

Breakout Talk

30 minutes

DevOps, COVID, and the Future of Work

What We Know So Far



SamGuckenheimer

Agenda

Research Data Indicate...

Stress During COVID-19

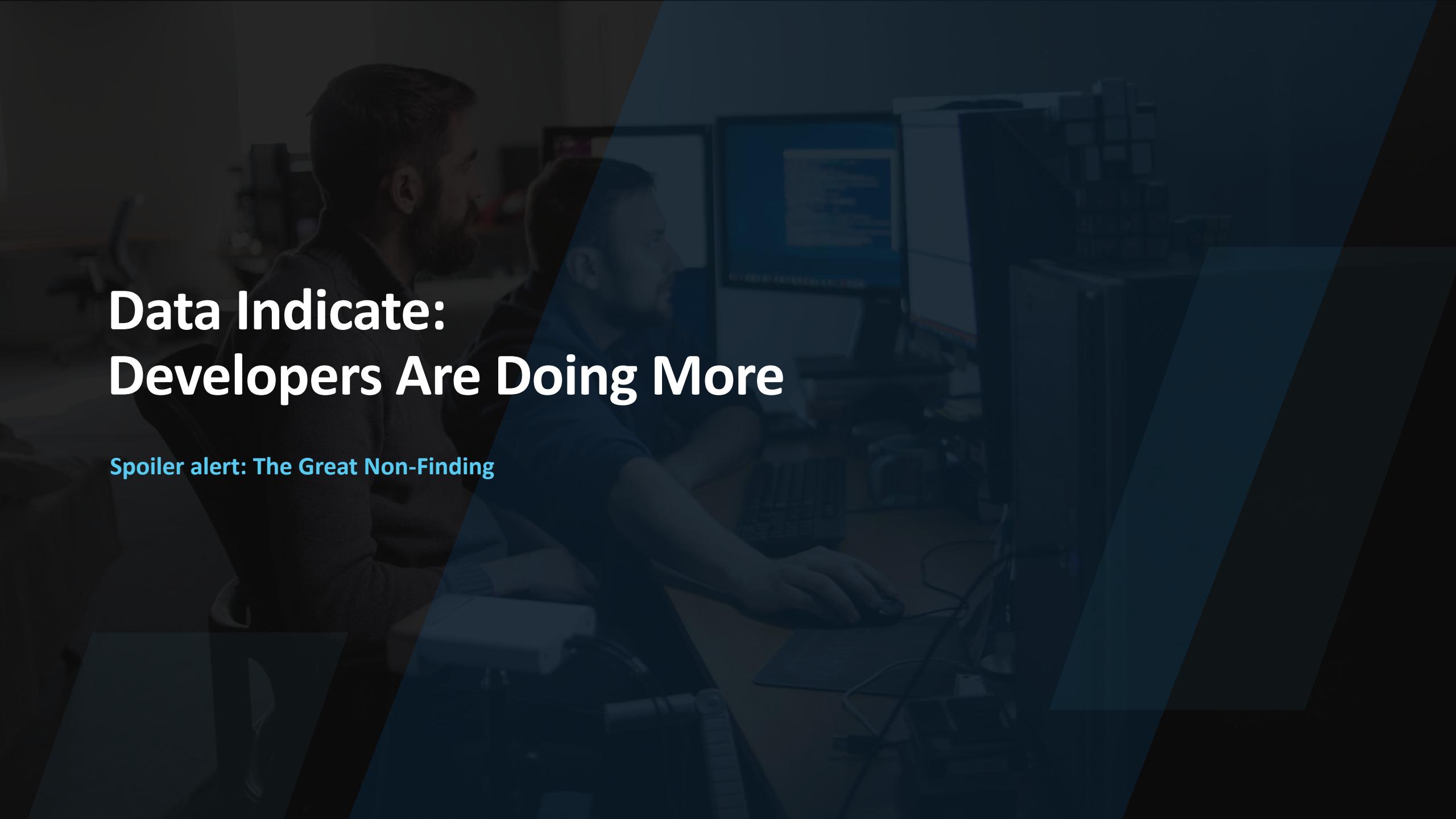
Pre-COVID WfH Research

Separating COVID-19 from WfH

Working Effectively

Applying DevOps Effectively

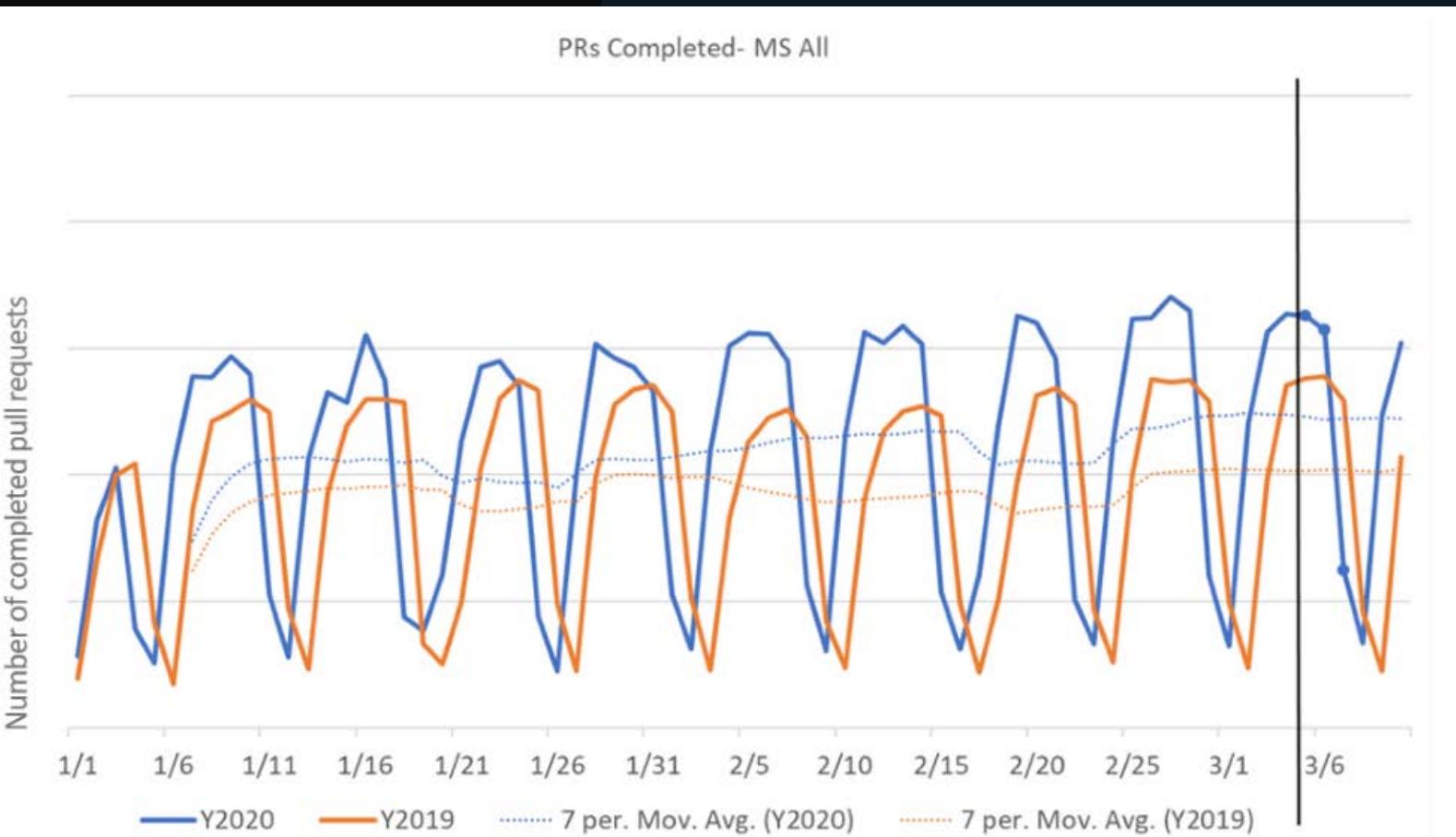
The New Normal

A developer with a beard is shown from the side, looking down at his work. He is sitting at a desk with three computer monitors. The screens show code and a 3D rendering of a cityscape. He is wearing a dark t-shirt and has a thoughtful expression.

