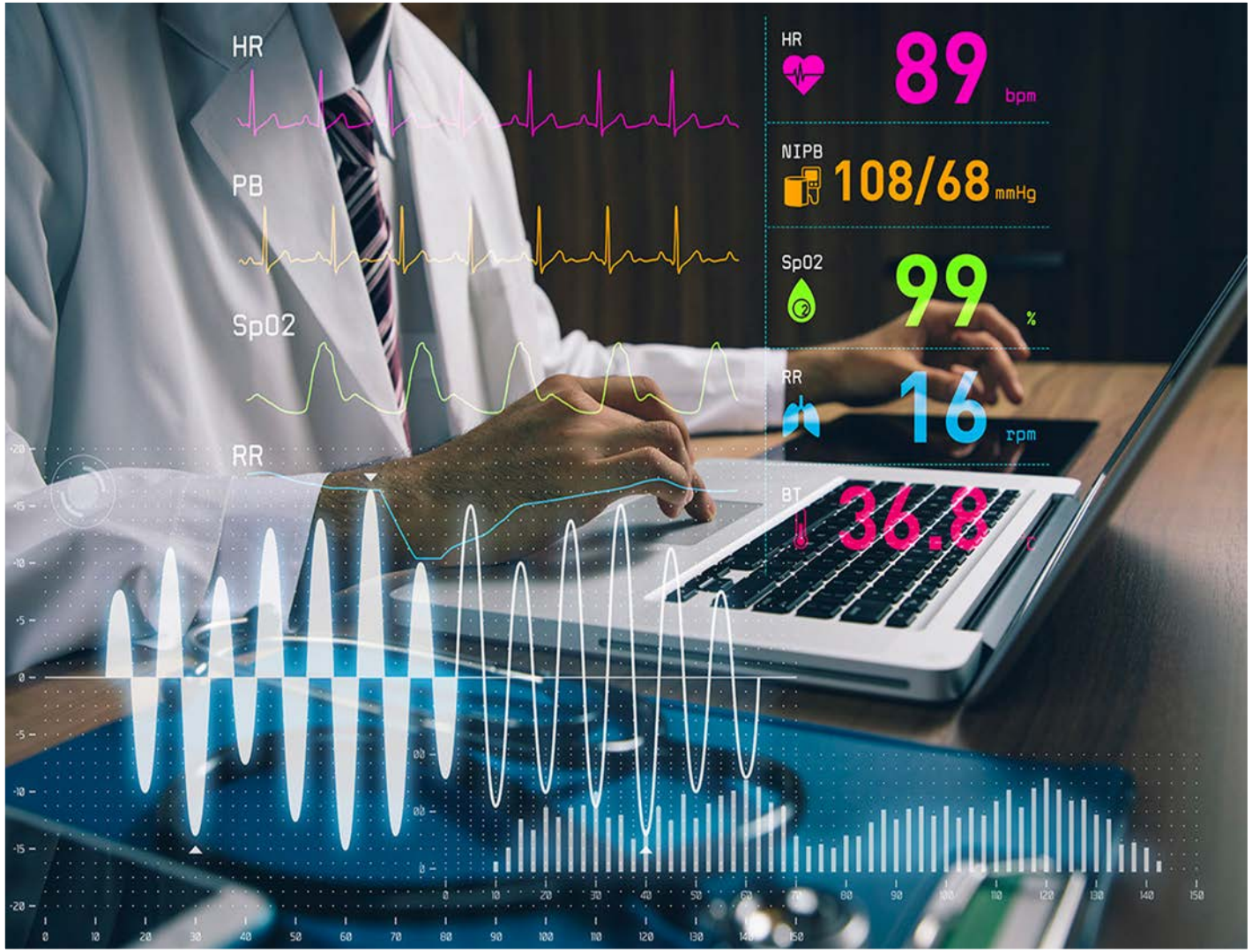
Adaptive Choreography & other tales of the secret lives of SREs...

Dr. Laura M.D. Maguire

Jeli.io

CNET

9:41
911
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0
#
Pixabay


HR
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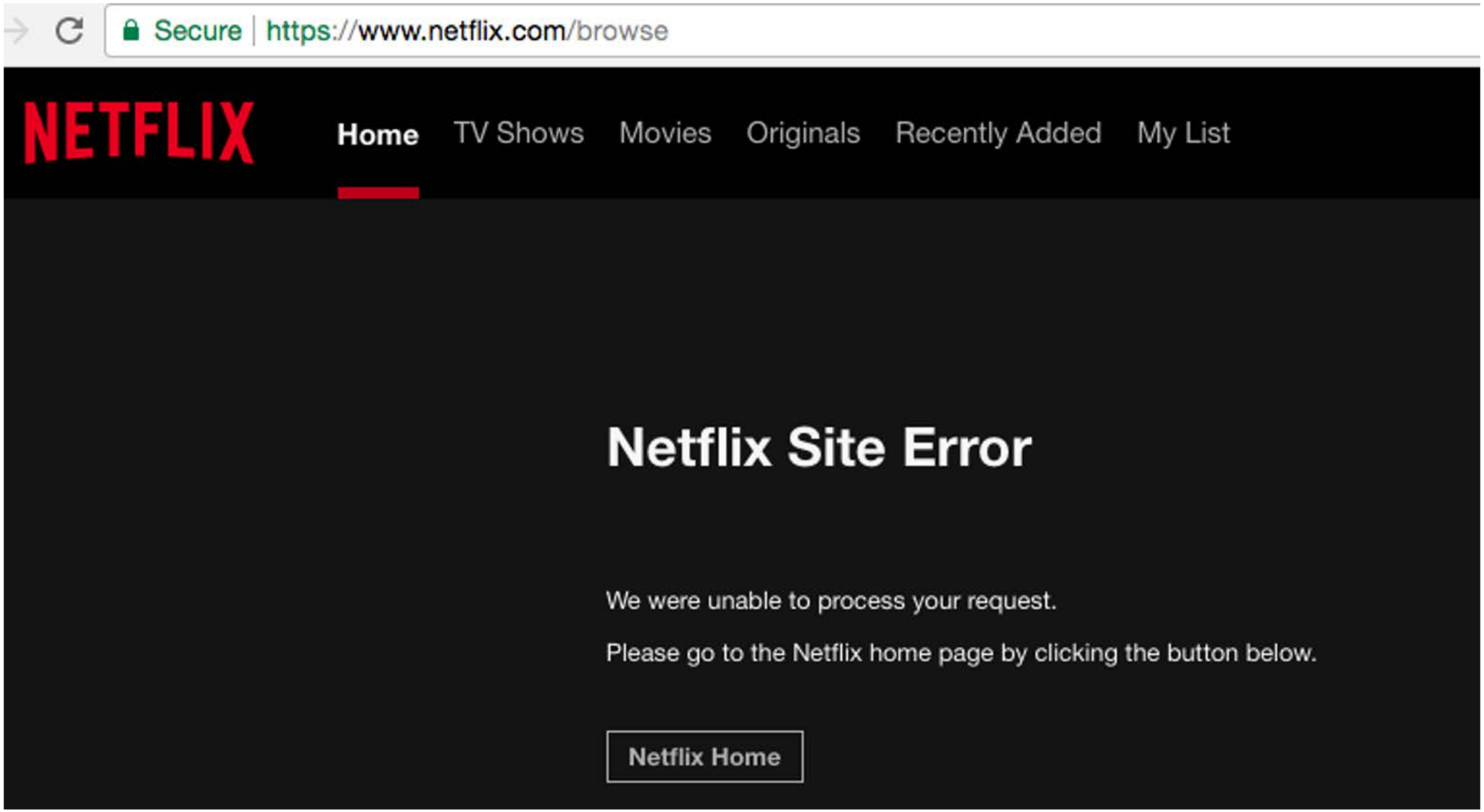

Secure | https://www.netflix.com/browse
NETFLIX
Home
TV Shows
Movies
Originals
Recently Added
My List
Netflix Site Error
We were unable to process your request.
Please go to the Netflix home page by clicking the button below.
Netflix Home

99.99%

823 CONGRESS

STAY HOME
WE DELIVER
Get the app.

“Are we good?”

COVID-19 has sped up digital transformation by 5.3 years, says study

Surging Traffic Is Slowing Down Our Internet

With people going online more in the pandemic, internet traffic has exploded. That's taking a toll on our download speeds and video quality.

By Cecilia Kang, Davey Alba and Adam Satariano

Published March 26, 2020 Updated May 20, 2020

98

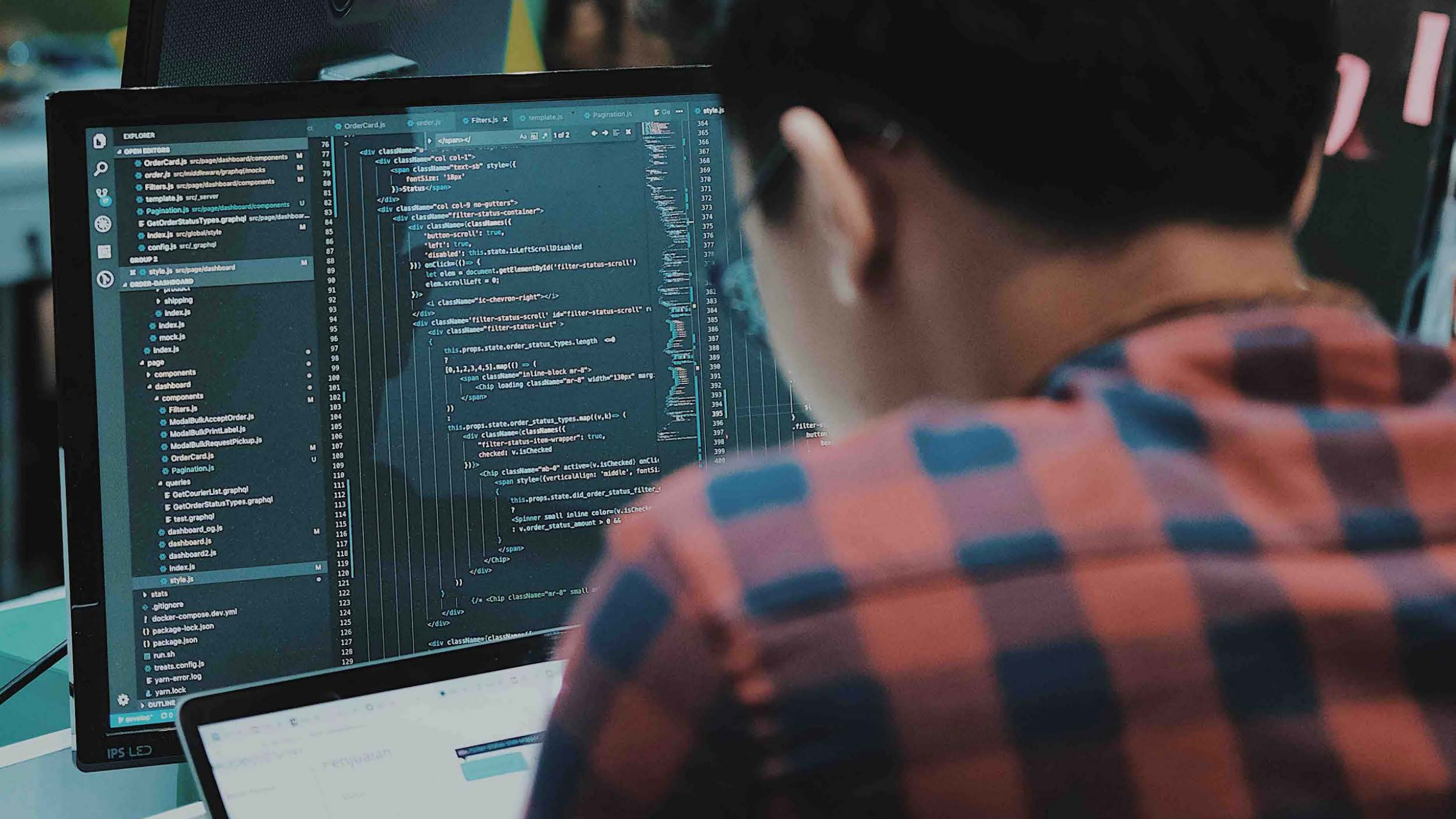
How Zoom, Netflix, and Dropbox are Staying Online During the Pandemic

Inside the efforts to keep the quarantined world's popular internet services running smoothly.

