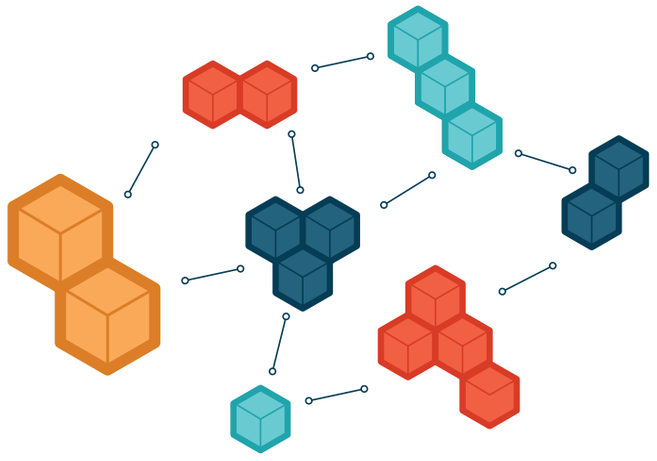
PARADIGM SHIFT:

DATA TOGETHER COMMUNITIES & INSTITUTIONS USING DECENTRALIZED TECHNOLOGIES TO MAKE A BETTER WEB

MATT ZUMWALT
PROTOCOL LABS

NDSR SYMPOSIUM

WORLD BANK
17 AUGUST 2017



Protocol Labs

DECENTRALIZED WEB

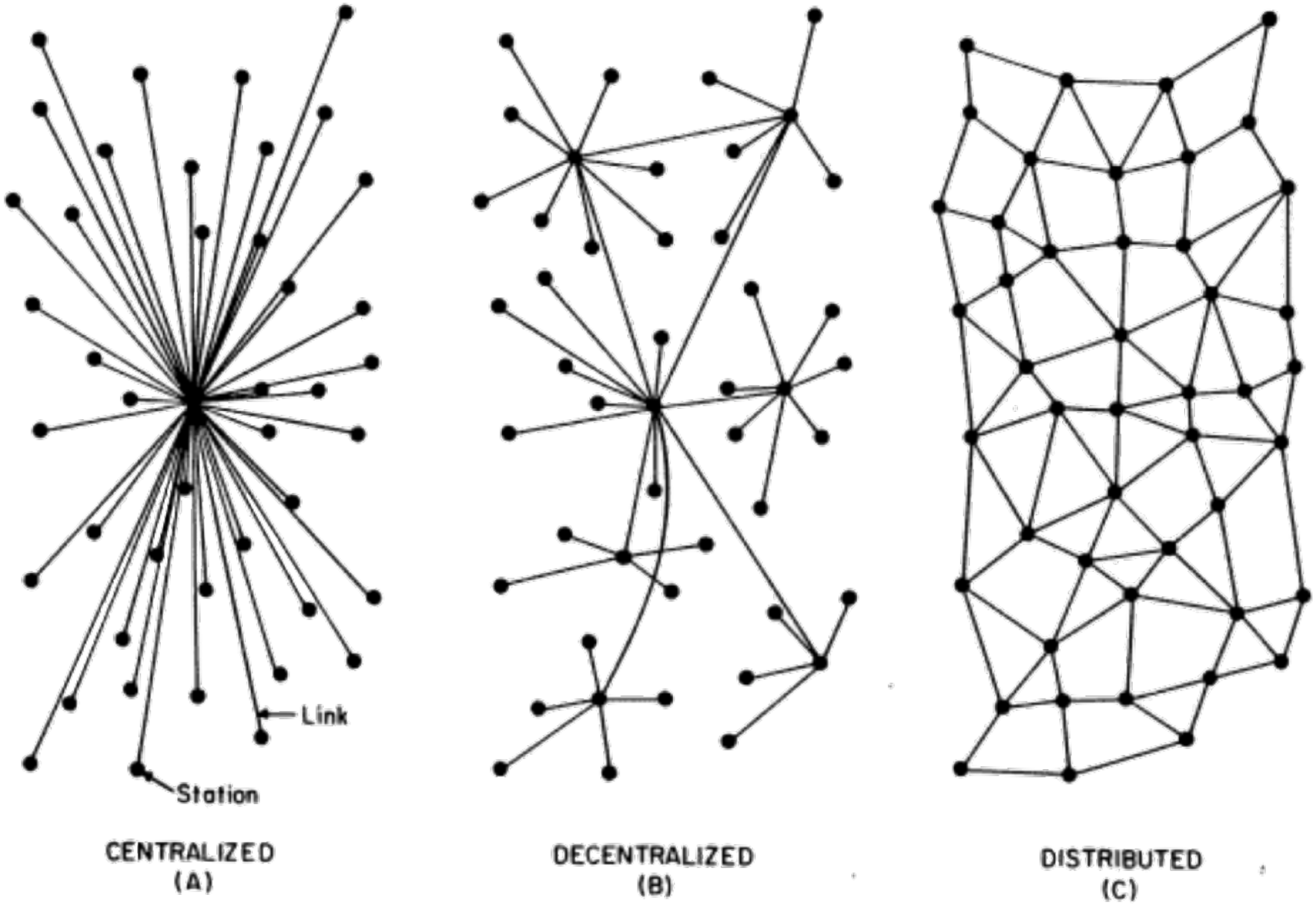


FIG. 1 — Centralized, Decentralized and Distributed Networks

Source: On Distributed Communications Networks, Paul Baran, 1962

The internet has been stolen from you. Take it back, nonviolently.

https://medium.com/@flyingzumwalt/the-internet-has-been-stolen-from-you-take-it-back-nonviolently-248f8d445b87

THE DECENTRALIZED WEB IS STILL FORMING

if we want to make a more resilient web
driven by values that run deeper than profit,
institutions and community organizations must
build themselves into the decentralized web

WHY DID HUMANS CREATE LIBRARIES?

Photo by Public Library of Cincinnati & Hamilton County

LIBRARIES WORKED FOR PRINT PUBLICATIONS

people who love print publications (books, newspapers) love libraries

when the www came along

WE ALL DROPPED THE BALL

WE THOUGHT THE WEB WOULD MAKE INFO UBIQUITOUS

WE THOUGHT THE WEB WAS LIKE A LIBRARY

because you can use either one to

find and access information

WE THOUGHT THE WEB WAS LIKE A LIBRARY

because you can use either one to

find and access information

but libraries are a means of

sharing possession of information resources

(the www is not)

