

AVENGERS ASSEMBLE

THE THANOS INCIDENT



MX111 D8214 48229 7KX45

SHIELD



**STRATTON,
MATTY**

LEVEL 10

TITLE
DEVOPS ADVOCATE

SEX HAIR HEIGHT
M BRN 5-10

ISSUE DATE / EXP DATE
20190CT14/20220CT14



LOSS OF THIS CARD MUST BE REPORTED IMMEDIATELY

CARD
SER NO **A 187925**



SPOILER WARTINGS



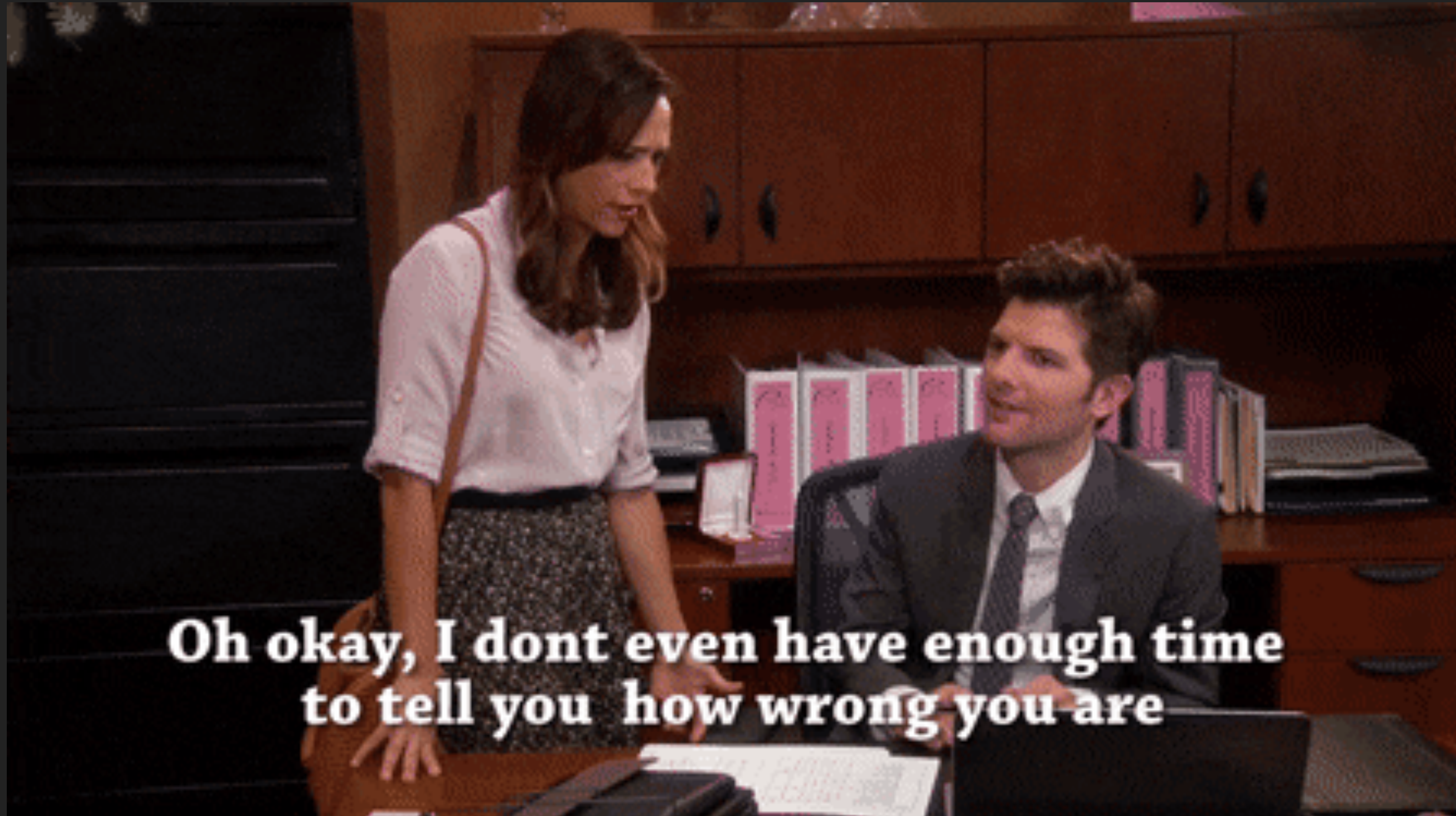
SO, WHAT HAPPENED?



SO, WHAT HAPPENED?

- ▶ We will start by creating a post-mortem on the incident of “The Snap”
- ▶ Our approach will be to address this in a blameless fashion
- ▶ We want to understand what happened, as well as the process the Avengers used
- ▶ For purposes of this discussion, “The Avengers” will include characters not generally considered Avengers, please bear with me

SO, WHAT HAPPENED?



