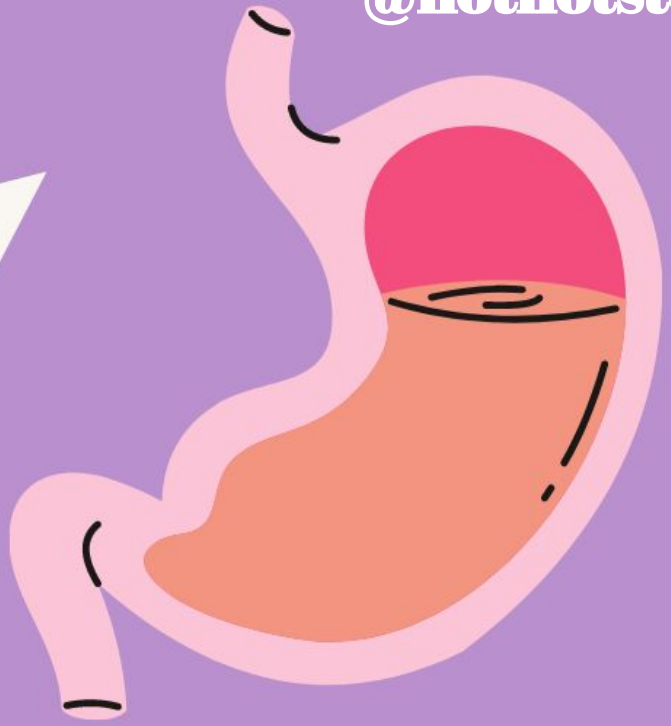
Devcon 2024

@notnotstorm



Gas Limit Science vs Intuition


“Should we raise the gas limit?”
YES
NO
IDK

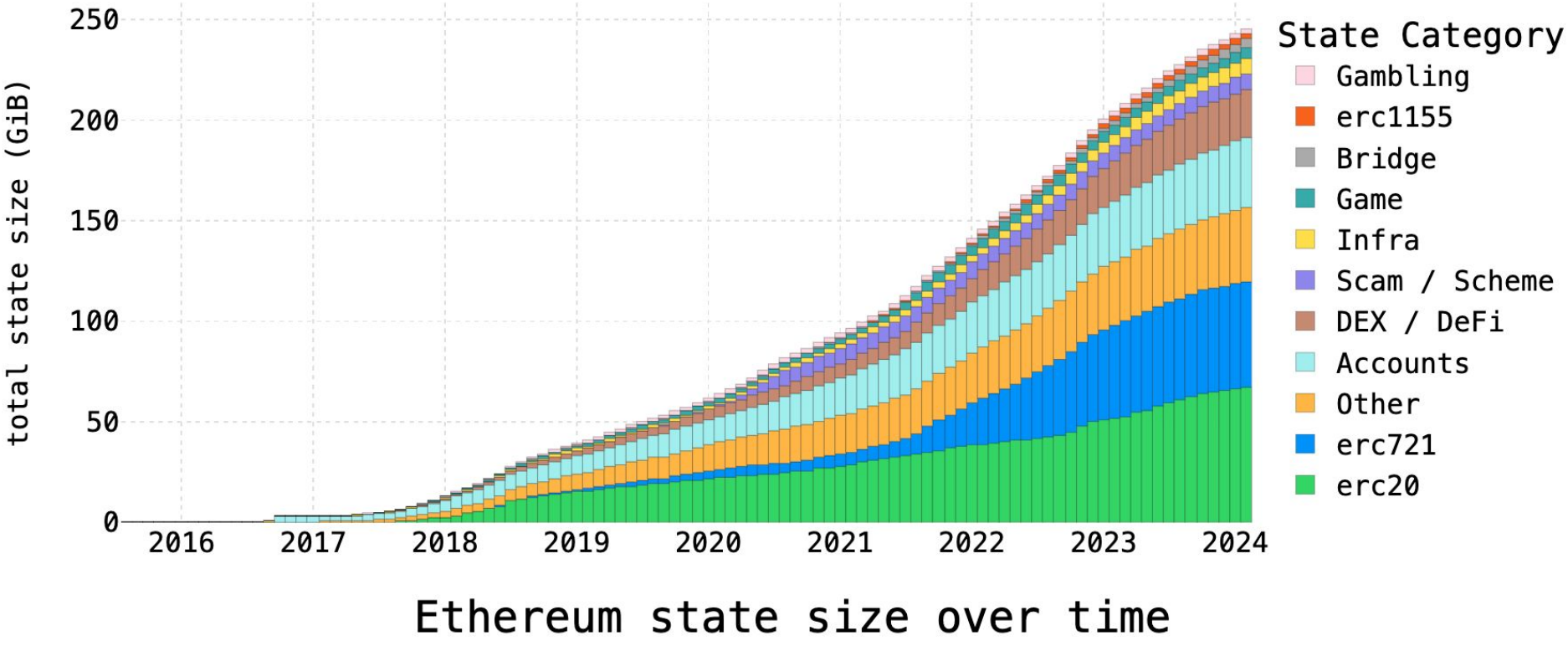
Intuition

Data

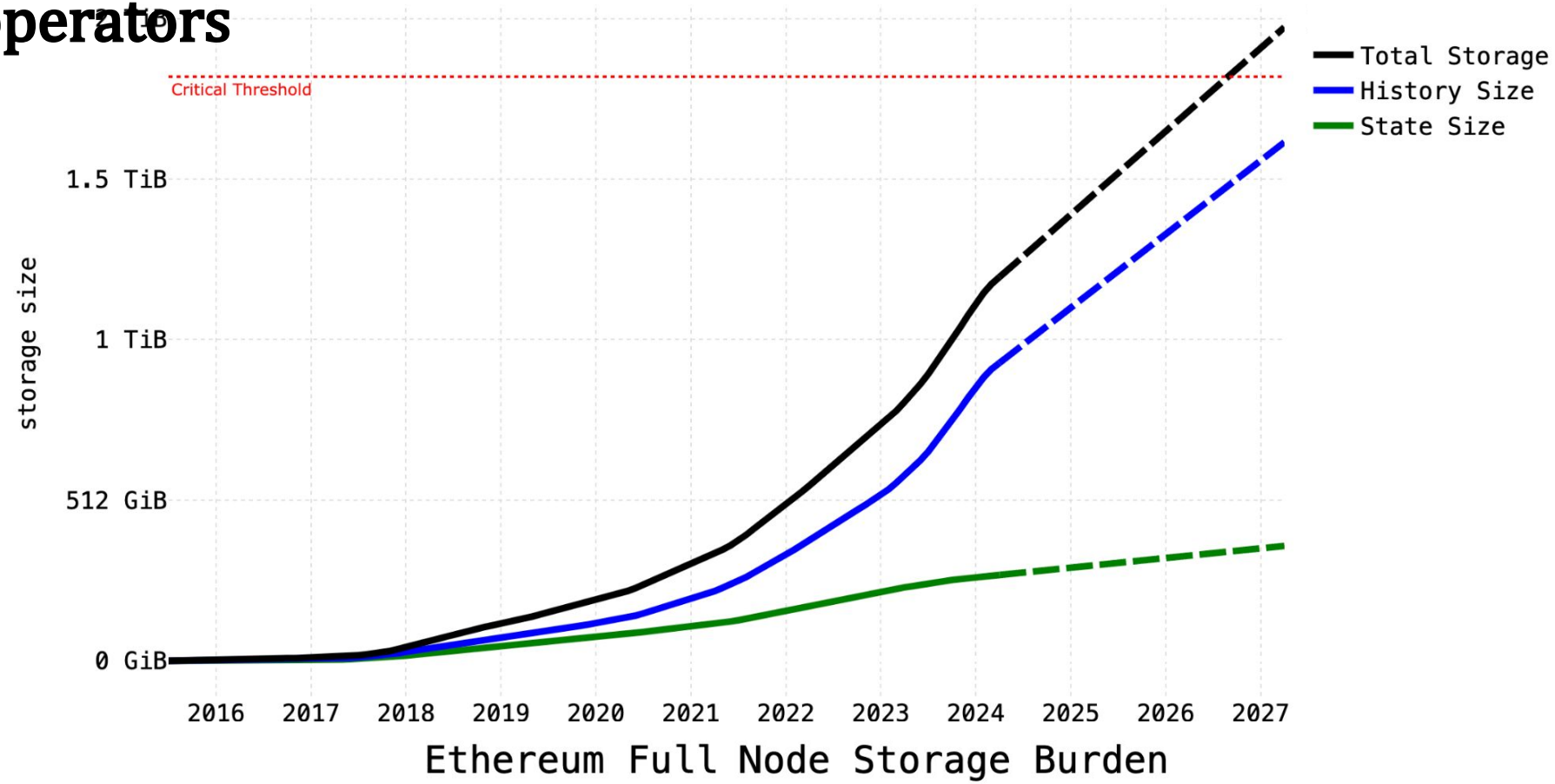
Optimal Gas Limit

“not everything obvious is true, not everything true is obvious”

“We can’t raise the gas limit because state grows too big”



History growth is a much larger burden for node operators



Gas Limit Open problems

Reprice long-term storage

Make “worst” case close to “average”

Find the optimal gas limit

3

Problem: How to price long term storage?

