HOLOCHAIN

HOLOCHAIN

Matthew Schutte
Director of Communications

A BIT OF HISTORY

Tim Berners-Lee 1989

content on the web is looked up via the machine where it is physically located.

Tim Berners-Lee 1989

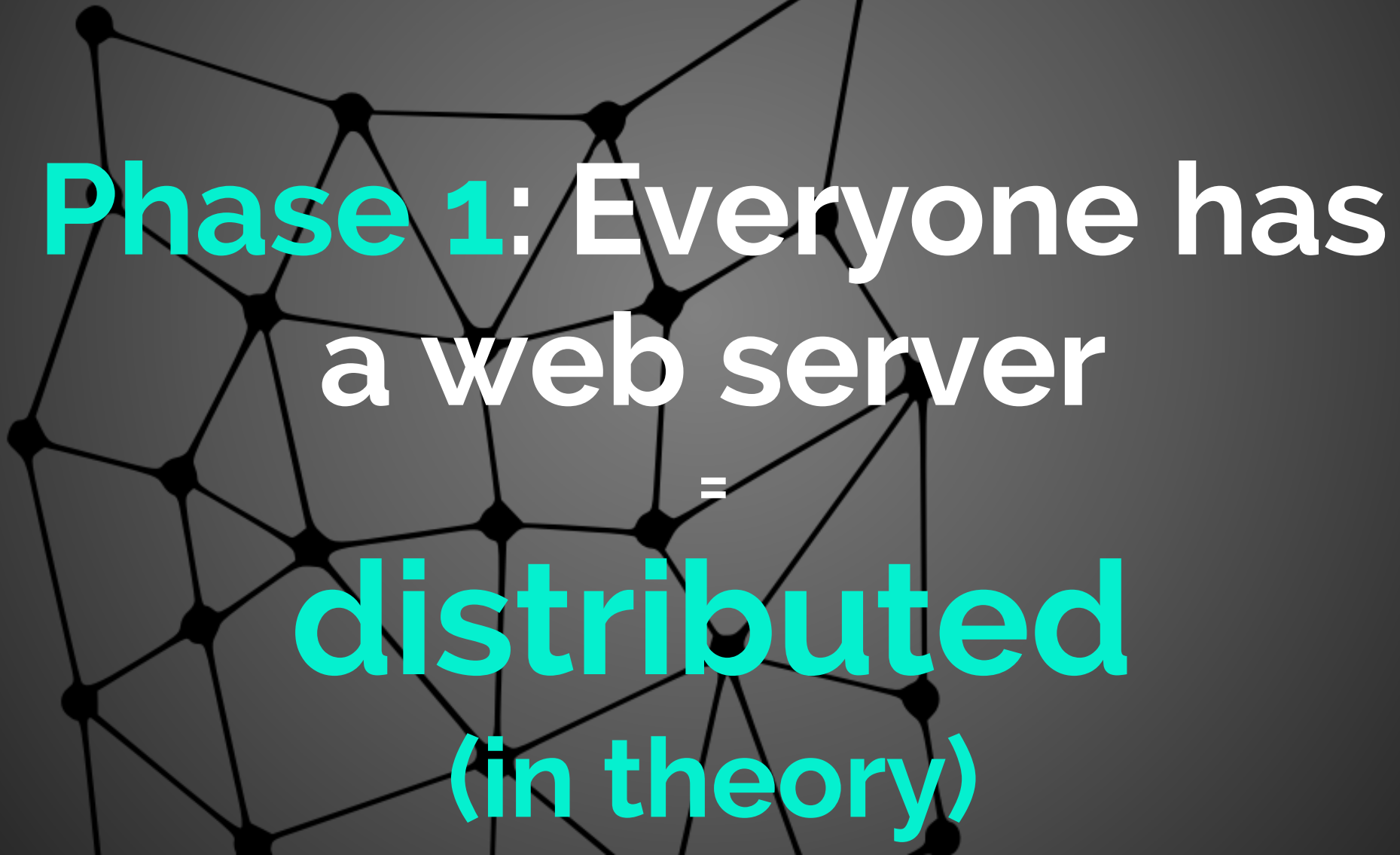
Go to machine

172.16.254.1

Open folder "main"

Retrieve file "main.html"