Data Indicate: Developers Are Doing More

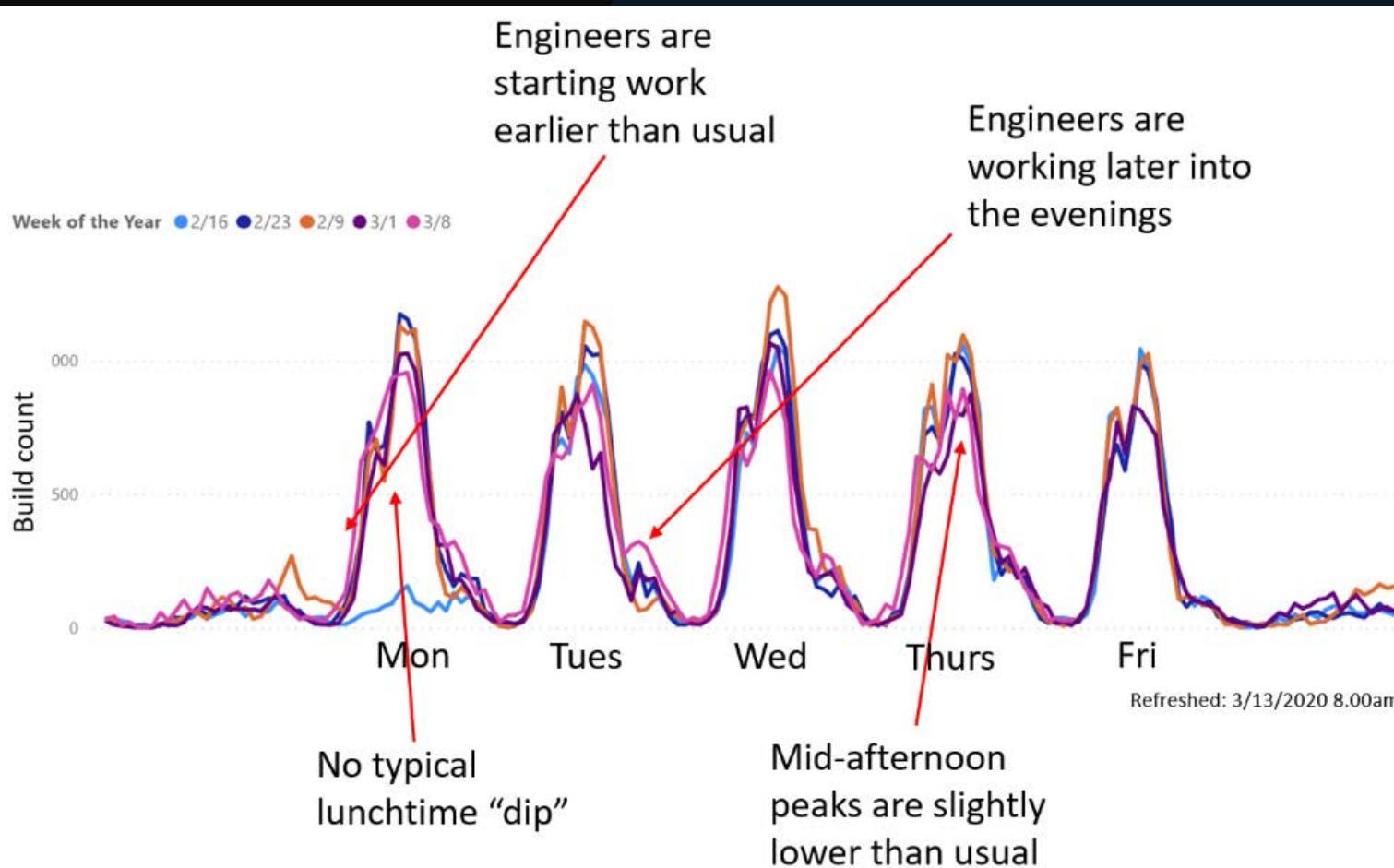
Spoiler alert: The Great Non-Finding

Measured Activity Seems to Be Unaffected



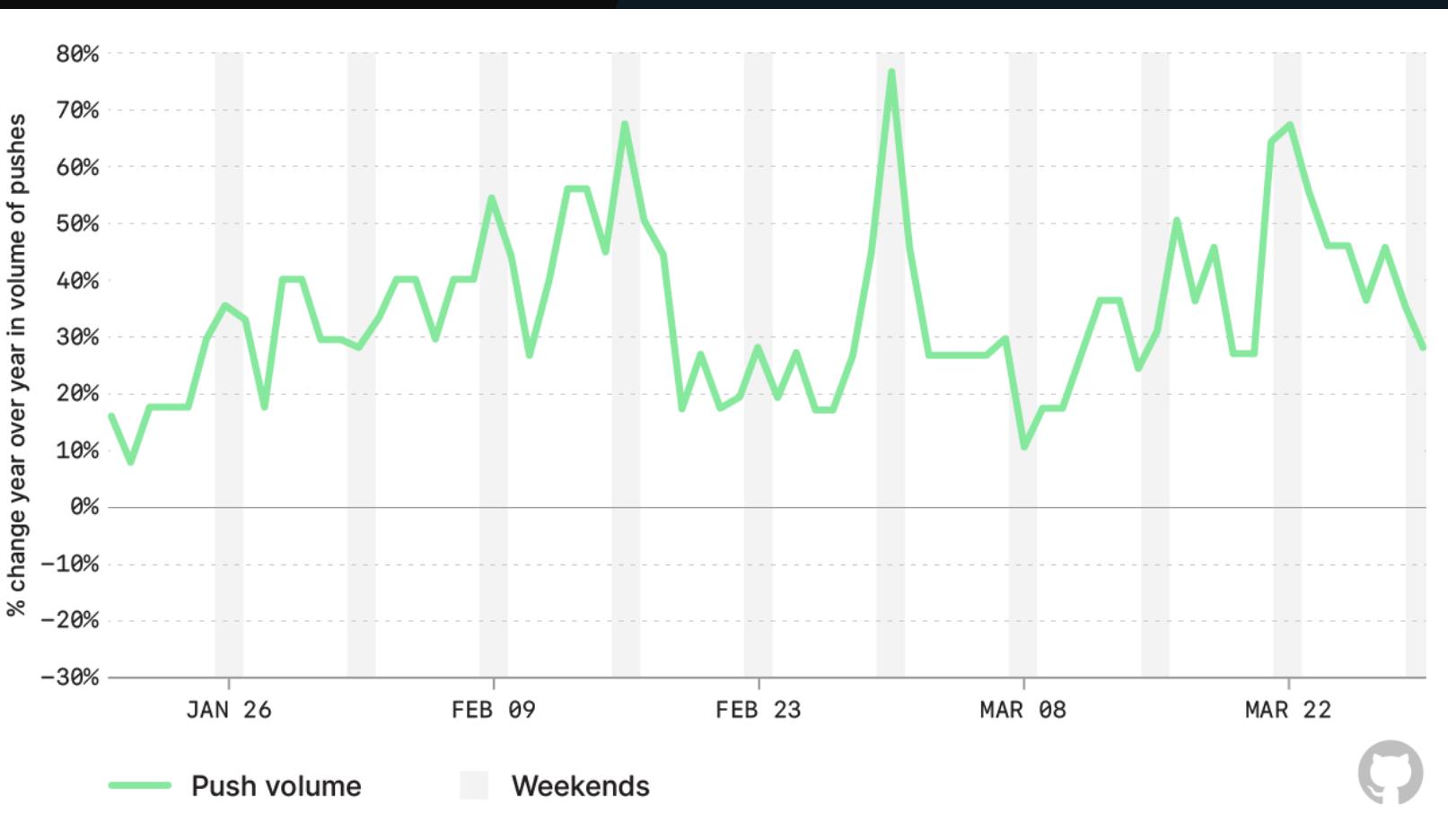
YoY pull requests completed
The pattern has continued, measured at least through May

Longer Work Days, Fewer(?) Breaks



WoW change in builds in Microsoft (weekdays only)

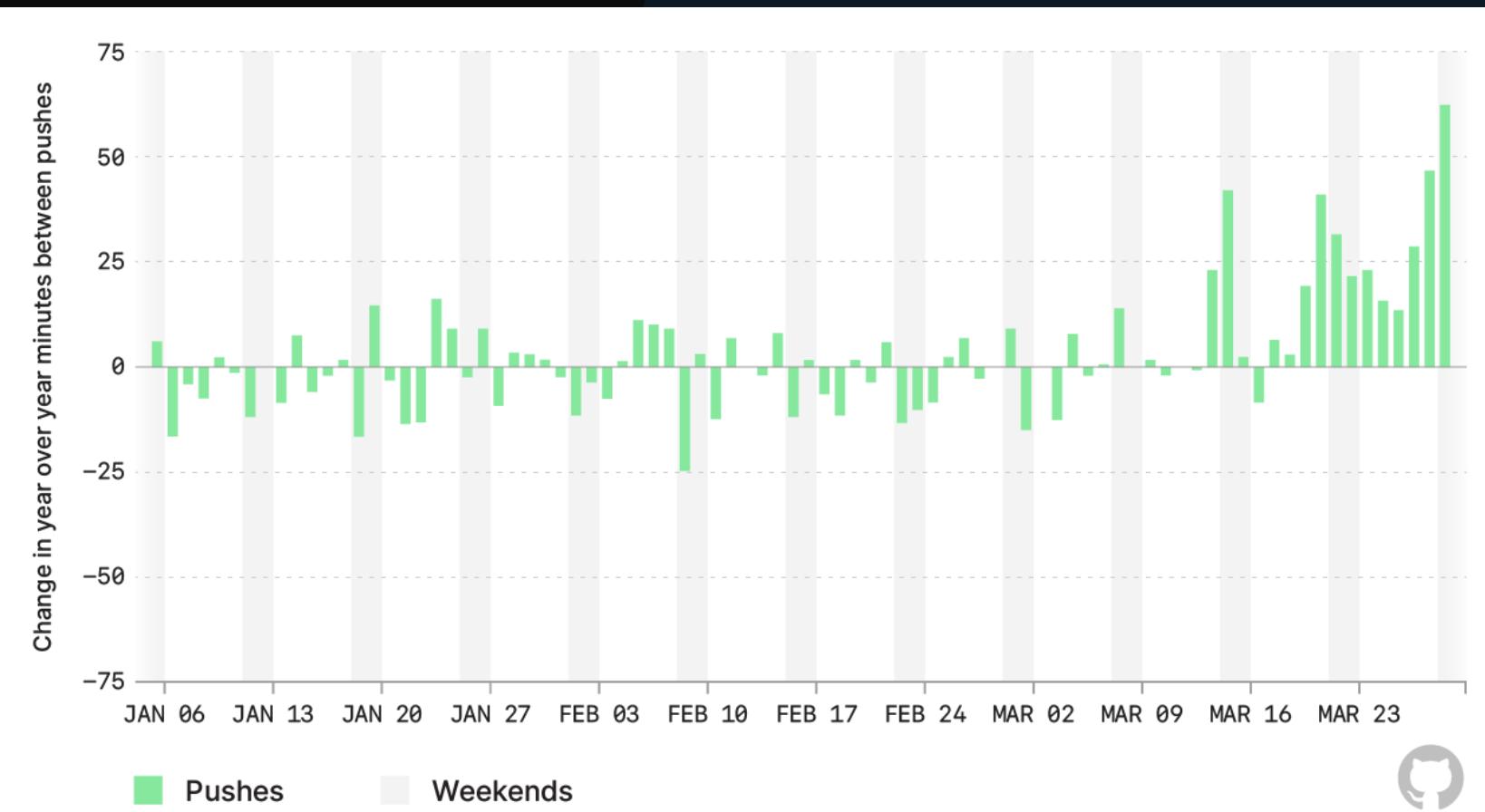
Work Days Longer Among GitHub Users Too



YoY change between first and last push, average (weekends included).
Pacific Time Zone