CPU
Memory
IO
Bandwidt

these resources are used INSTANTLY

Storage

this resource LASTS FOREVER

storage has a "one-time" cost but a "long-term"

Possible Solution: “Some new storage pricing scheme”

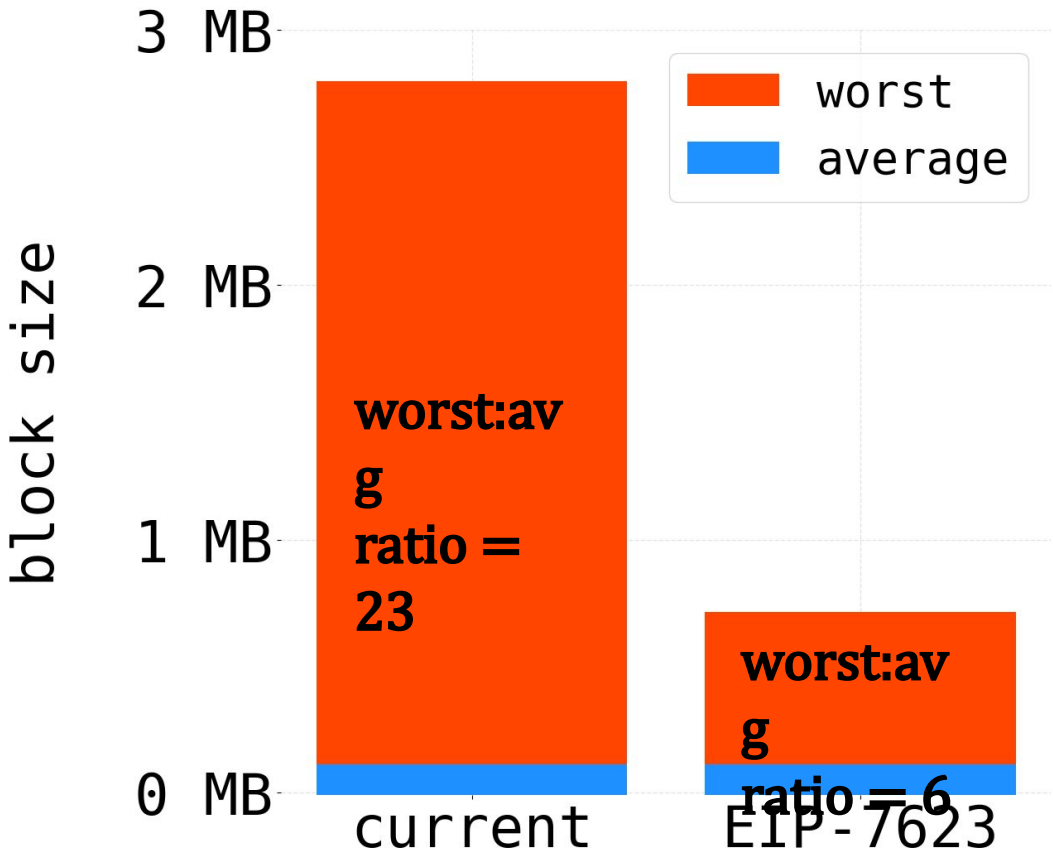
	Current Prices	New Pricing Scheme
Historical Tx Costs		
State Growth Rate		
Cost Per Stored Byte		
...		

collect data + analyze how various metrics are affected

Problem: How to make worst case closer to average case?

EIP-7623 does this for block size!

Can we do this for other hardware bottlenecks? (e.g. # of writes)