Yevgeniy Sverdlik | Mar 26, 2020

CODE
PLAN
BUILD
TEST
RELEASE
DEPLOY
OPERATE
MEASURE

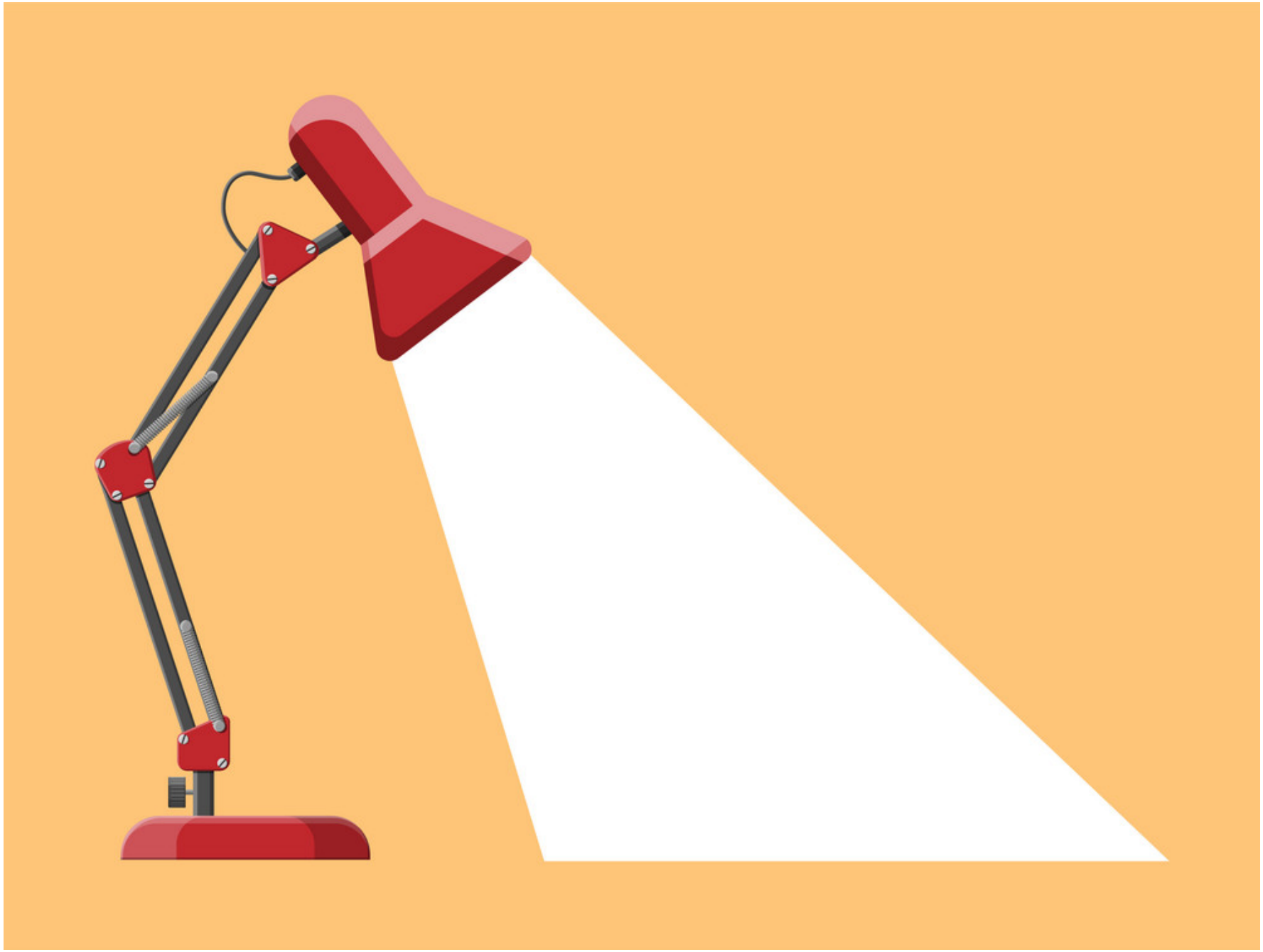
SECURITY
QUIET
HTML
CSS
php
git
LARACON
NODE
nodc


EXPLORER
OrderCard.js
order.js
Filters.js
template.js
Pagination.js
style.js
OPEN EDITORS
GROUP 2
ORDER-DASHBOARD
shipping
mock.js
page
components
dashboard
ModalBulkAcceptOrder.js
ModalBulkPrintLabel.js
ModalBulkRequestPickup.js
Pagination.js
queries
GetCourierList.graphql
GetOrderStatusTypes.graphql
test.graphql
dashboard_og.js
dashboard.js
dashboard2.js
stats
.gitignore
docker-compose.dev.yml
package-lock.json
package.json
run.sh
treats.config.js
yarn-error.log
yarn.lock
OUTLINE
IPS LED

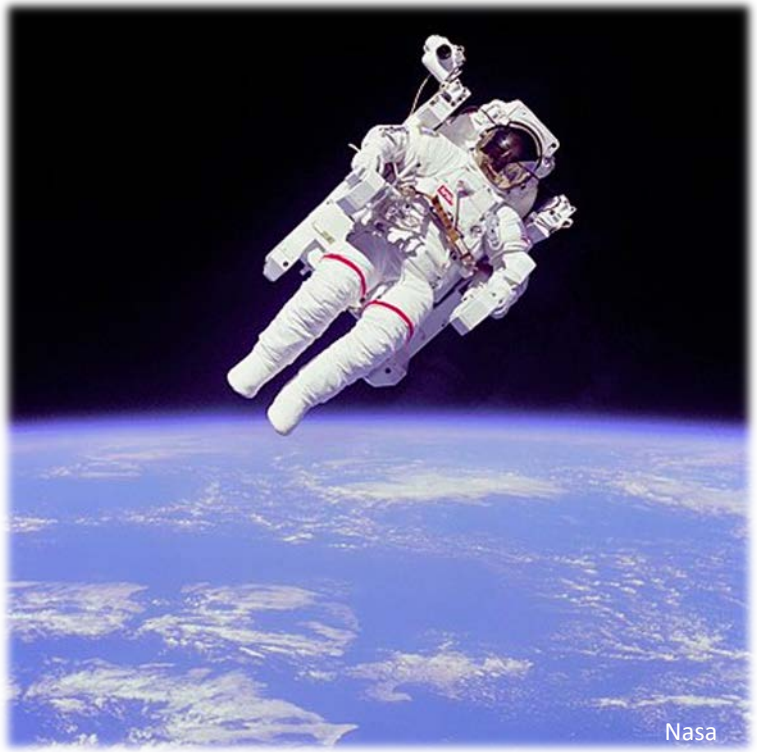
Secret

/ˈsēkrit/

- something unrevealed or known only to initiates
- an underlying explanation, reason, etc., that is not apparent



A cognitive systems view of working in complex systems


Nasa

NPR

DMKSProd

A cognitive systems view of working in complex systems

“Woods' Theorem:
As the complexity of a system increases, the accuracy of any single agent's own model of that system decreases rapidly.”

-Stella report
(stella.io)

The coordination paradox

In complex adaptive systems, everyone's model is going to be partial and incomplete (Woods, 2017).

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Therefore we need multiple, diverse perspectives to handle non-routine or exceptional events (Grayson, 2018, Watts-Perotti & Woods, 2001).

The coordination paradox

In complex adaptive systems, everyone's model is going to be partial and incomplete (Woods 2017).

Therefore we need multiple, diverse perspectives to handle non-routine or exceptional events (Grayson, 2018, Watts-Perotti & Woods, 2001).

But there is additional cognitive load working with others (Klein et al, 2005; Maguire, 2019).

Cognitive costs of coordination – additional mental effort, load and delay required to participate in **joint activity**.

© NASA

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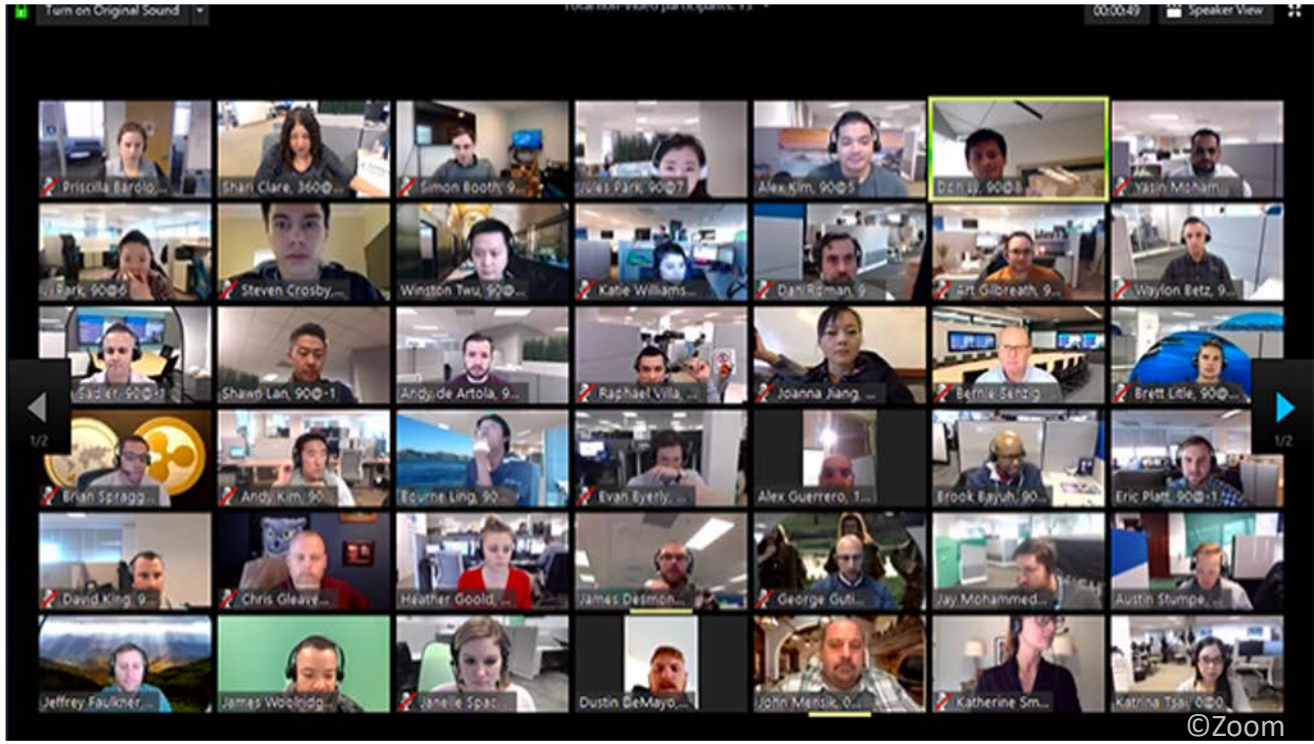

©Zoom

Timelines | Investigator Notes

Incident progression

Action - Taken X

Auto apply available tags | Include timestamped notes

Users experience performance issues.

