

# Sticking Together while Staying Apart

Resilience in the time of global pandemic



**Aaron Aldrich**

 @CrayZeigh

“

Million-to-one chances... crop  
up nine times out of ten.

—Sir Terry Pratchett GNU



“

Everything's a little bit broken  
all of the time... but it keeps  
working anyway

# Resilience





# Resilience

# Resilience



**Rebound**



# Resilience



**Rebound**



**Robustness**

# Resilience



**Rebound**



**Graceful  
Extensibility**



**Robustness**



# Resilience



**Rebound**



**Graceful  
Extensibility**



**Robustness**



**Sustained  
Adaptability**

# Rebound

Return to “normal”  
after a surprise or  
traumatic incident.  
Work done ahead of  
time.





# Robustness

The ability to withstand and absorb well-modeled disturbances. Known-knowns





# Graceful Extensibility

The ability to stretch  
with challenges to  
operational  
boundaries.  
Opposed to brittleness.





# Sustained Adaptability

Recognizing and managing adaptive capabilities over long timescales









# Bone



# Bone

- Continuously created and destroyed



# Bone



- Continuously created and destroyed
- Reconstruction directed by mechanical strain



# Bone



- Continuously created and destroyed
- Reconstruction directed by mechanical strain
- Process directed by signals through layered networks at cell-level

## The marvelous resilience of bone

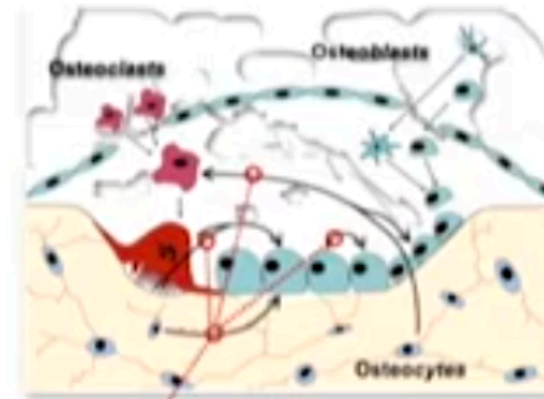
### Resilience engineering...



- ...is engineering applied to a resilient system.
- ...depends for its success the presence of resilience.
- ...requires understanding how resilience plays out.
- ...can be successful even without understanding the mechanisms of resilience.
- ...benefits from greater understanding of the sources and modulators of resilience.

