

FORKED TO DEATH: WHAT INTERNET GOVERNANCE CAN LEARN FROM BITCOIN

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[MIT Bitcoin Expo 2016](#)

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Reflections and Thanks!



*Scaling***bitcoin**

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MIT Students

Phase 1 Underwriter

Phase 2 Platinum Sponsor

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What Internet Governance Can Learn from Bitcoin?

- 1) Careful Consideration of Externalizing Costs
- 2) Community Meritocracy – ‘Proof of Work’ Works
 - Community as Resilient from Internal/External Pressure as the Code
- 3) Faster than Light ‘Real-Time’ Media Audit ;)
- 4) Developing Immune System

Trustless Internet

The Joy of Tech™



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Today's Economist

Internet governance: We the networks



Internet Governance

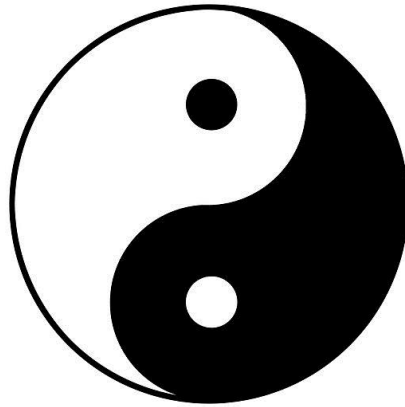
- “Internet governance is the development and application by Governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet.”
- Working Definition of United Nations Working Group on Internet Governance (2005)
- “Who Are You”?
- “What is the Problem”?

Governance is the Wrong Model

- Ecosystem Governance -> Ecosystem Health
- What is a Healthy Bitcoin Ecosystem?
- Technically Scalable
- Economically Sustainable
- What is 'Pollution'?
- What is 'Normal'?

Internet Ecosystem Evolution

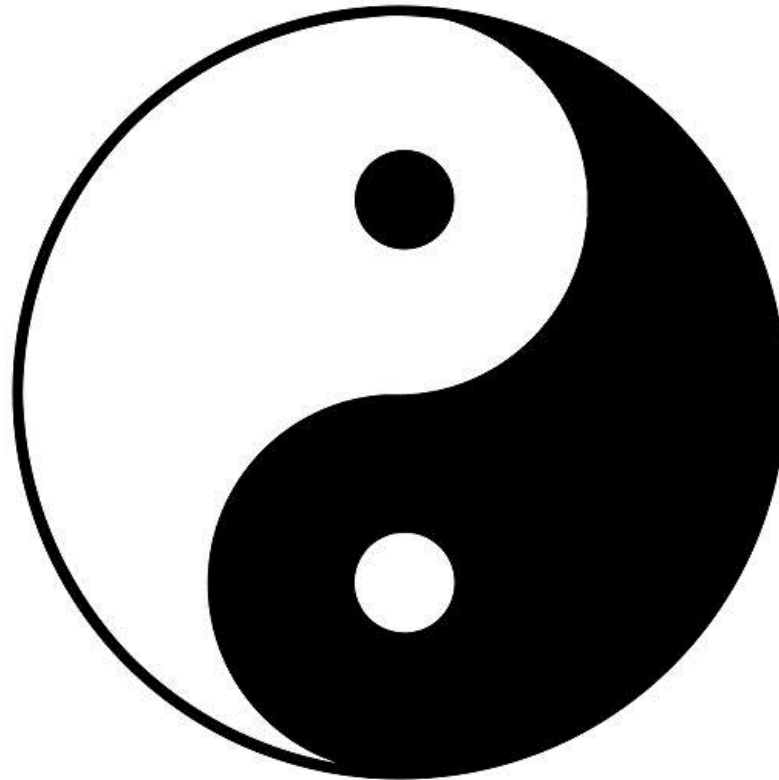
- [IETF – Pervasive Monitoring Is an Attack](#)
- <https://cryptech.is/>
- <https://www.coreinfrastructure.org/>
- Etc.