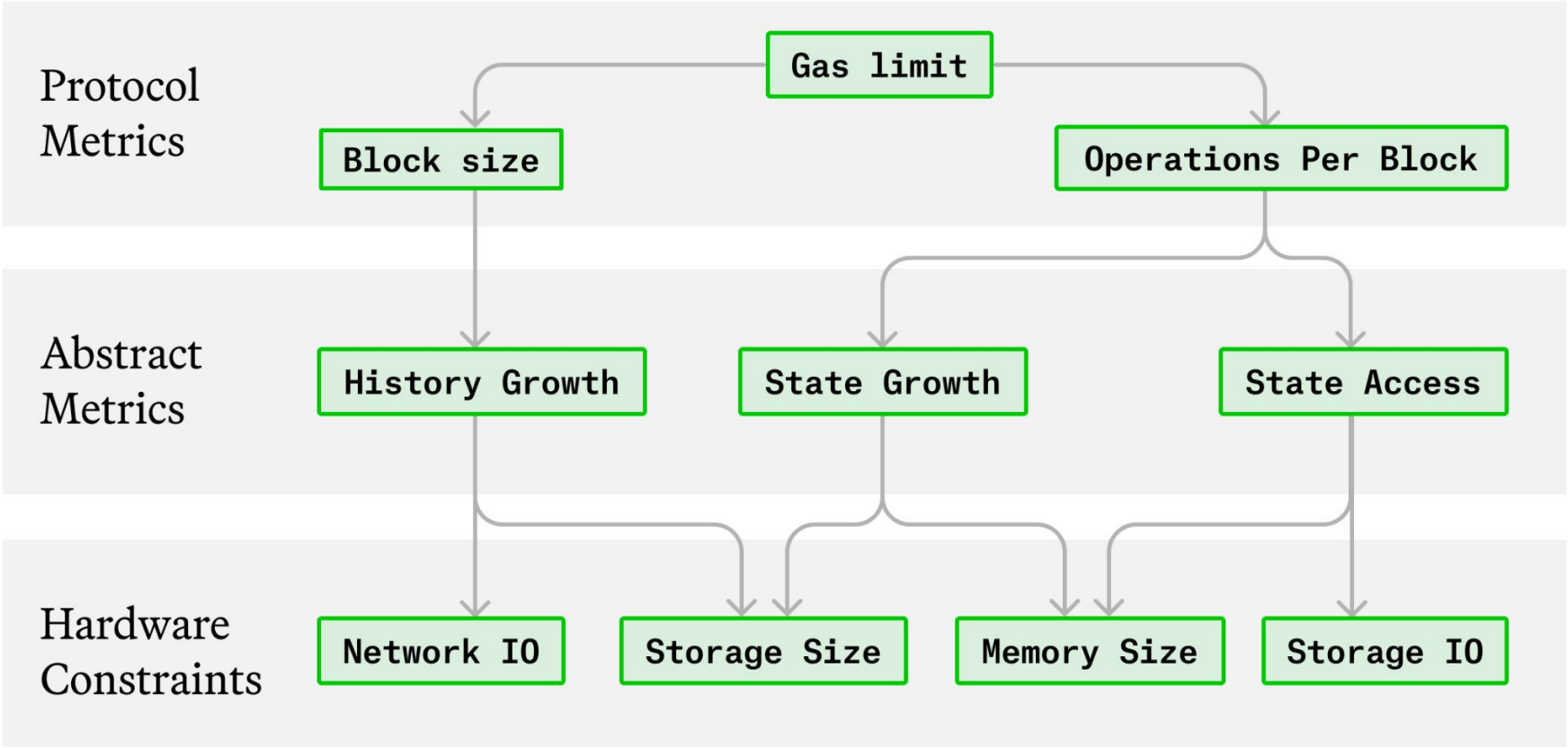


Possible Solution: “Impose new constraints on blocks”

	Current Constraints	New Constraints
Building difficulty		
Worst:Average Ratio		
Historic block metrics		
Historic mempool snapshots		
...		

collect data + analyze how various metrics are affected

Problem: What is the optimal gas limit?



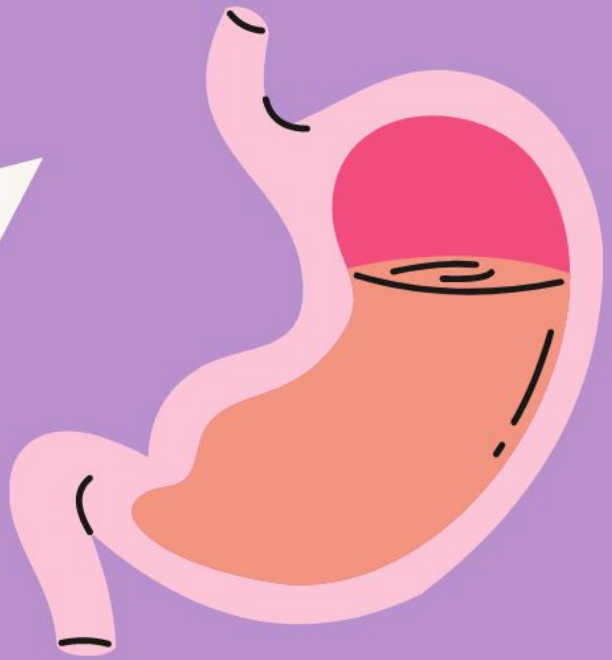
Ethereum Scaling Bottlenecks

Possible Solution: Model system as a function of gas

	Current Gas Limit	Other Gas Limits
Bandwidth Usage		f(limit)
Storage IO		f(limit)
Storage Growth		f(limit)
Decentralization		f(limit)
...		f(limit)

collect data + analyze how various metrics are affected

Thanks for listening



I'm @notnotstorm
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