~3500 yrs old

### Resilience engineering...



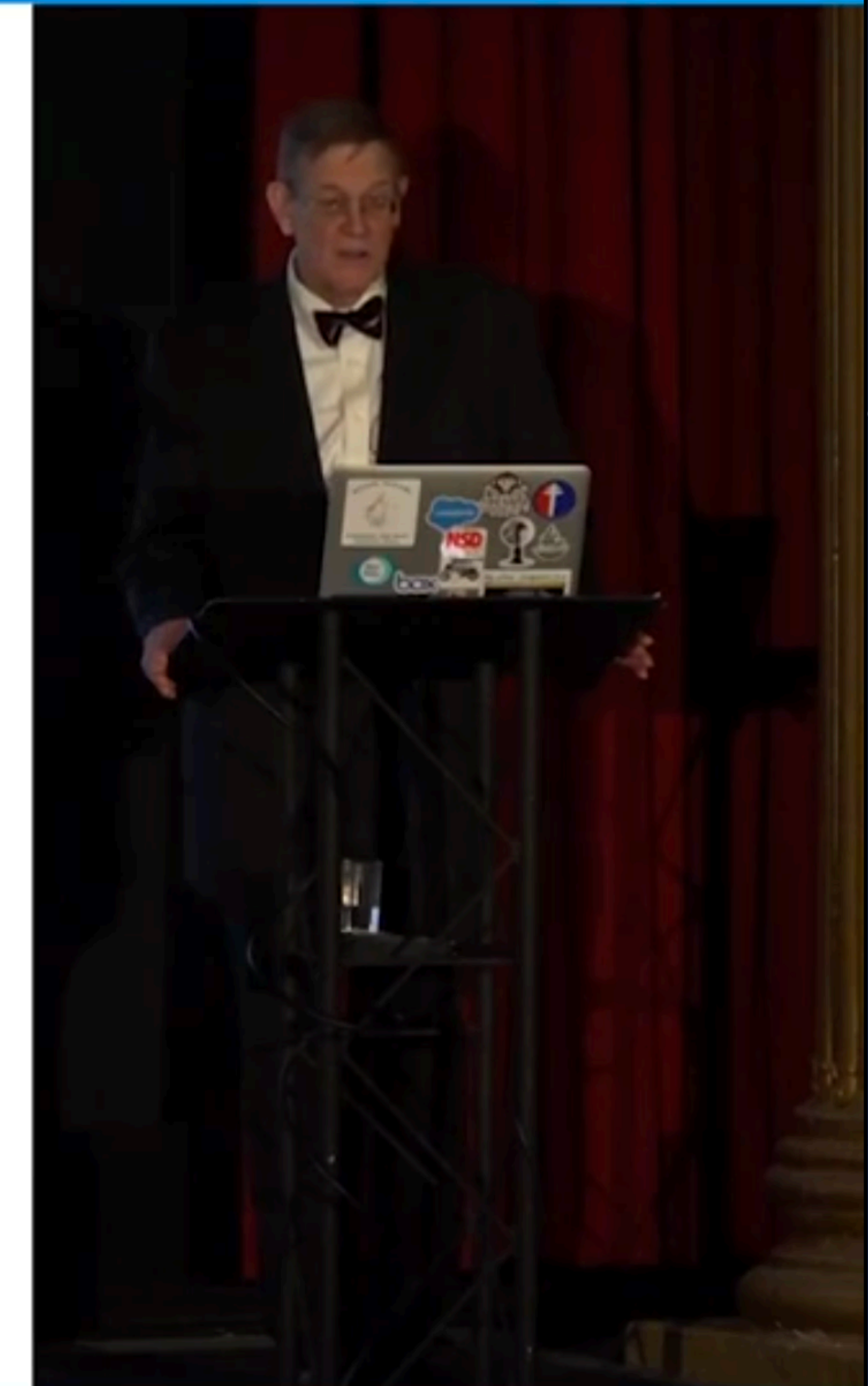
signals (partial list)

OSM	EphB4
PTHrP	Sema3a
sclerostin	OSM
TGFb	RANKL
IGF-1	Sema3B
CT-1	Wnt5a
Sema4D	OPG
S1P	OSM
ephrinB2	interleukins
	RANKL

- ...alters the resilience mechanisms of a system.
- ...depends for its success on deep understanding resilience.
- ...seeks to retard the loss of adaptive capacity.
- ...generates new types of hazard.

