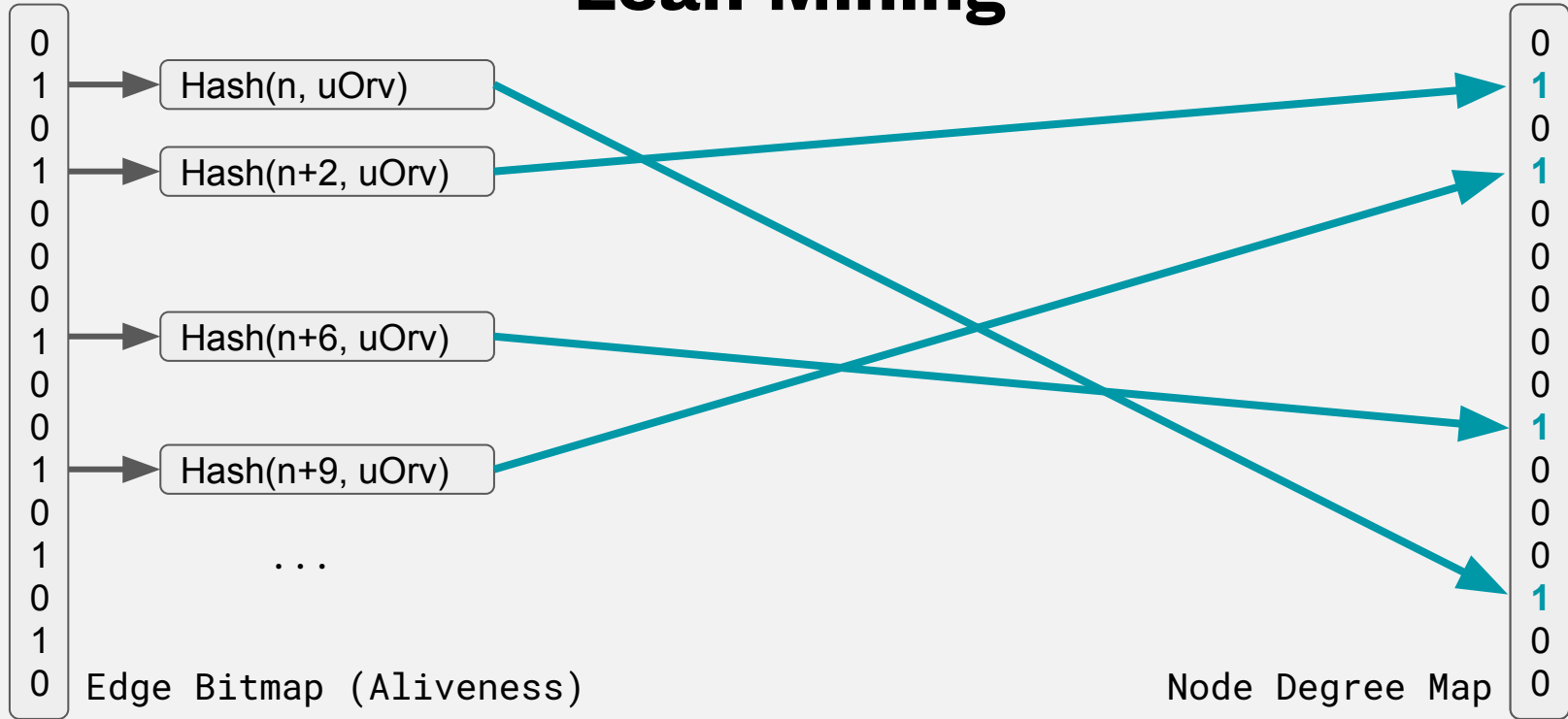
How does this work?