Tim Berners-Lee 1989



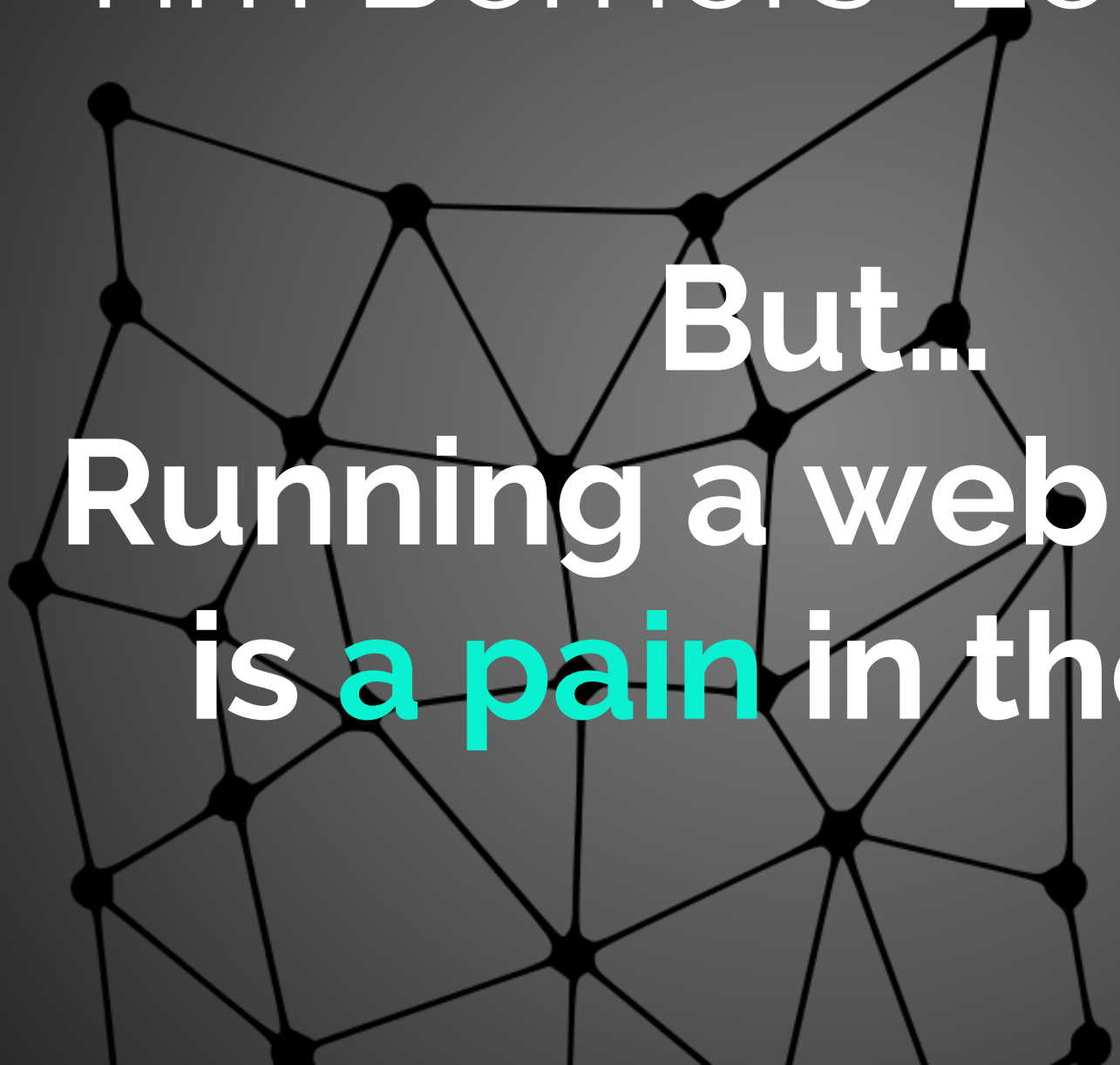
Phase 1: Everyone has a web server

=

distributed

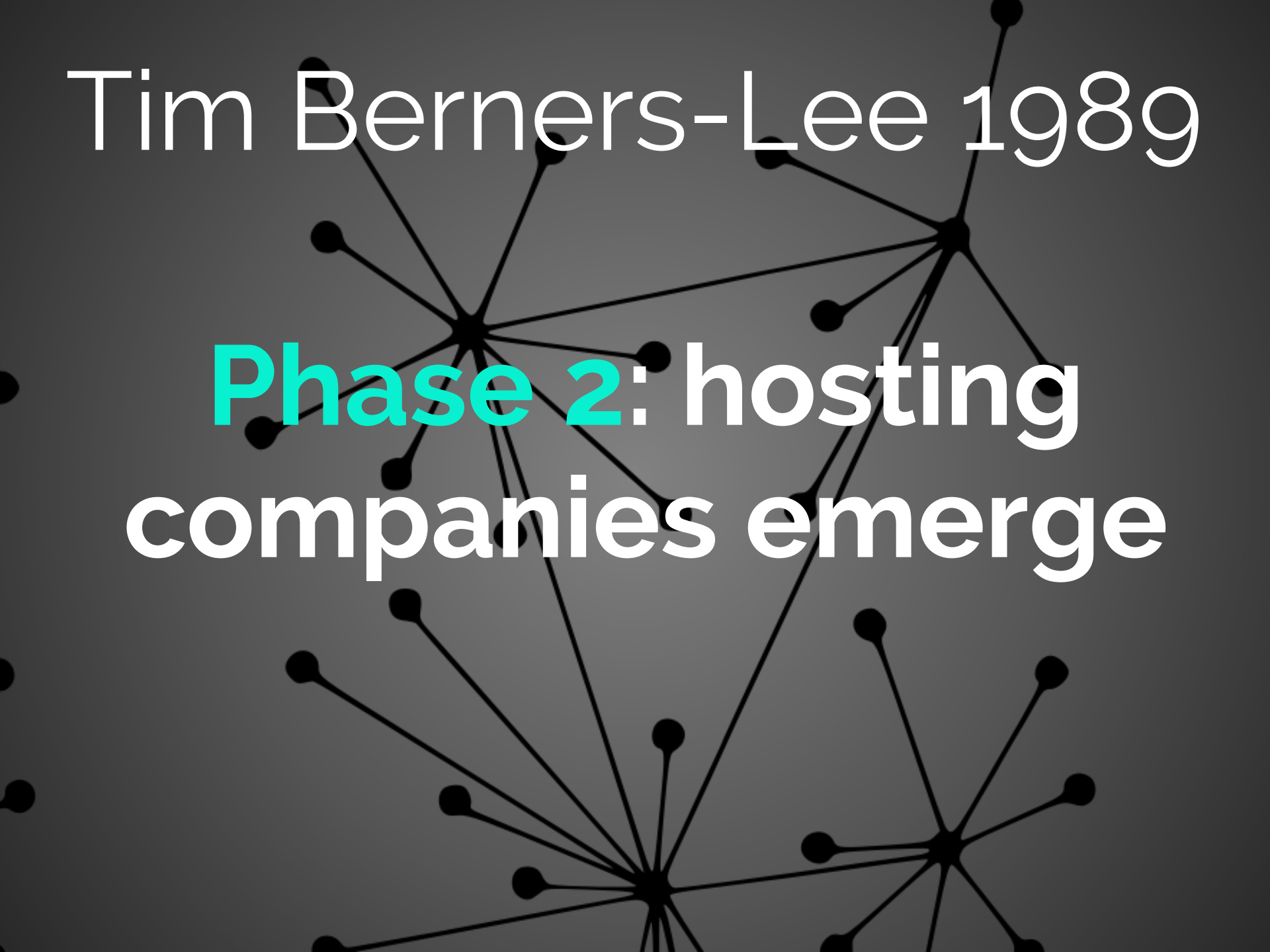
(in theory)