~5 yrs old

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**REdeploy**









Rebound



Graceful  
Extensibility



Robustness



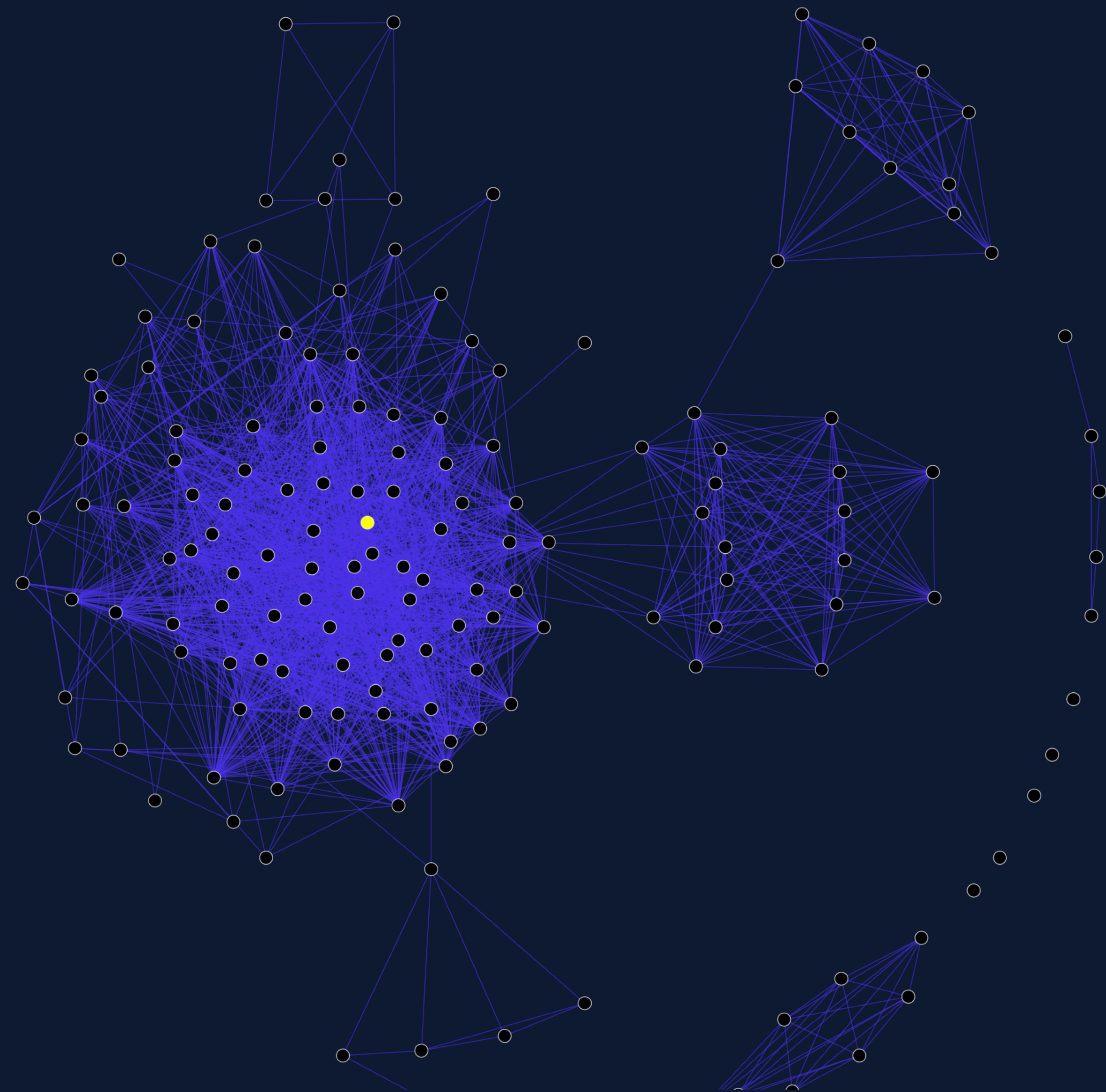


# Socio-Technical Systems

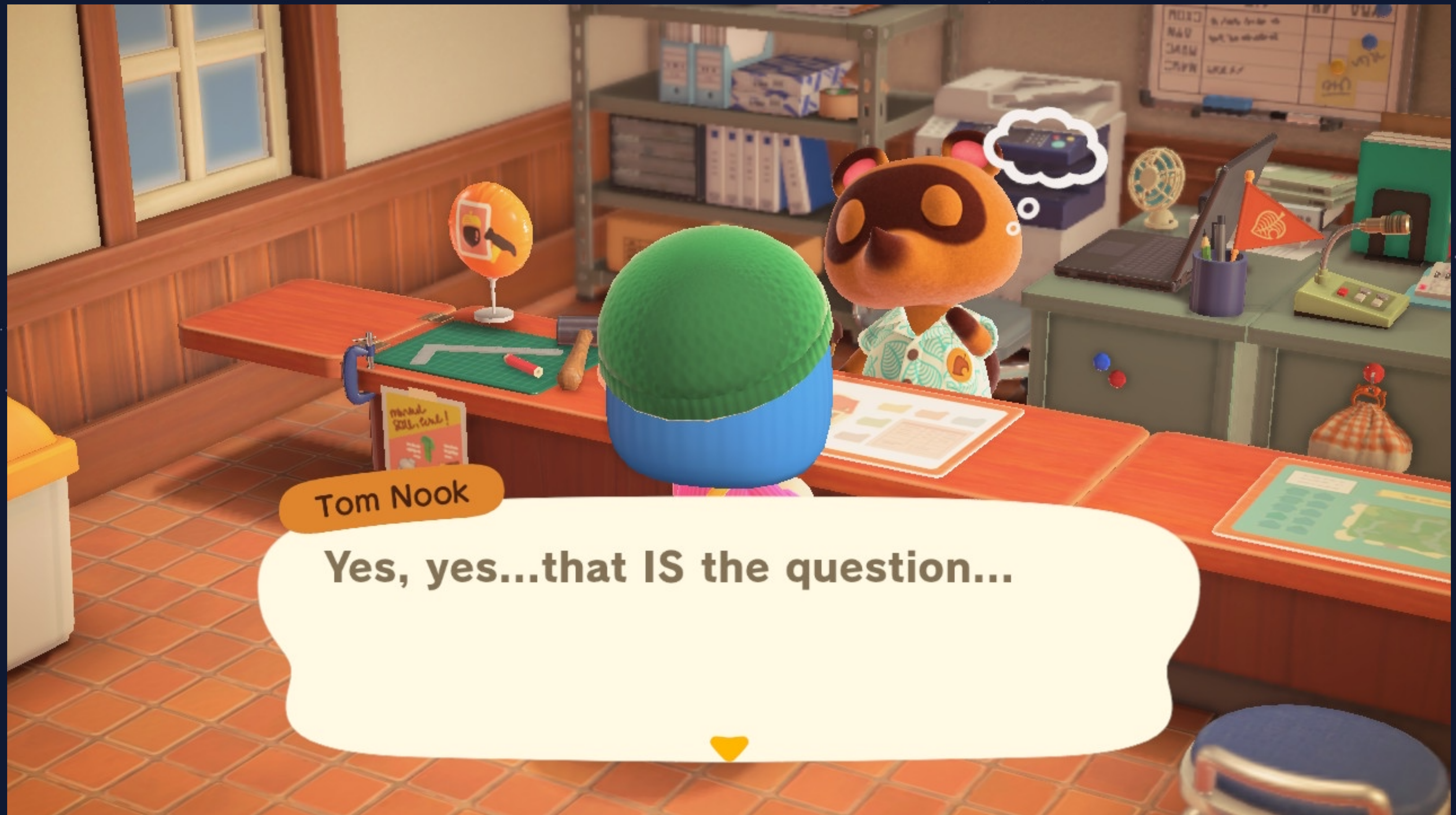


# Conway's Law

Designed systems  
represent an  
organization's  
communication  
structure







Tom Nook

Yes, yes...that IS the question...



# Blunt end



# Sharp end

# Blunt end



# Sharp end

Closest to the work, practitioners



# Blunt end

Removed from  
experience, upstream  
decision makers



# Sharp end

Closest to the work, practitioners



# Sharp end

Closest to the work, practitioners



- Constantly building and destroying systems



# Sharp end

Closest to the work, practitioners

- Constantly building and destroying systems
- Strong signaling



# Sharp end

Closest to the work, practitioners



# Sharp end

Closest to the work, practitioners



- Constantly building and destroying systems
- Strong signaling
- Improve systems based on strain

# Sharp end

Closest to the work, practitioners



- Constantly building and destroying systems
- Strong signaling
- Improve systems based on strain
- Will do so naturally given ownership





Teams that do well dealing with  
impact [surprises/incidents] are those  
that have a strong common ground

—J. Paul Reed (@jpaulreed), Failover Conf

“

If we want to improve a team's  
resilience, we must build a strong  
common ground

—Me, Just now.