SHARING POSSESSION OF INFORMATION RESOURCES

LOCATION-ADDRESSING

same info in 100 locations == 100 information resources

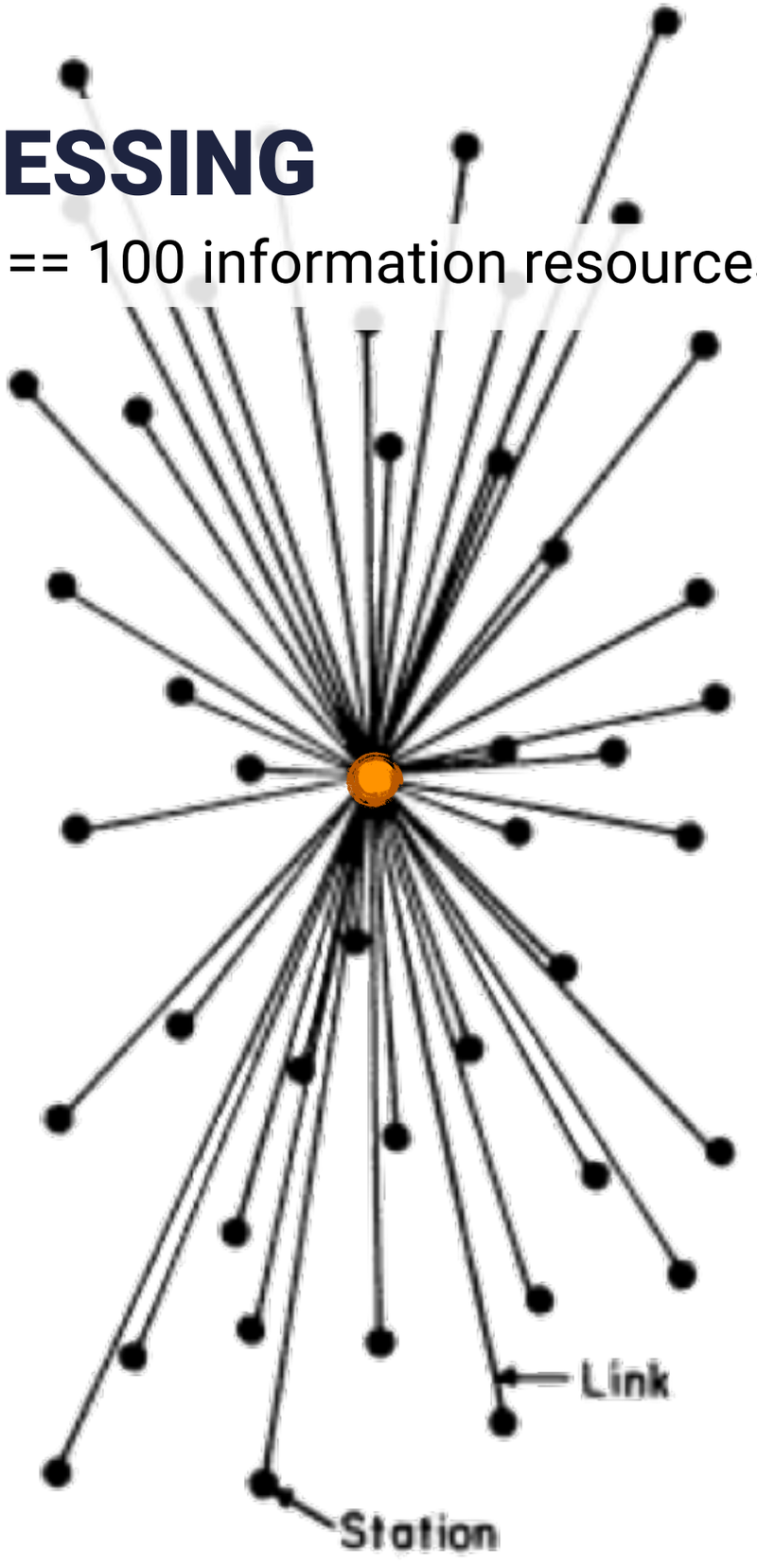
SHARING POSSESSION OF INFORMATION RESOURCES

CONTENT-ADDRESSING

same info in 100 locations == 1 information resource, possessed by many

LOCATION-ADDRESSING

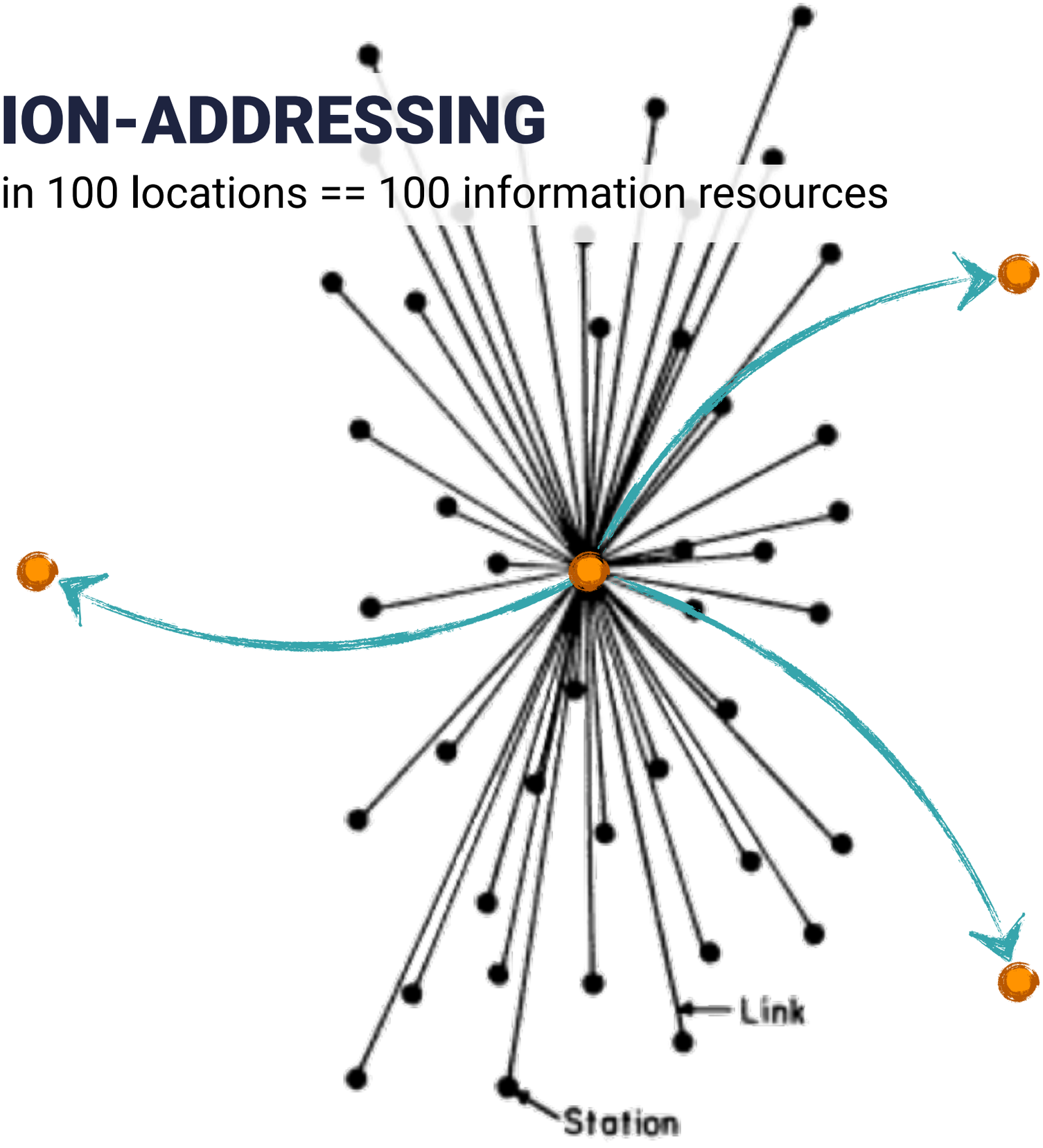
same info in 100 locations == 100 information resources



CENTRALIZED
(A)

LOCATION-ADDRESSING

same info in 100 locations == 100 information resources



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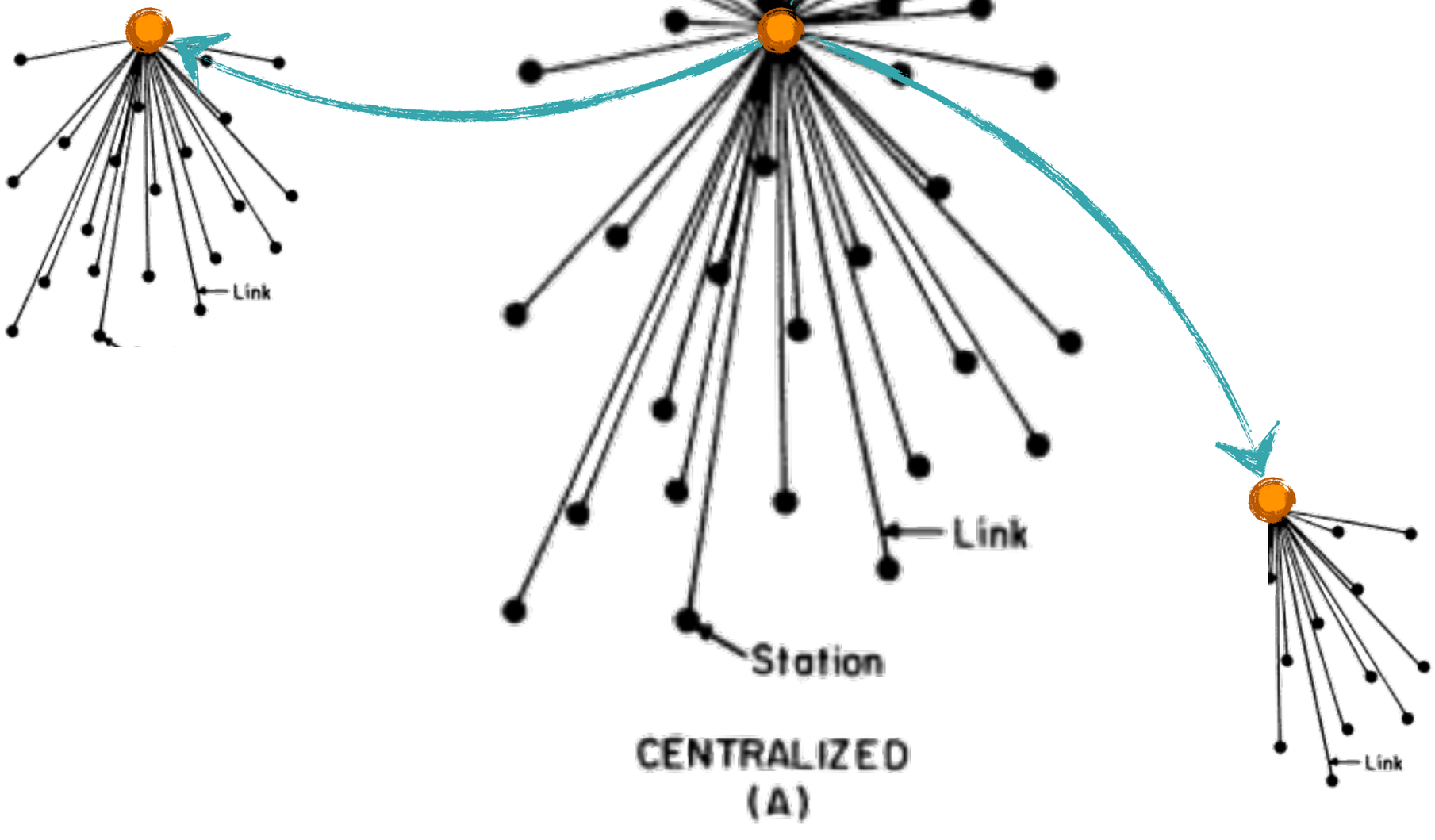