<https://github.blog/2020-05-06-octoverse-spotlight-an-analysis-of-developer-productivity-work-cadence-and-collaboration-in-the-early-days-of-covid-19/>

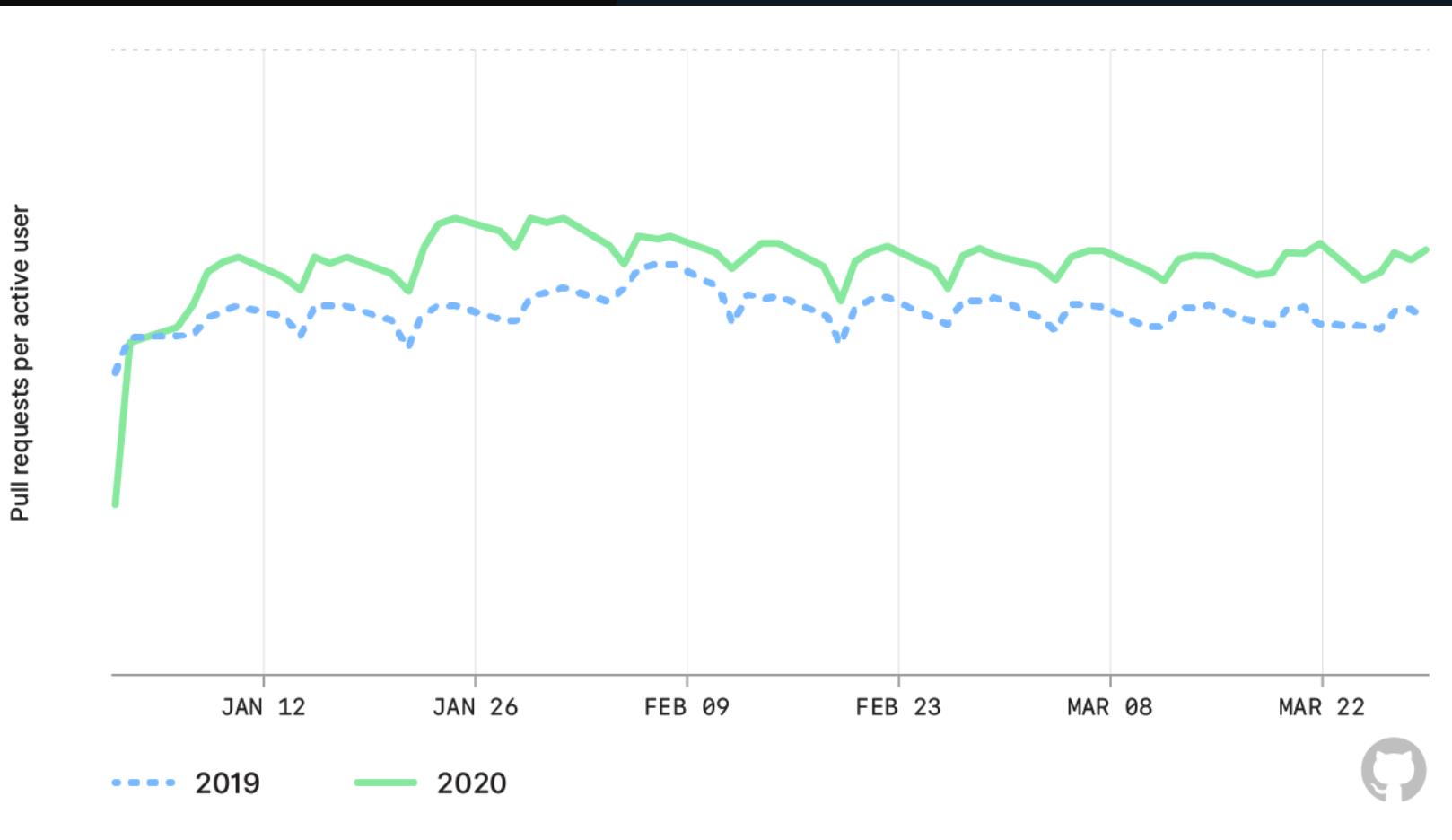
Volume of Pushes Increased



YoY change in volume
of pushes, average
(weekends included).
Pacific Time Zone

<https://github.blog/2020-05-06-octoverse-spotlight-an-analysis-of-developer-productivity-work-cadence-and-collaboration-in-the-early-days-of-covid-19/>

Pull Requests Up YoY, No COVID Effect

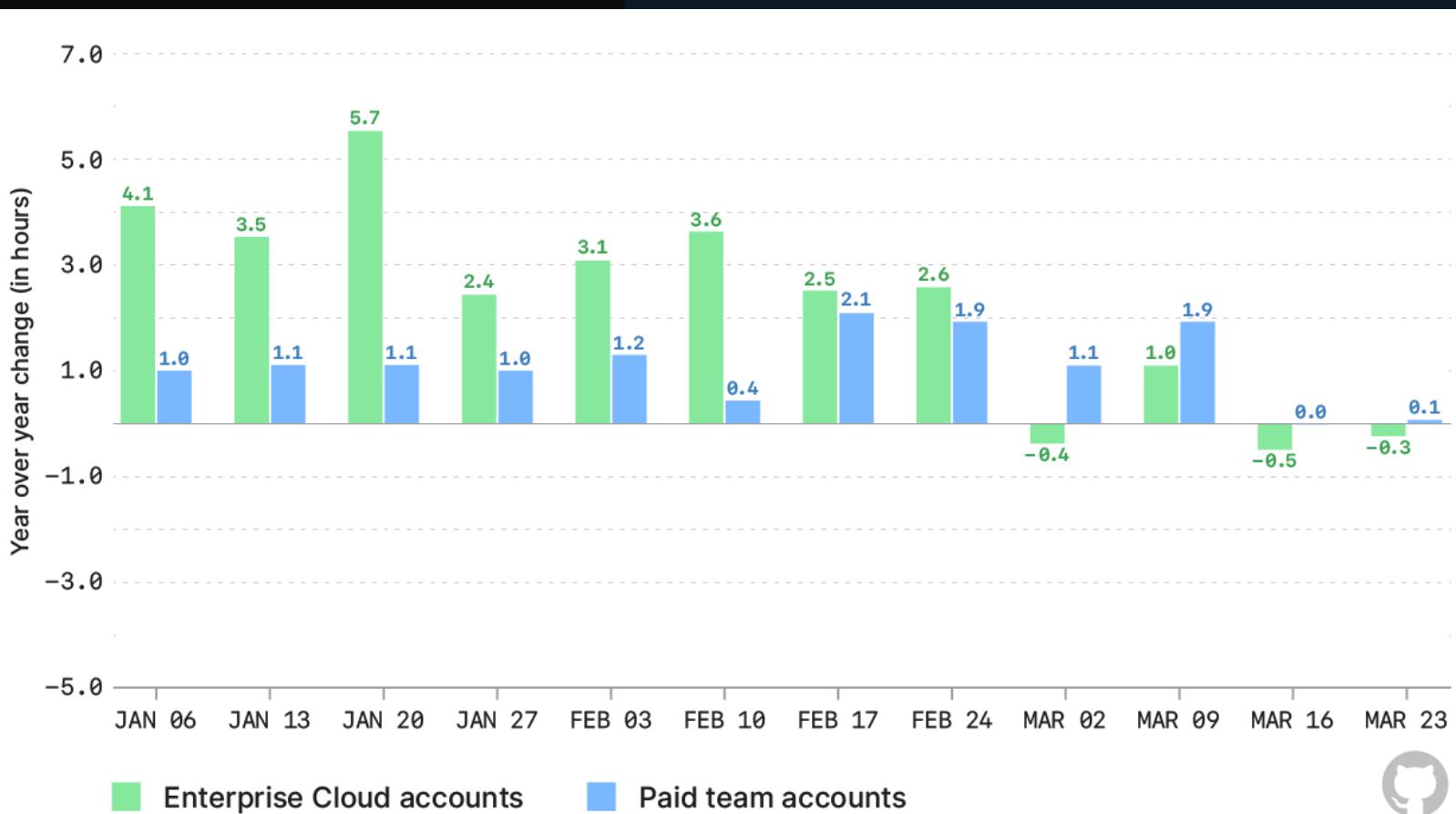


YoY change in pull
requests created
(weekdays only)

<https://github.blog/2020-05-06-octoverse-spotlight-an-analysis-of-developer-productivity-work-cadence-and-collaboration-in-the-early-days-of-covid-19/>