# Common Ground



# Common Ground

- Basic Compact





# Common Ground

- Basic Compact
- Goal Alignment/  
Commitment





# Common Ground

- Basic Compact
- Goal Alignment/  
Commitment
- Inter-predictability





# Common Ground

- Basic Compact
- Goal Alignment/  
Commitment
- Inter-predictability
- Sustain & Repair



# Building Common Ground





# Building Common Ground

- Blameless Postmortems



# Building Common Ground

- Blameless Postmortems
- Chaos Engineering





# Building Common Ground

- Blameless Postmortems
- Chaos Engineering
- Game Days





# Building Common Ground

- Blameless Postmortems
- Chaos Engineering
- Game Days
- Modeling Vulnerability





1

## Psychological Safety

Team members feel safe to take risks and be vulnerable in front of each other.

2

## Dependability

Team members get things done on time and meet Google's high bar for excellence.

3

## Structure & Clarity

Team members have clear roles, plans, and goals.

4

## Meaning

Work is personally important to team members.

5

## Impact

Team members think their work matters and creates change.



1

# Psychological Safety

Team members feel safe to take risks and be vulnerable in front of each other.





**Matt Stratton**

**Kick 'Em or Keep 'Em -  
Collaborating on our own  
Deserted Islands**

**Deserted Island  
DevOps**

Register at [desertedislanddevops.com](https://desertedislanddevops.com)

**April 30th, 2020**

**Starting 10 AM ET**

<https://youtu.be/SgCGD7rutSw>

“

Resilience is about creating the  
conditions that maximize  
everyone's potential

—Rein Hendrichs, >Code Podcast, 174: Resilience









A cozy winter night scene. In the background, a small cabin with a warm light glowing from its window sits on a snowy hill. In the foreground, a campfire burns brightly on a stone fire pit, casting a warm glow. The sky is dark blue with soft, wispy clouds. The overall atmosphere is peaceful and inviting.

What happens when  
governments fail?



A soft-focus illustration of a winter night scene. In the foreground, a bright campfire burns in a metal fire pit. To the left, a tree stump sits on the ground. In the background, a small cabin with a glowing window is nestled among dark, snow-covered trees under a deep blue night sky with a single star.

It's left to us



“

Community Building is  
Resilience Engineering

—Me again, just now again.

# Strong Communities





# Strong Communities

- Diverse





# Strong Communities

- Diverse
- High Trust & Safety





# Strong Communities

- Diverse
- High Trust & Safety
- Sustain & Repair





# Strong Communities

- Diverse
- High Trust & Safety
- Sustain & Repair
- Inter-predictability





# Strong Communities

- Diverse
- High Trust & Safety
- Sustain & Repair
- Inter-predictability
- Loosely Coupled, layered networks











## Missisquoi Valley School District to begin free meals Thursday

By MESSENGER STAFF Mar 17, 2020



[MONEY](#)

## Stores offer shopping time for vulnerable customers amid coronavirus: Target, Aldi, Walmart and more

[Kelly Tyko](#) USA TODAY

Published 12:39 a.m. ET Mar. 18, 2020 | Updated 1:19 p.m. ET Mar. 31, 2020



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# Fearing shortages, locals across Upstate SC are sewing face masks for healthcare workers

[Zoe Nicholson](#) and [Ken Ruinard](#), Greenville News

Published 6:09 a.m. ET March 24, 2020

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## Rent Strike Planned for May 1 as Pain of Coronavirus Deepens

Most residents at 17 buildings near Elmhurst Hospital Center in Queens, N.Y., have committed to stop paying rent, organizers say