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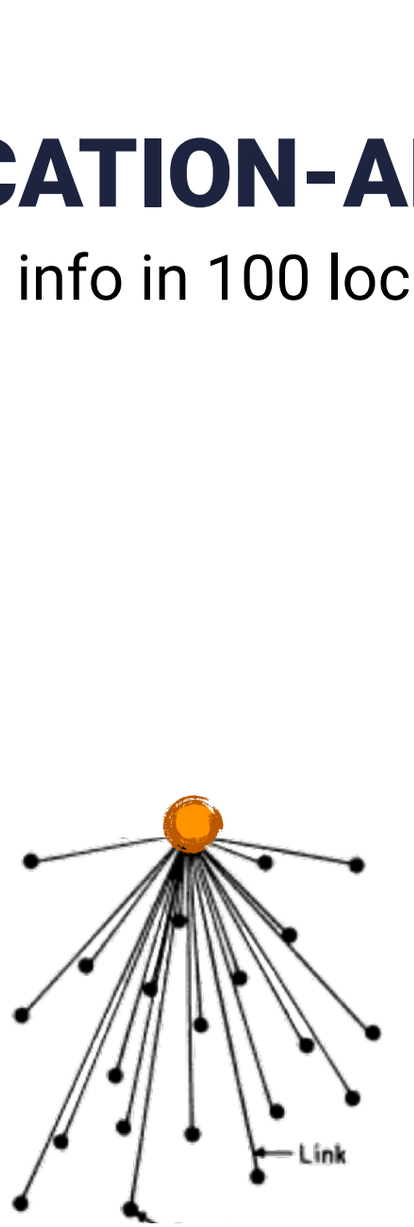
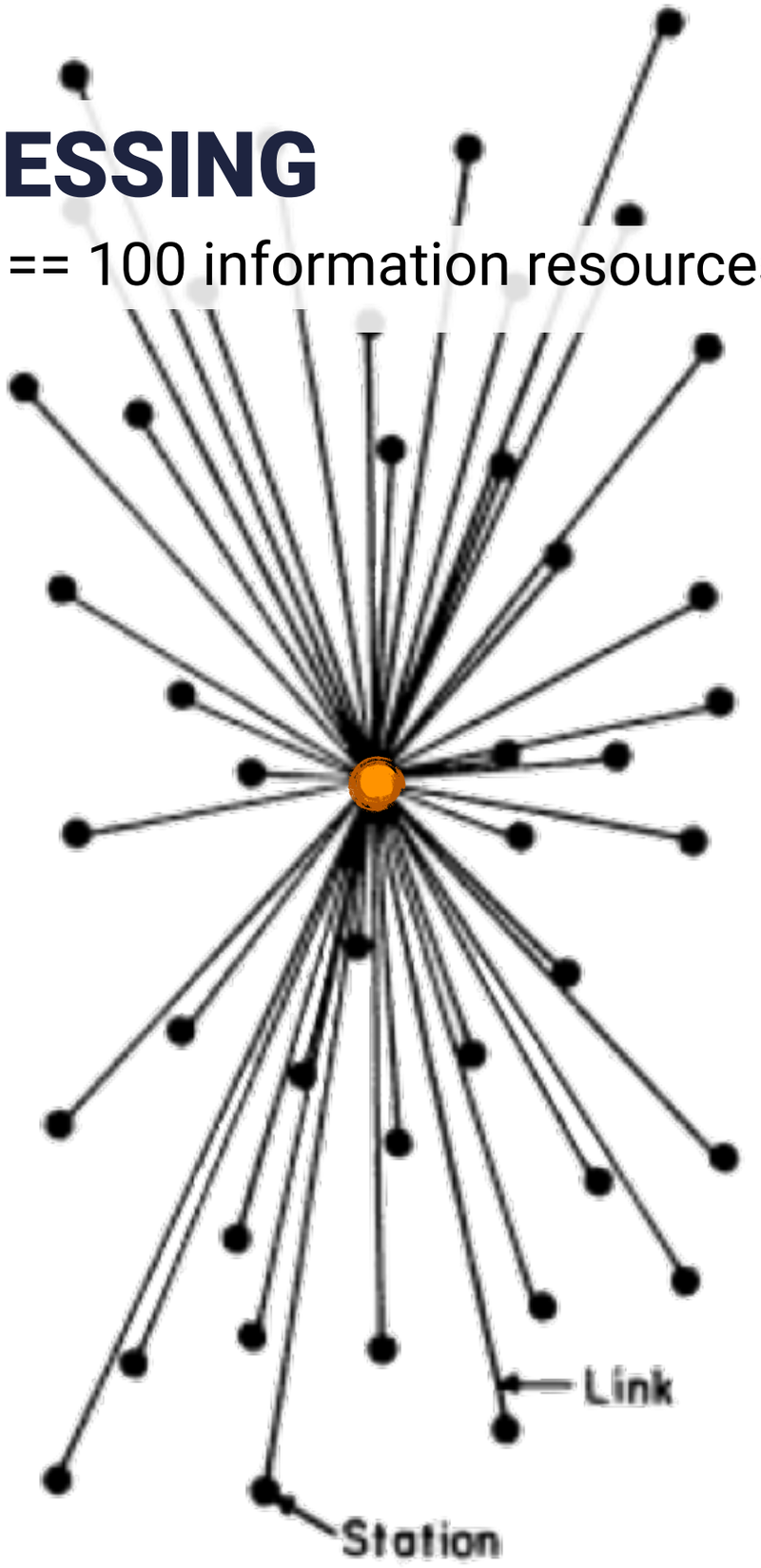
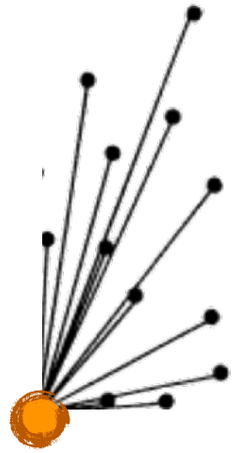
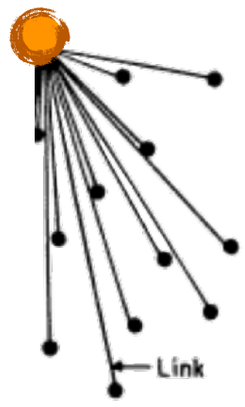




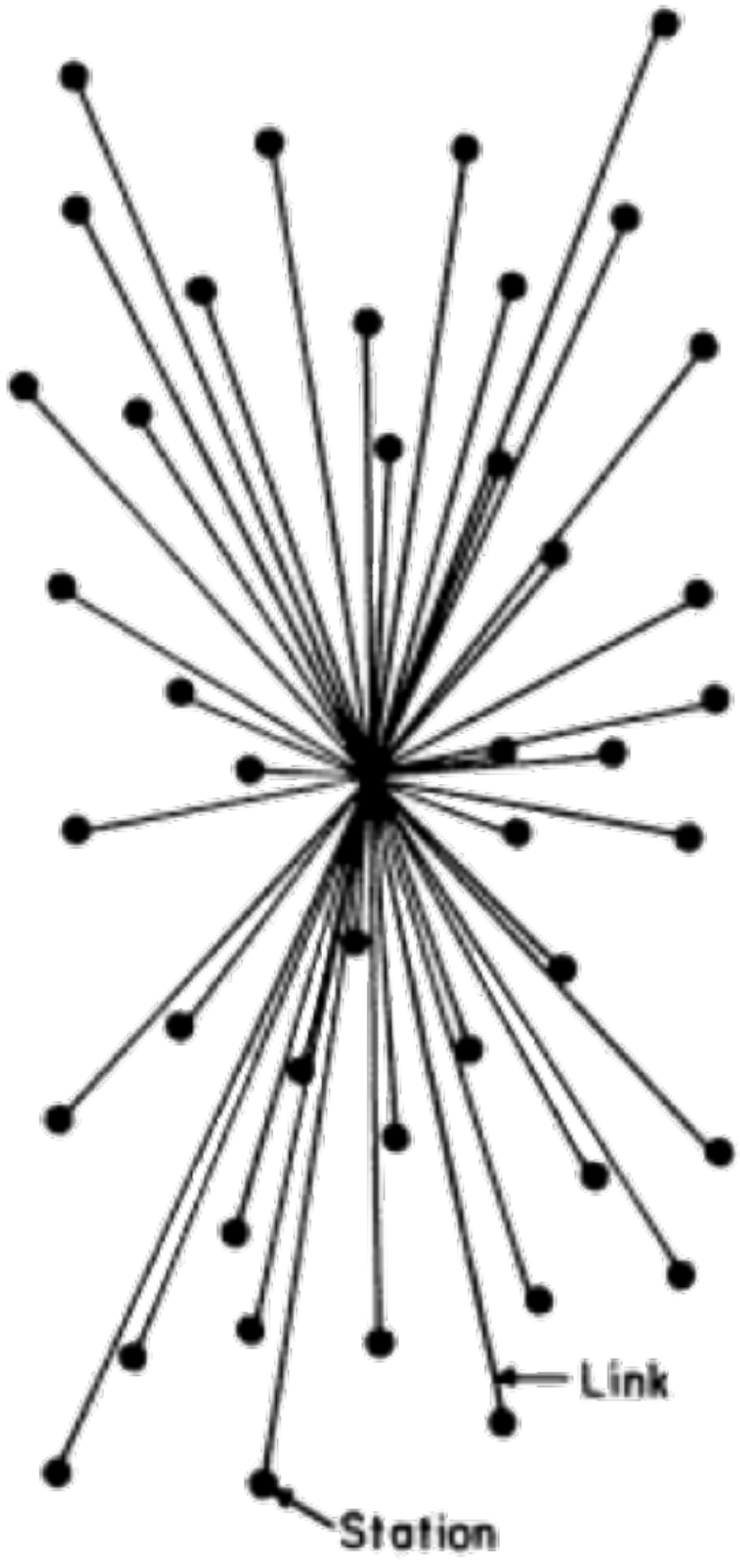
CENTRALIZED
(A)





CONSIDER THE ECONOMICS

of a location-addressed web



CENTRALIZED
(A)

user-generated content
is a work product of

WAGE LABOR

HOW SOUNDCLOUD'S BROKEN BUSINESS MODEL DROVE ARTISTS AWAY

'25 million plays, and zero dollars'

by Dani Deahl and Casey Newton | Jul 21, 2017, 12:41pm EDT

Photography by James Bareham

You Retweeted

Mat Dryhurst @matdryhurst · Jul 13

If Soundcloud goes down, think of all the silent web pages in the press archives. Single point of failure / a decade rendered mute.