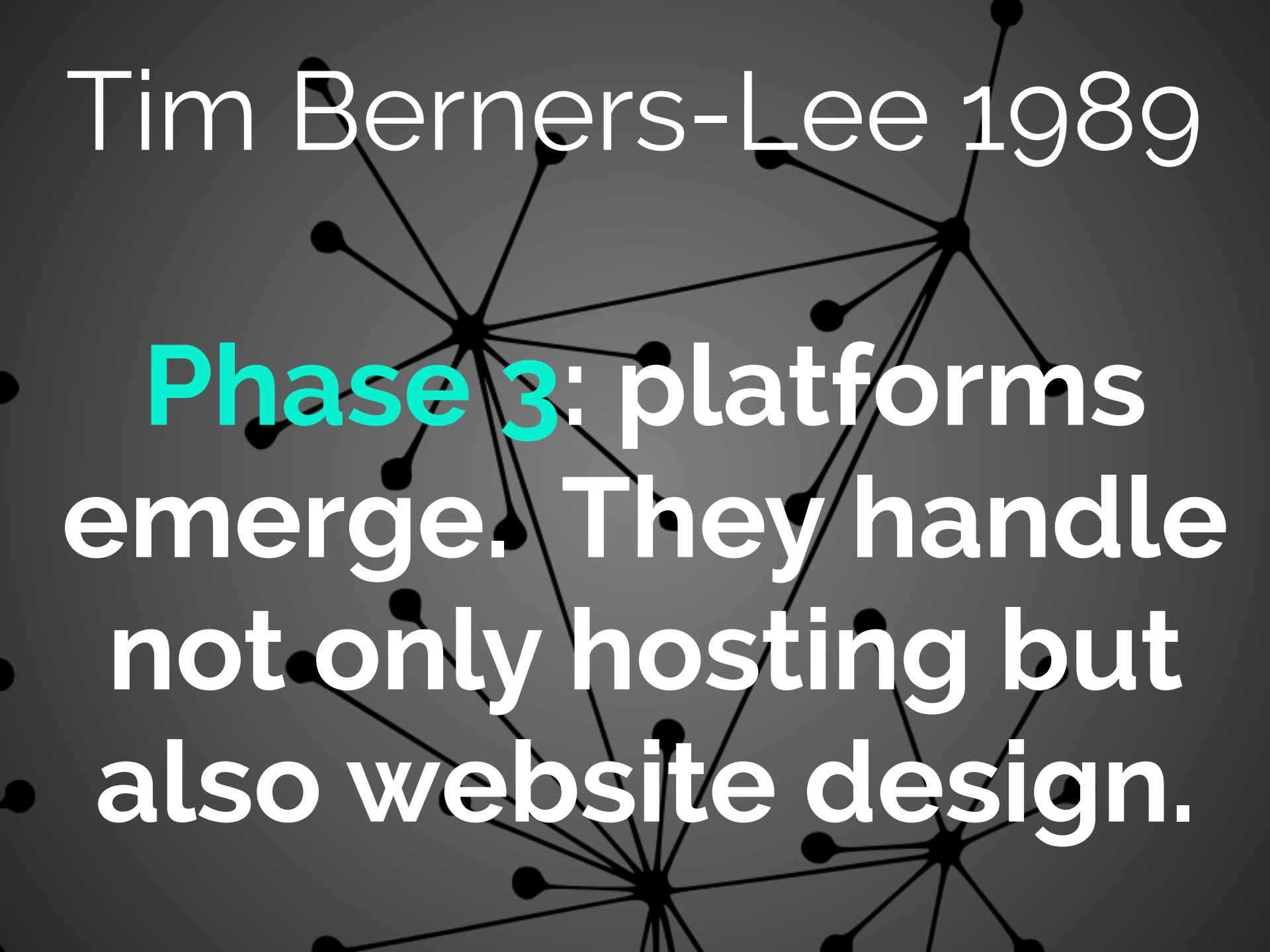
Tim Berners-Lee 1989

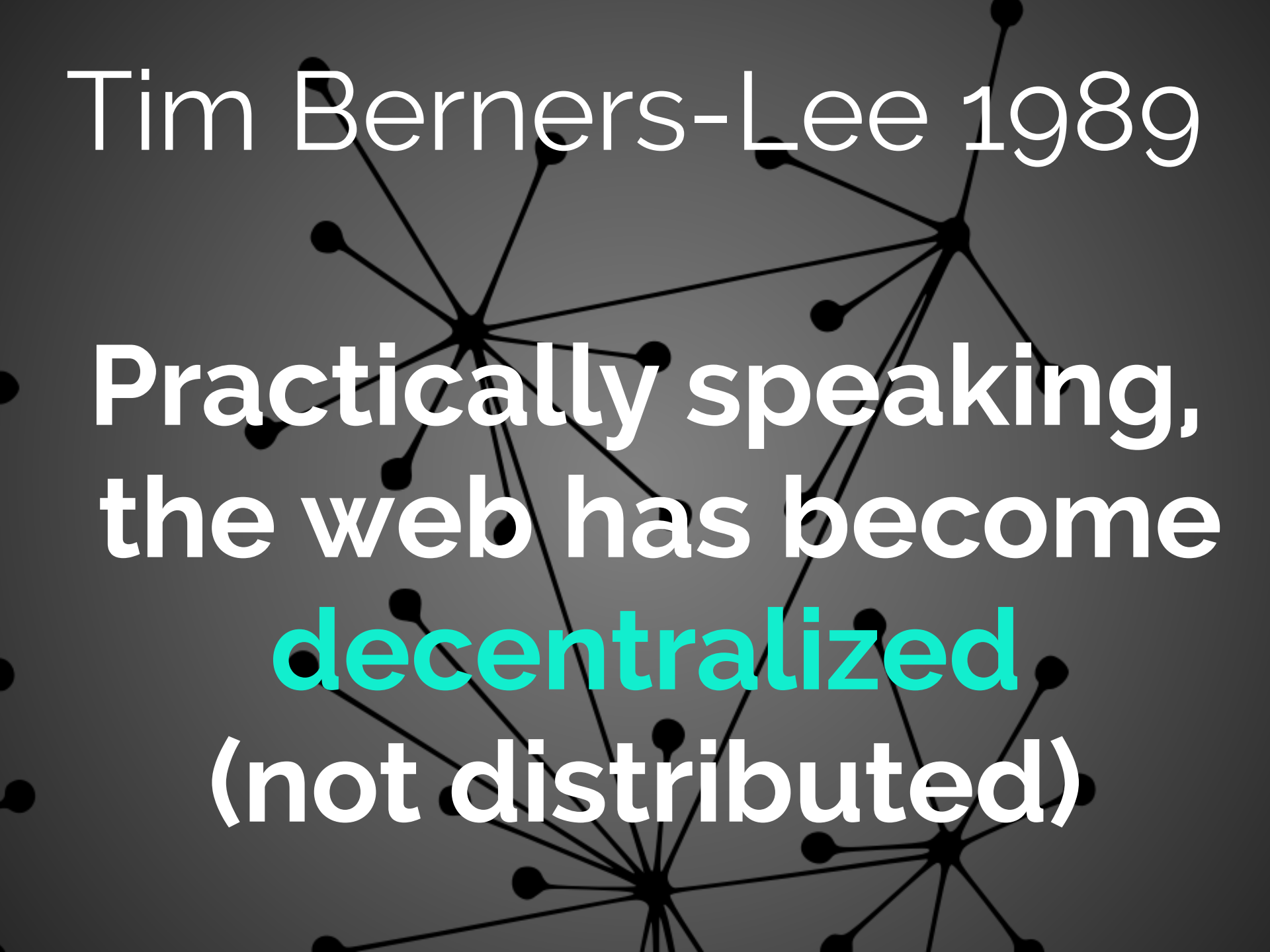


But...

Running a web server is a pain in the @**


Tim Berners-Lee 1989
Phase 2: hosting companies emerge


Tim Berners-Lee 1989
Phase 3: platforms emerge. They handle not only hosting but also website design.