**MONEY**

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## How To Save Your Community When The Government Fails

March 23, 2020 • 66 min



Cody, Robert and Katy talk to Scott Crow from Common Ground Collective about how we can help each other and build solidarity while the government debates about tax incentives and means testing. Learn more about your ad-choices at <https://news.iheart.com/podcast-advertisers>



Share



Mark as Played









Justice For  
GEORGE FLOYD  
#I CANT BREATHE























# Protest Resilience

A stylized illustration of a night scene. In the foreground, a campfire with a bright yellow and orange flame sits on a wooden log structure. To the left of the campfire is a tree stump. In the background, a small house with a single lit window is visible against a dark blue night sky with soft clouds. The overall mood is quiet and contemplative.

























# Police Targeting 'Street Medics' at US Protests



**Jonathan Pedneault**

Researcher, Crisis and Conflict Division

[@j\\_pedneault](#)







# Community Resilience



















# The Cop-Free Zone

Reflections from Experiments in Autonomy around the US

📖 [Adventure](#) | [Analysis](#) | [Current Events](#)

🌐 [Español](#) | [Italiano](#)





**There were drink coolers sorted and labeled: Water, Sparkling water, Juice, Gatorade. A generator-powered phone-charging station enabled people to stay longer while staying in communication with the outside world. A free library—with no late fees!—was established early on and stocked with the words of Black revolutionaries and poets. By July 1, the occupation was offering free COVID-19 testing, too.**

-(referencing NYC CHAZ) <https://crimethinc.com/2020/07/02/the-cop-free-zone-reflections-from-experiments-in-autonomy-around-the-us>