Time to Merge Pull Requests

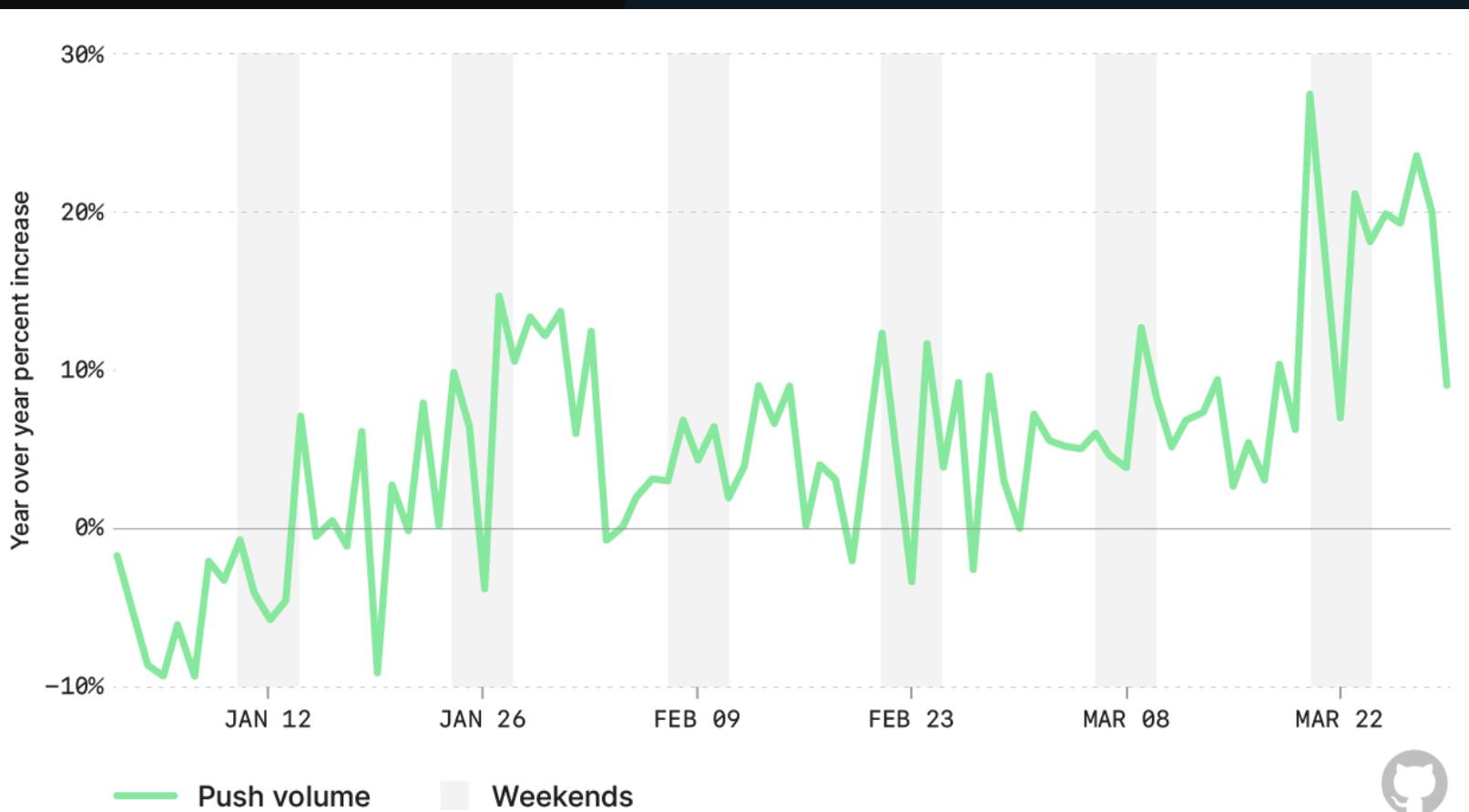
Decreased



YoY change in time to merge pull requests for paid accounts, average (weekly)

<https://github.blog/2020-05-06-octoverse-spotlight-an-analysis-of-developer-productivity-work-cadence-and-collaboration-in-the-early-days-of-covid-19/>

Open Source Contributions are Up



YoY change in in rate
of open source
project creation
(weekends included)

<https://github.blog/2020-05-06-octoverse-spotlight-an-analysis-of-developer-productivity-work-cadence-and-collaboration-in-the-early-days-of-covid-19/>

A photograph of a person from behind, wearing a purple hoodie and a black headset, sitting at a desk in what appears to be a control room or monitoring station. They are facing two computer monitors displaying complex software interfaces with multiple windows and data. The room is filled with other similar workstations and equipment, suggesting a high-stress, technical environment. The overall atmosphere is dark and focused.

Stress During COVID

Trifecta of Stress

It's the most severe

Pandemic in
100 years

Depression in
80 years

Political action in
50 years

Result: mental health crisis
And it will be here for years

<https://www.washingtonpost.com/health/2020/05/04/mental-health-coronavirus/>

The Washington Post

Democracy Dies in Darkness

Sections

Coronavirus Live updates U.S. map World map Reopening tracker Lives lost Your life at home Extraordinary people

Health

The coronavirus pandemic is pushing America into a mental health crisis

Anxiety and depression are rising. The U.S. is ill-prepared, with some clinics already on the brink of collapse.

Isolation and economic upheaval caused by the coronavirus pandemic are already resulting in a sharp spike in people seeking mental health help. (Amanda Andrade-Rhoades for The Washington Post)

By William Wan

May 4, 2020 at 9:57 a.m. PDT

Born Before 1965?
If Over 55, Do Not Forget To Claim These 9 "Special Benefits" For 2020

**Burnout was a
problem before.**

**It is even higher
risk now.**

THE “BURNOUT SHOP” AS BUSINESS MODEL

Short-term “start-up” self-sacrifice is now a long-term model
Forced competition erodes social relationships in workplace

No metrics of the human costs

- long-term stress and health problems
 - physical exhaustion
 - sleep deprivation
 - disruptions of personal life
 - loss of self-worth and meaningful achievements
 - burnout
 - depression, anxiety
 - suicide
-
- The underlying assumption is that employees who burn out are not the best ones, so they are expendable and disposable

“War Room Fatigue” is Normal

<https://hbr.org/2020/05/if-you-feel-like-youre-regressing-youre-not-alone>

Harvard Business Review

Conflict | If You Feel Like You're Regressing, You're Not Alone

CONFLICT

If You Feel Like You're Regressing, You're Not Alone

by Merete Wedell-Wedellsborg

May 22, 2020

Summary Save Share Comment Print \$8.95 Buy Copies



master1305/Getty Images

Pre-COVID WfH Research

A Randomized Clinical Trial

In 2012 Ctrip, China's largest travel agency (\$15bn on NASDAQ, 40,000 employees) ran a randomized control trial of WfH (N=500 per cohort)

Research paper:
Does Working from Home Work?
Nicholas Bloom, James Liang, John Roberts,
Zhichun Jenny Ying

<https://nbloom.people.stanford.edu/sites/g/files/sbiybj4746/f/wfh.pdf>



Headquarters in Shanghai



Main Lobby



Call Center Floor



Team Leader Monitoring Performance

Ergonomic workspace,
good internet, good
equipment were ensured
for home workspaces

Research paper:
Does Working from Home Work?
Nicholas Bloom, James Liang, John Roberts,
Zhichun Jenny Ying