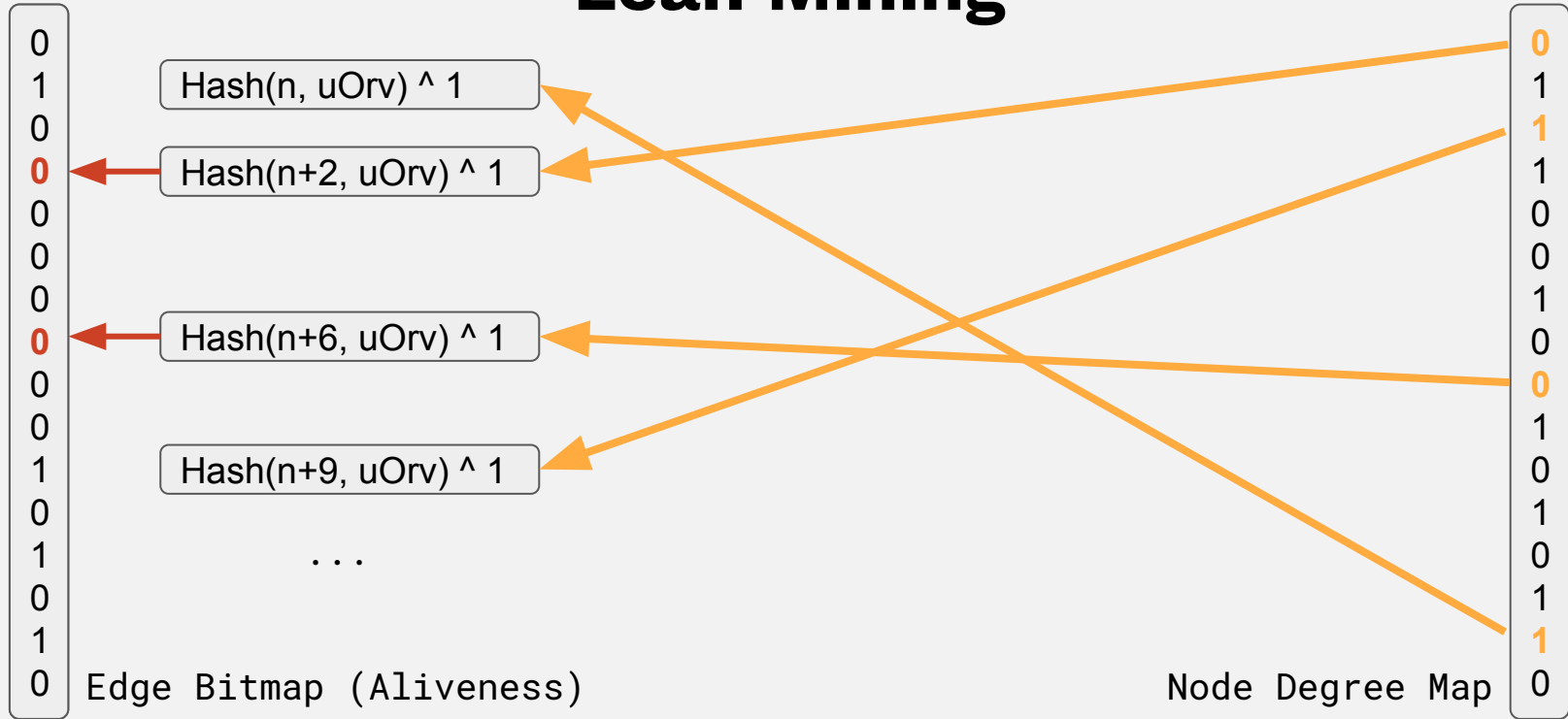
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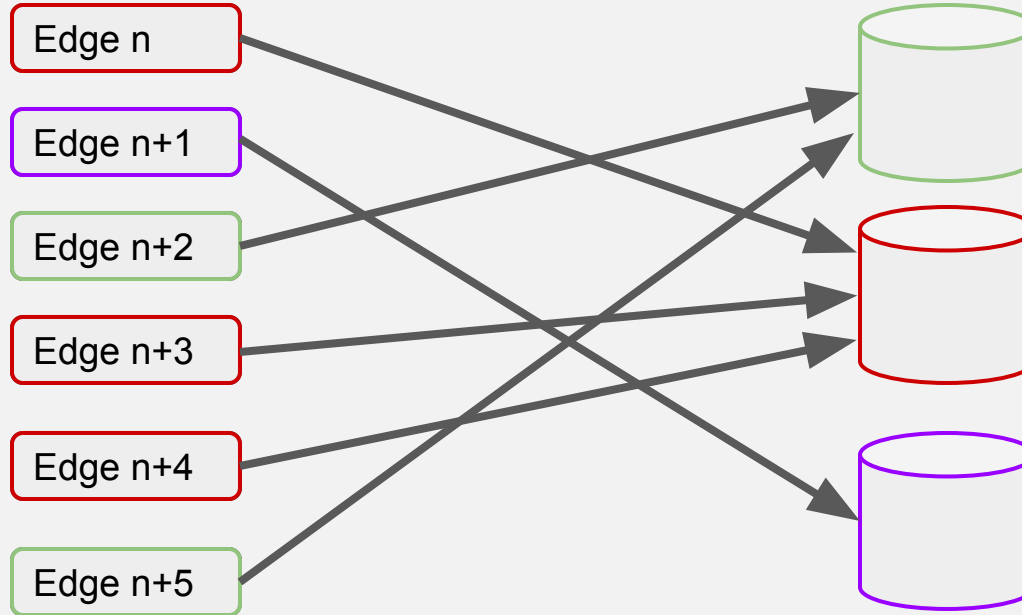
Lean Mining