YOU  
ARE NOW  
ENTERING  
FREE CAP HILL







BREAKING | 260,021 views | Jun 12, 2020, 04:05pm EDT

# Minneapolis City Council Unanimously Votes To Replace Police With Community-Led Model



**Tommy Beer** Forbes Staff  
[Business](#)

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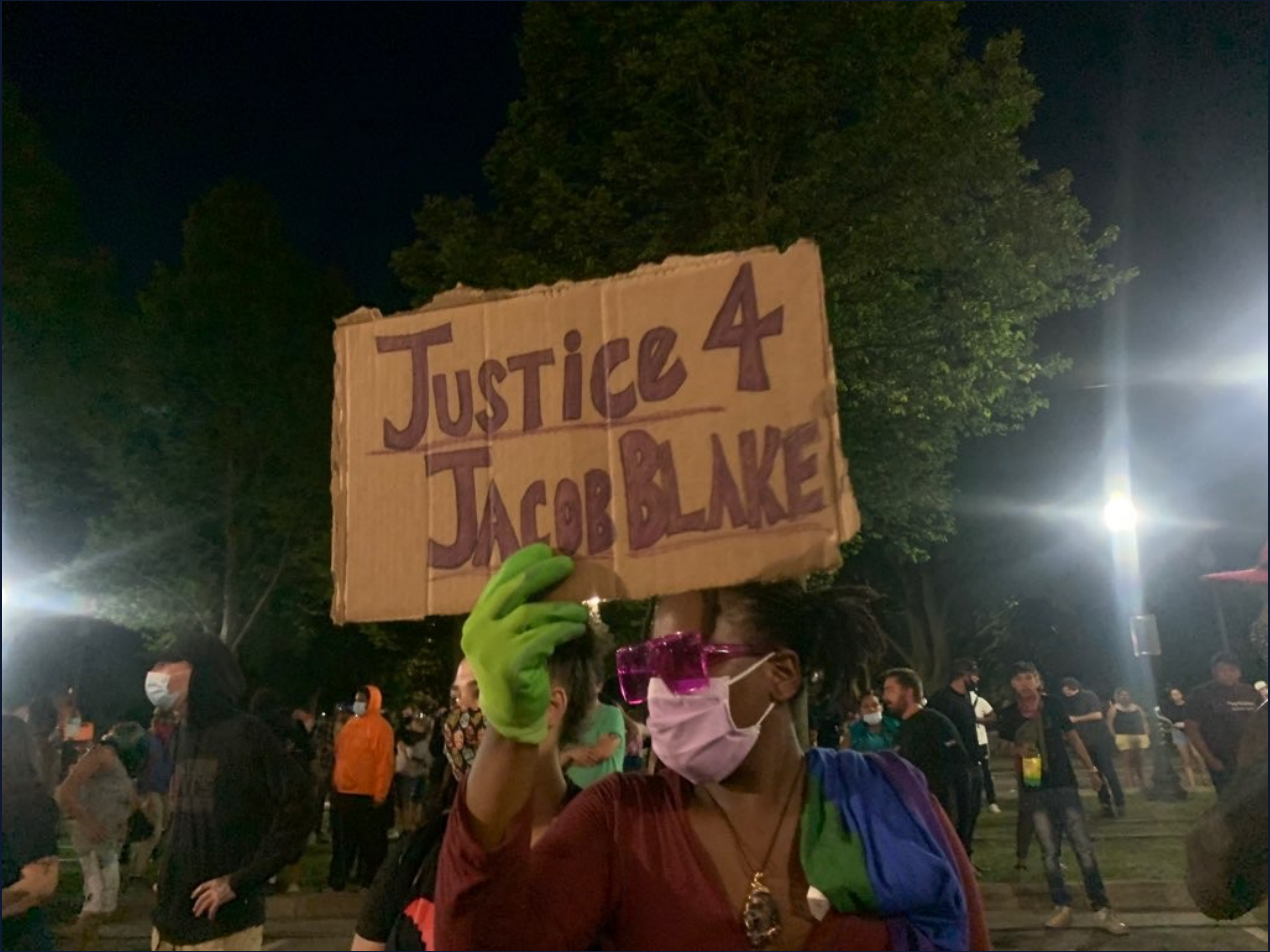
Updated Jun 12, 2020, 05:25pm EDT



# Minneapolis Charter Commission Delays Police Disbandment Vote, Keeping It From Nov. Ballot

August 5, 2020 at 10:01 pm Filed Under: [Defund The Police](#), [Disband The Police](#), [Jennifer Mayerle](#), [Local TV](#), [Minneapolis City Council](#), [Minneapolis News](#), [Minneapolis Police Department](#)















“



**Katy** @TheKaterTot · Apr 14

Sometimes the first thing we have to do to take care of our communities is take care of ourselves. Be gentle with yourself.



1



10





“



**Katy** @TheKaterTot · Apr 14

Sometimes the first thing we have to do to take care of our communities is take care of ourselves. Be gentle with yourself.



1



10



**DreadPirateSparklePony** @thelongshanx · Apr 15

You can't pour from an empty cup



1



1



4





“



**Katy** @TheKaterTot · Apr 15

Yes! And it's hard to fill the cup if it's cracked and leaking.