3 96 304

You Retweeted

yan @bcrypt · Jul 13

IMO if soundcloud goes under, preserving shares/likes/follows is more important than preserving music files. artists need discoverability.

11 30 128

Jason Scott @textfiles · Jul 20

Due to a request by Soundcloud, archiving and storage of Soundcloud is ending immediately.

37 119 82

VINE

Twitter Is Officially Shutting Down Vine Today

Tom Huddleston, Jr.
Jan 17, 2017

The end is nigh for Vine, as the popular short-video sharing app owned by Twitter will officially become Vine Camera on Tuesday.

Twitter announced three months ago that it would shutter Vine, though it said last month that the service would shift to Vine Camera, a different app that will also let users create 6.5-second looping videos that they can either save or post to Twitter. Starting on Tuesday, the service's website, Vine.co, will stop hosting new videos and will instead serve as an archive for searching old video clips.

In the message last month, Vine encouraged users to download their past Vines before the switch to keep them. It's unclear how long the archive will be available.

http://fortune.com/2017/01/17/twitter-shut-down-vine-tuesday/

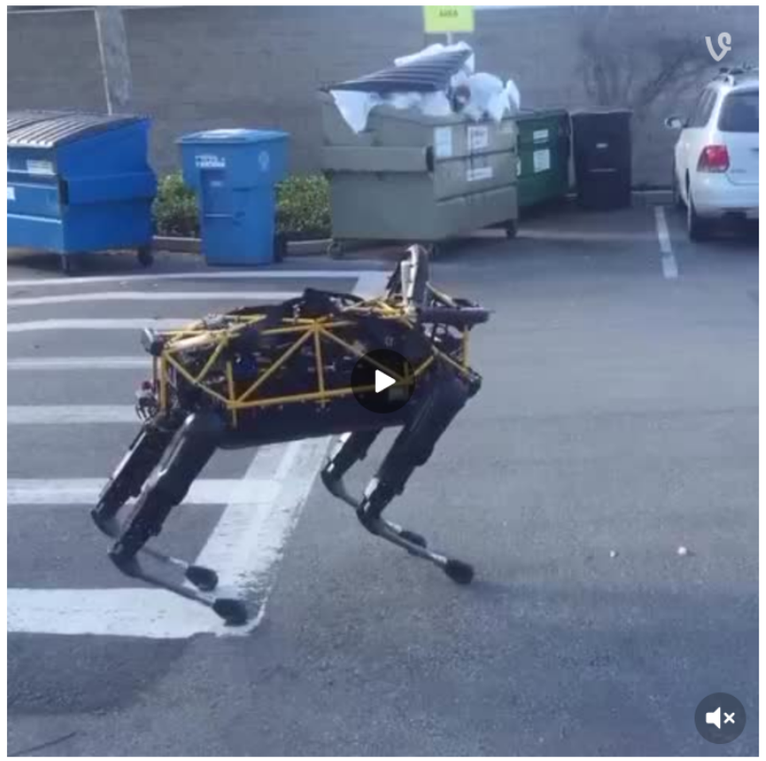
Stephanie Georgopulos Follow
editorial @medium // casual editor of human parts // writer // tincture m...
Oct 27, 2016

Mourning Vine: A Support Thread

Vine announced today that it's moving beyond this earthly realm. Because we don't have enough things to be sad about, I guess!

Anyway, I wanna watch 8,000 Vines now. I'll show you mine* if you show me yours.

*These are not *my* Vines, personally, but like… aren't they?