<https://nbloom.people.stanford.edu/sites/g/files/sbiybj4746/f/wfh.pdf>



Working at home



Working at home

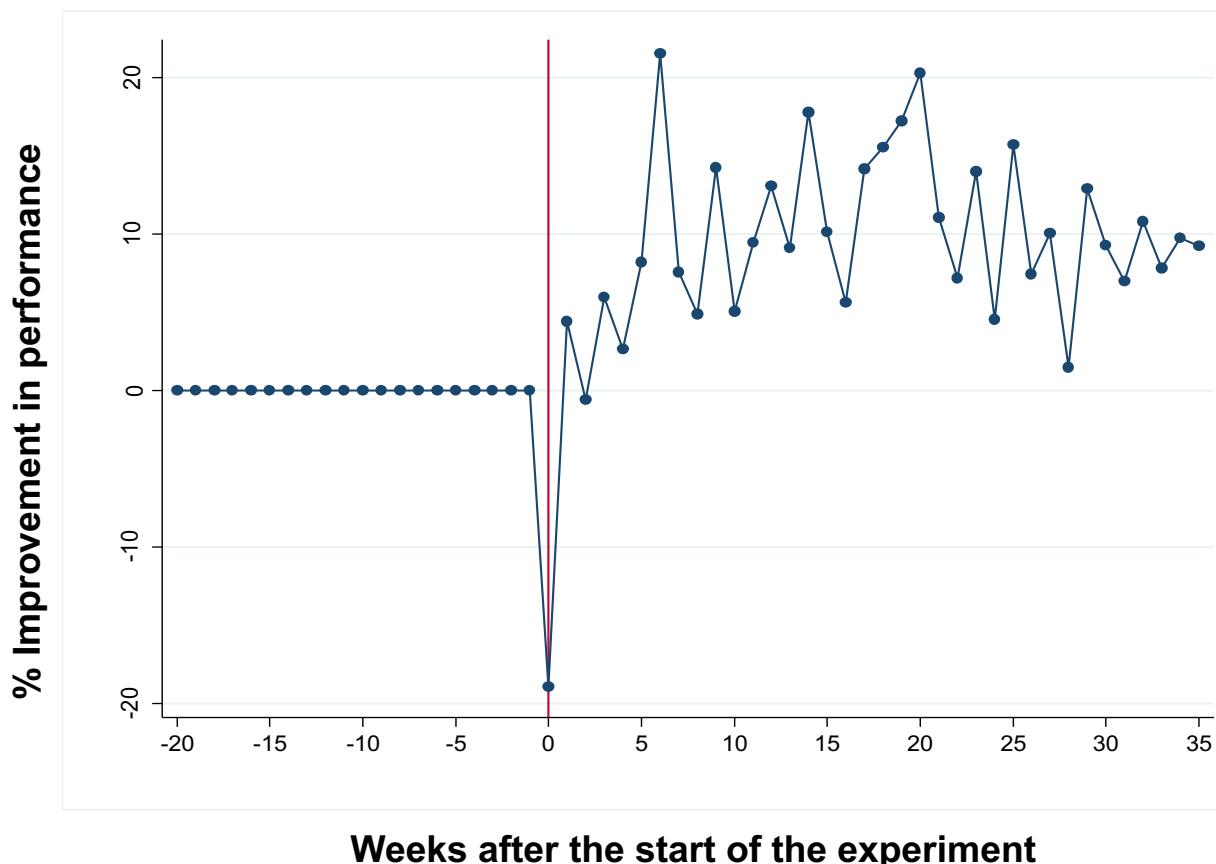


Working at home



Working at home

13% Improvement in Output

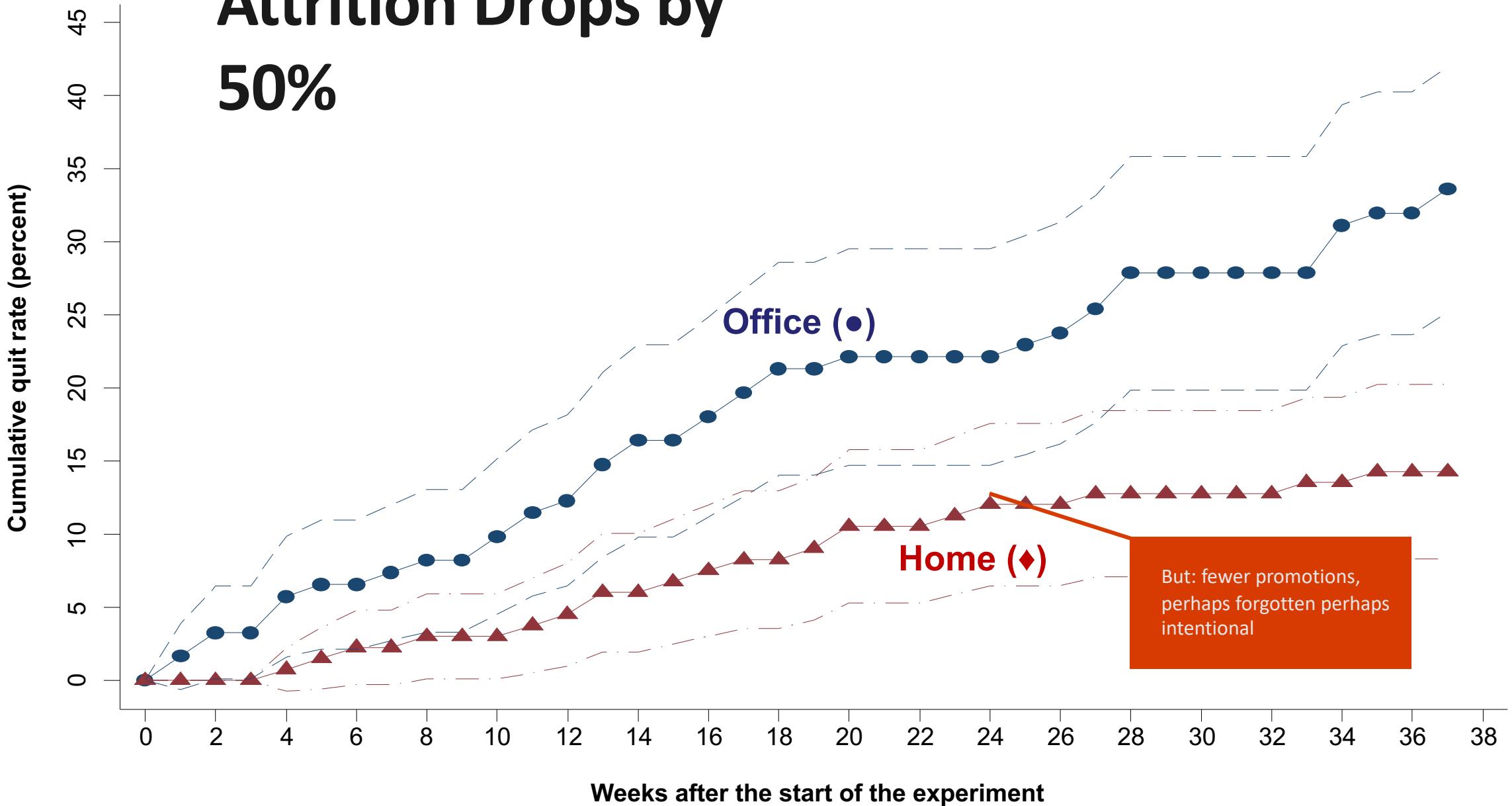


3.5% from more calls taken per minute

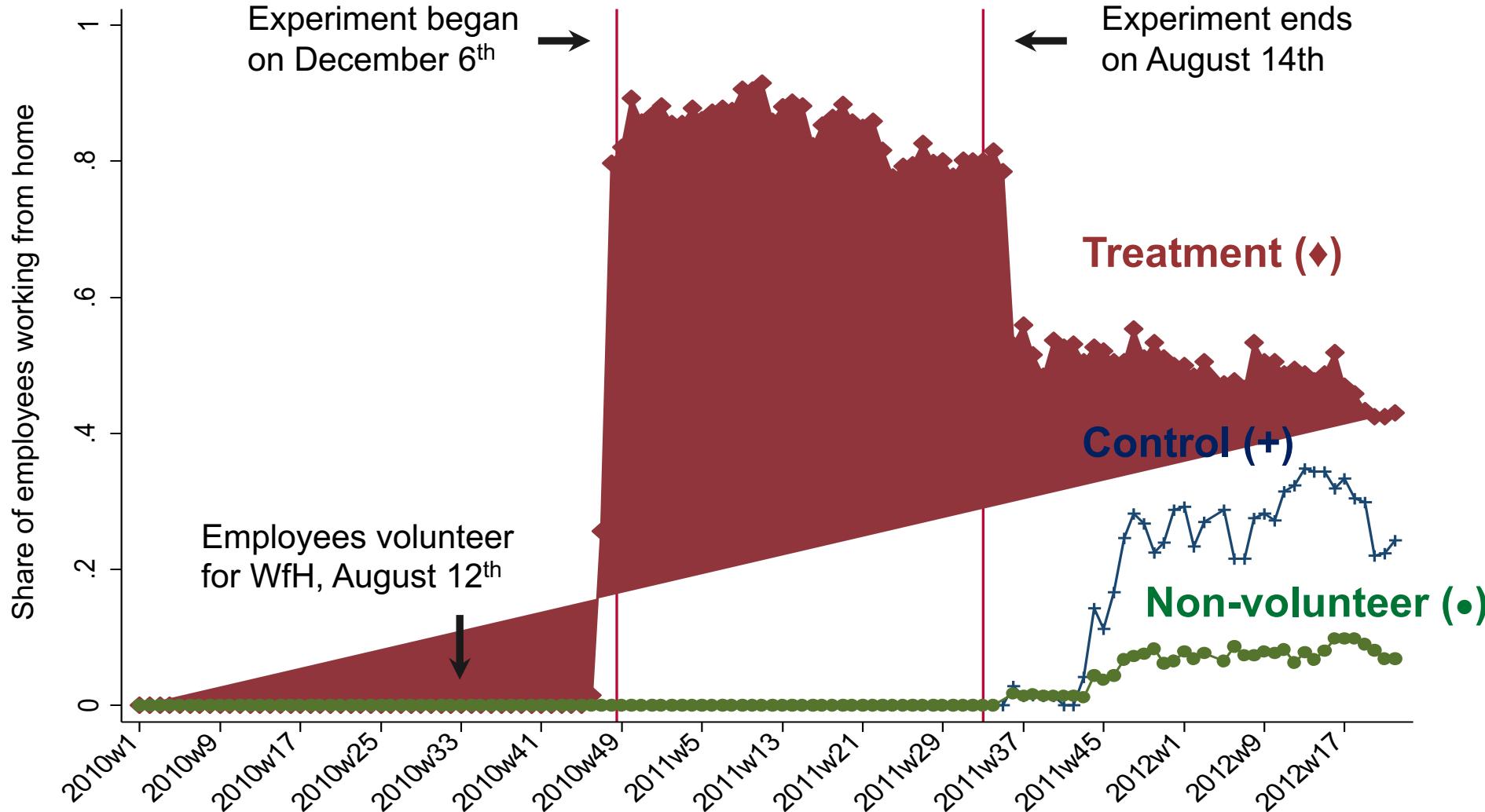
9.5% from more minutes on the phone

**2/3 from better punctuality,
1/3 from fewer breaks**

Attrition Drops by 50%



After Trial, Employees Wanted and Exercised Choice



Profits up \$2,000 per Employee WfH

Ctrip actively rolled out this option

Became recruiting tool



Separating COVID from WfH

Microsoft Internal Study Using Difference in Difference

Before: 26 Jan – 29 Feb

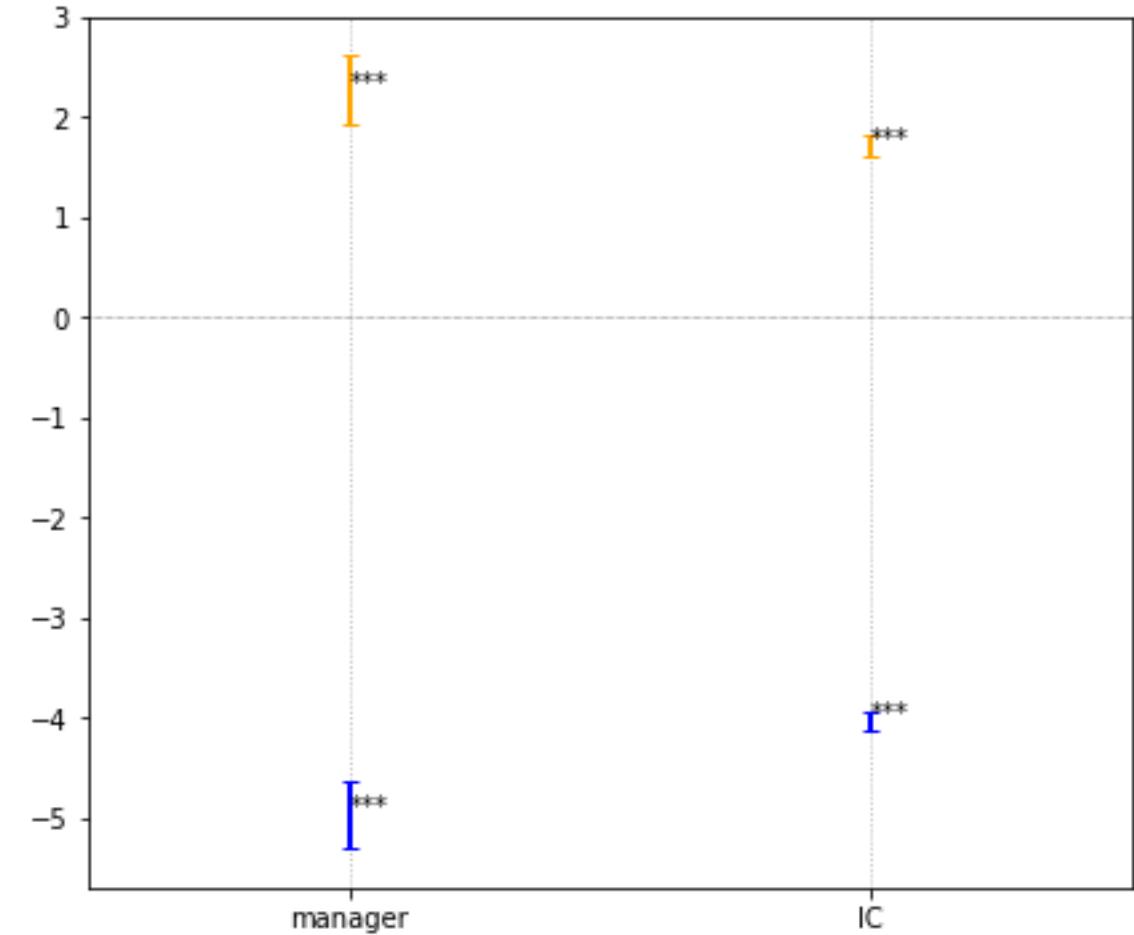
After: 5 Apr – 9 May

WfH and COVID Pull in Opposite Directions

Remote work increases focus time

COVID decreases focus time

Both effects are larger on
managers than on individual
contributors (ICs)