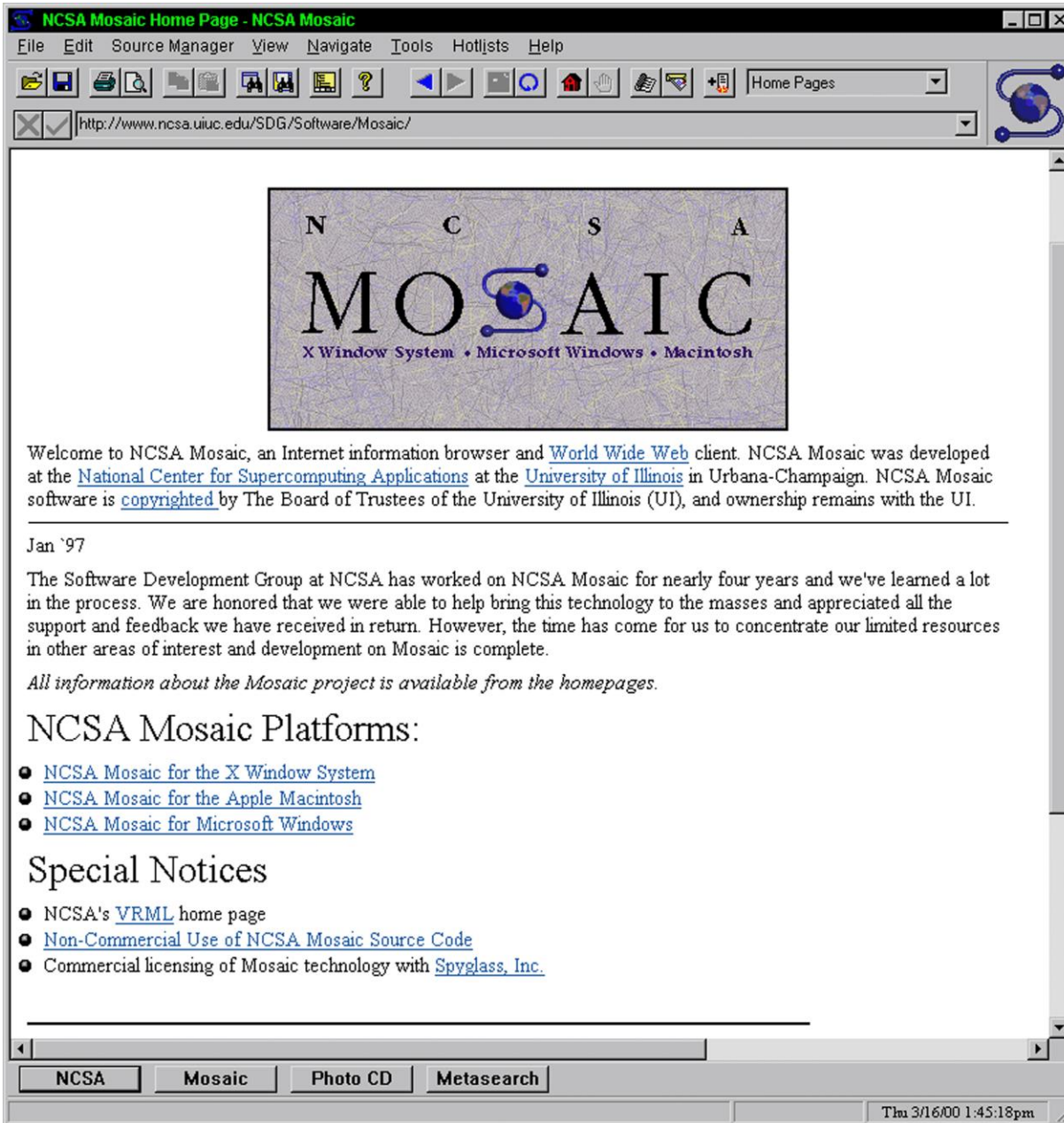
- [SNOWDEN 2013 – NY Times](#)
- [DUAL_EC_DBRG](#)
- [Chinese Universities – HK Internet Exchange Point](#)
- Etc.

改善

Response



Stimulus



Credit: National
Center for
Supercomputing
Applications

Is Bitcoin Another Internet?

