

*are *still* scaling*

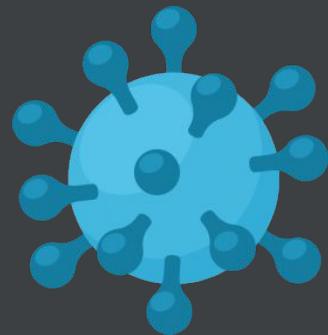
How We've ~~Scaled~~ Meet during COVID19

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13 October 2021

USENIX SREcon21



Senior Staff Software Engineer (SRE)

@ Google Zürich

SRE üTL of Meetings

Meet, Calendar, Voice, ...

Samantha Schaevitz

@samschaevitz

Incident Commander

Meet COVID19 Scaling Incident

COVID19 arrives

Meet growth picks up speed

School holidays begin

Back to School

2020

Jan

Feb

Mar

Apr

May

Jun

Jul

Aug

Sept

Oct

Incident Response



Incident Response



February 3
Traffic to Meet in Asia picks up speed

February 24
Production scaling work begins

March 3
Incident-like response begins

March 18
Workstream leads begin handing over to their Standby leads

March 4
Initial workstreams defined and roles assigned

Baseline for scaling terminology decided

March 27
Incident-like response ends



Forming

Storming

Norming

Performing

Adjourning



FIRE
HOSE
REEL

FIRE
HYDRANT

Raising the Alarm

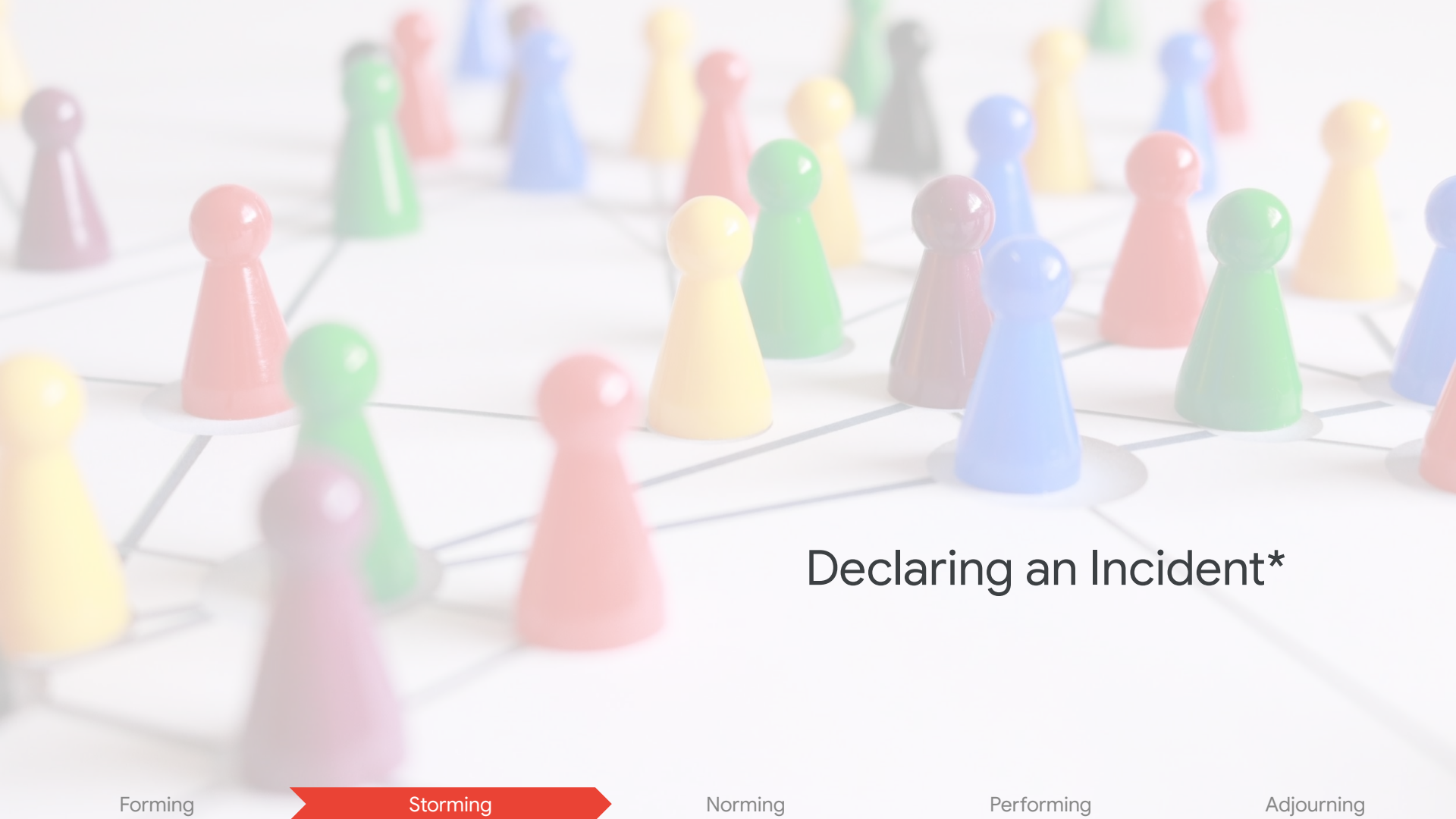
Forming

Storming

Norming

Performing

Adjourning



Declaring an Incident*

Forming

Storming

Norming

Performing

Adjourning

Objective #1: No outages
(but if we have one, degrade gracefully)

Forming

Storming

Norming

Performing

Adjourning

Objective #2: Have enough serving capacity

Forming

Storming

Norming

Performing

Adjourning

Objective #3: Forecast demand accurately

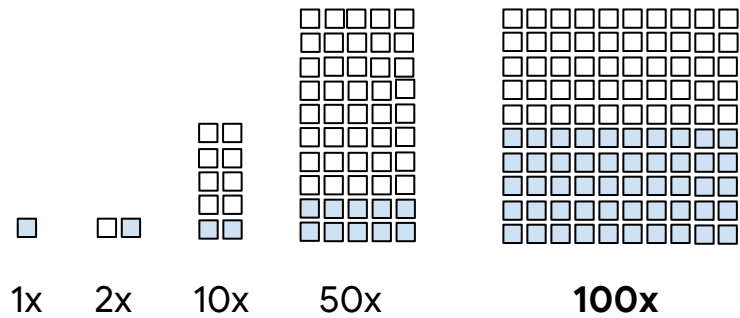
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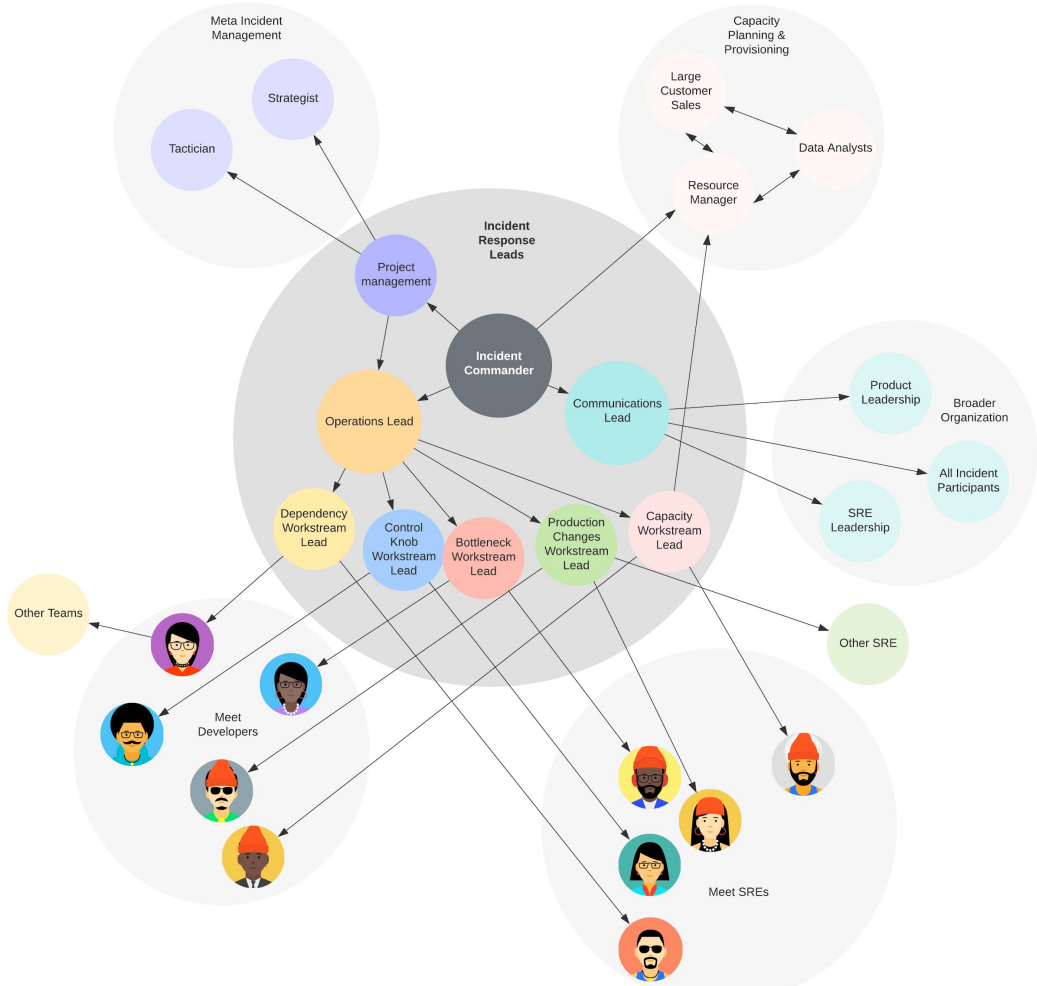
Forming