Y axis: Changes of focus time (hours/week)

blue: COVID effects

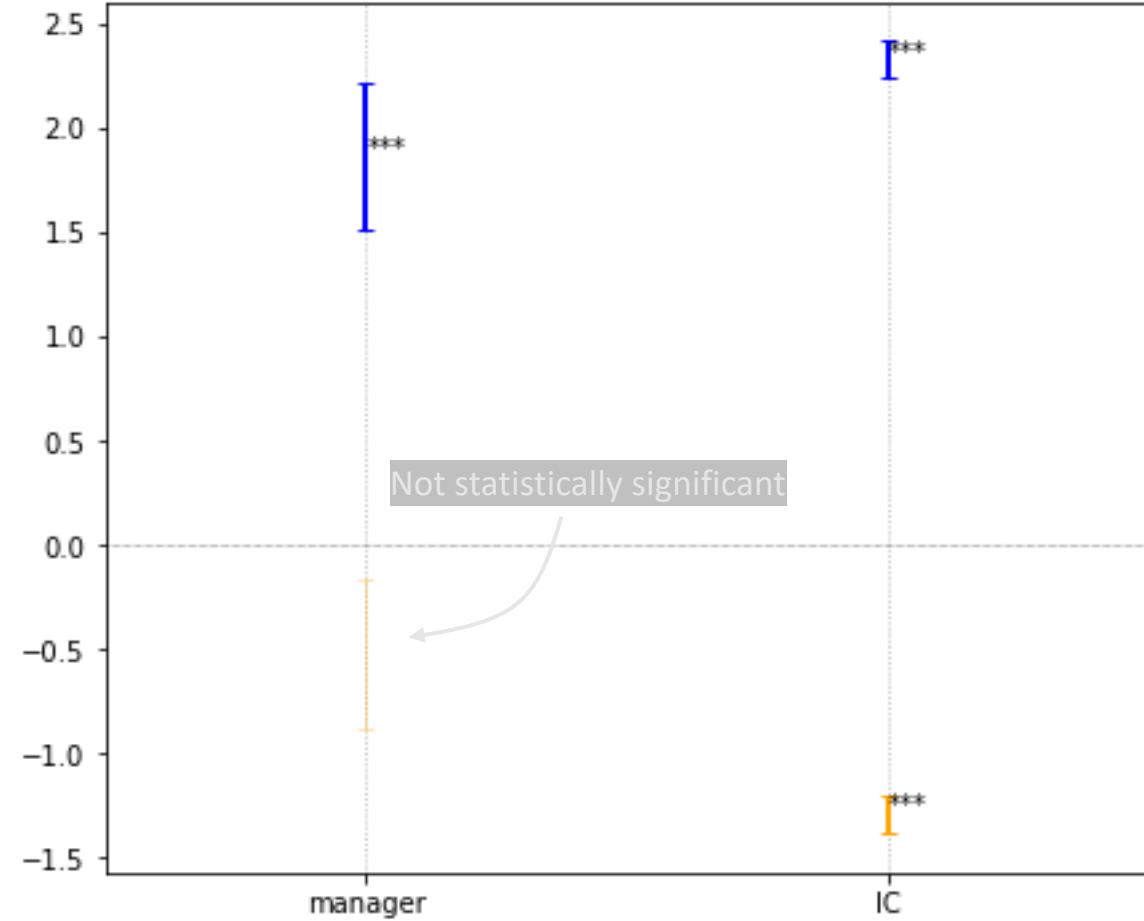
orange: remote work effects

Meetings Also Have Opposite Pull

Remote work decreases
scheduled meeting time

COVID increases scheduled
meeting time

Remote work doesn't affect
managers on this outcome.



Y axis: Changes of scheduled meeting time (hours/week)
blue: COVID effects
orange: remote work effects

Collaboration More Difficult

ICs More Isolated Than Managers

Remote work (regardless of COVID) makes ICs more collaboratively isolated:

Increased focus time

Increased workweek span

Decreased scheduled meeting time

Collaborative isolation effects are less on managers *at the cost of* much more increased workweek span

Working Effectively

Office basics matter in a home office too

Your Home Office Matters

Strugglers get by like this



Thrivers have

1. Dedicated workspace with focus
2. Internet bandwidth and low latency
3. Ergonomic furniture and lighting
4. Multiple high-resolution screens
5. Freedom from interruption
6. Schedule rituals
7. Exercise, nutrition and sleep
8. Breaks and time off
9. 1:1s for connection

Not everyone has a suitable set up.

Employers need to enable them.

<https://www.povertyactionlab.org/blog/5-18-20/working-remotely-or-remotely-working-best-practices-working-home-post-covid-19>

Online Meetings are a Learned Competence

Strugglers	Thrivers
Multi-task	Are deliberate about turn-taking
Work in distracting spaces	Gesture (raise hands), chat, and IM
Take too much meeting time	Check-in to compensate for no body language
Stress over eye contact	Use more, shorter meetings with built-in breaks (25 min or 50 min)
Cope with high latency	More intentional social connection
Do not prepare enough	Have good equipment (2 monitors), internet, furniture, light for meetings
	Position camera and mic intentionally

Expect Security Attacks Continuously

Attackers assume you are distracted

Every system is under stress

Phishing attacks are ubiquitous

Train people and ML

Impersonations are common

Ransomware is on the rise

Action:

Continuous hygiene, Threat intelligence

<https://www.who.int/news-room/detail/23-04-2020-who-reports-fivefold-increase-in-cyber-attacks-urges-vigilance>

The image shows a laptop screen with a news article from the WHO website. The article title is "WHO reports fivefold increase in cyber attacks, urges vigilance". The URL in the address bar is <https://www.who.int/news-room/detail/23-04-2020-who-reports-fivefold-increase-in-cyber-attacks-urges-vigilance>. The WHO logo is visible at the top left of the page.

WHO reports fivefold increase in cyber attacks, urges vigilance

23 April 2020 | News release | Geneva

Since the start of the COVID-19 pandemic, WHO has seen a dramatic increase in the number of cyber attacks directed at its staff, and email scams targeting the public at large.



DevOps and Anti-Fragility

Rip off the Red Tape



February 2020

We're too regulated for _____

March 2020

How soon can the Cloud help?

UW Medicine

eCare Patient Portal / For Providers / Research / School of Medicine / Contact Us

Find care | Make an appointment | Find health & patient resources | I want to... | MAKE A GIFT >

COVID-19 (coronavirus) Information
We're committed to creating the safest possible environment in our hospitals and clinics.
[Patient safety](#) | [Care and services](#) | [Visitor policy](#)

Home > Virtual Clinic

Virtual Clinic

Online doctor visits — 24/7, 365 days a year. Get virtual care now.

Start visit Get the Virtual Clinic App



Learn Anti-Fragility from OSS

README.md

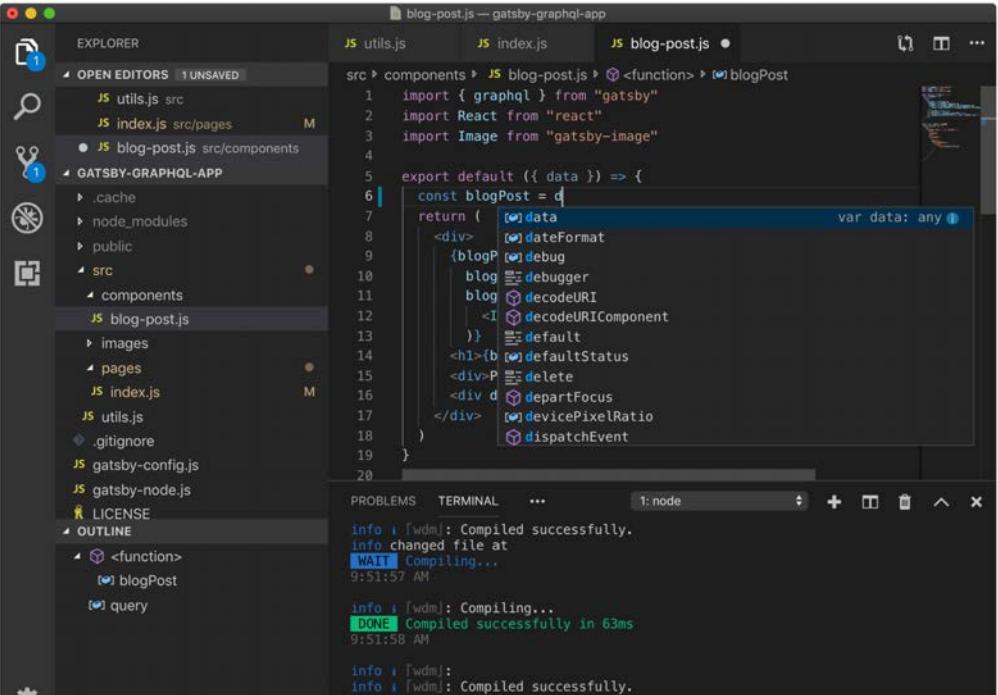
Visual Studio Code - Open Source ("Code - OSS")

Azure Pipelines succeeded | feature-request issues 2.4k open | bug issues 992 open | chat on gitter

The Repository

This repository ("Code - OSS") is where we (Microsoft) develop the Visual Studio Code product. Not only do we work on code and issues here, we also publish our [roadmap](#), [monthly iteration plans](#), and our [endgame plans](#). This source code is available to everyone under the standard [MIT license](#).