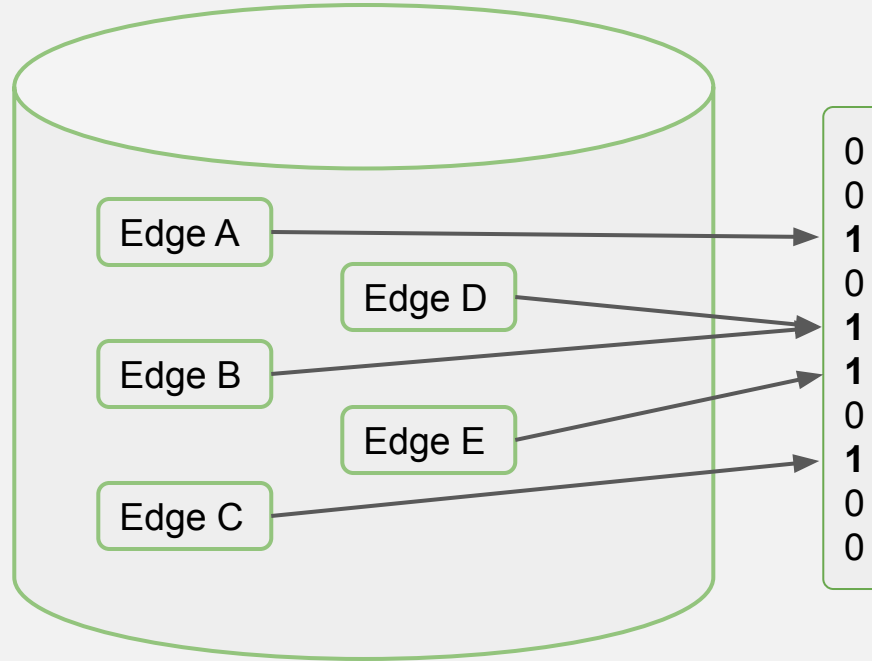
Lean Mining



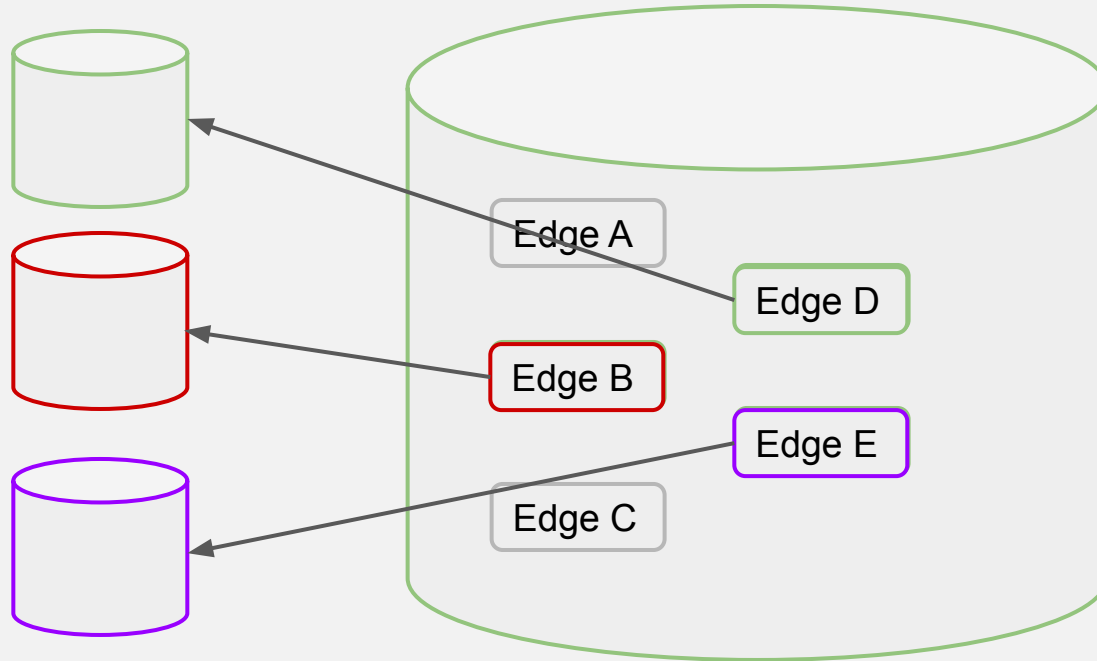
Mean Mining : Buckets



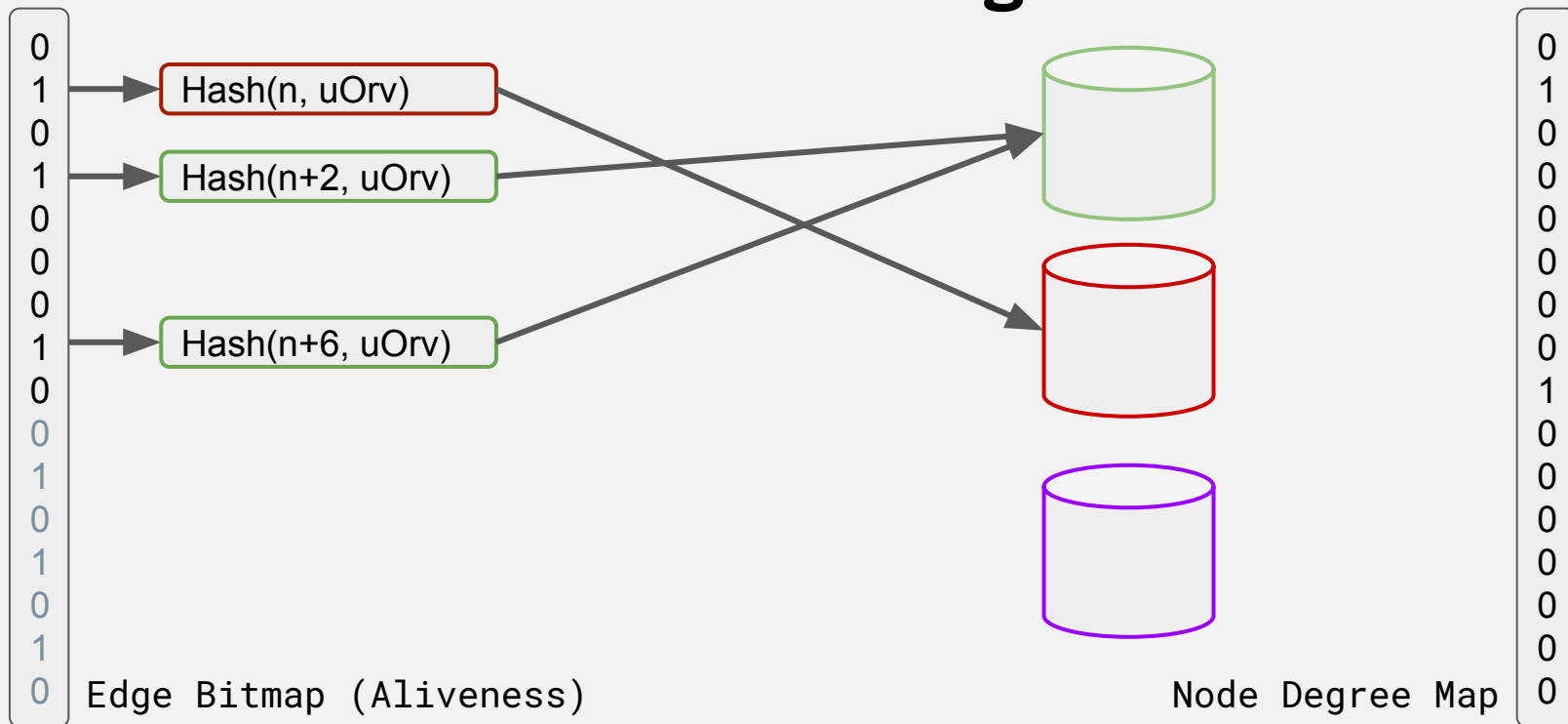
Mean Mining : Mark & Trim



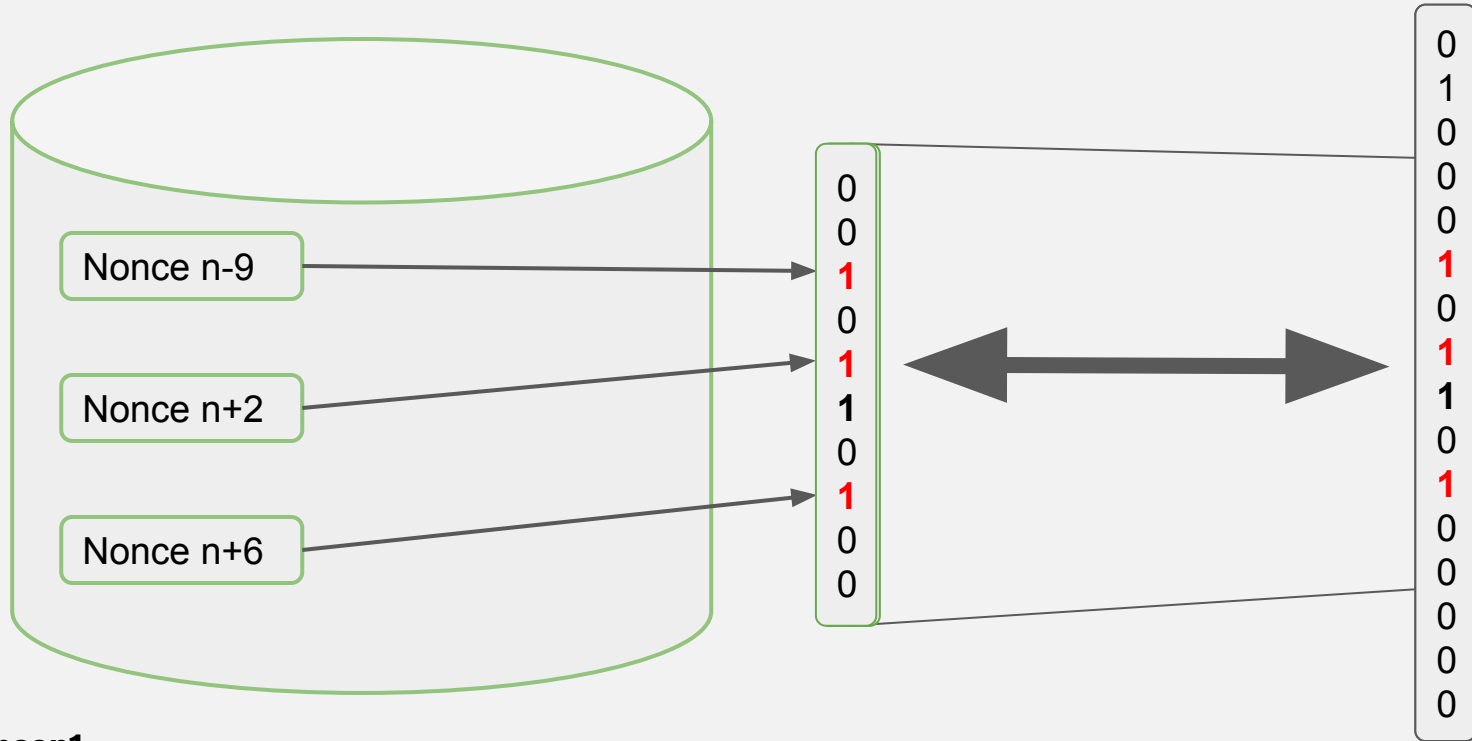
Mean Mining : Re-Sort



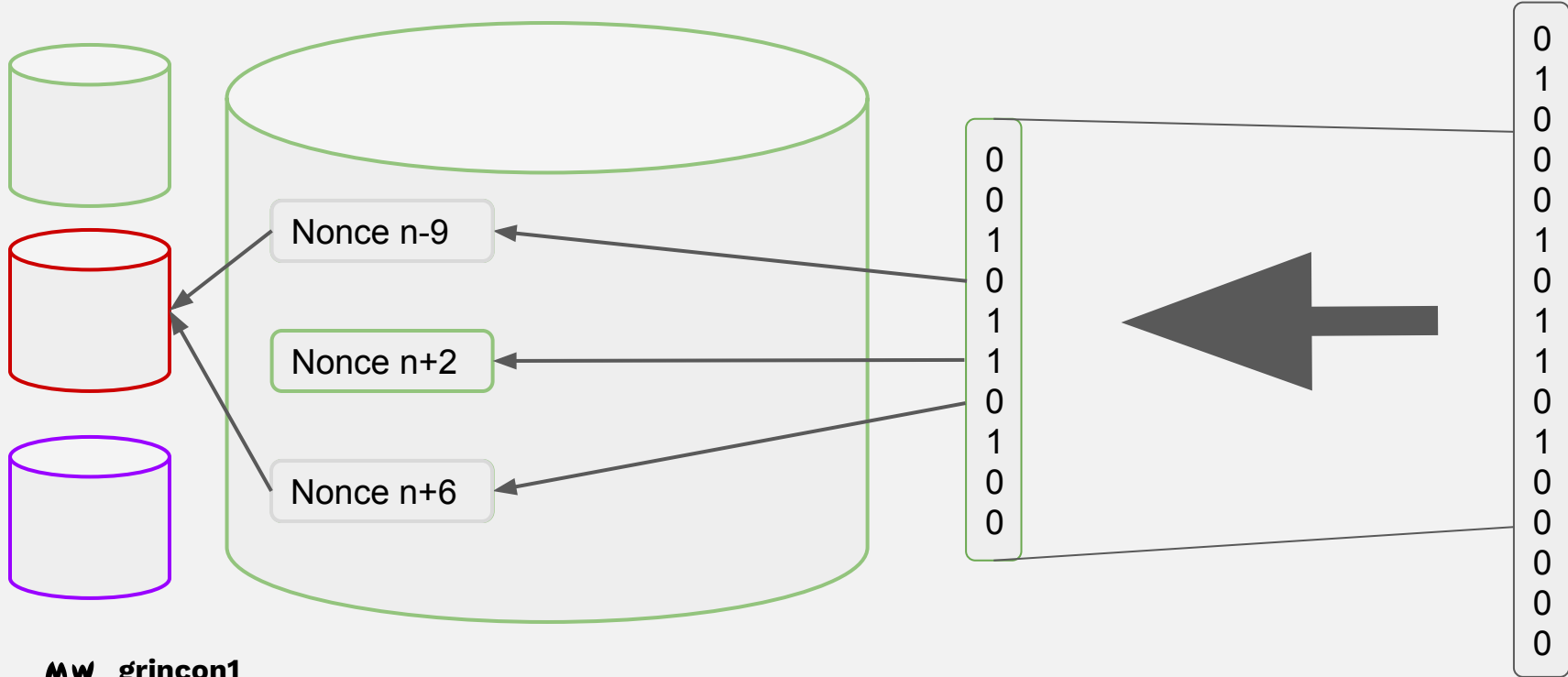
Clean Mining