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Adjourning



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Storming

Norming

Performing

Adjourning



Communication

(is a full-time job)

Forming

Storming

Norming

Performing

Adjourning



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Adjourning



Primary

Standby

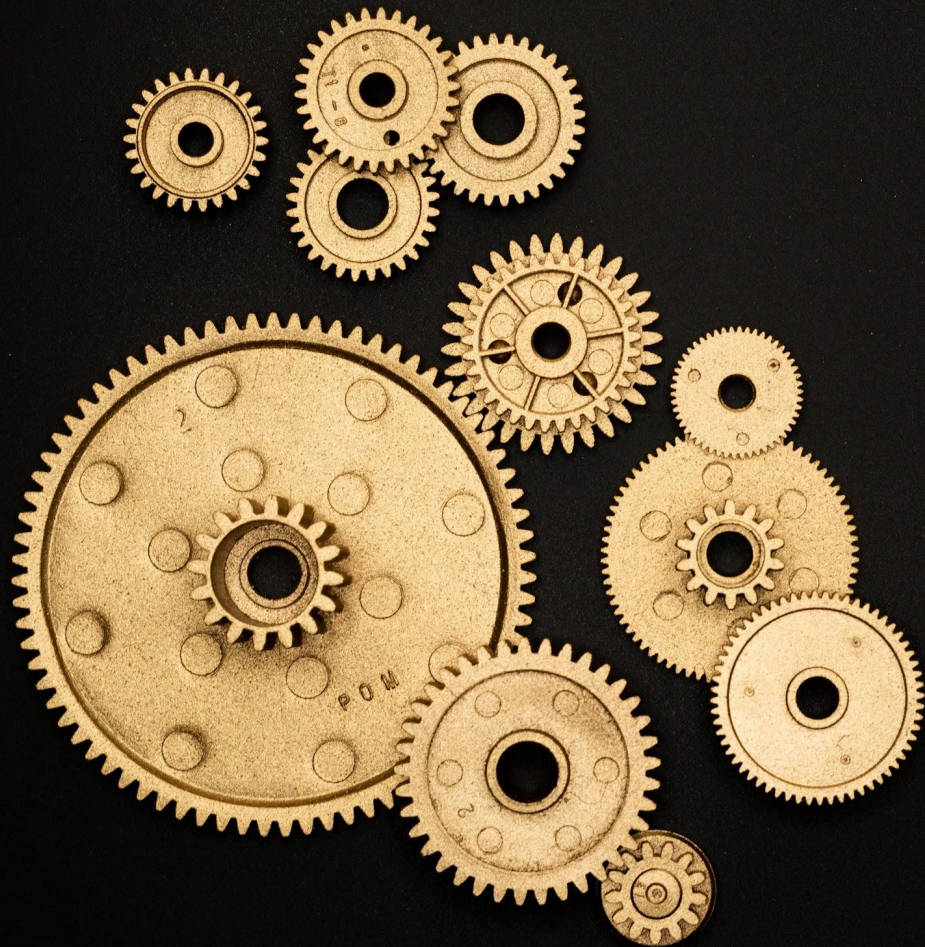
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Workstreams