**Oh okay, I dont even have enough time
to tell you how wrong you are**

CONSTRUCT OUR TIMELINE

- ▶ Stick to the facts
- ▶ Include key decisions and actions taken by responders
- ▶ Avoid evaluating what should or shouldn't have been done
- ▶ Start the timeline at a point before the incident began

HIGH LEVEL TIMELINE

- ▶ Thanos obtains the Power Stone and the Space Stone
- ▶ Thor and the Guardians of the Galaxy decide to split up - Thor to head to Nidavellir with Rocket and Groot, the rest to head to Knowhere
- ▶ Thanos retrieves the Reality Stone from The Collector on Knowhere
- ▶ Dr. Strange uses the Time Stone to view millions of possible futures
- ▶ Thanos sacrifices Gamora on Vormir to obtain the Soul Stone
- ▶ Several team members attempt to recover the Infinity Gauntlet from Thanos on Titan

HIGH LEVEL TIMELINE

- ▶ Dr. Strange decides to exchange the Time Stone for Tony Stark's life
- ▶ Shuri works to remove the Mind Stone from Vision
- ▶ Various team members attempt to defend Vision in Wakanda
- ▶ Thanos obtains the Mind Stone from Vision
- ▶ Thor attacks Thanos but is unable to defeat him
- ▶ Thanos snaps his fingers, wiping out half of all life



GROOT CAUSE ANALYSIS

Credit to @djpiebob and @this_hits_home

SYSTEMS ARE COMPLEX



THERE IS NO SINGLE ROOT CAUSE OF MAJOR FAILURE IN COMPLEX SYSTEMS, BUT A COMBINATION OF CONTRIBUTING FACTORS THAT TOGETHER LEAD TO FAILURE