Tim Berners-Lee 1989
Practically speaking, the web has become decentralized (not distributed)

Tim Berners-Lee 1989

applications

are mostly

centralized

Why does it matter?

Why does it matter?

centralization in various forms

Why does it matter?

centralization in various forms undermines the founding **goal of the internet:**

Why does it matter?

centralization in various forms undermines the founding **goal of the internet:**

RESILIENCE

Paul Baran 1964

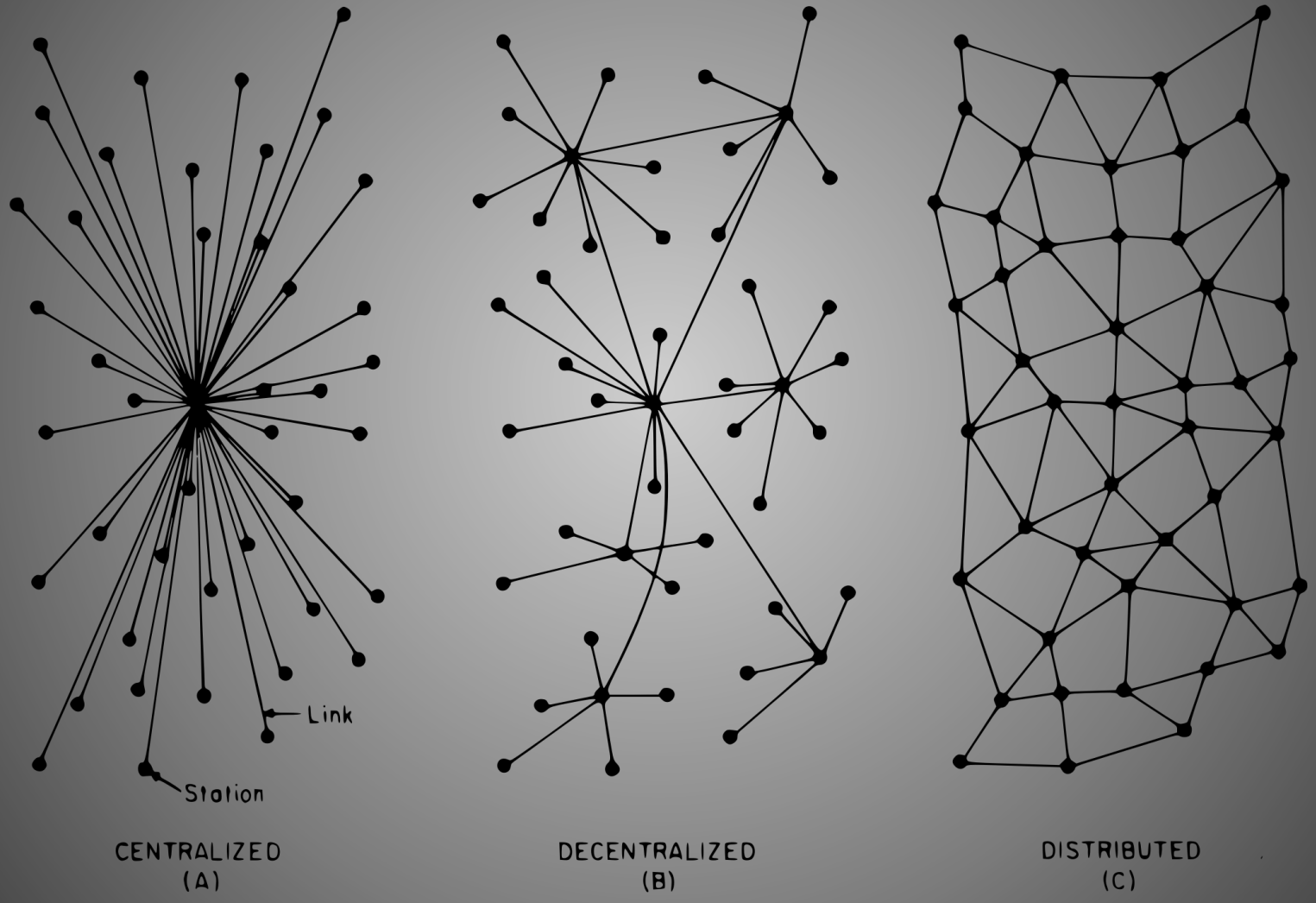


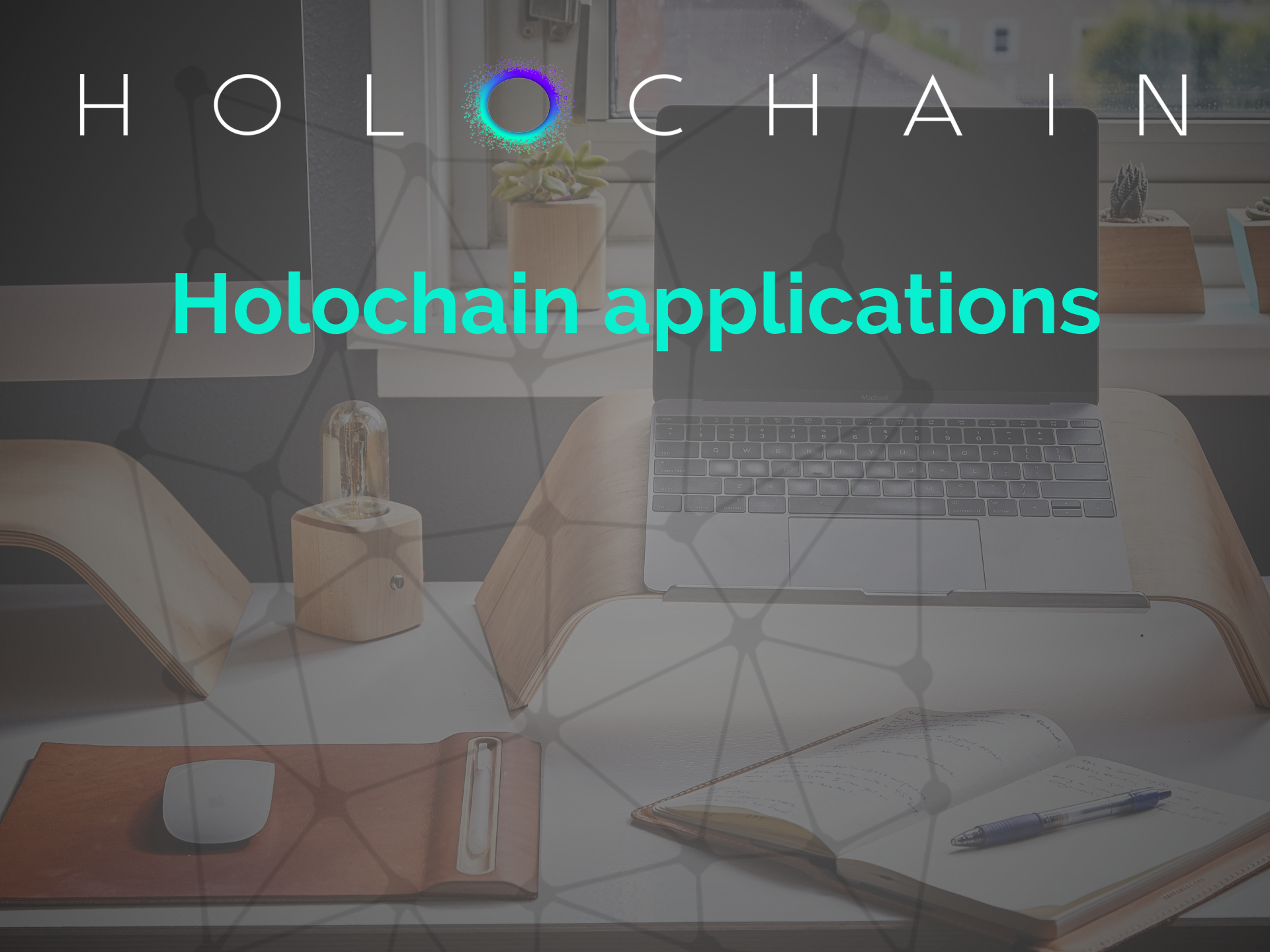
FIG. 1 — Centralized, Decentralized and Distributed Networks


Paul Baran 1968
Distributed = Failure Tolerant
even an overwhelming
nuclear attack
wouldn't stop communication

HOLOCHAIN

a new way of running truly peer-to-peer applications


HOLOCHAIN
Holochain applications
run entirely on the devices
of the users themselves


HOLOCHAIN
Holochain applications


HOLOCHAIN
Holochain applications
no web servers


HOLOCHAIN
Holochain applications
no web servers
no mining


HOLOCHAIN
Holochain applications
no web servers
no mining
no cryptocurrency
(needed)

HOLOCHAIN

a pattern

not a platform

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each app has its own

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each app has its own members,

HOLOCHAIN

each app has its own members, storage,

HOLOCHAIN

each app has its own members, storage, namespace

HOLOCHAIN

each app has its own members, storage, namespace & validation rules

HOLOCHAIN

~~Applications as places~~

HOLOCHAIN

~~Applications as places~~

Applications as Grammars

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grammar:
information is always "in- form"

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information

+

transformation

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we only experience information when we experience transformation

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If you can express information of a particular form, and someone else can receive information of that form, we have a shared grammar