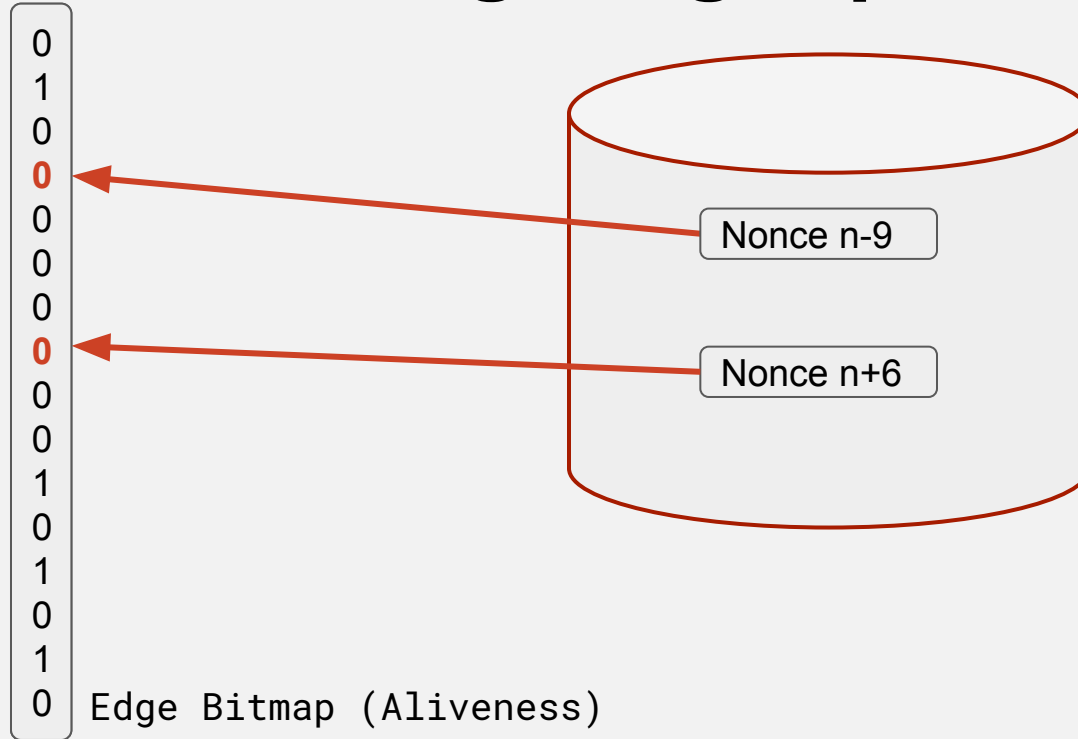
Clean Mining - Marking



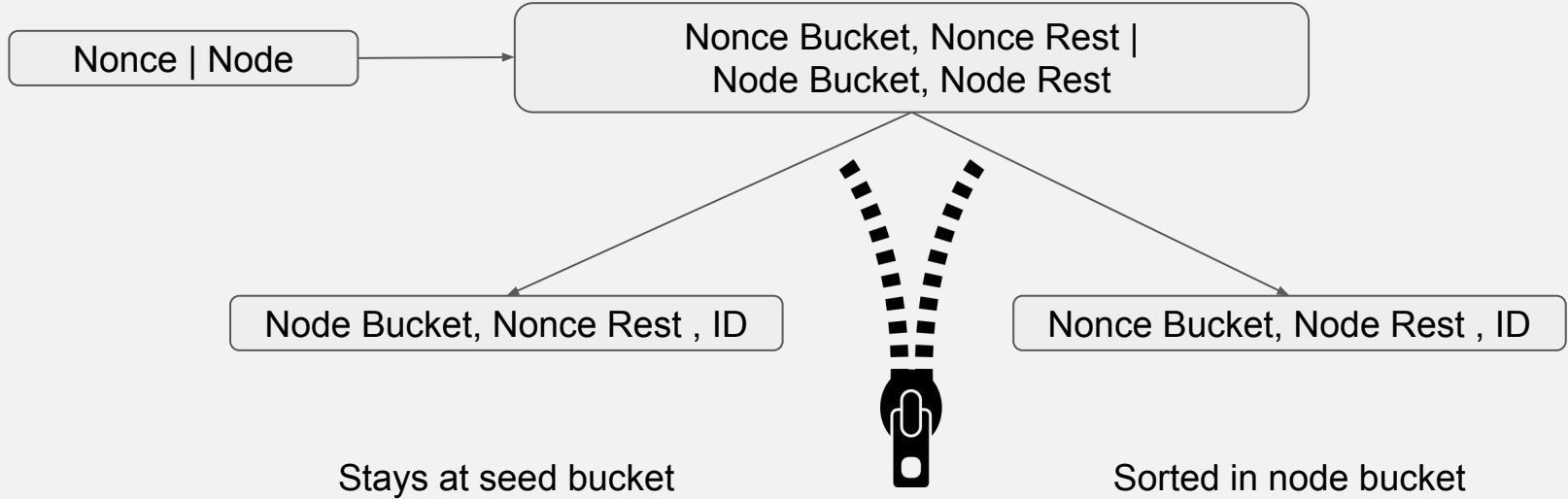
Slean Mining - Trim



Slean Mining - Edge Update



ZIP Style Trimmer



Performance

	Cuckatoo-31	Cuckatoo-32
RX 580 4G	0.4 g/s	-
RX 580 8G	0.55 g/s	0.23 g/s
Vega 64	1.15 g/s	0.38 g/s

	Cuckatoo-31	Cuckatoo-32
Radeon VII 4G	1.1 g/s	-