GIF



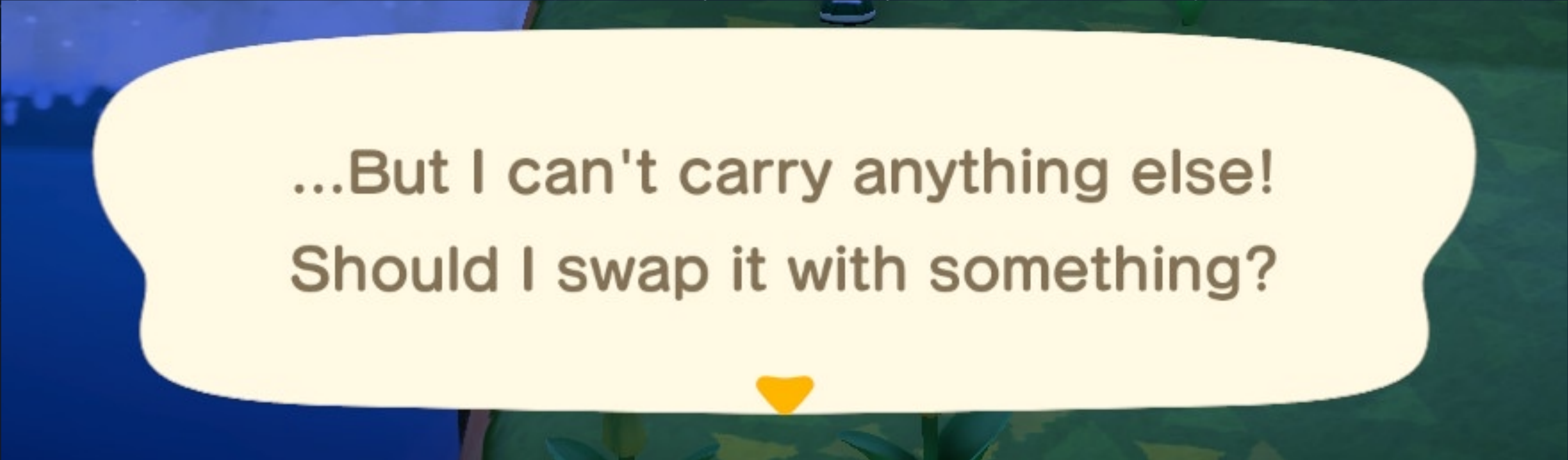
1



2







...But I can't carry anything else!  
Should I swap it with something?

<https://bit.ly/2Ym7Tp9>













## Introducing Virtual Voicebox!

The COVID-19 pandemic swept in very quickly and created uncertainty and disconnection for us all. When we decided to close our doors ahead of the

21:00  
karaoke





Deserted Island  
DevOps

Streaming on twitch.tv!

The Greatest Minds in DevOps... in Animal Crossing

Register at [desertedislanddevops.com](https://desertedislanddevops.com)

**4/30/20 - 10 AM ET**





<https://youtu.be/L9A6ZauhOhg>



Enable potential and  
get out of the way



Slides & Resources  
[speaking.crayzeigh.com](http://speaking.crayzeigh.com)



[OSMIhelp.org](http://OSMIhelp.org)

<http://😊> <http://😞> <http://😬> <http://😓>

[EmotionalAPI.com](http://EmotionalAPI.com)



[devopsdays.org](http://devopsdays.org)



**Aaron Aldrich**

🐦 @CrayZeigh







I love you

Do good out there

We're all in this together



# Further Reading/Watching/Listening

Four concepts for resilience and the implications for the future of resilience engineering - David Woods

<https://bit.ly/3bITTdc>

The Marvelous Resilience of Bone - Dr. Richard Cook, REdeploy 2019

<https://www.youtube.com/watch?v=8LbePBiOvZ4>

Greater Than Code, 174: Resilience

<https://www.greaterthanocode.com/resilience>

The Worst Year Ever, How to Save your Community When The Government Fails

<https://ihr.fm/3eVNFbl>



# Further Reading/Watching/Listening

*Behind Human Error(2nd Edition)* - Woods, Dekker, Cook, Johannessen, Carter

The Woolworths Experiment

<https://safetydifferently.com/the-woolworths-experiment/>

*The Field Guide to Understanding Human Error* - Sydney Dekker

Literally every video from REdeploy:

<https://www.youtube.com/channel/UCHbJcl6KfyxfIRqdv26b3Qw>

On Borrowing From Yourself - Aaron Aldrich

<https://dev.to/crayzeigh/a-reflection-on-borrowing-from-yourself-3jhf>



# Further Reading/Watching/Listening





# Further Reading/Watching/Listening

support your local journalists



# Further Reading/Watching/Listening

support your local journalists  
support local political candidates



# Further Reading/Watching/Listening

support your local journalists  
support local political candidates  
vote