Paul Baran 1964

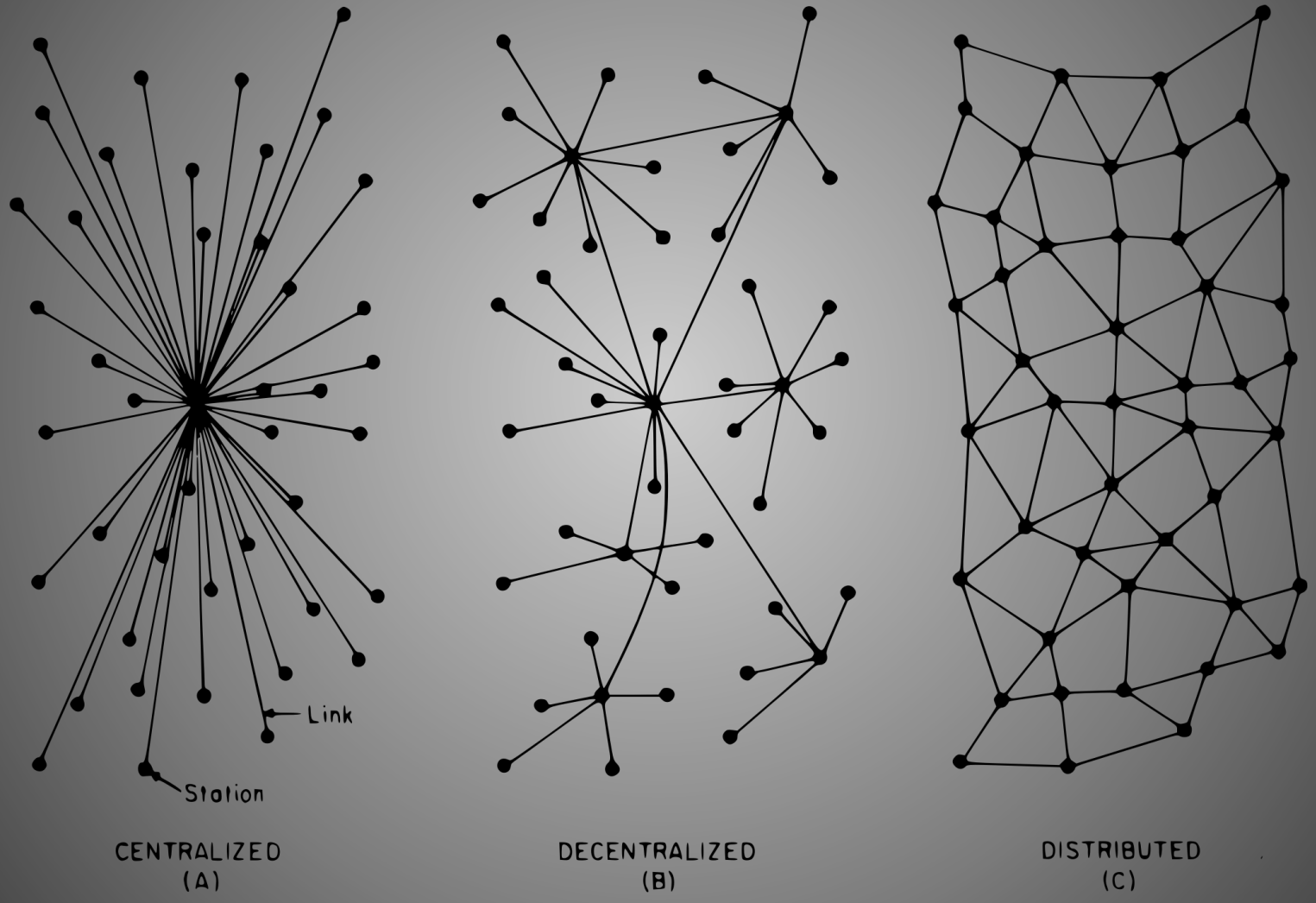

FIG. 1 — Centralized, Decentralized and Distributed Networks

Paul Baran 1964

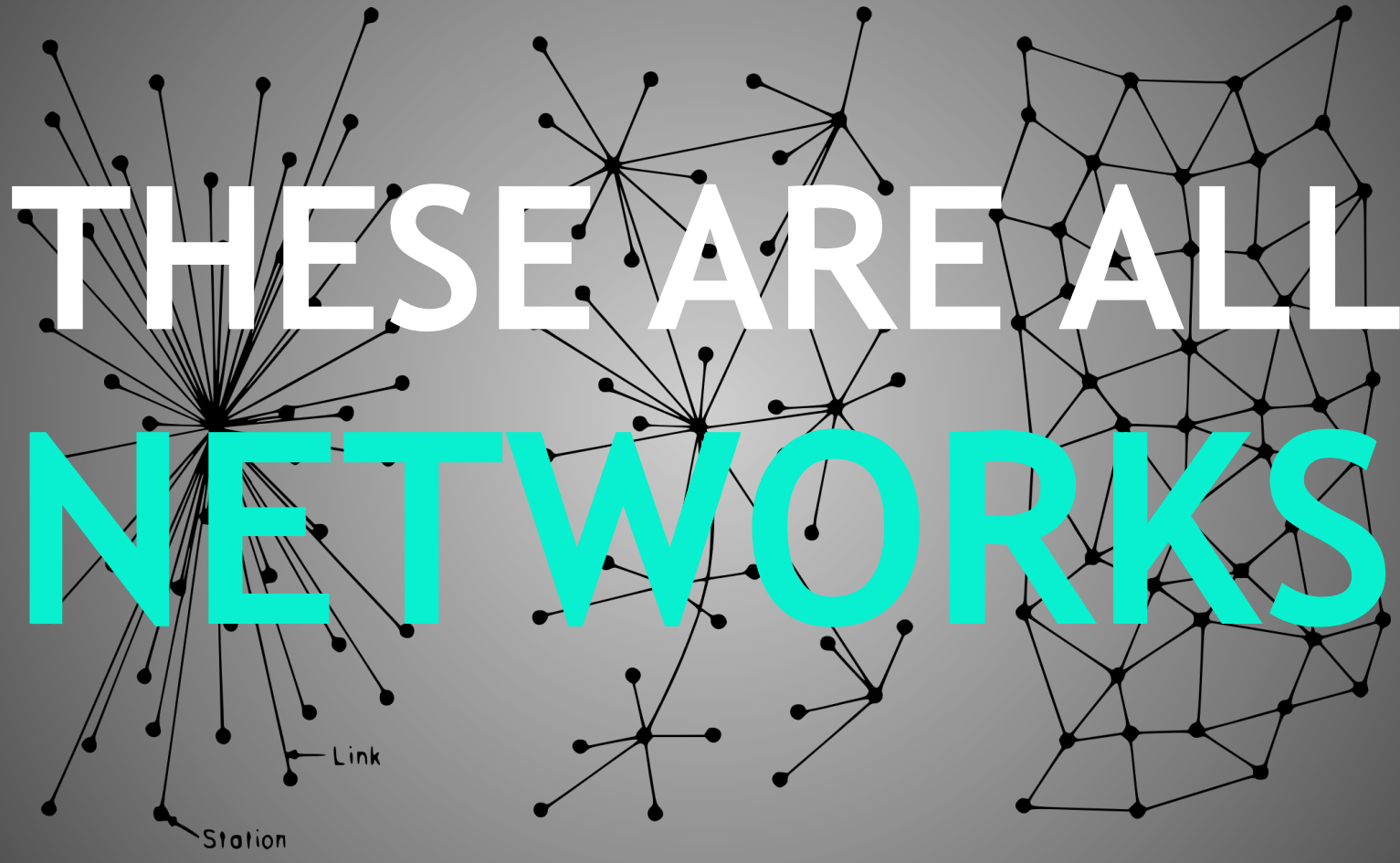

FIG. 1 — Centralized, Decentralized and Distributed Networks

THESE ARE ALL NETWORKS

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Network:
agents speaking a
shared protocol or set of
protocols

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Ecosystem:
agents bridge between protocols and **can transform signals** on one carrier into signals on another carrier.

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3 volunteers

transformed light into sound

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Today the internet puts

applications

at the center

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We are turning the internet inside out by putting humans at the center

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anything that you can receive in one form, you can then transform and express in a different form

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thus individuals can combine different applications (grammars) together OR can bridge between grammars

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Better for individuals

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Better for individuals

Better for **communities**

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VS

.

BLOCKCHAIN

blockchain

blockchain

freedom

blockchain

freedom

from constraint

by others

blockchain goal:

digital anonymous cash

blockchain solution:

Every full node keeps track of every action anyone has taken

blockchain solution:

.

GLOBAL CONSENSUS

blockchain problems

blockchain problems

scale

blockchain problems

scale

cost

blockchain problems

scale
cost
speed

HOLOCHAIN

different goal

different goal

different

architecture

HOLOCHAIN

freedom

HOLOCHAIN

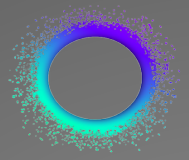
freedom

to constrain

ourselves

HOLOCHAIN

lets talk about a card game



How do we handle "failures" in a card game amongst friends?

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If you want to "play this game" and I want to "play this game", we shouldn't need anyone else involved