Radeon VII 8G	1.53 g/s	0.5 g/s
Radeon VII 16G	1.75 g/s	0.6 g/s

Two Bug reports ...


grin.blockscan.com vs. grinscan.net

Block #430112

Overview	Inputs (8)	Outputs (9)	Kernels (5)	Comments
Block Height: 430112 < >				
TimeStamp: 18 hrs 42 mins ago (Nov-11-2019 02:14:23 PM +UTC)				
PoW: AT31				

Block 00004c78

Height	430,112
Hash	00004c782afccb4ea6dee4
Parent	00000129112e9b07770d2
Child(ren)	00000373c56a9b6cc0391
Pool	
Version	2
Time	2019-11-11 14:14:23 UTC
Age	18h 45m
Mined in	1m 47s
PoW algorithm	cuckAToo32

Same block, but one is wrong
about the PoW... 

grinmint.com

Height	Hash	Age	Difficulty	PoW Algo	# Kernels	# Inputs	# Outputs
430116	0000226781c443bb08fcb9a14b3d4252ee287f08						
430115	0000008edbccc230650e23d4ef786f80c3088412						
430114	00003c8eb331cf6cba38c333d12de0ea48bbe720						
430113	00000373c56a9b6cc039115e60aef8c68ffbaed177fdb841c69e8140e9bcb9249	18h 16m 19s	None	cuckARoo29	2	1	3
430111	00000129112e9b07770d2a14eab26006da0ecf2947dbfd20c522f45f3ac95e13	18h 18m 23s	1,850,143,725	cuckARoo29	1	0	1
430110	00000282836e7da2dd3ad9050ba7fb0b8c516625826408dbd269540370d2dfc6	18h 18m 41s	1,851,090,814	cuckARoo29	2	2	3

GRINMINT Grin Explorer

Search Results for "430112"

We couldn't find a block at height 430112.



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