05:46 | 05:47 | 05:48 | 05:49 | 05:50 | 05:51 | 05:52 | 05:53

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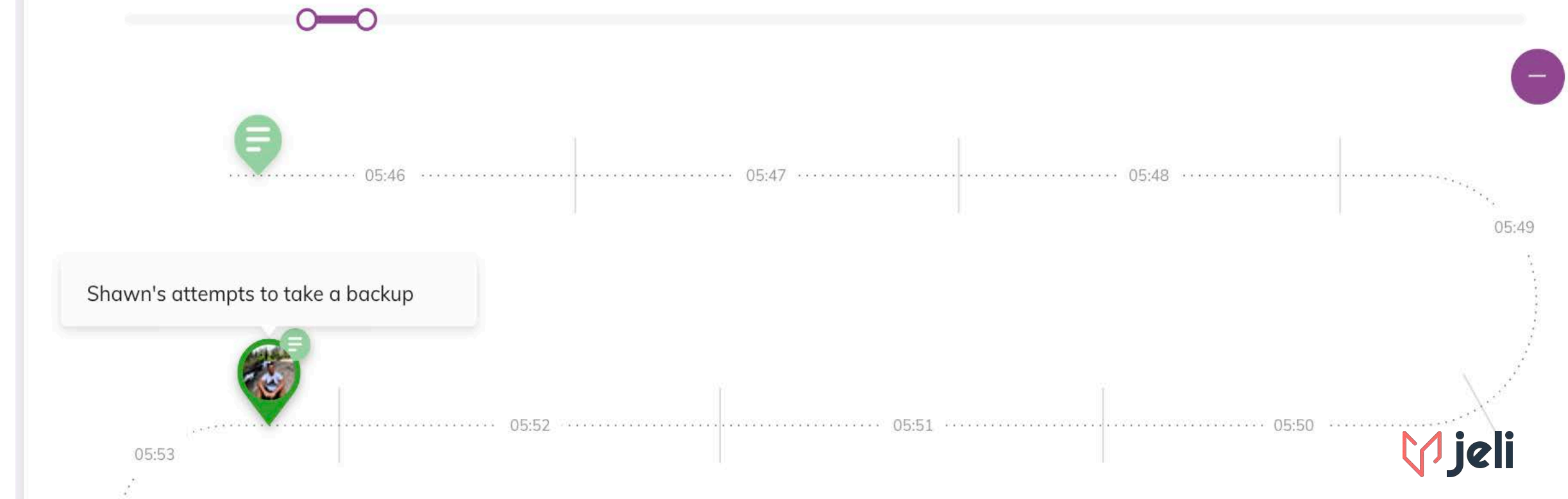
Timelines Investigator Notes

Incident progression

Action - Taken X

Auto apply available tags Include timestamped notes



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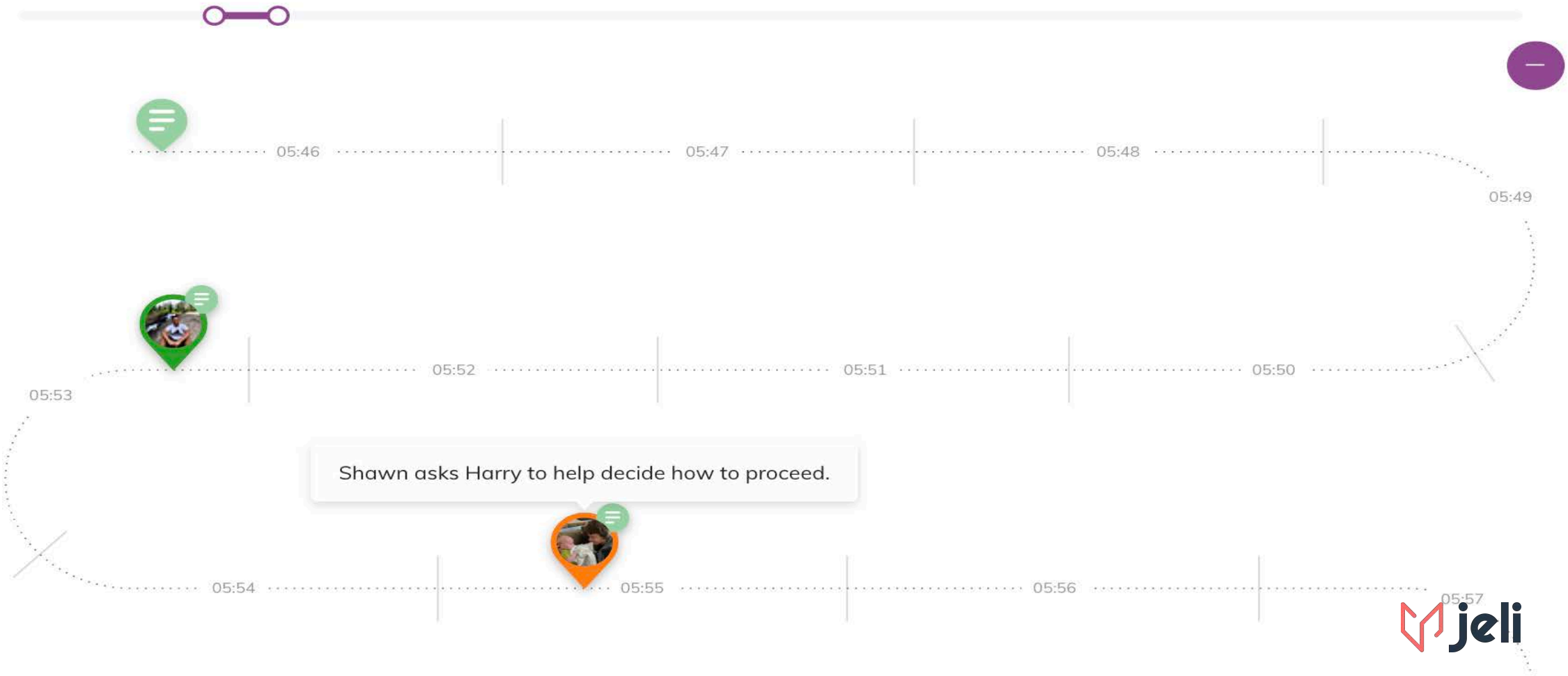
Timelines | Investigator Notes

Incident progression

Action - Taken × | Information - Seeking ×

Auto apply available tags | Include timestamped notes



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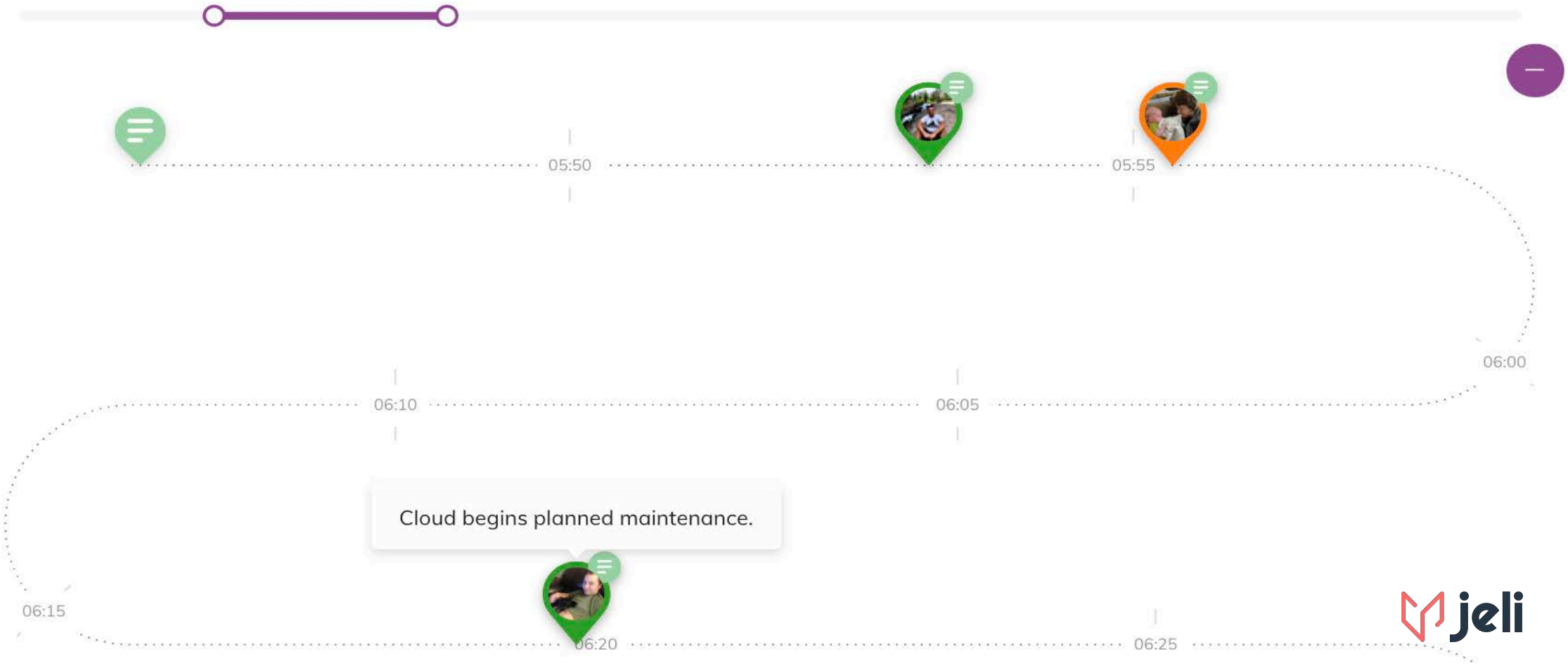
Timelines | Investigator Notes

Incident progression

Action - Taken X | Information - Seeking X

Auto apply available tags | Include timestamped notes



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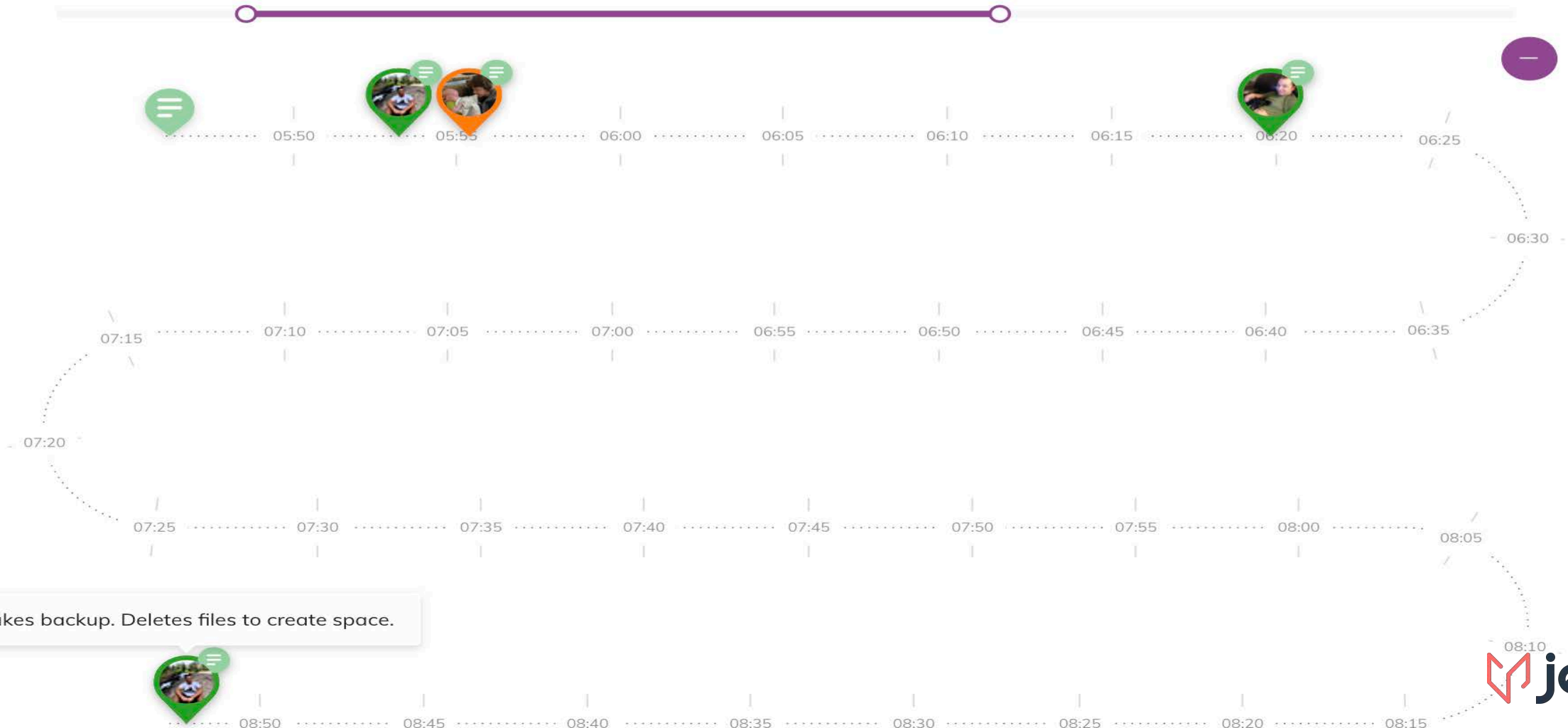
Timelines | Investigator Notes