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Mutual

sovereignty

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Think of this pattern as an "immune system response"

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This is how our bodies handle threats as well

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As soon as one participant notices a problem, they

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As soon as one participant notices a problem, they

1) move into action

HOLOCHAIN

As soon as one participant notices a problem, they

1) move into action
2) notify others

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progressive trust

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If I make myself more vulnerable, It makes it easier for you to make yourself vulnerable

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we regularly engage in trust generating dances

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trust generating dance examples

-mating rituals

-job applications

etc.

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If my cost significantly outweighs any benefit that I would gain, you can be more confident that I will behave well

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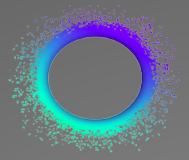
game theory

single games

vs

multiple games



trust

generation

HOLOCHAIN

real world ID

vs

pseudonymous

vs

anonymous

HOLOCHAIN

you don't need "real world ID"

just need some amount of correlation

HOLOCHAIN

~~trustless~~

HOLOCHAIN

~~trustless~~

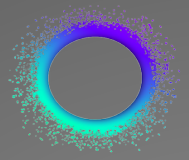
vs

trust generating

HOLOCHAIN

Combines tech from 3 established projects

to create a p2p application framework



Blockchain tamper resistant logs

HOLOCHAIN

Blockchain tamper resistant logs

BitTorrent efficient shared storage

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Blockchain tamper resistant logs

BitTorrent efficient shared storage

Git agent centric identity


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learn more
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chat.holochain.org
developer.holochain.org
github.com/holochain