BLAMELESS

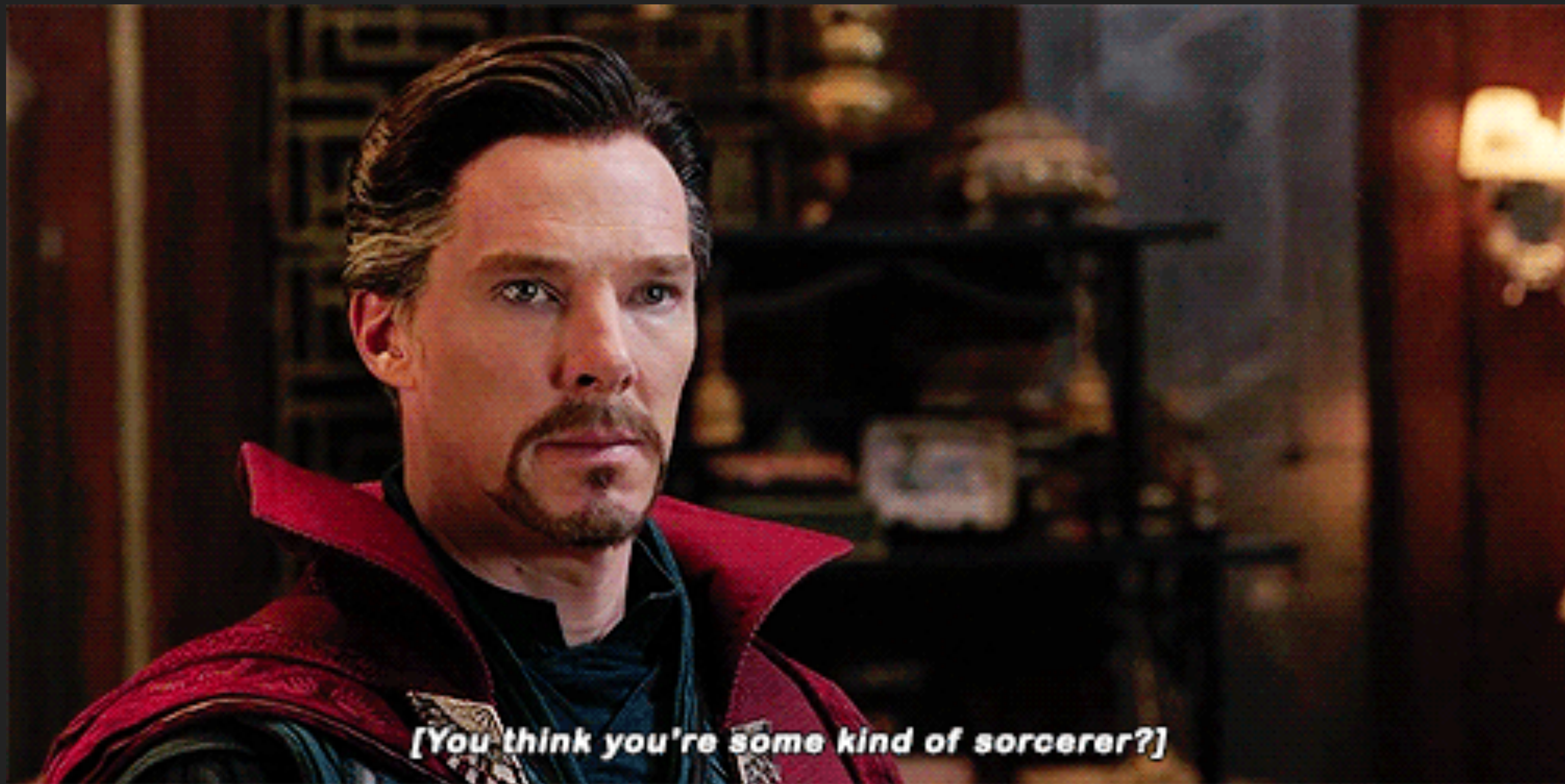


WHY DOES BLAMELESSNESS MATTER?

- ▶ This impulse to blame and punish has the unintended effect of disincentivizing the knowledge sharing required to prevent future failure
- ▶ The goal of the postmortem is to understand what systemic factors led to the incident and identify actions that can help improve the resilience of the system
- ▶ Stay focused on *how* a mistake was made instead of *who* made it

WHY IS BLAMELESSNESS HARD?

- ▶ When processing information, the human mind unconsciously takes shortcuts
- ▶ We are hard-wired from millions of years of evolutionary neurobiology to tend to blame
- ▶ The human mind optimizes for timeliness over accuracy, which is reinforced by cognitive biases



[You think you're some kind of sorcerer?]

COGNITIVE BIASES

- ▶ Fundamental attribution error
- ▶ Confirmation bias
- ▶ Hindsight bias
- ▶ Negativity bias



A background image of Wanda Maximoff (Scarlet Witch) from the Marvel Cinematic Universe. She is standing in a desolate, rubble-strewn city street with large fires burning in the background. She has a concerned expression on her face.

FUNDAMENTAL ATTRIBUTION ERROR

CONFIRMATION BIAS



A background image of Chris Pratt as Star-Lord in a spaceship corridor. He is wearing his signature red leather jacket and looking forward with a serious expression. The corridor has blue and green lights in the background.