https://medium.com/@omgstephlol/mourning-vine-a-support-thread-e6f302321a92

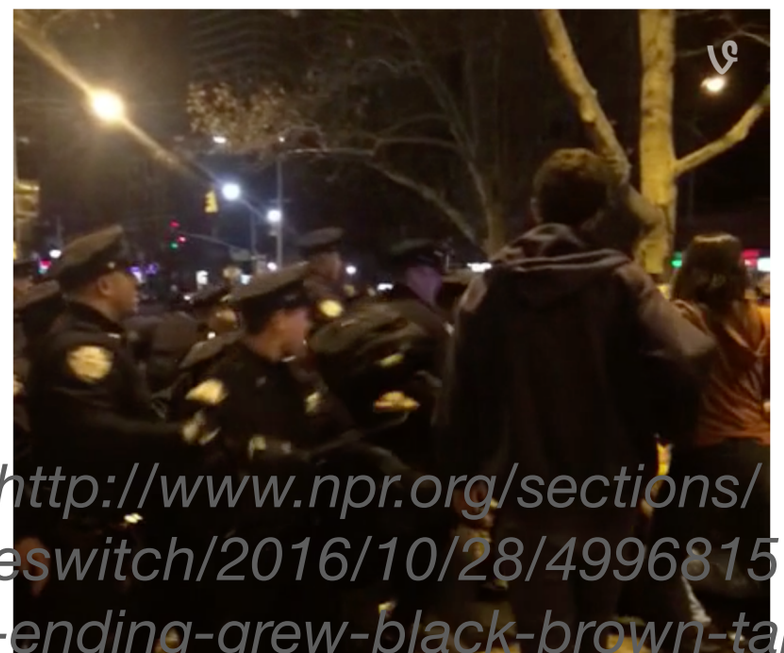
#RIPVine

CODE SWITCH RACE AND IDENTITY, REMIXED

A Moment Of Silence For The Black And Brown Talent That Grew On Vine

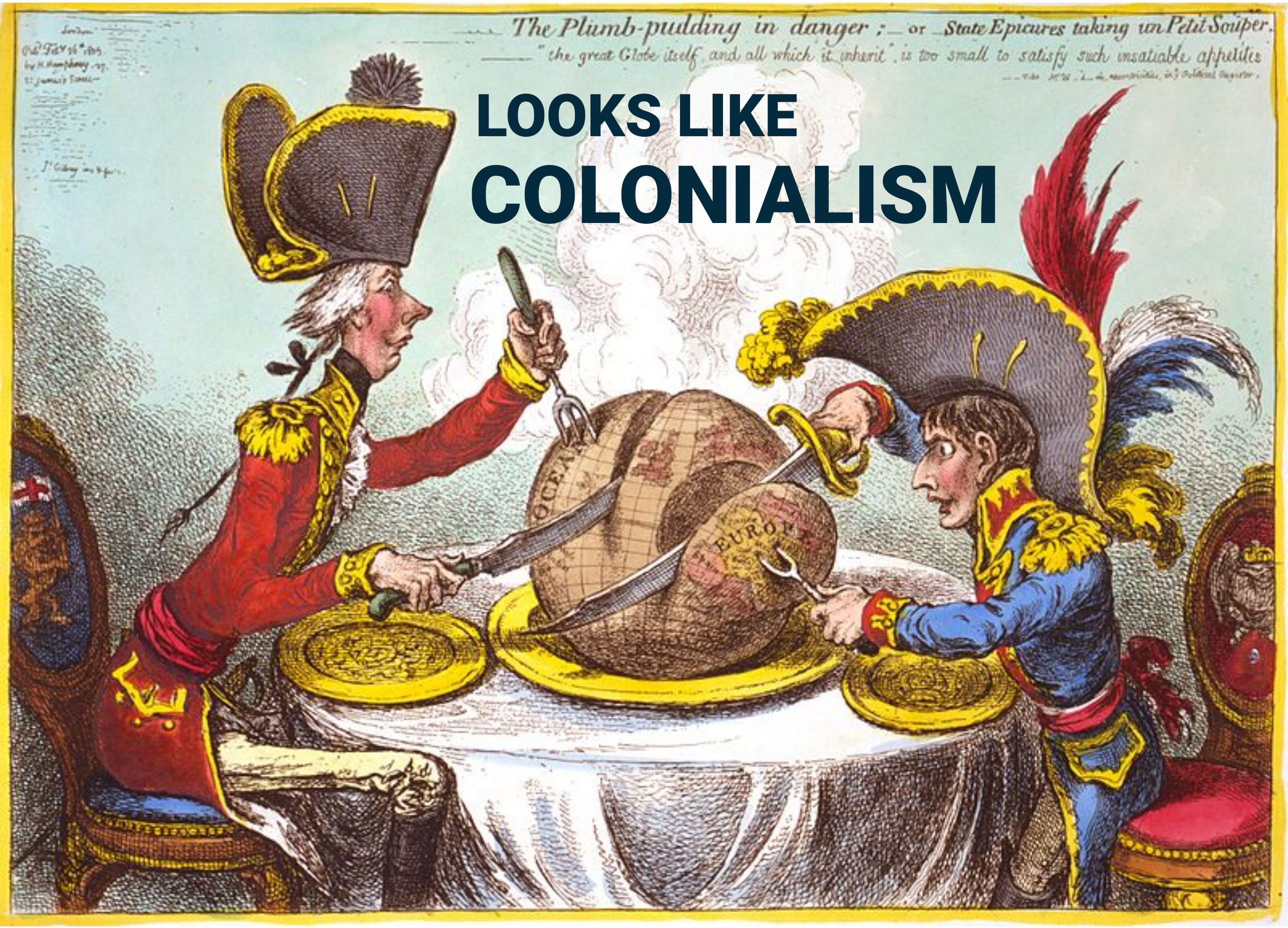
October 28, 2016 · 11:43 AM ET

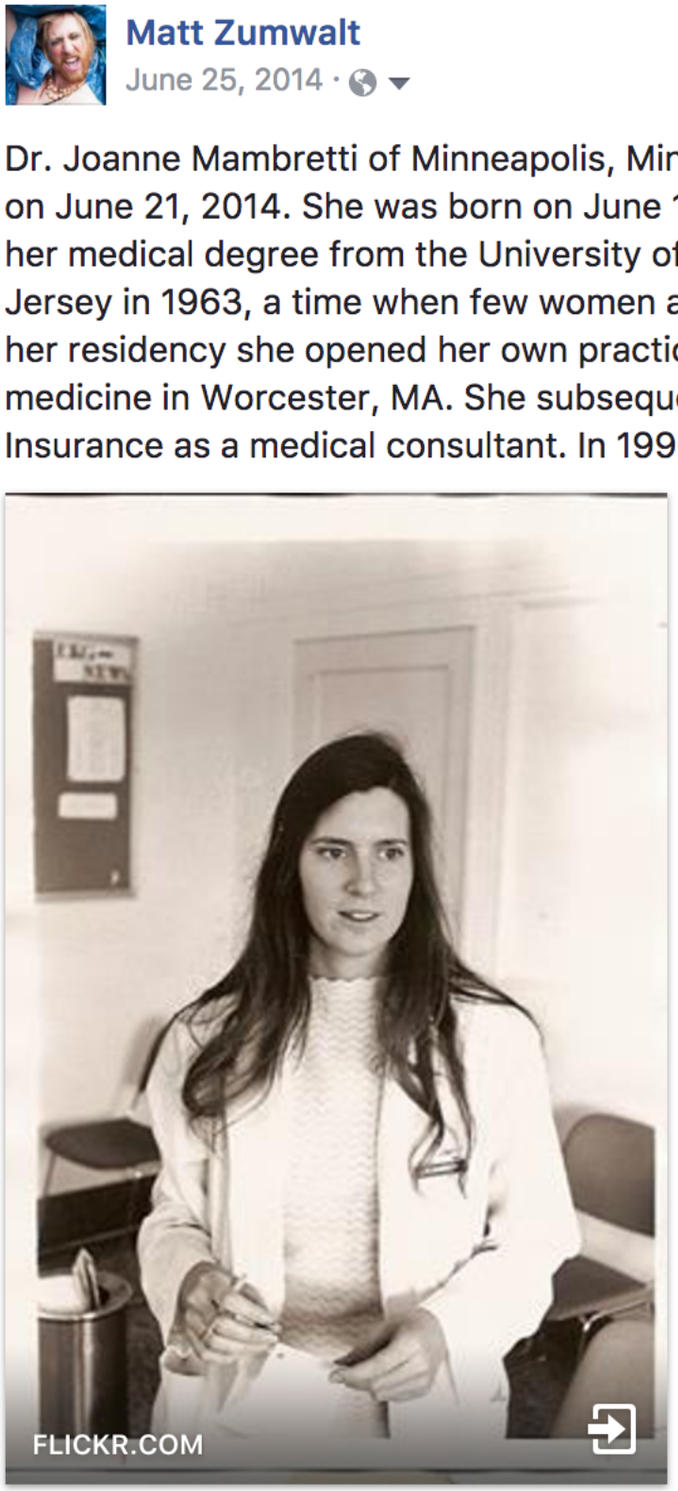
KAT CHOW



http://www.npr.org/sections/codeswitch/2016/10/28/499681576/vine-ending-grew-black-brown-talent

LOOKS LIKE
COLONIALISM





Matt Zumwalt
June 25, 2014 ·

Dr. Joanne Mambretti of Minneapolis, Minnesota passed away peacefully on June 21, 2014. She was born on June 13, 1947. Joanne graduated with her medical degree from the University of Medicine and Dentistry of New Jersey in 1963, a time when few women attended medical school. After her residency she opened her own practice in pulmonary and internal medicine in Worcester, MA. She subsequently worked for Paul Revere Life Insurance as a medical consultant. In 1996 she moved to M... See More

Like Comment Share

The Switch

Facebook's 'Year in Review' app swings from merely annoying to tragic

- Washington Post December 2014

Facebook turned my grief into click bait and then got me to take the bait. [...] And now they're making money off of my disgust.
This is an abomination of the possibilities presented by web technologies.

-Matt Zumwalt on facebook, 30 December 2014

Facebook

Facebook's 'colonial' Free Basics reaches 25 million people – despite hiccups

The program offering free, limited internet service to the developing world has faced setbacks and criticism but now has 500 apps available in 37 countries

This article is 1 year old

1

Nellie Bowles in San Francisco

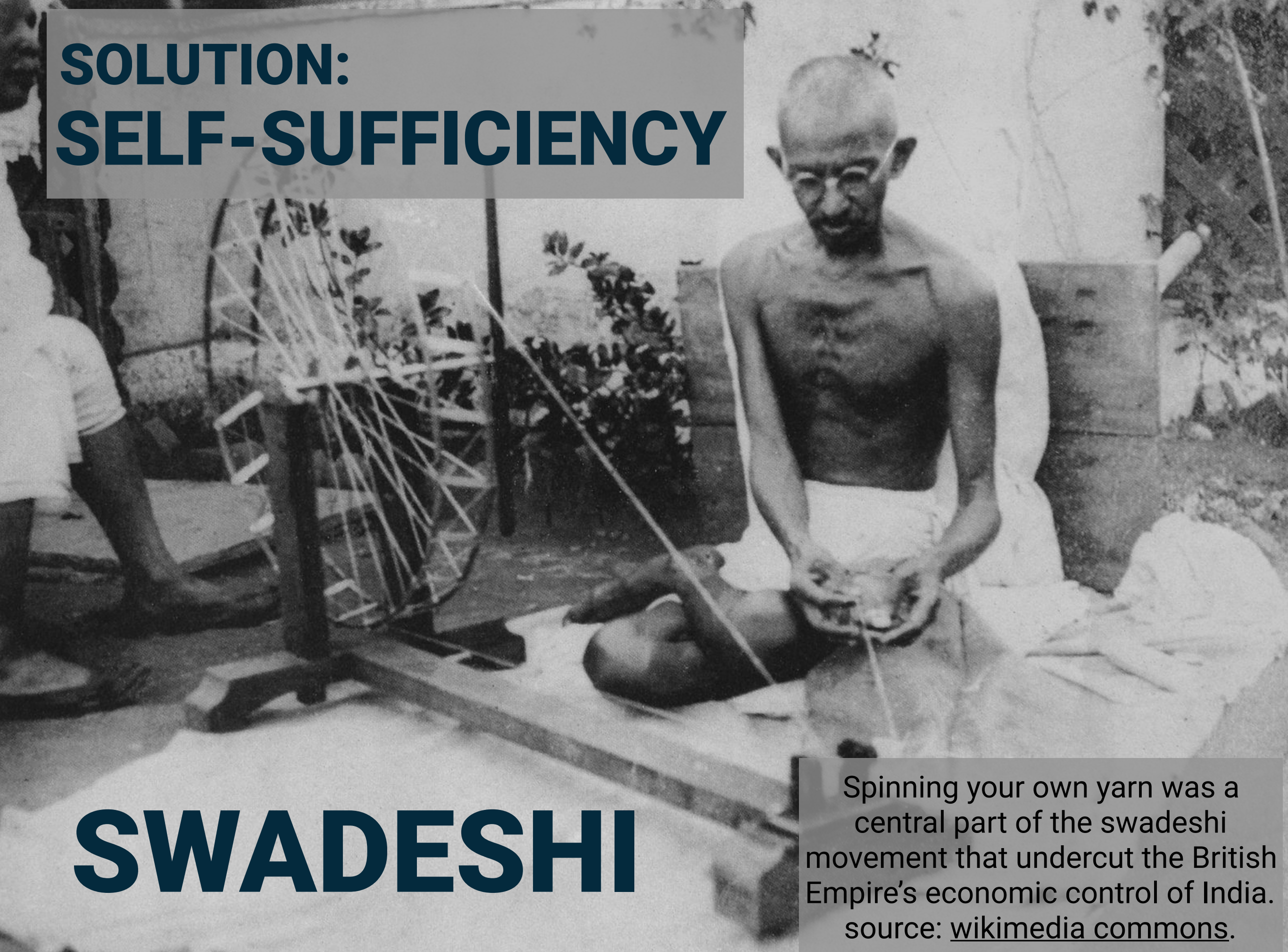
@NellieBowles

Tuesday 12 April 2016
19.02 EDT

Facebook's CEO, Mark Zuckerberg, speaks on stage during the Facebook F8 conference in San Francisco, California, on Tuesday. Photograph: Stephen Lam/Reuters

https://www.theguardian.com/technology/2016/apr/12/facebook-free-basics-program-reach-f8-developer-conference

SOLUTION:
SELF-SUFFICIENCY



SWADESHI

Spinning your own yarn was a central part of the swadeshi movement that undercut the British Empire's economic control of India. source: wikimedia commons.

NEED WAYS TO

POSSESS AND EXCHANGE INFORMATION INDIVIDUALLY AND COLLECTIVELY

DISTRIBUTED
(C)

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Like Comment Share

Information should be **held by the people who rely on it**.

Communities & institutions should **aggregate information and resources** to support **access, discovery & preservation**.