Forming

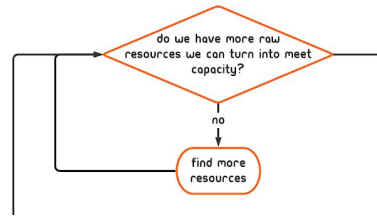
Storming

Norming

Performing

Adjourning

Capacity



$f(\text{sessions}) \rightsquigarrow \text{compute resources}$

Wave 1 Estimate Resources → Get Resources → **Turn up serving Capacity**

Wave 2 Estimate Resources → **Get Resources** → Turn up serving Capacity

Wave 3 **Estimate Resources** → Get Resources → Turn up serving Capacity

time →

Forming

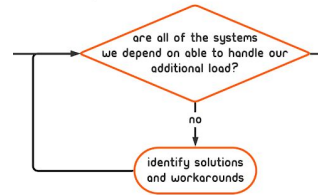
Storming

Norming

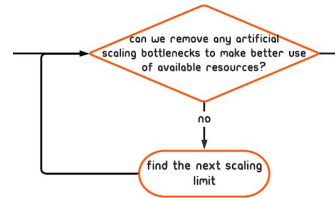
Performing

Adjourning

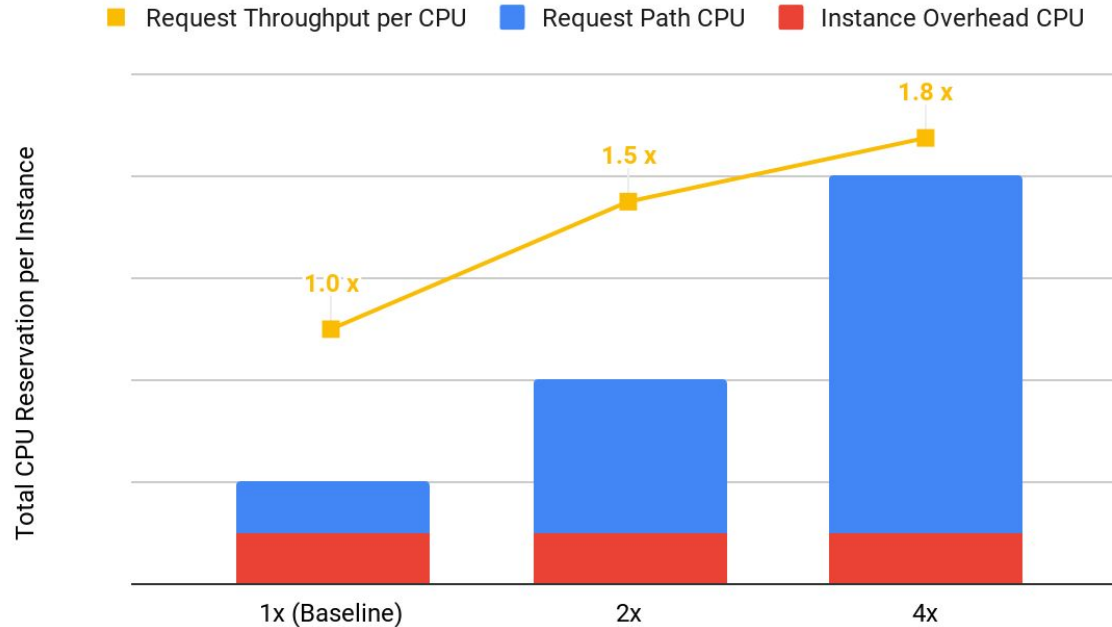
Dependencies



Bottlenecks

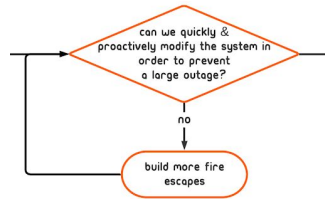


Improving Throughput by Reshaping Server Instances



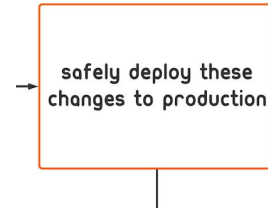
Note: The y-axis are scaled to illustrate the example in relative terms.

