Resilience
The meta-game of Ethereum L1

danny ryan
Research, EF
What should I talk about at devcon?
SnapCrackle.eth @james_gaps · Oct 6
Replying to @dannyryan
Passing the baton over to layer2: how rollups will scale Ethereum

Hudson Jameson @hudsonjameson · Oct 5
Replying to @dannyryan
Fun, exciting, interesting stories about your time in Ethereum the past few years.

Ewoki (-expanded) @owocki
Replying to @dannyryan
whats it like living life with 2 first names

jonny ray @JonnyRhea · Oct 6
Replying to @dannyryan
the health benefits of handstands
The Merge happened.

finally
Attestation Participation
Zoom out a bit.
Skipped slots
What about re-orgs?
Orphans and re-orgs, oh my!

- 26 re-orgs and 85 orphaned
- All show very late properties
  - Delivery time distribution lies on or later than the slot boundary
- ~50% orphans come from mev-boost relays
  - check out Terence’s talk
- And it depends on your perspective
Healthy.
Perfect Rhythm of Finality
Except that one time
Ultrasound Ansgar
Merge Data Challenge
But shipping is slow

Why?!!
Elly Angelina
@EllyzaAngelina

Replying to @dannyryan

How we ship faster
Much is fundamental

Shipping what has never been done before

- New research
- New mechanisms
- New networking
- New cryptography
- Backward compatibility
- Distributed systems in general are complex.
And much has improved

It maybe not be obvious but

- Sophisticated and specialized client devs
- More non-client teams on testing
- Devops wizards driving testnets
- Dedicated security analysts
- Increased academic collaborations
- In person development retreats
- Refined process, well oiled machine
There are considerations at odds with speed.
Meta-game of Ethereum Resilience

Optimizing for an infinite game

- Ability to continue to play the game
- Redundancy built into the players of the game
- Ability to recover when the game fails
- Hardening after adversity
- Tuning for ossification and avoidance of capture
Meta-game of Ethereum Resilience

Protocol

Network

Social
**Shortcuts are available**

- Single client
- Single dictator
- Truncated R&D
- Centralizing solutions
- Willingness for downtime
- Processes ripe for capture
Protocol Resilience.

A protocol that thrives

- Research and design
- Security and testing
- Simplicity and extensibility
- Operation under adverse conditions
- Recovery under failure modes
Functional escape velocity 🚀
Many protocols only try to avoid failure.
A heterogeneous network

- Multi-client
- Multi-layered
- Hobbyist stakers
- Home nodes
- Regional diversity
Continuity vs Recovery.
Social Resilience.

A multitude of perspectives

- Multi-client/layered
- Diverse staking set
- Global
- Incredibly open research
- Deliberate processes yet open governance
- Open door
Ethereum is an intellectual gravity well.
Ethereum is a bazaar.
Ethereum’s Layer-1 social structures tend toward a multitude.
Ethereum’s Layer-1 social structures tend toward ossification.
Where does the EF fit in?
Title: Reporting back from the trenches -- the Art of Project managing The Merge
Abstract: In this talk, DR goes over the top lessons learnt from project managing the Merge. With the hope for others in similar positions to learn from the mistakes made along the way.
Ethereum Application Resilience

It’s time to think long-term
Application Layer Liabilities.

Avoid unnecessary debt

- Complexity (doing too much)
- Governance
- Upgradability
- Bad token distributions
More Unix Philosophy.
Minimize or eliminate governance.
Tend toward ossification
Explore value generation models.
Explore the non-financial.
Oh and – fraud-proofs and decentralized sequencers
Play the meta-game of resilience across the stack.
And a quick happy birthday.
Thank you!