Visual Studio Code



```
git clone https://github.com/microsoft/vscode.git
cd vscode
git checkout master
code .
```

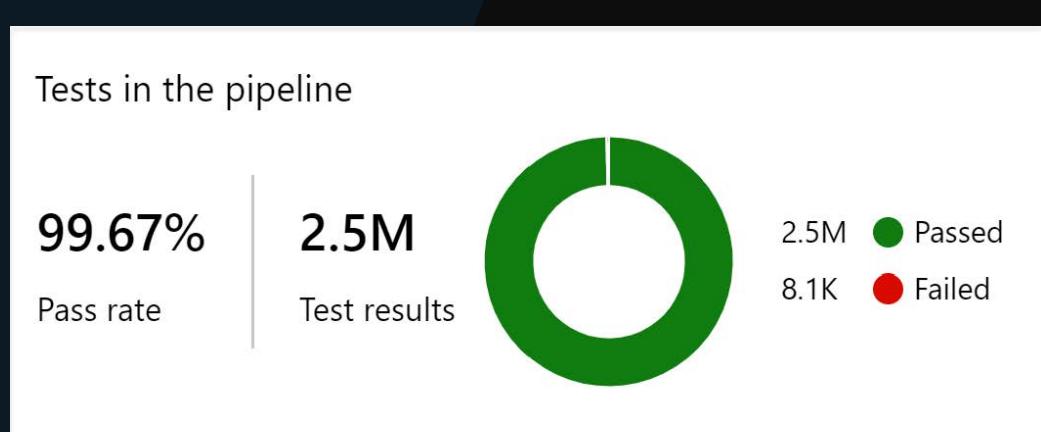
vscode / VSCode / Pipelines / VS Code

VS Code

← VS Code

Runs Branches Analytics

Description	Stages	Time
#20200606.9 File operation events support multiple resources	✓	42m ago 21m 6s
#20200606.8 Allow numeric CLI argument	✓	1h ago 22m 12s
#20200606.6 Merge remote-tracking branch 'origin/master' into HEAD	✓	8h ago 19m 52s
#20200606.5 Closing background tab does not dispose dirty text models (fix #98653)	✓	17h ago 13m 53s
#20200606.4 Revert "refs #94331"	✓	17h ago 14m 5s
#20200606.3 Merge remote-tracking branch 'origin/master' into HEAD	✓	Yesterday 16m 46s
#20200606.2 Revert "refs #94331"	✓	Yesterday 16m 41s
#20200606.1 Merge remote-tracking branch 'origin/master' into HEAD	✗	Yesterday 11m 5s



Habits of Successful Product Teams

1

Optimize for asynchronous workflow (e.g. pull requests, chat, CI/CD)

2

Connect with community continuously (issues, discussions, docs)

3

Align outcomes over outputs

4

Practice mature incident response

5

Get clean and stay clean on tech debt

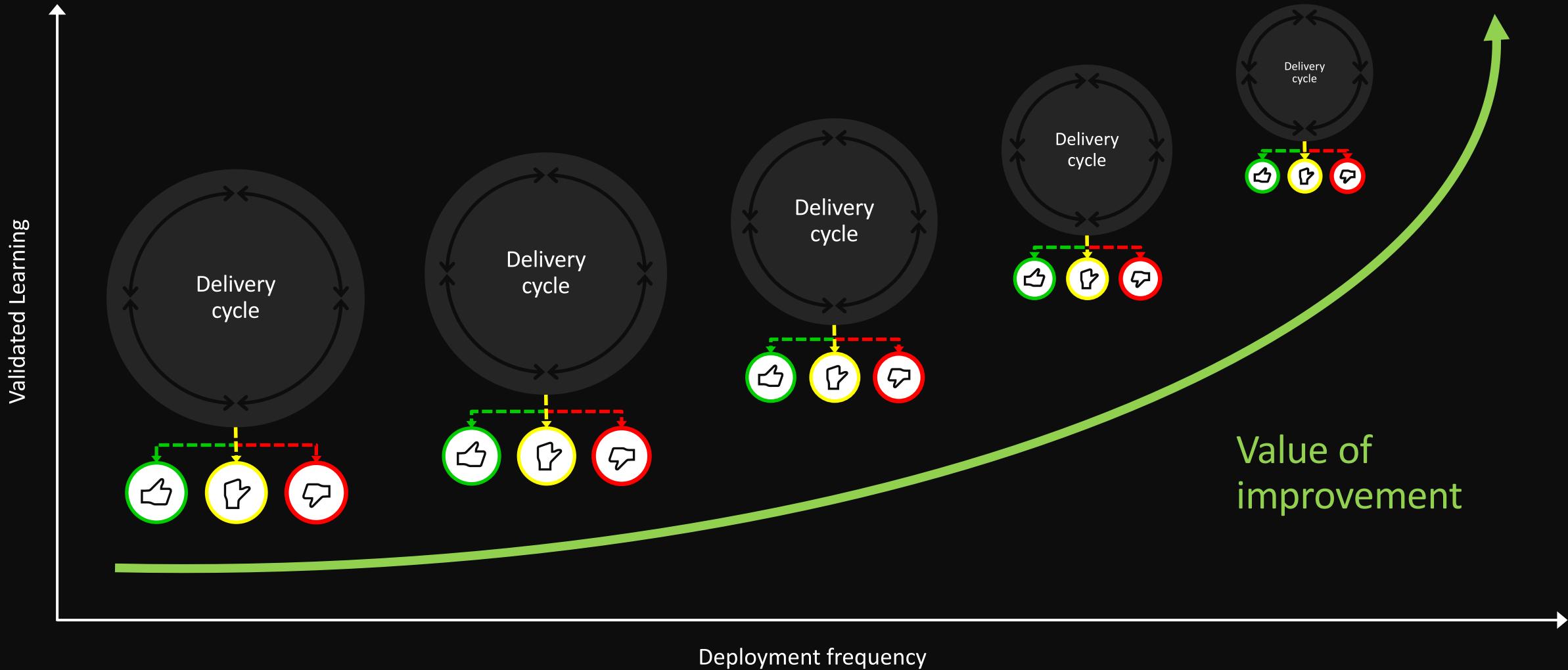
6

Automate and shift quality left and right

Performance metric

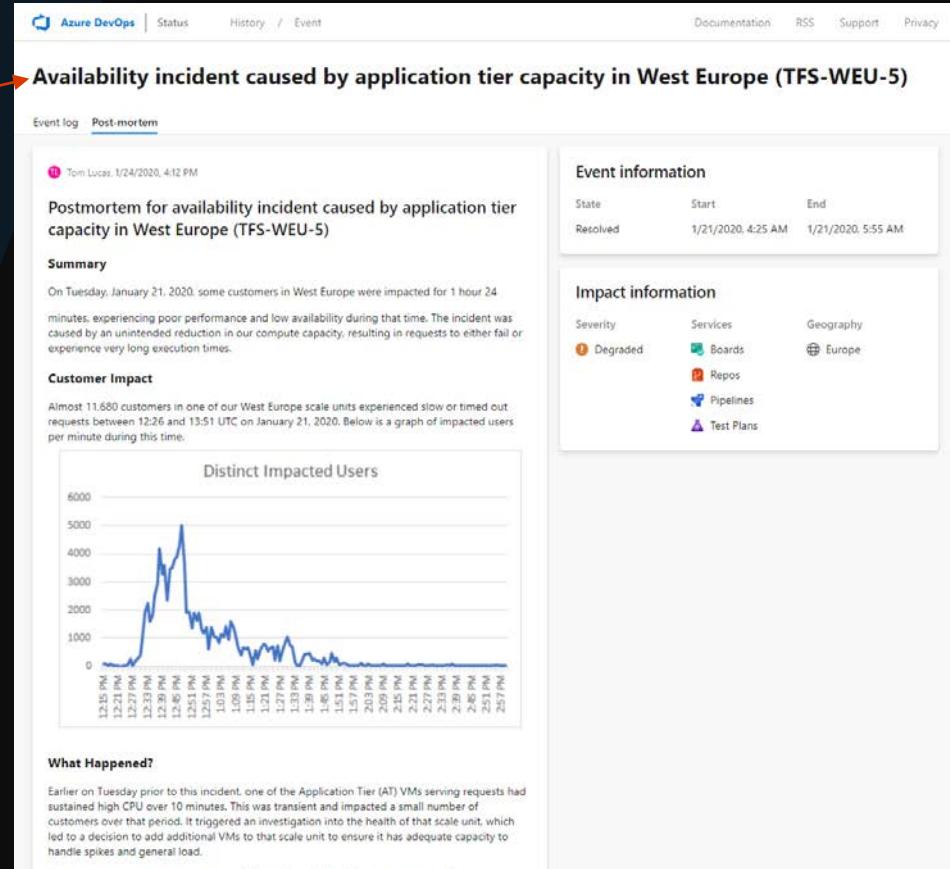
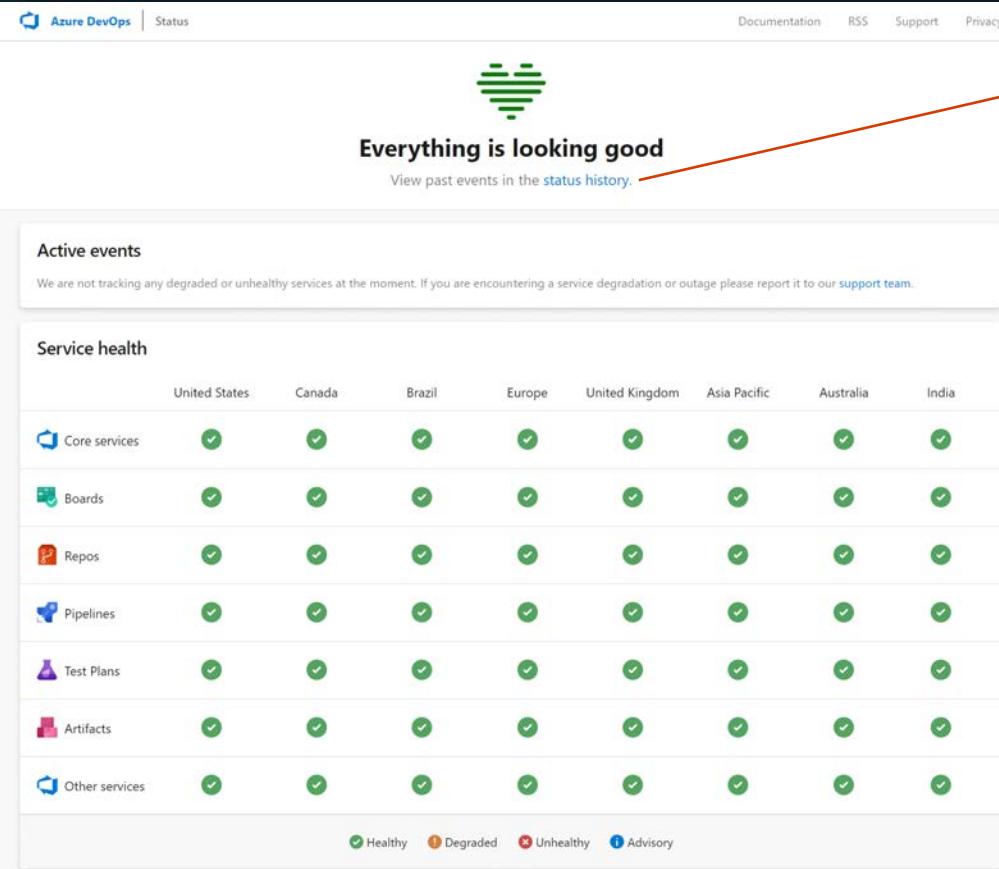
How many manual approvals from idea to deploy?