Incident progression

Action - Taken X | Information - Seeking X

Auto apply available tags | Include timestamped notes



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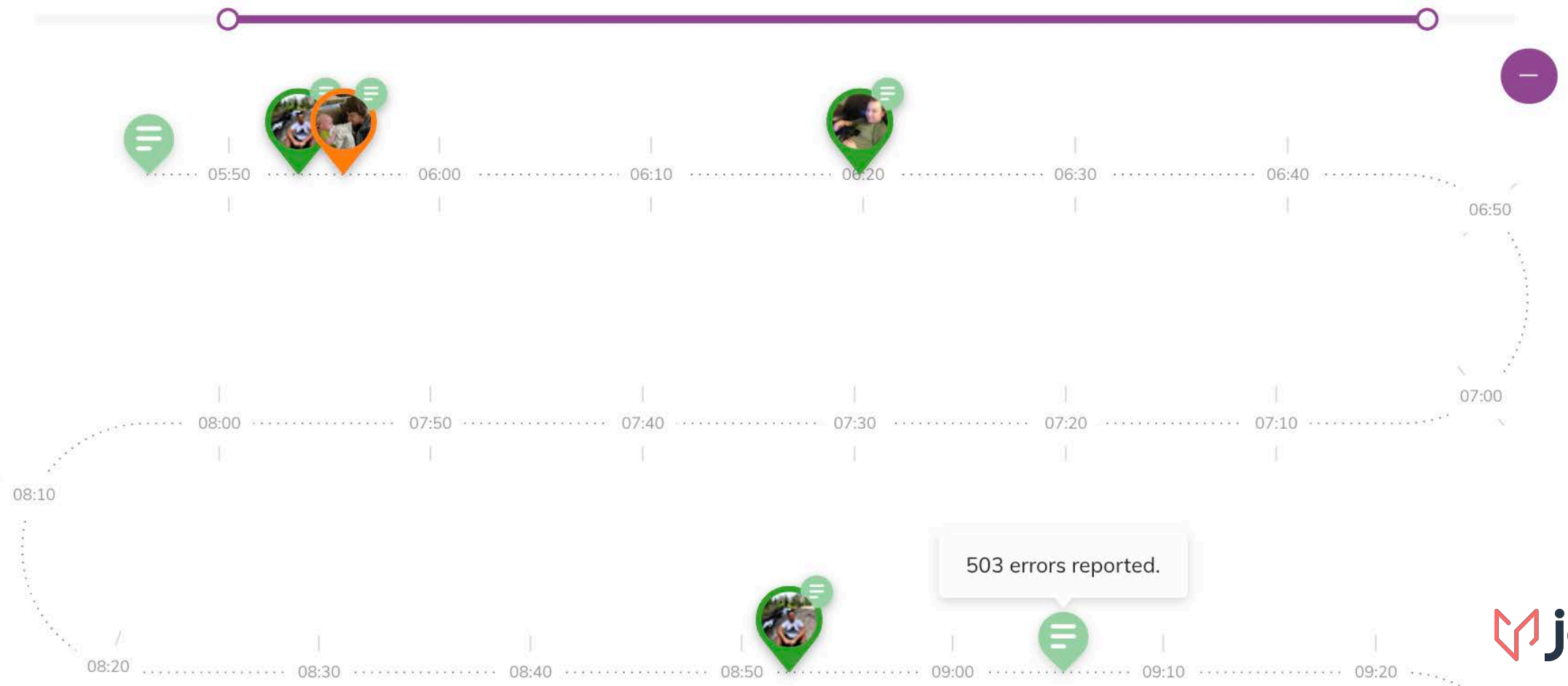
Timelines | Investigator Notes

Incident progression

Action - Taken X | Information - Seeking X

Auto apply available tags | Include timestamped notes



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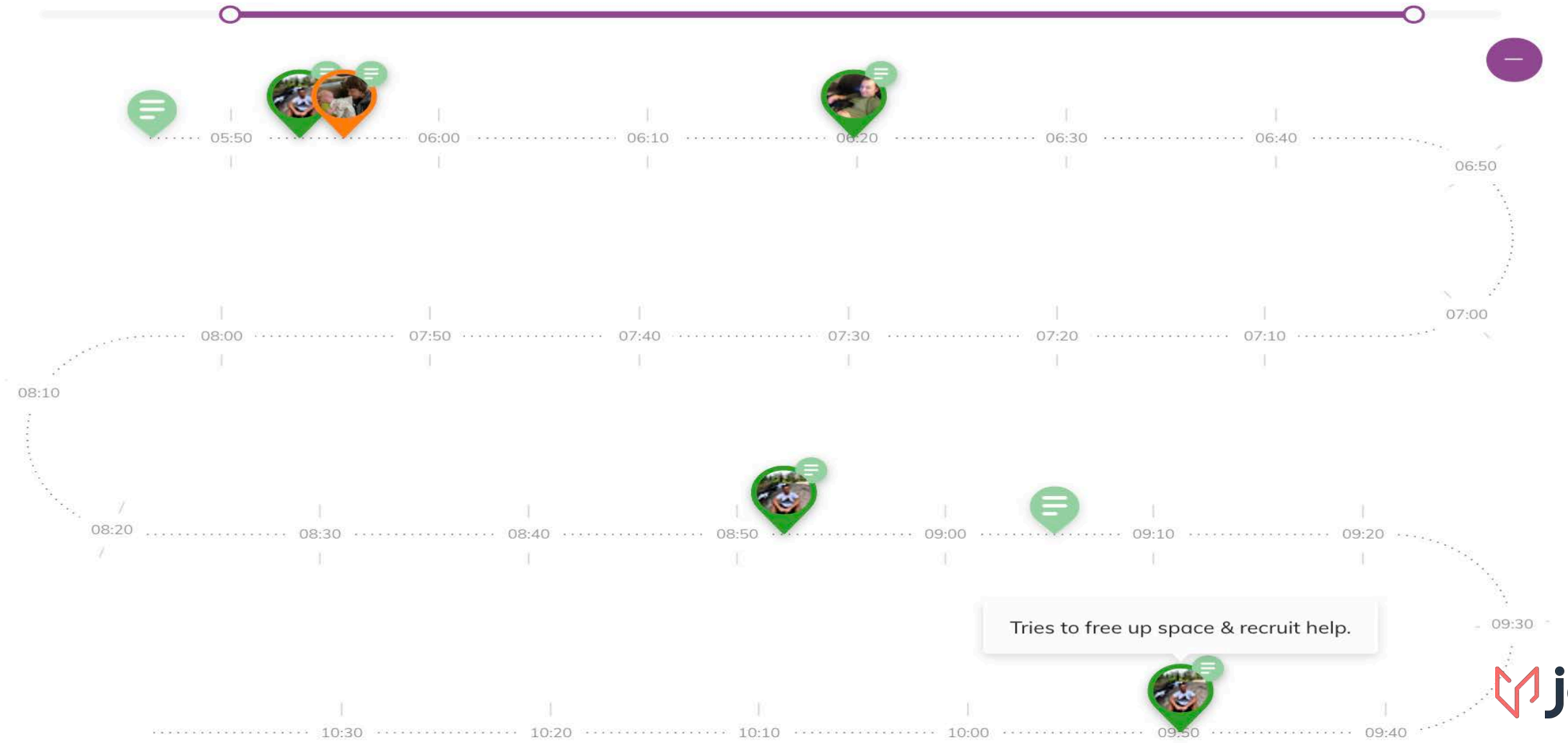
Timelines | Investigator Notes

Incident progression

Action - Taken × | Information - Seeking ×

Auto apply available tags | Include timestamped notes



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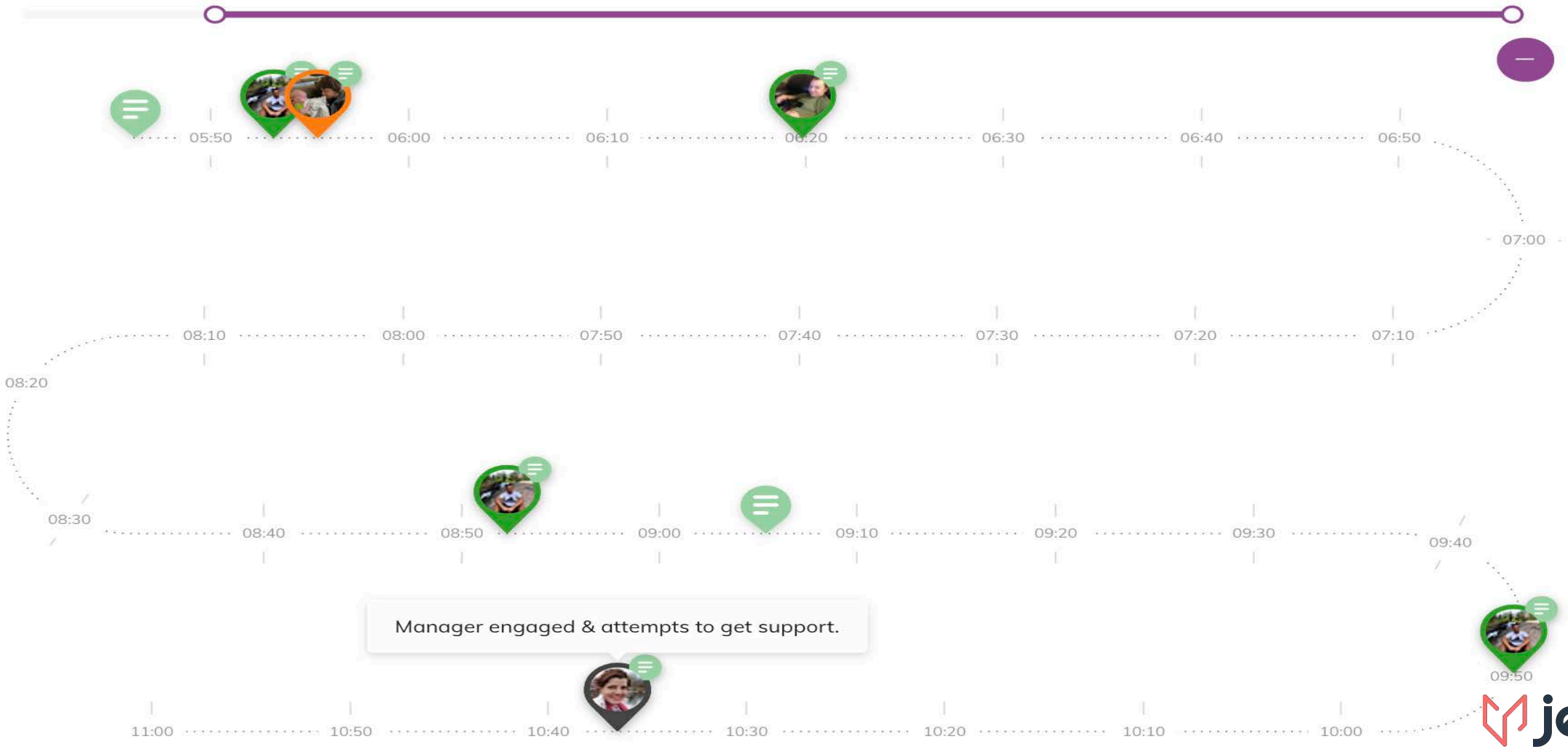
Timelines | Investigator Notes