SHARING POSSESSION OF INFORMATION RESOURCES

LOCATION-ADDRESSING

same info in 100 locations == 100 information resources

SHARING POSSESSION OF INFORMATION RESOURCES

CONTENT-ADDRESSING

same info in 100 locations == 1 information resource, possessed by many

CORE CONCEPT

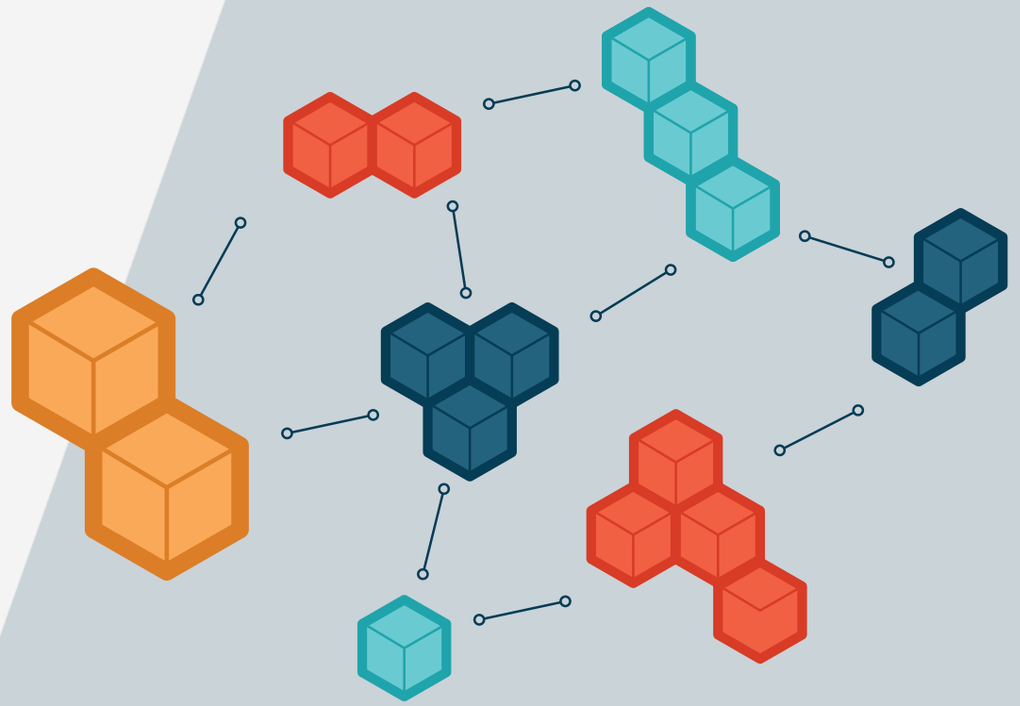
CONTENT ADDRESSING

Benefit: If *anyone on the network* has a copy of the *content you will be able to find and retrieve it*

CORE CONCEPT

CONTENT ADDRESSING

Key idea: It doesn't matter where the content is stored. What matters is being able to know that you're getting exactly the content you requested*

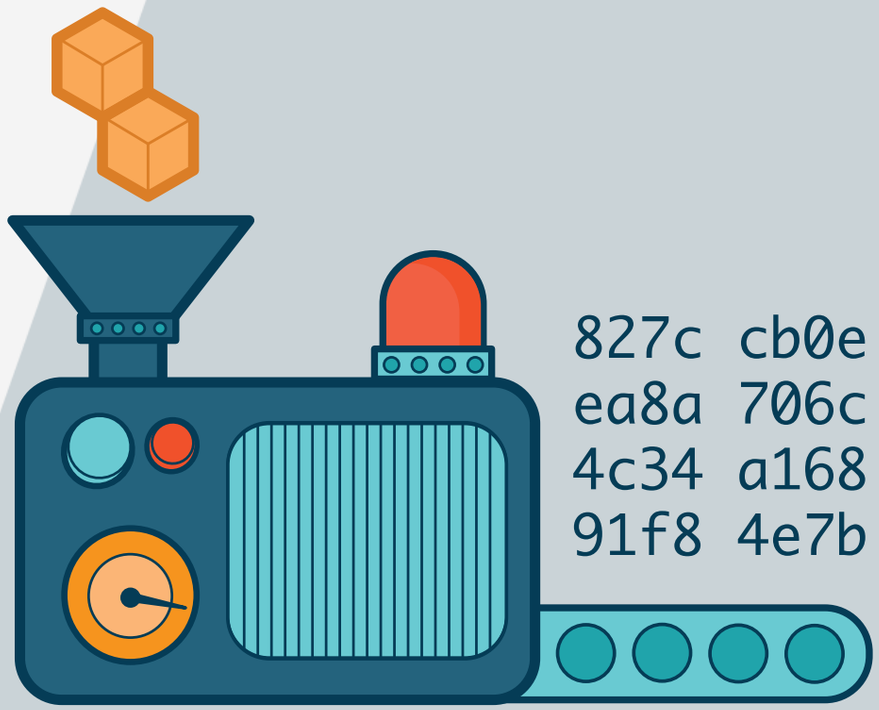


*also important to consider who you got the link/address from.

CORE CONCEPT

CONTENT ADDRESSING

How: identify content by its cryptographic hash



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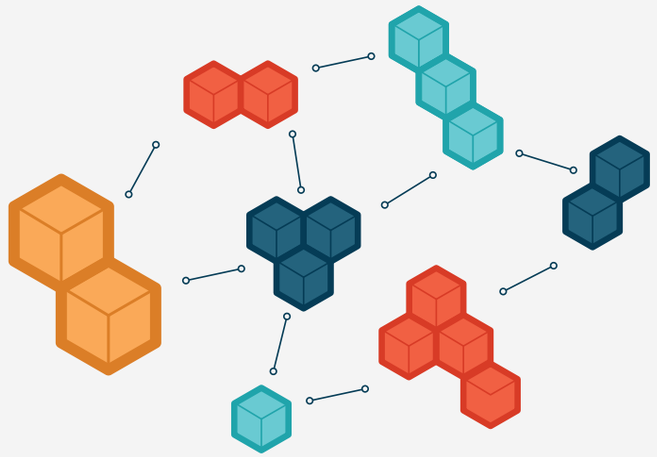

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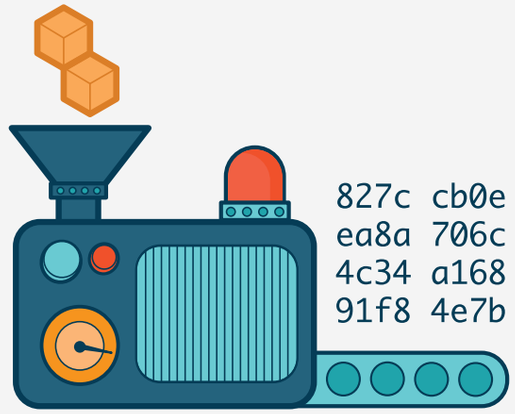


How: Identify content by its cryptographic hash

*also important to consider who you got the link/address from.

This file is important.
“Can we pin a copy at the library?”
We’ve got you covered. Just tell me the hash of the file and the hash of the surrounding metadata. We will accession all of it.
LIBRARIAN