Ship to Learn, Frequently



Automation Doesn't Care Where You Work

....and pandemics, tsunamis, earthquakes, and cable cuts don't care whether you're ready



A red arrow points from the 'Everything is looking good' message on the left screenshot to the incident title on the right screenshot.

Azure DevOps Status Page (Left):

- Header: Azure DevOps | Status, Documentation, RSS, Support, Privacy
- Logo: Green heart icon
- Message: Everything is looking good
- Text: View past events in the [status history](#).
- Section: Active events
- Text: We are not tracking any degraded or unhealthy services at the moment. If you are encountering a service degradation or outage please report it to our support team.
- Section: Service health

	United States	Canada	Brazil	Europe	United Kingdom	Asia Pacific	Australia	India
Core services	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
Boards	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
Repos	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
Pipelines	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
Test Plans	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
Artifacts	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy
Other services	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy	Healthy

Legend: Healthy (green checkmark), Degraded (orange exclamation mark), Unhealthy (red X), Advisory (blue question mark)

Azure DevOps Post-mortem Page (Right):

 - Header: Azure DevOps | Status, Documentation, RSS, Support, Privacy
 - Title: Availability incident caused by application tier capacity in West Europe (TFS-WEU-5)
 - Section: Event log (Post-mortem)
 - Text: Tom Lucas, 1/24/2020, 4:12 PM
 - Section: Postmortem for availability incident caused by application tier capacity in West Europe (TFS-WEU-5)
 - Text: On Tuesday, January 21, 2020, some customers in West Europe were impacted for 1 hour 24 minutes, experiencing poor performance and low availability during that time. The incident was caused by an unintended reduction in our compute capacity, resulting in requests to either fail or experience very long execution times.
 - Section: Summary
 - Text: Almost 11,680 customers in one of our West Europe scale units experienced slow or timed out requests between 12:26 and 13:51 UTC on January 21, 2020. Below is a graph of impacted users per minute during this time.
 - Figure: Distinct Impacted Users (Line chart showing user count over time from 12:15 PM to 2:51 PM)
 - Section: Customer Impact
 - Text: Earlier on Tuesday prior to this incident, one of the Application Tier (AT) VMs serving requests had sustained high CPU over 10 minutes. This was transient and impacted a small number of customers over that period. It triggered an investigation into the health of that scale unit, which led to a decision to add additional VMs to that scale unit to ensure it has adequate capacity to handle spikes and general load.
 - Section: Event information

State	Start	End
Resolved	1/21/2020, 4:25 AM	1/21/2020, 5:55 AM

 - Section: Impact information

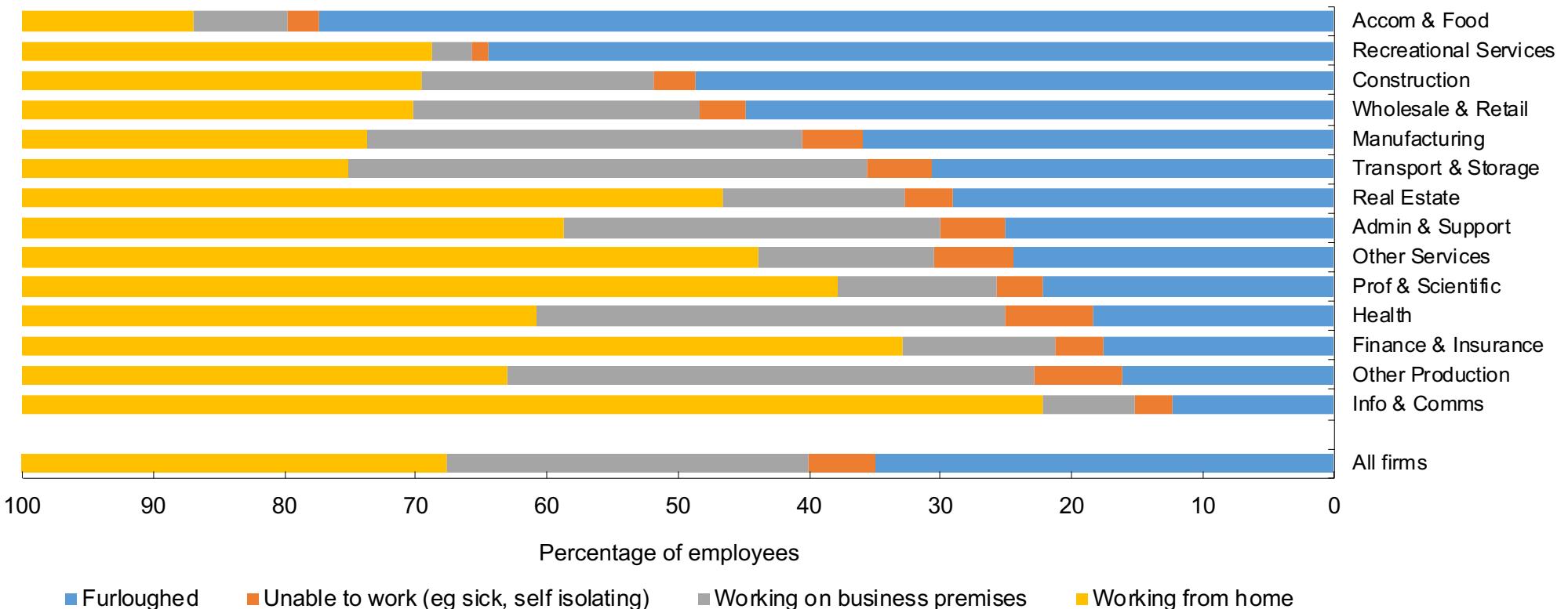
Severity	Services	Geography
Degraded	Boards, Repos, Pipelines, Test Plans	Europe



The New Normal

The Future is Already Here, Just Not Very Evenly Distributed

...as a result the amount of WfH currently varies by industry



Source: Graph: Decision
Maker Panel Survey
conducted by the Bank of
England, Nottingham and
Stanford Universities, and
Bloom, Bunn, Chen,
Mizen, Smietanka and
Thwaites and
www.decisionmakerpanel.com

Enable Healthy WfH

Family care

Broadband access

Ergonomic home setup

No unnecessary ceremonies



<https://www.newyorker.com/science/medical-dispatch/amid-the-coronavirus-crisis-a-regimen-for-reentry>

Learn from Hospitals How to “Soft Return”

Health care workers stay safe with

1. Masks
2. Hygiene
3. Distancing
4. Daily Screening

Let data inform the decisions

The illustration shows a red circle representing a zone of safety or a specific area. Inside the circle, three healthcare workers in white coats and masks are standing in a triangular formation, maintaining social distance from each other. Outside the circle, two more workers are shown; one is washing hands at a sink, and another is walking away. The background is light gray, and the overall theme is safety and adherence to guidelines during the coronavirus crisis.

THE NEW YORKER

THE CORONAVIRUS CRISIS The Latest What to Do at Home Treatment and Testing Economic Impact F.A.Q.s

Illustrations by MGMT. design

MEDICAL DISPATCH

AMID THE CORONAVIRUS CRISIS, A REGIMEN FOR REENTRY

Health-care workers have been on the job throughout the pandemic. What can they teach us about the safest way to lift a lockdown?

By Atul Gawande
May 13, 2020

Embrace the New Normal

Automate to get clean and stay clean

Do not let people do a machine's work

Allow certain days to gather and renew social capital

Allow certain days to be dedicated WfH

Work as though everyone is remote

Provide employee choice

Measure continuously

Inspect and adapt quarterly

Thank you!

Sam Guckenheimer

samgu@microsoft.com | [@SamGuckenheimer](https://twitter.com/SamGuckenheimer) | <http://aka.ms/devops>