Incident progression

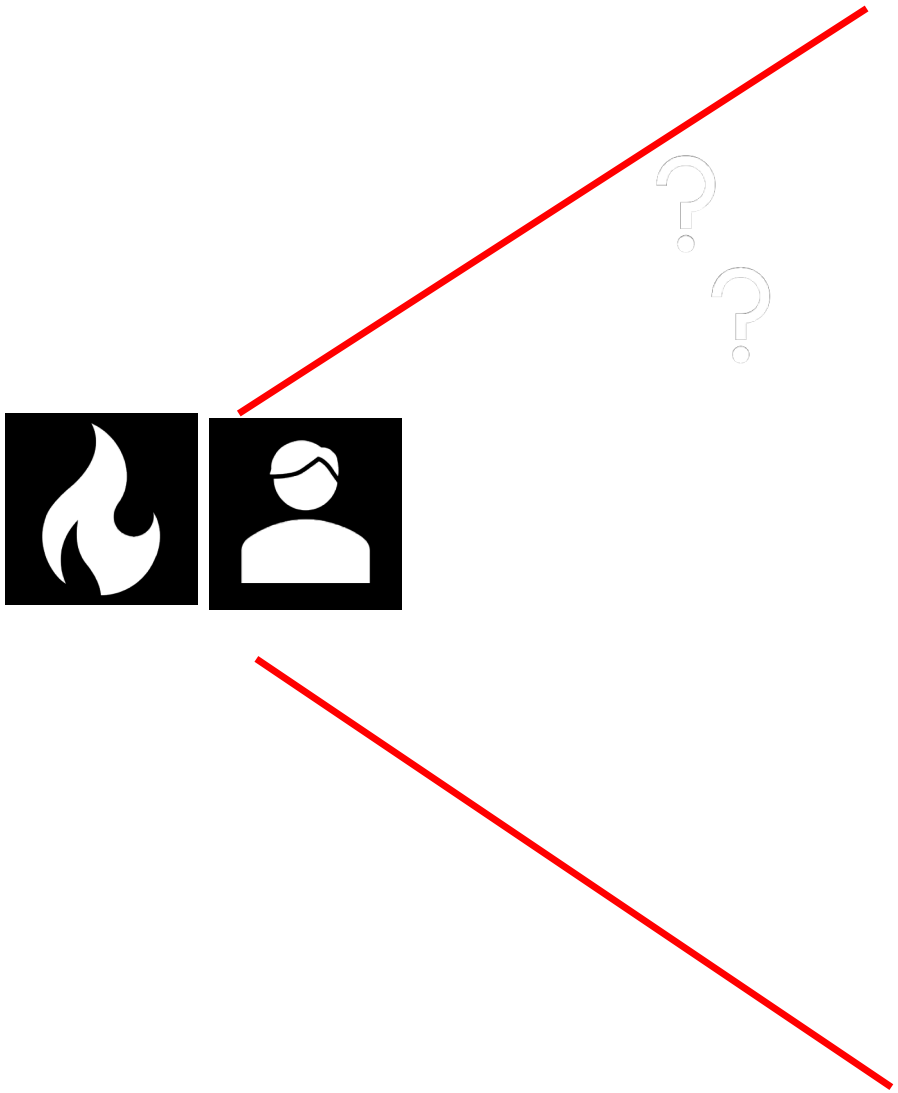
Action - Taken × | Information - Seeking × | Responder - Joins ×