Externalizing Costs

Research Networks (NSFNET)
Non-Profit

Commercial ISPs
Making \$\$\$



CIX
Association
1991

April 30th
1995

Huge Culture Clash
Drama – Cook Report on the
Internet

Trip Down the Memory Bus

- 1987 USENET News Wars –
 - [Great Renaming \(Rick Adams\)](#)
14 Character Naming Limitation Must be Unique Newsgroups
 - Big 7 (comp.*, misc.*, news.*, rec.*, soc.*, sci.*, talk.*) hierarchies
 - Alt.* (anarchists, lunatics and terrorists ;))
 - [Hitchhikers Guide to the Internet – Ed Krol \(RFC 1118\)](#)
- 1990's US National Science Foundation
 - NSFNet (IBM, Merit, MCI) – Backbone Network 4000 institutions
 - 1992 US Congress gave NSF allow commercial traffic (Acceptable Use Policy)
 - 1993 Beginning Commercialization, Marc Andreessen (Mosaic, Netscape, a16z.com)
 - 1994 DNS – NSI (Network Solution Inc) – USD\$50 per domain name
 - .edu, .com, .net., .mil, .org, .gov .int
 - 1998 [gtld-mou](#) -> ICANN

Examples Externalizing Costs of a Shared System

- BGP – Network Costs
- EMAIL – SPAM
- IPv4 vs IPv6
- Community Equity at Time of Crisis (DNS Root Zone)

Externalizing Costs of a Shared System

Internet Governance Wrong Model

- Transparency, Sustainability, Scalability
- Not just the Technology – Community

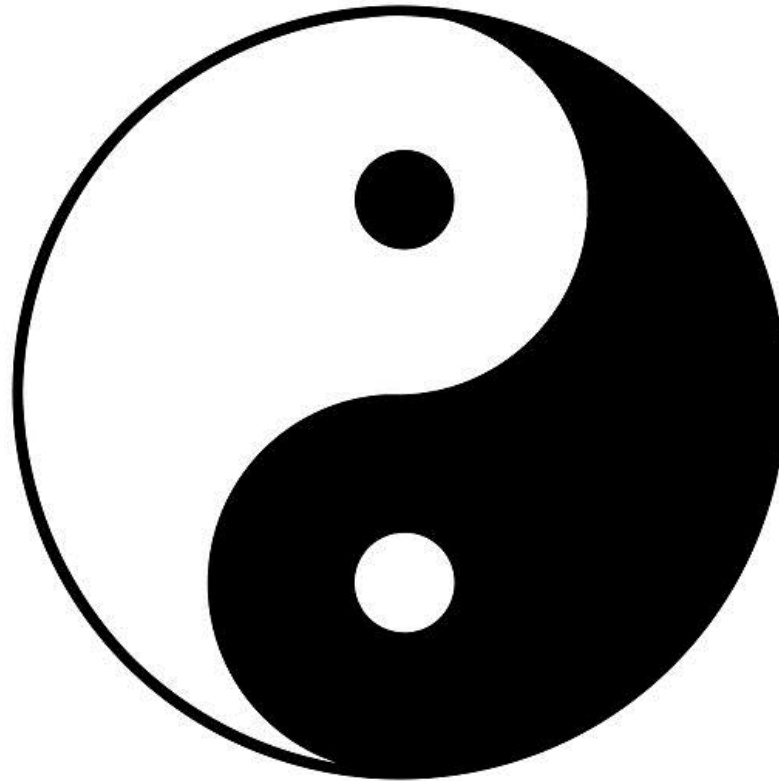


*Scaling***bitcoin**

- Ecosystem Sustainability
- UTXO Expansion
- Minimizing and Externalization of Costs
 - (Subsidy, UTXO set, SigOps, Bandwidth)
- NOT Governance but 'Health'

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Implementation
Practice



Research
Theory

Role of Universities

- Neutral Platform – ‘Academia Scales Better’ - Arvind
- Societal Trust Anchor:
 - Move From Analog -> Digital Trust
 - Early Warning
- Anchoring the Bitcoin Network
 - E.g. Operating Fully Validating Node on the Bitcoin Network
- Empowering Students
 - E.g. MIT Bitcoin Project
- Documentation and Deliberation
- Ethics of Research in Cryptocurrencies
- Patent Non-Aggression Pool: Open Invention Model

Current List* of Participants to BSafe.Network

- **United States**

*Not Fully Confirmed

- MIT
- Boston University
- UC Irvine
- University of Maryland

- **Europe**

- TU Darmstadt, Germany
- University of Cambridge, UK
- New Castle University, UK
- KULeuven, Belgium
- Hebrew University of Jerusalem, Israel