we need librarians

APPLYING LIBRARY PRACTICE

ACCESSIONING
COLLECTION DEVELOPMENT
CATALOGING
INTER-LIBRARY LOAN

DECENTRALIZED WEB

technical part

of the solution

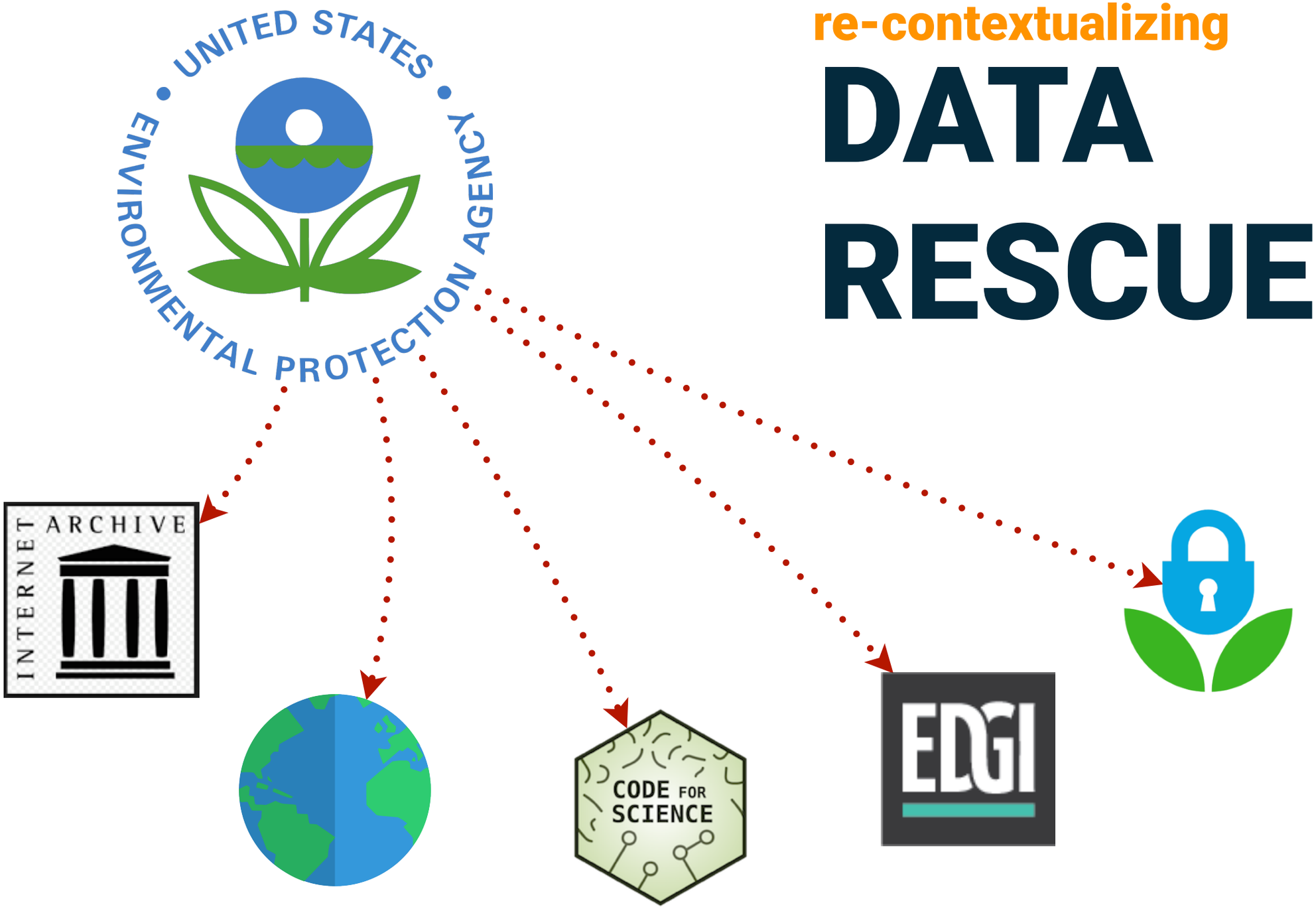
CONTENT-ADDRESSING
PEER TO PEER PROTOCOLS
PUBLIC KEY CRYPTOGRAPHY

DATA TOGETHER

social + organizational part

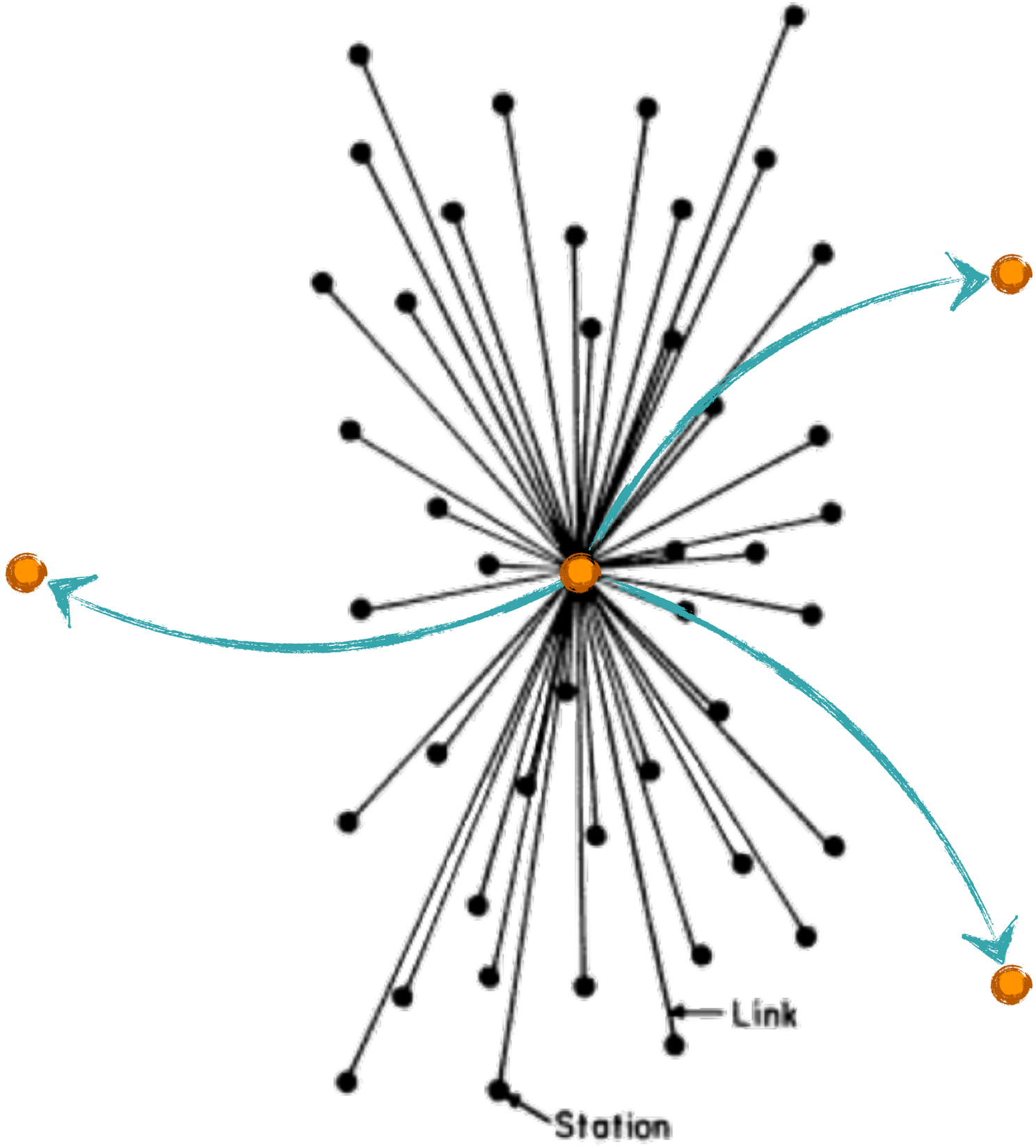
of the solution

INSTITUTIONS
COMMUNITY ORGANIZATIONS
GOVERNMENTS
NGOS
supporting communities’ shared possession of information



re-contextualizing

DATA RESCUE



CENTRALIZED
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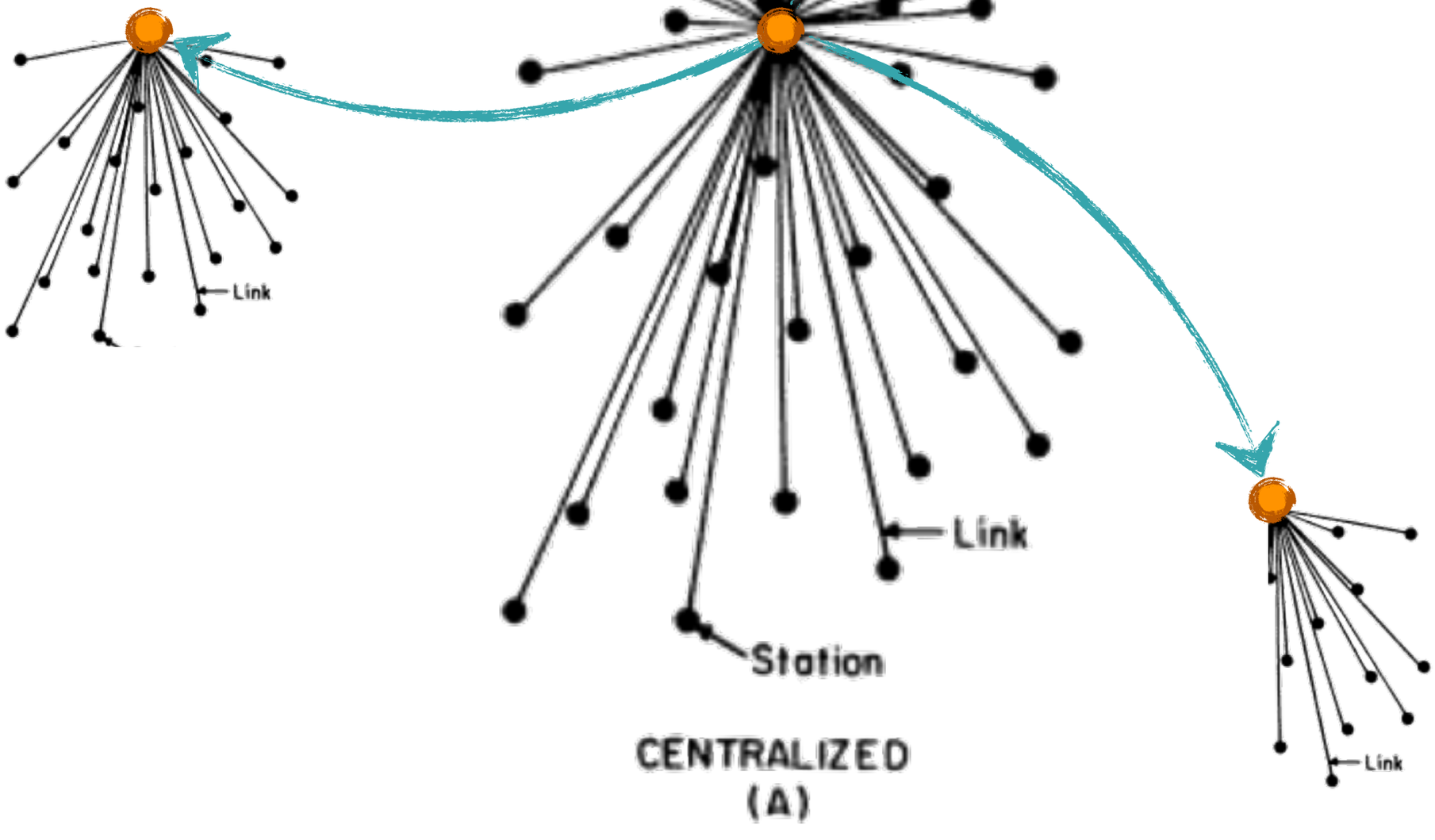