Auto apply available tags | Include timestamped notes



jeli

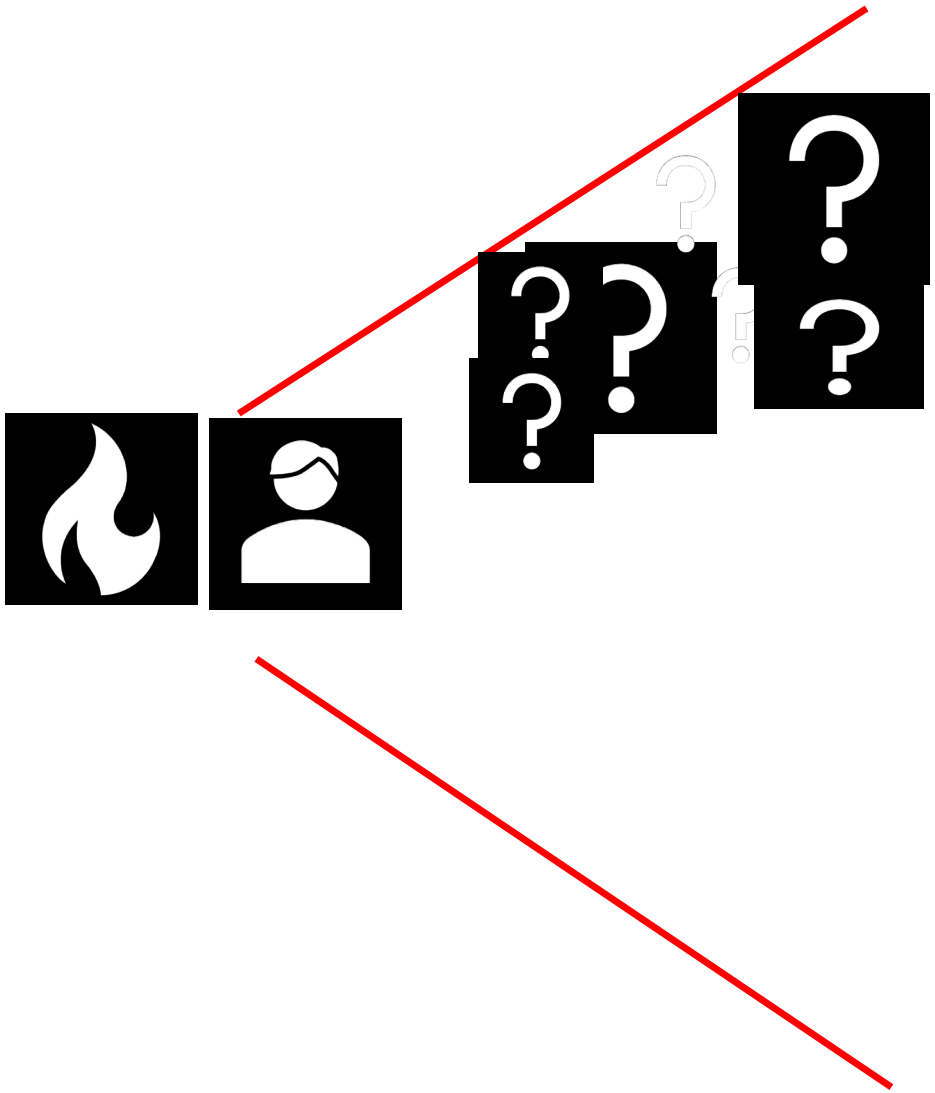
Killian



Cognitive demands

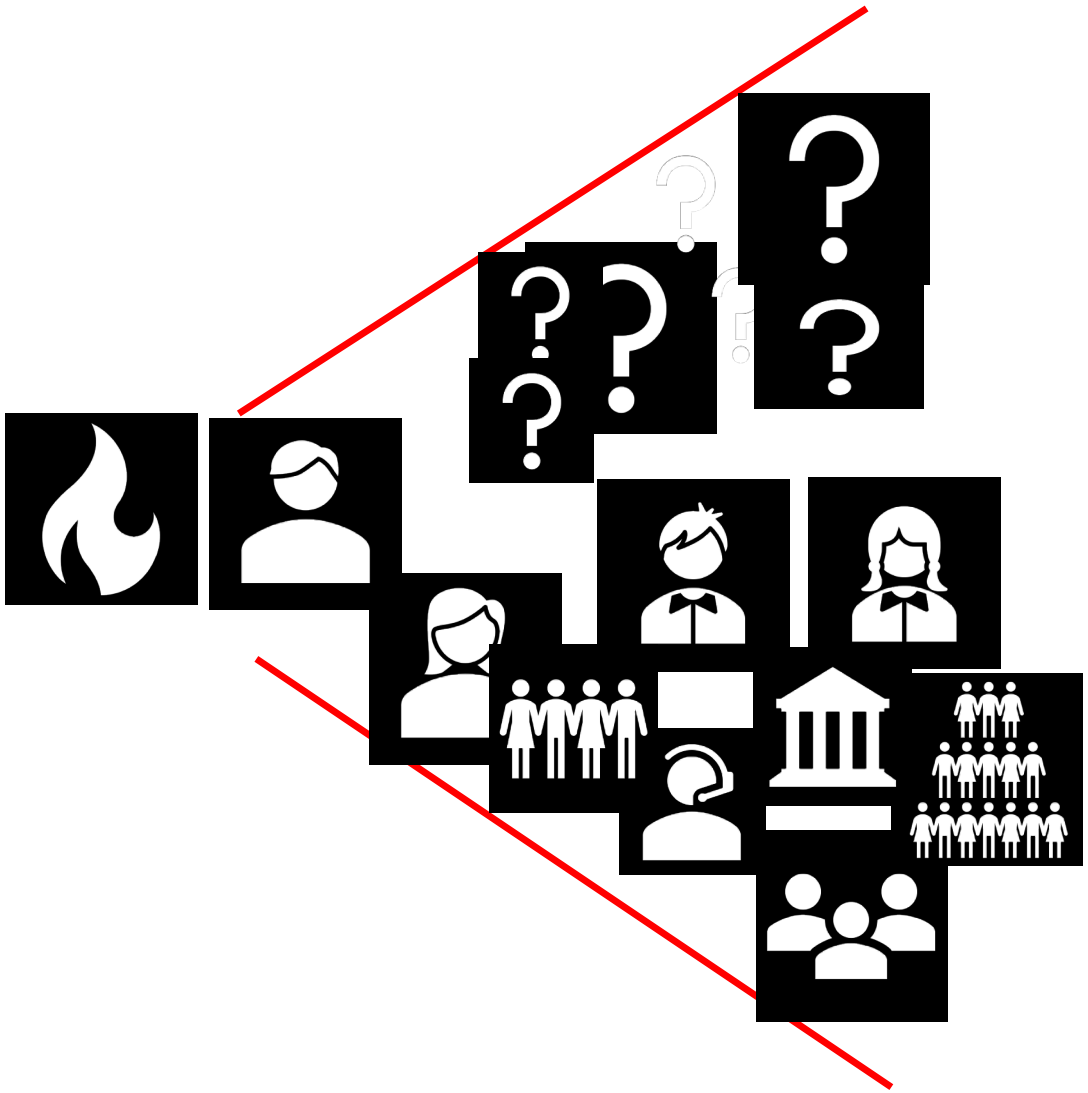
Coordinative demands

Adapted from Patterson & Woods, 2000



Cognitive demands

Adapted from Patterson & Woods, 2000



Cognitive demands

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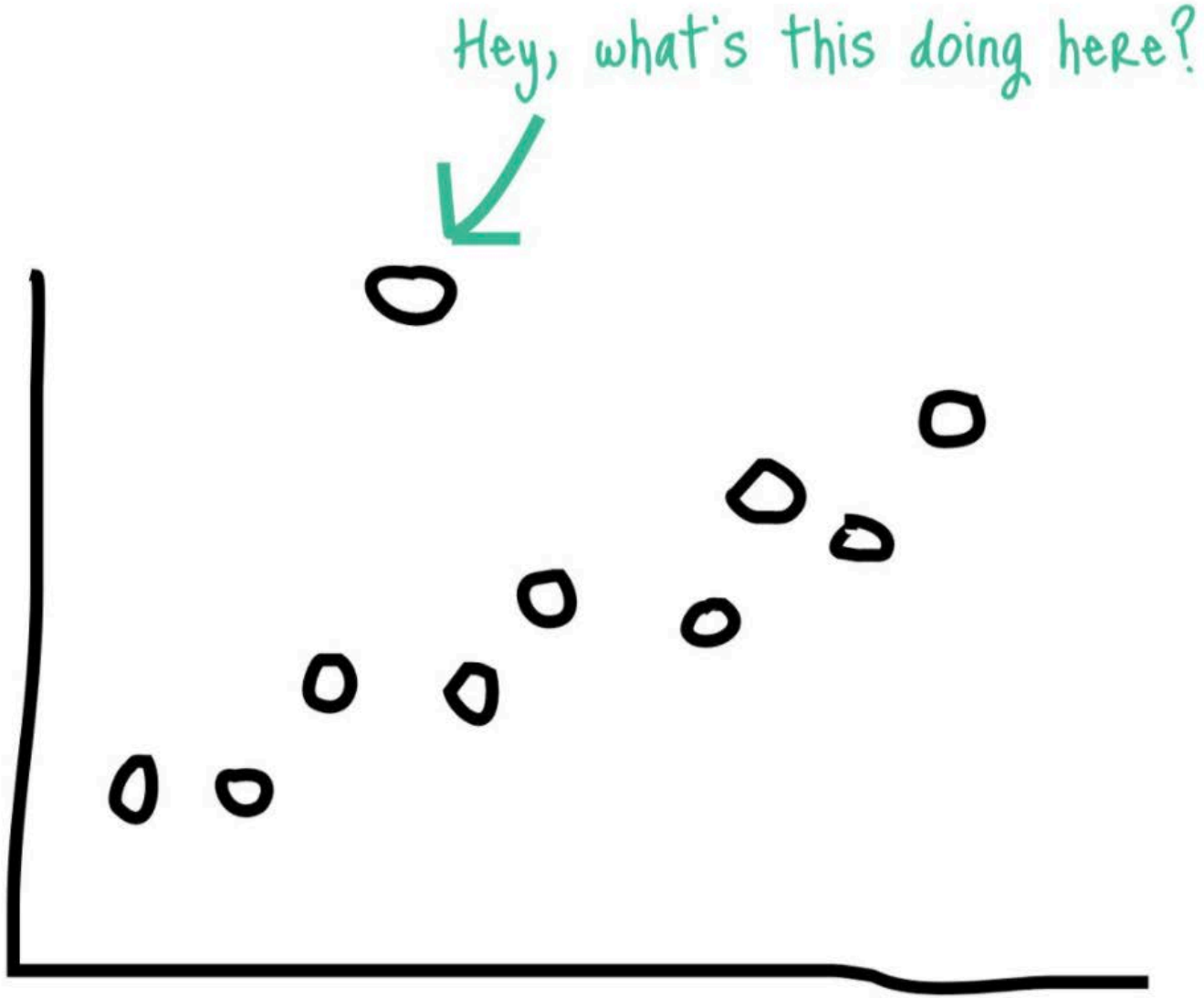

Hey, what's this doing here?

Which people are important…

Which people are important…

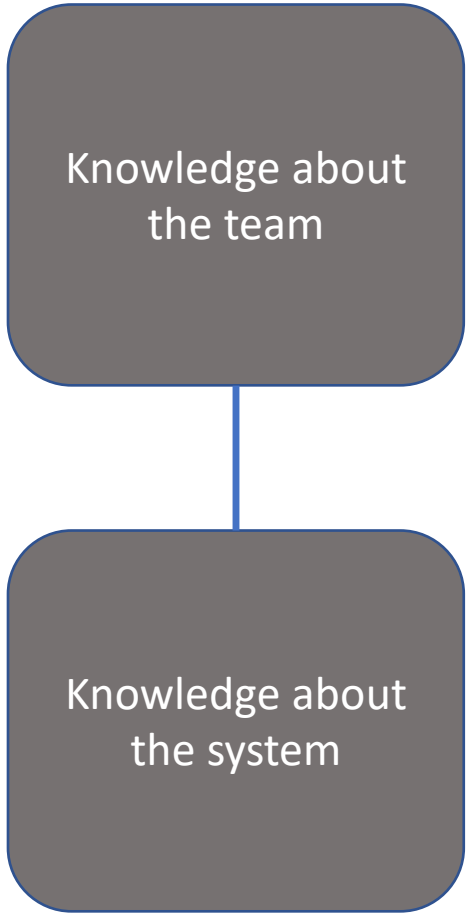
…in what collaborative interplay…

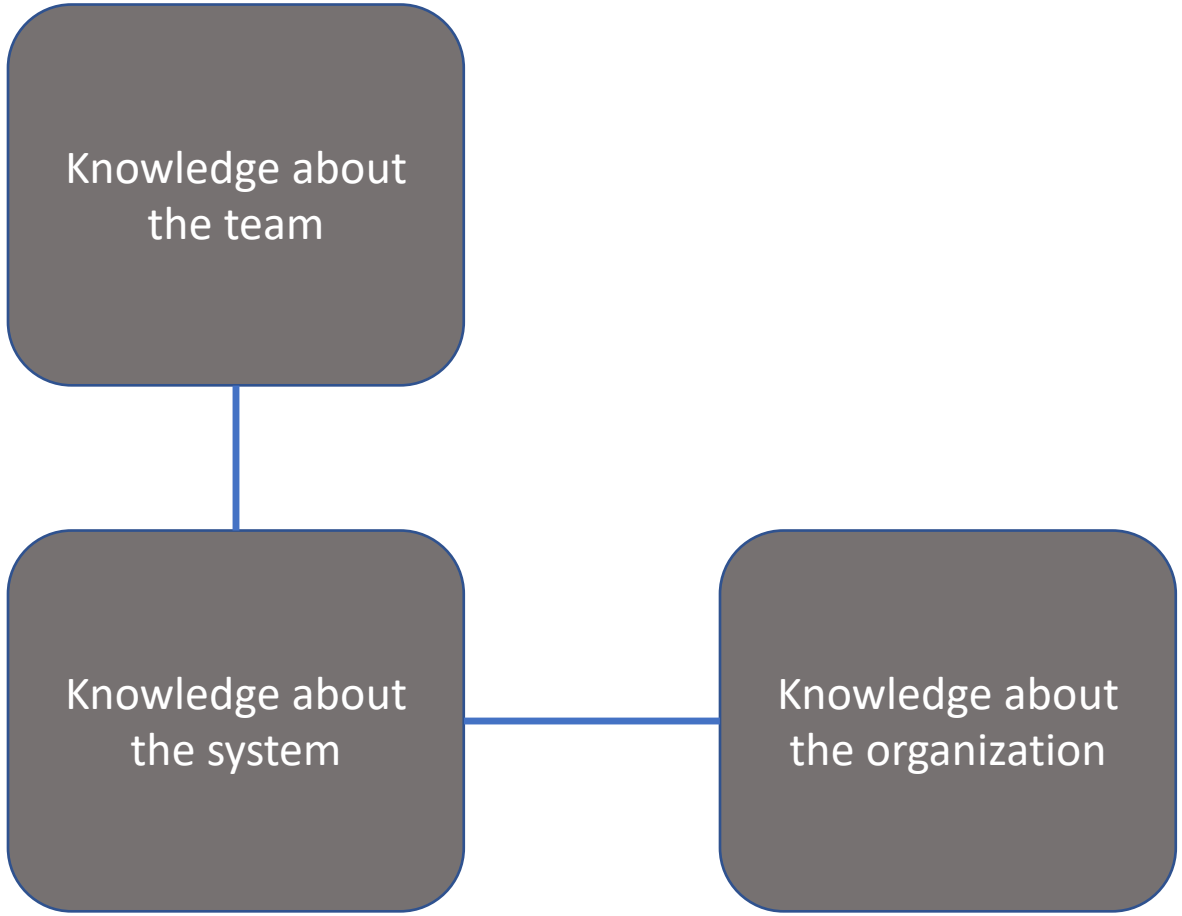
Which people are important…

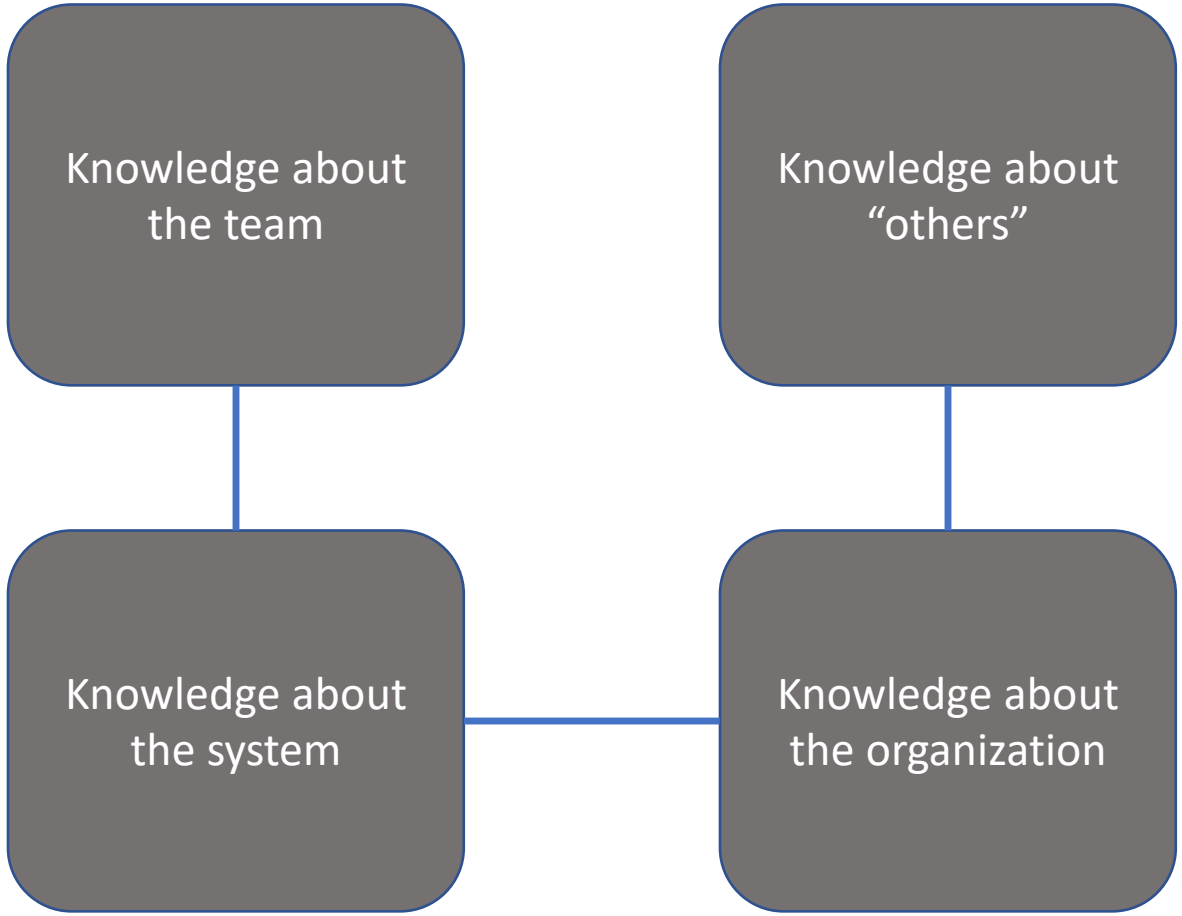
collaborative

…in what sequence?