- **Asia**

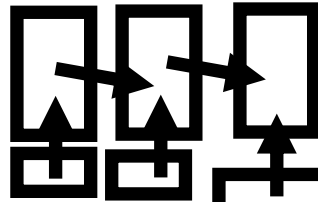
- Hong Kong University of Science and Technology, Hong Kong
- Toho University, Japan
- Tokyo University of Technology, Japan
- Meiji University, Japan

- **Africa**

- March 6th Ghana Independence Day
- University of Ghana, Kwame Nkrumah University of Science and Technology, and University of Cape Coast

Blockchain Research Network and Decentralized Academic Platform (Shin'ichiro Matsuo and I)

Decentralized Academic Platform

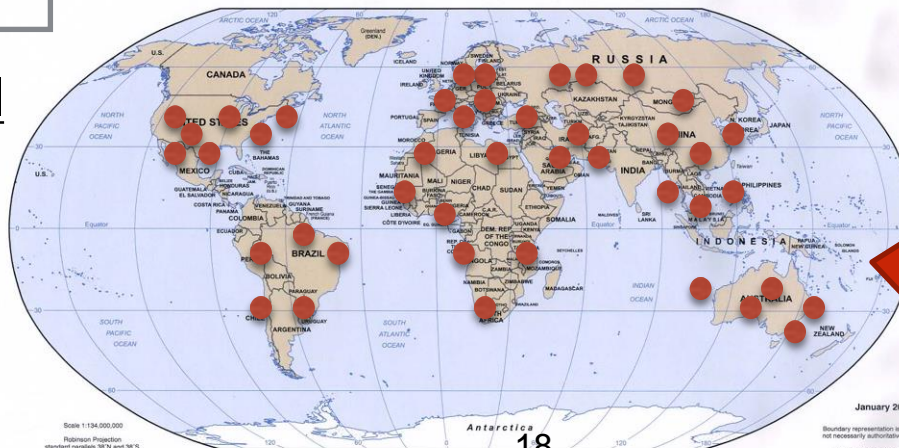


Manage research fundings, papers, discussions, evaluations and patents over blockchain



- ⌘ Decentralized Reviewing and open collaboration
- ⌘ Prevent research misconduct
- ⌘ Incentive to build the research network

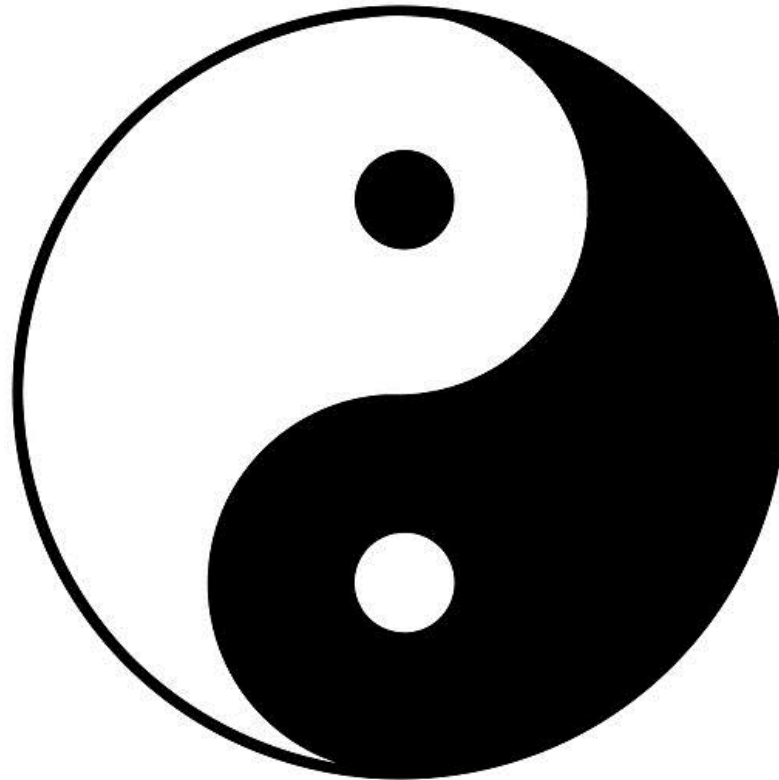
University-level Blockchain Research Network



- ⌘ Neutral Platform
- ⌘ Trust Anchor of Bitcoin network
- ⌘ Expand # of nodes from 6941 to # of univ. (with Neutrality)
- ⌘ Testbed for academic research

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Stimulation



Response

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