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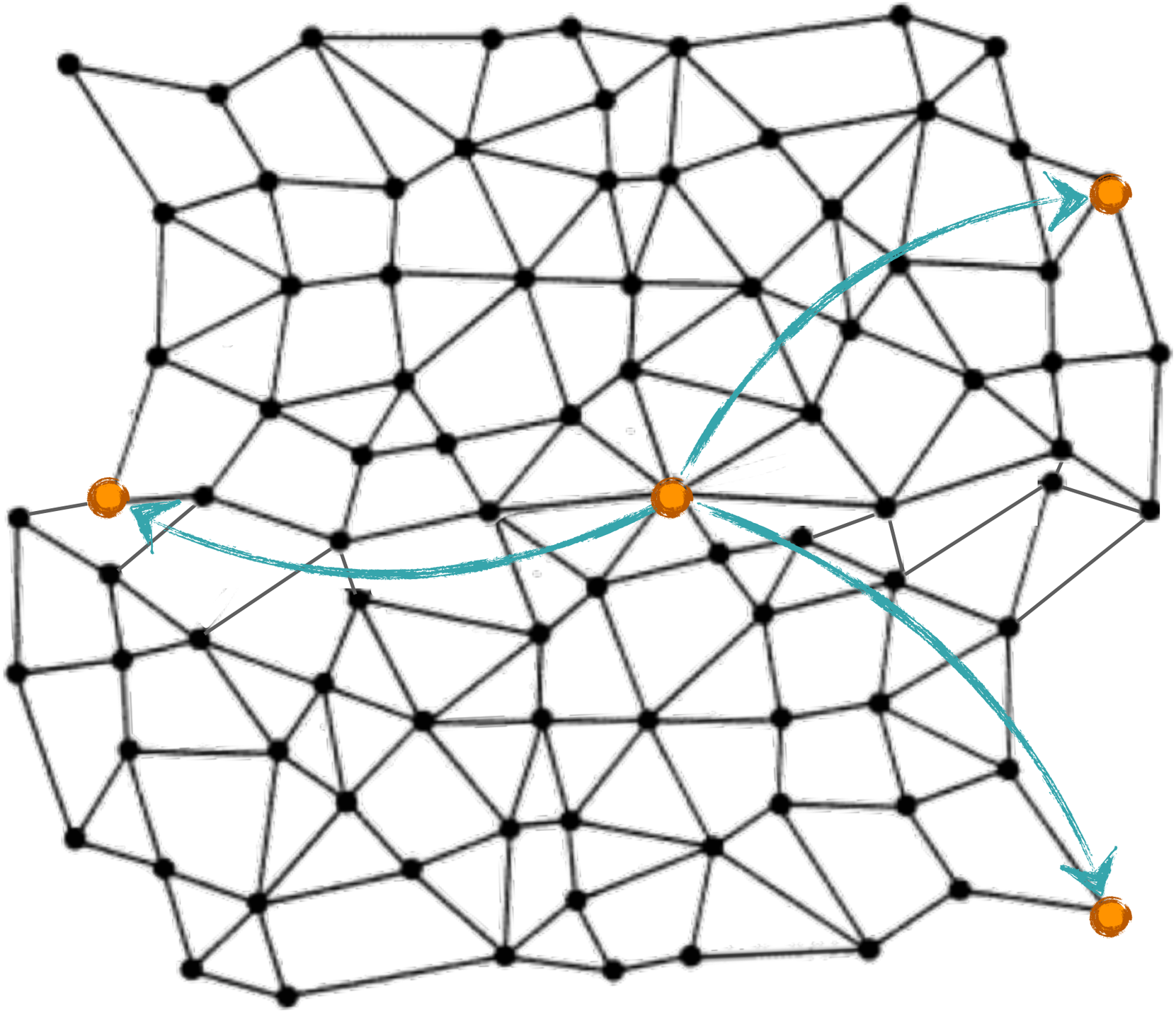
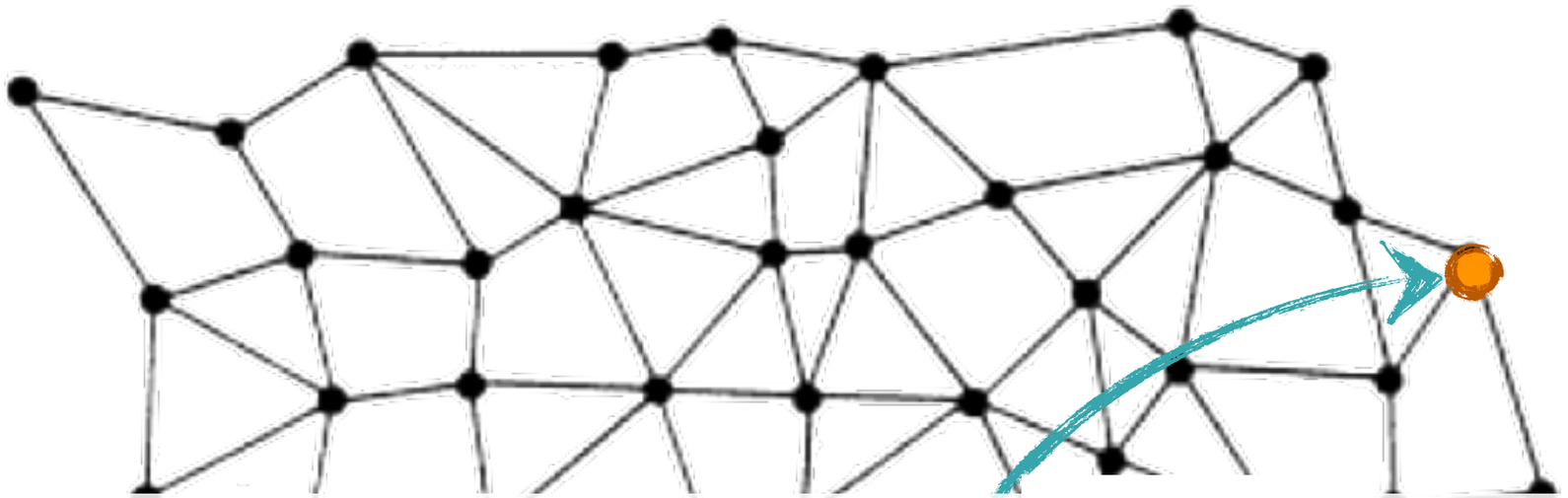
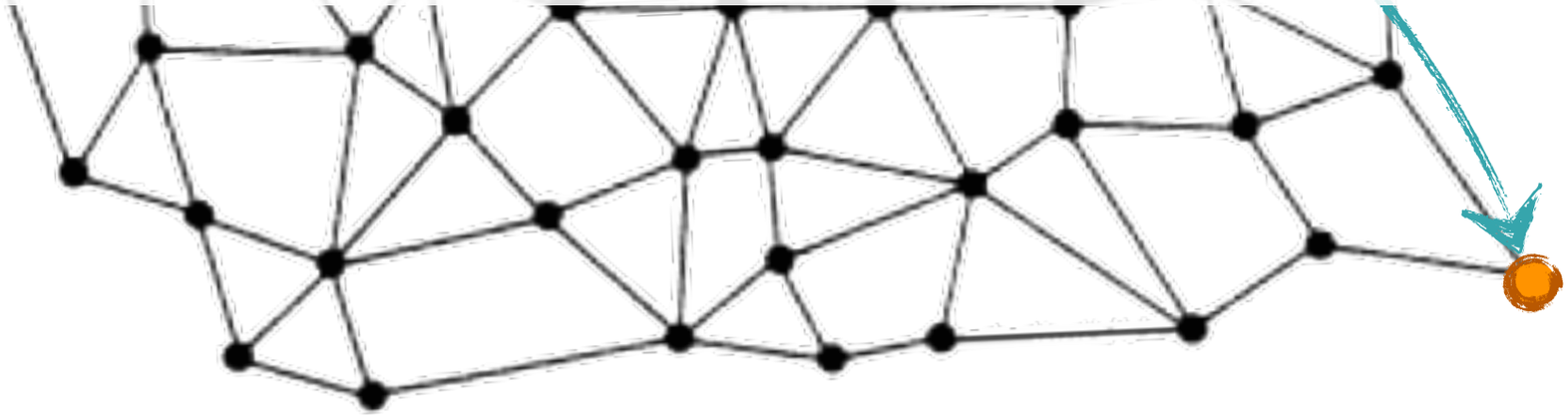




MATRIX OF RISK + VALUE

can’t be built by any one organization or one community

and shouldn’t be.



https://datatogether.org

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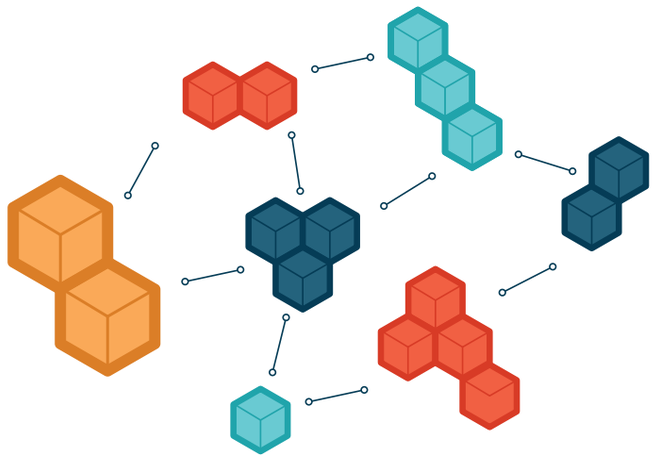
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