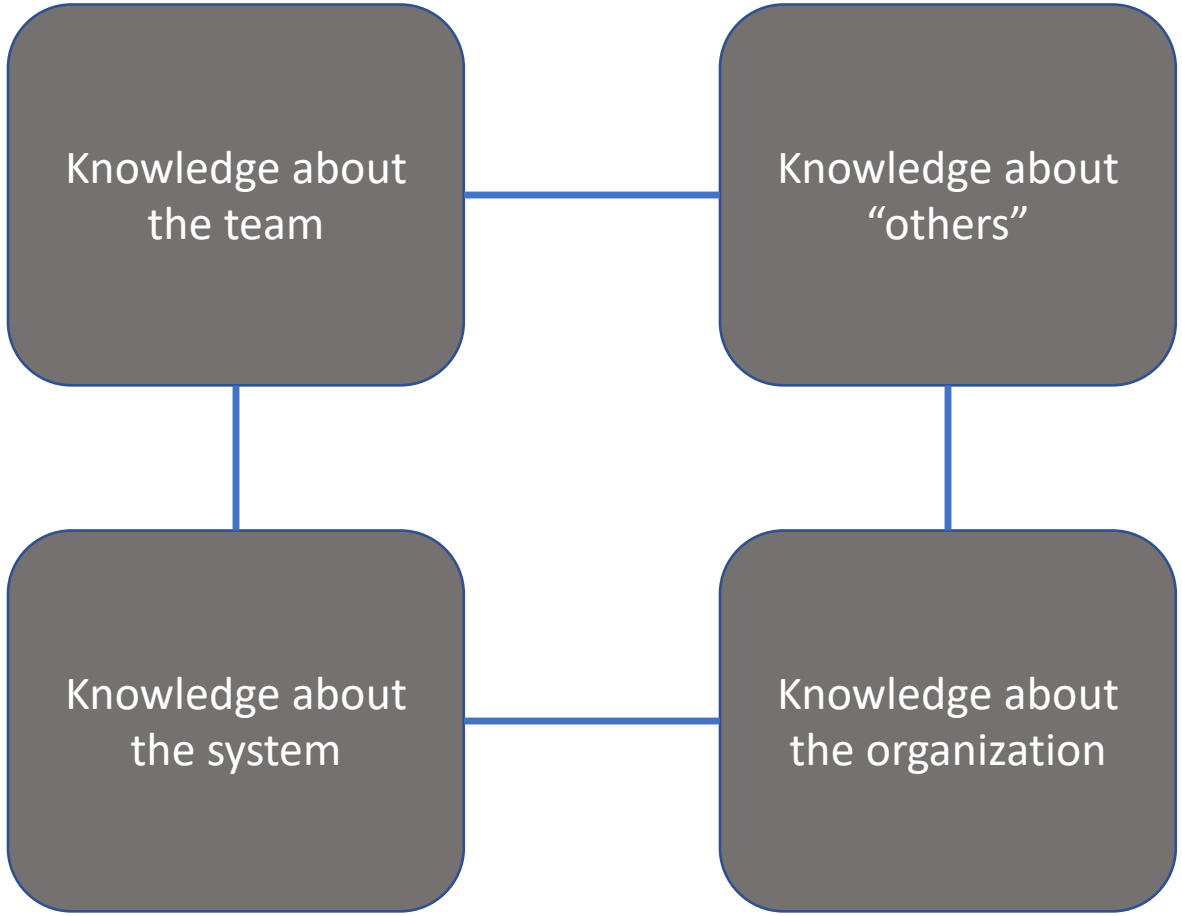
Knowledge about the system

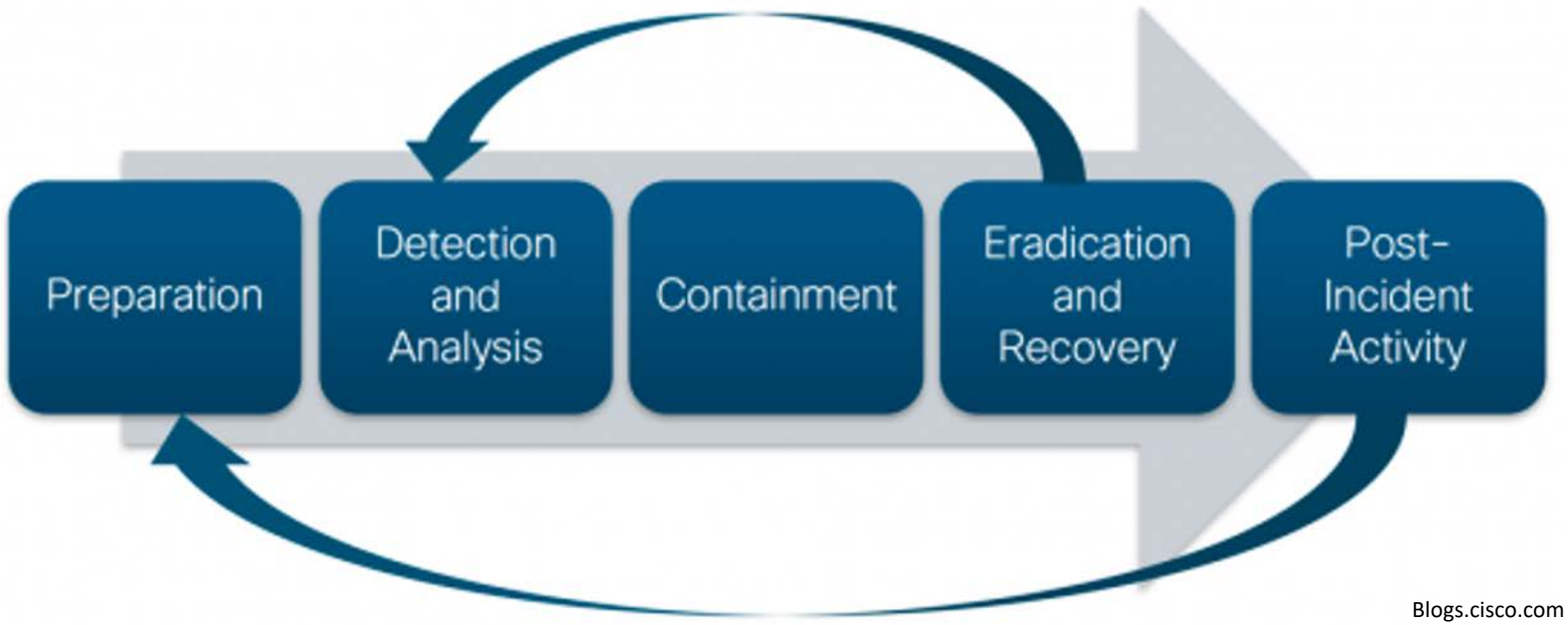

Knowledge about the team
Knowledge about the system


Knowledge about the team
Knowledge about the system
Knowledge about the organization

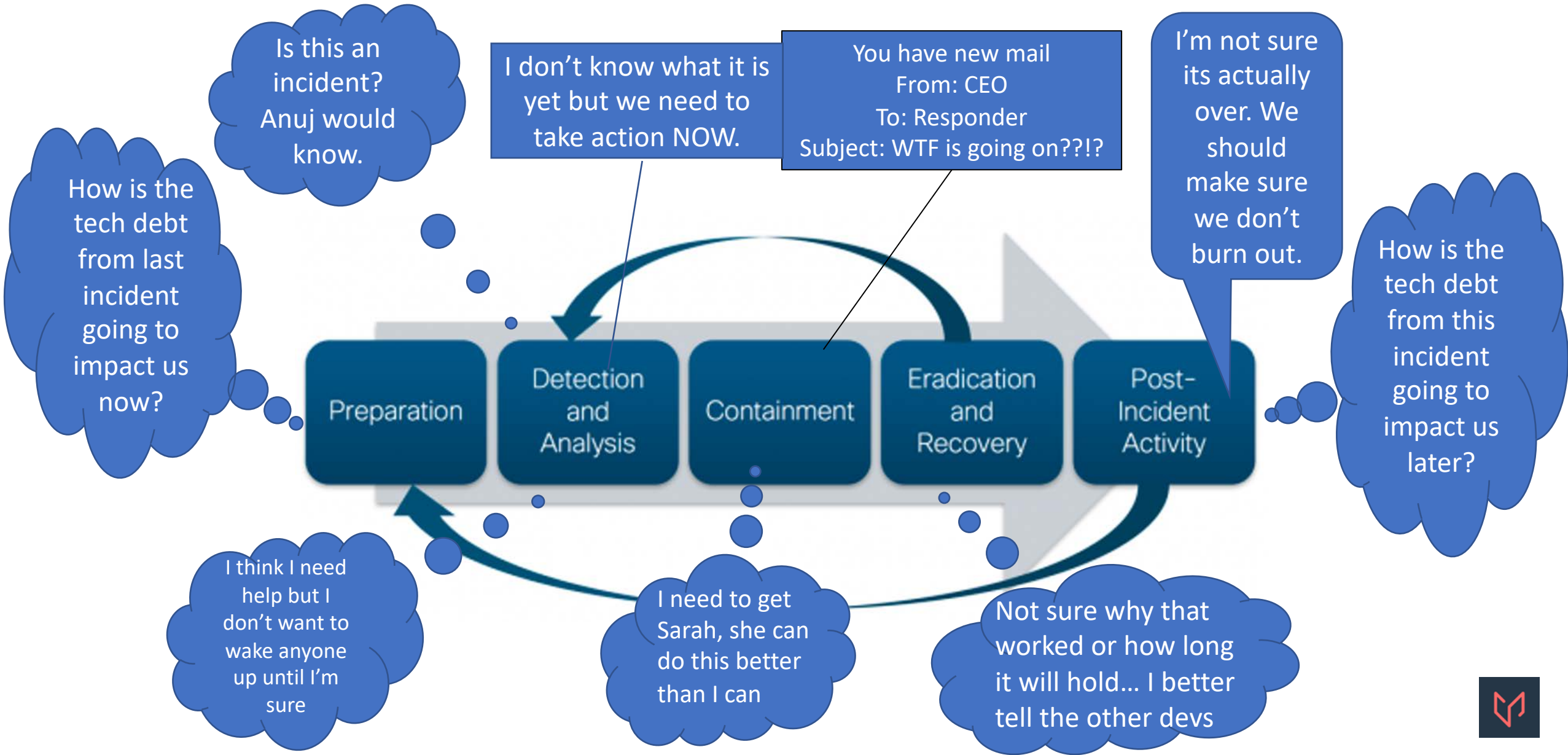

Knowledge about the team
Knowledge about “others”
Knowledge about the system
Knowledge about the organization

The basis for Common Ground





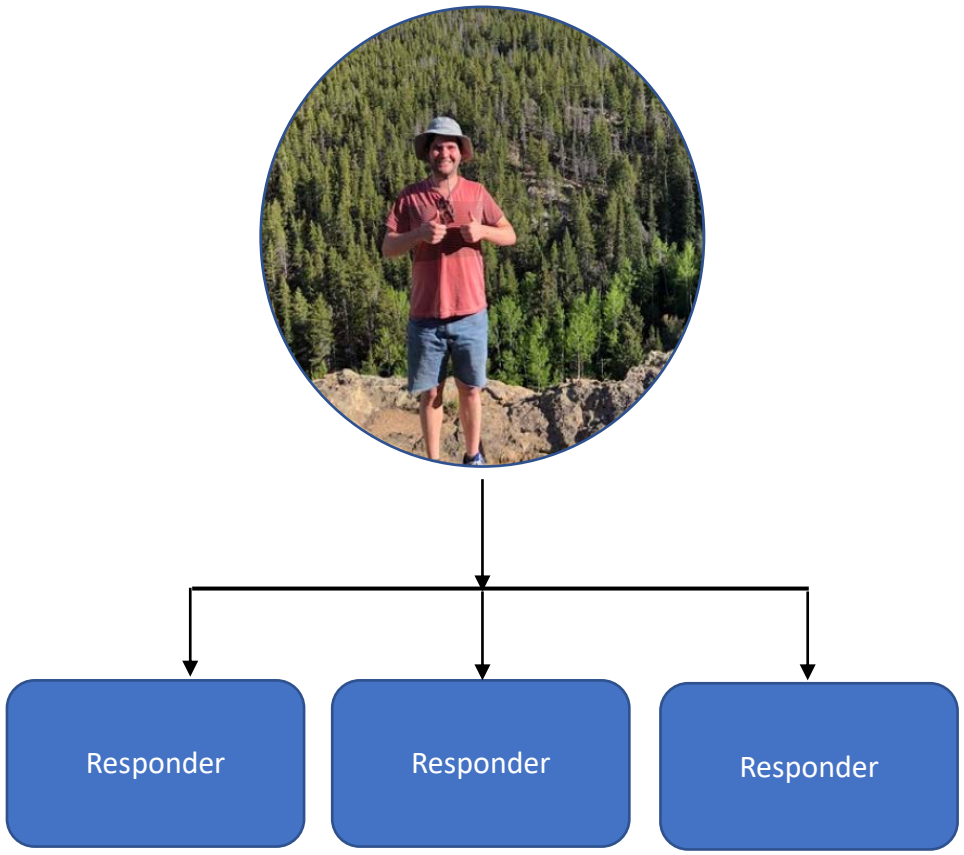
Blogs.cisco.com


Is this an incident? Anuj would know.
I don't know what it is yet but we need to take action NOW.
You have new mail
From: CEO
To: Responder
Subject: WTF is going on??!?
I'm not sure its actually over. We should make sure we don't burn out.
How is the tech debt from last incident going to impact us now?
How is the tech debt from this incident going to impact us later?
Preparation
Detection and Analysis
Containment
Eradication and Recovery
Post-Incident Activity
I think I need help but I don't want to wake anyone up until I'm sure
I need to get Sarah, she can do this better than I can
Not sure why that worked or how long it will hold… I better tell the other devs

“The incident commander holds the high-level state about the incident. They structure the incident response task force, assigning responsibilities according to need and priority.