Control Knobs



10 HD sessions
OR
100 SD sessions

Production



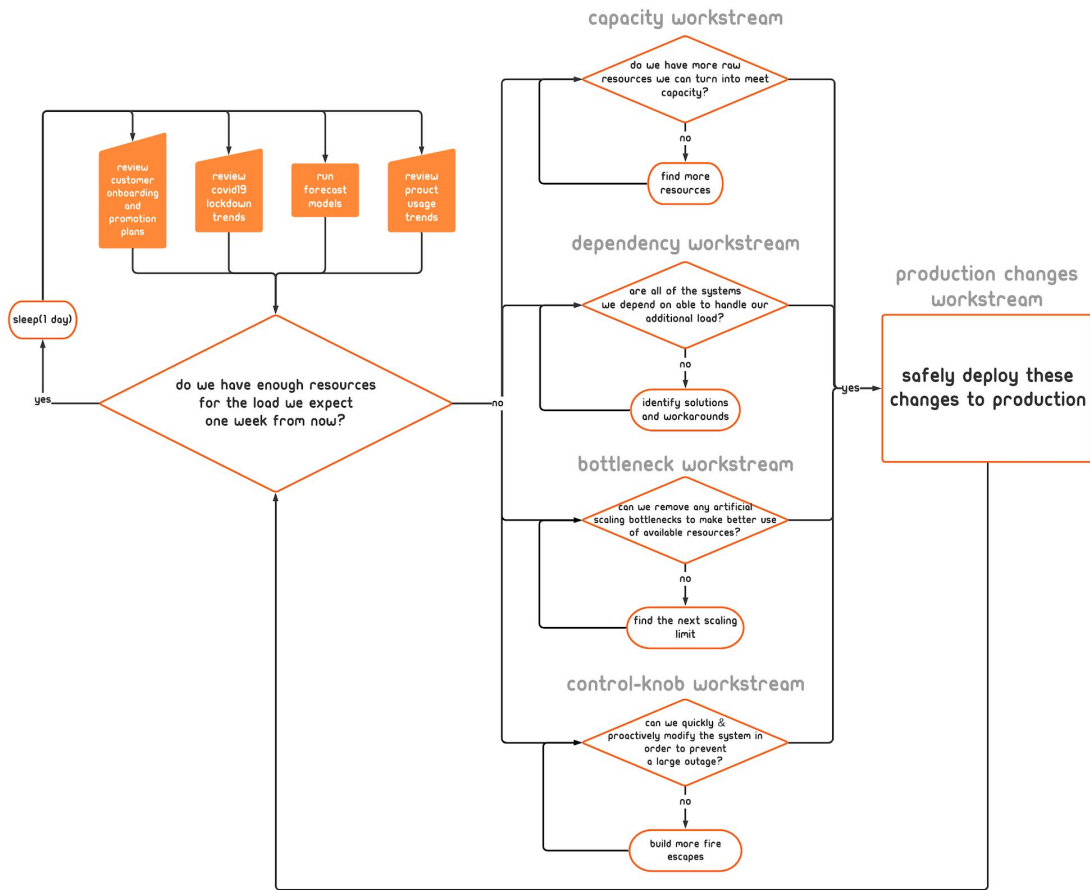


Ad-hoc

↳ Documented

↳ Atomic Operations =
Automated

↳ Flow-Control =
Automated





m i l l i o n

Daily Meeting Participants

The background of the slide is a blurred ECG (heart rate) monitor. The grid is light blue, and the ECG line is a reddish-brown color. The text is centered on the grid.

daily



weekly
planning cycle


Forming

Storming

Norming

Performing

Adjourning



*Automate
All the Things!*



m i l l i o n

Daily Meeting Participants



Thanks!

(and looking forward to your questions in the Slack)