De facto, the commander holds all positions that they have not delegated.”

Beyer et al (2016)


Responder
Responder
Responder

Gather Info

Synthesize Info

Delegate

Track activities

Recruit

Sequence activities

Communicate

Synchronize activities

Maintain Common Ground

Responder

Responder

Responder

Gather Info

Synthesize Info

Track activities

Delegate

Responder

Maintain Common Ground

Responder

Responder

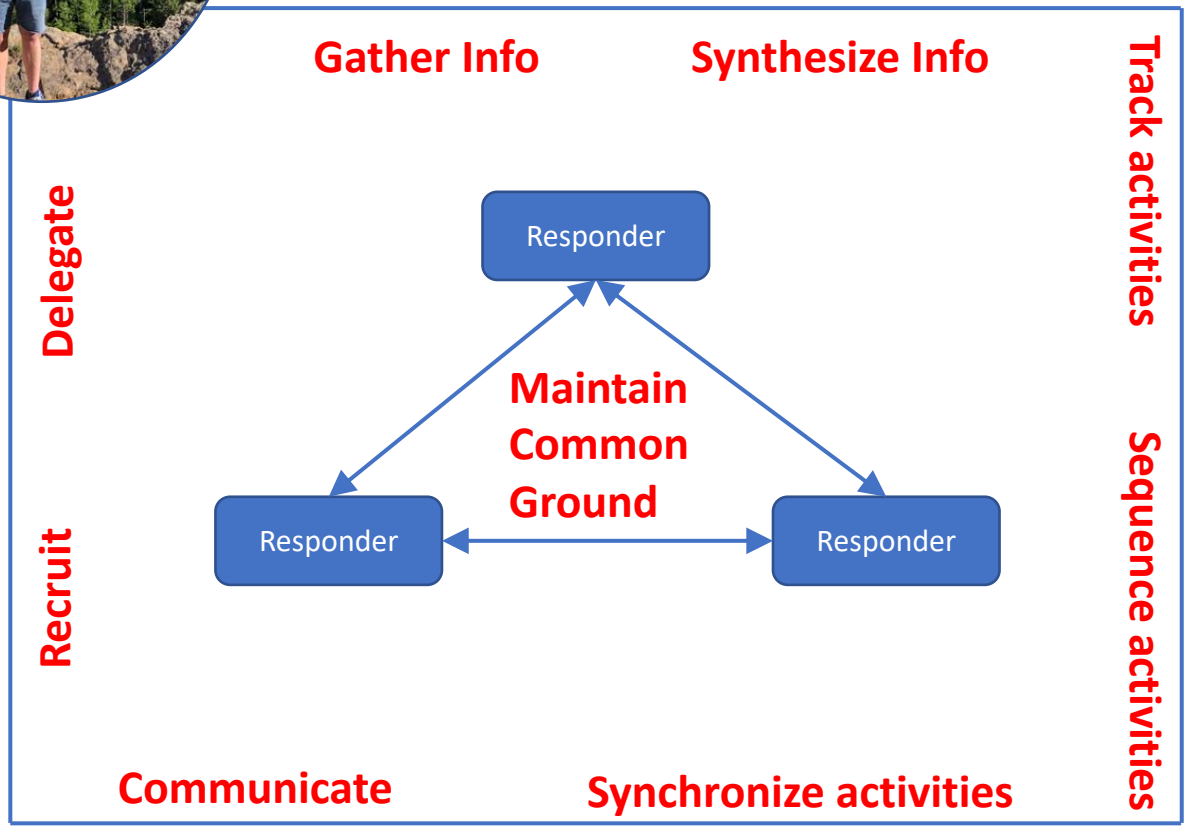
Recruit

Sequence activities

Communicate

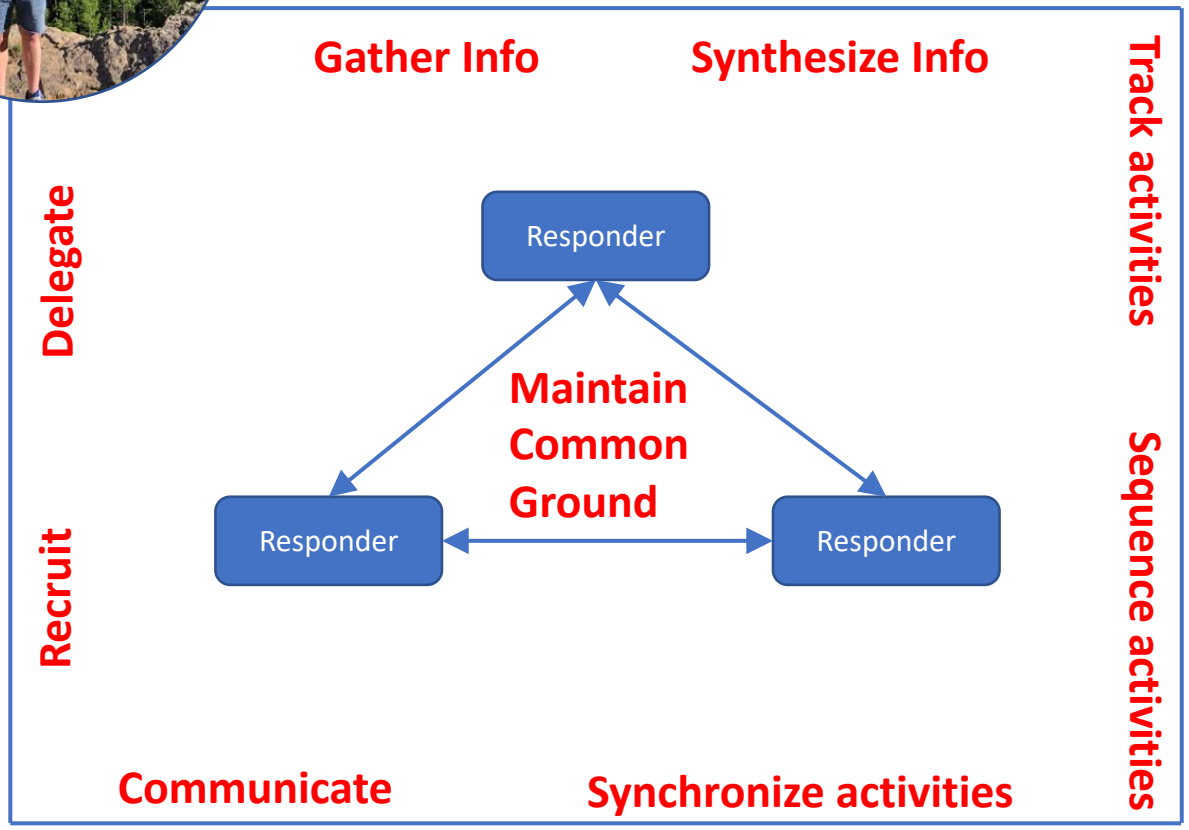
Synchronize activities

“I’m checking the logs.”

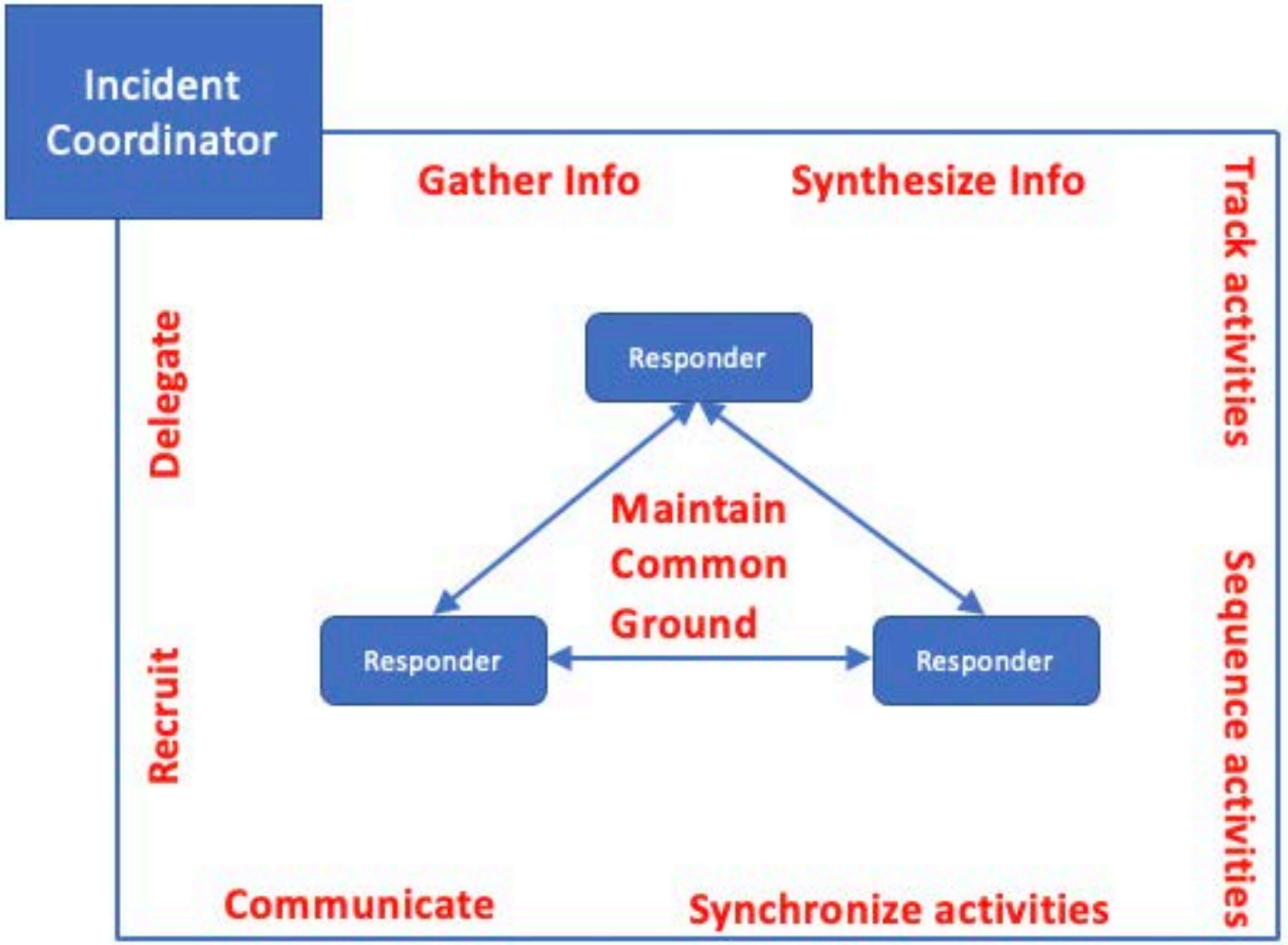


“I’m checking the logs.”

“I’m going to kill the jobs”



Adaptive Choreography



“Are we good?”

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Jeli.io
laura@jeli.io

References

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