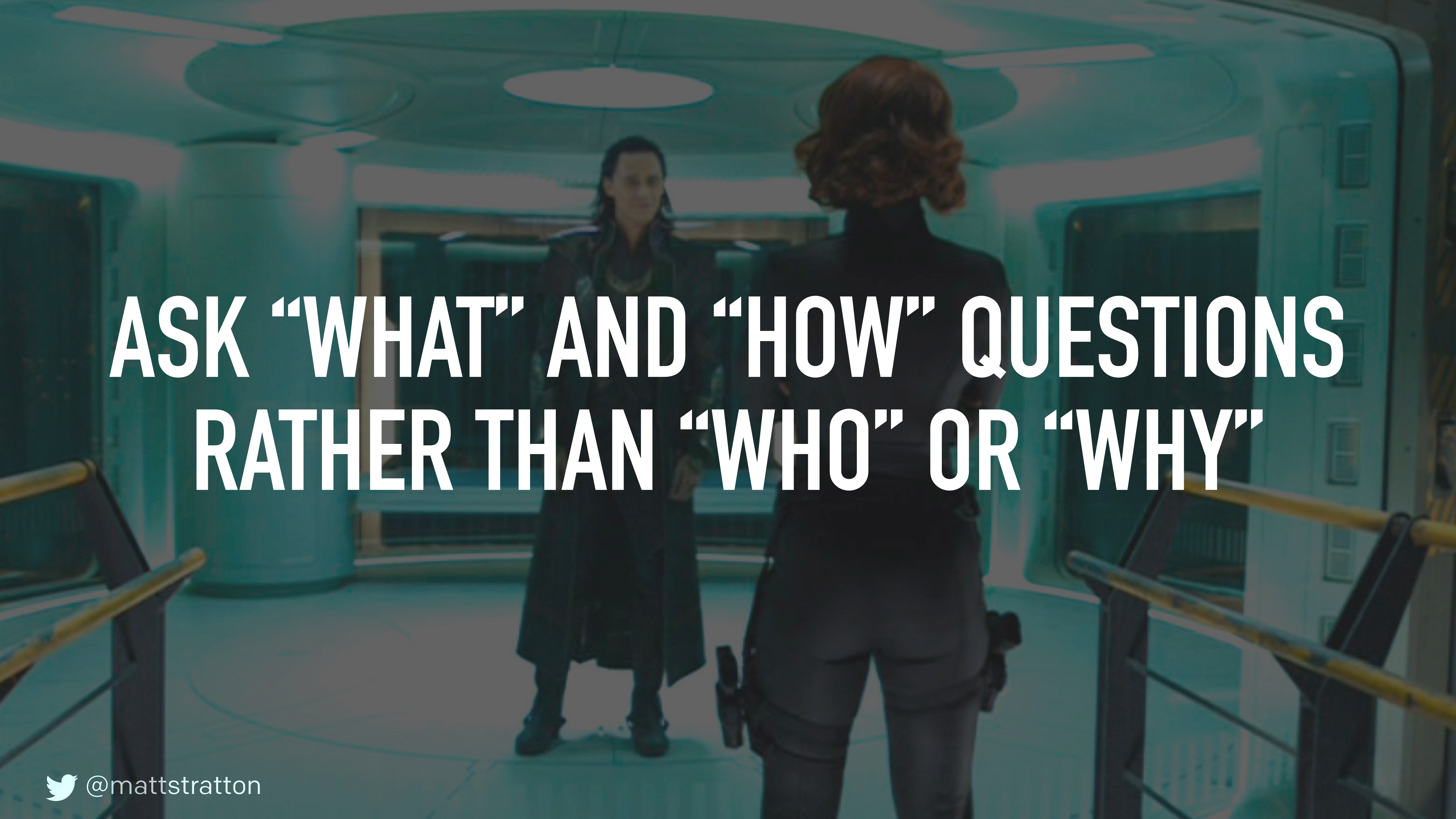
HINDSIGHT BIAS

A close-up shot of Rocket Raccoon from the Guardians of the Galaxy franchise. He is sitting in the pilot's seat of a spaceship, looking directly at the camera with a serious expression. The background shows the interior of the ship with various controls and a large window. The lighting is dim, with a blueish tint.

NEGATIVITY BIAS



HOW TO AVOID BLAME

A background image showing two characters from the Marvel Cinematic Universe, Loki and Wanda Maximoff, standing in a futuristic, brightly lit corridor. Loki is on the left, wearing his signature green and gold Asgardian armor. Wanda is on the right, seen from behind, wearing a red turtleneck and a dark coat. The corridor has a high ceiling with circular lights and yellow handrails.

**ASK “WHAT” AND “HOW” QUESTIONS
RATHER THAN “WHO” OR “WHY”**

The Guardians of the Galaxy team is shown in a futuristic, metallic corridor with horizontal light strips. From left to right: Gamora, Star-Lord, Rocket Raccoon, Drax, and Groot. The text "CONSIDER MULTIPLE AND DIVERSE PERSPECTIVES" is overlaid in large, white, bold, sans-serif capital letters across the center of the image.


CONSIDER MULTIPLE AND DIVERSE PERSPECTIVES

A close-up shot of Captain America in his iconic suit and helmet, looking off to the side with a determined expression. He is holding his circular shield in his left hand. The background is a blurred outdoor setting with trees and a path.

**ASK YOURSELF WHY A REASONABLE, RATIONAL, AND
DECENT PERSON MAY HAVE TAKEN A PARTICULAR
ACTION**



ABSTRACT TO AN INSPECIFIC RESPONDER



**CONTRAST WHAT YOU DID NOT INTEND WITH
WHAT YOU DO INTEND**

**ALL PRACTITIONER ACTIONS ARE ACTUALLY
GAMBLES, THAT IS, ACTS THAT TAKE PLACE
IN THE FACE OF UNCERTAIN OUTCOMES.**

Dr. Richard Cook

**YOU NEVER KNOW. YOU HOPE FOR THE
BEST, THEN MAKE DO WITH WHAT
YOU'VE GOT**

Nick Fury

WHAT CAN WE LEARN?





HAVE AN INCIDENT COMMANDER



A full-page background image featuring Nick Fury in a high-tech control room. He is wearing his signature black eyepatch and a dark tactical jacket. He is holding a tablet in his right hand and a handgun in his left. The room has a futuristic, industrial feel with various screens and equipment. The text "DELEGATE AND COORDINATE" is overlaid in the center in a large, white, sans-serif font.

DELEGATE AND COORDINATE



DECISION MAKER

A cinematic still of Wanda Maximoff, the Scarlet Witch, from the Marvel Cinematic Universe. She is shown from the waist up, wearing her signature yellow and red robe. Her eyes are glowing red, and she has a small red mark on her forehead. She is holding a glowing orange orb in her right hand. The background is a dark, industrial setting with large pipes and machinery.

SINGLE SOURCE OF TRUTH



SHOULD NOT BE A RESPONDER

WHO SHOULD BE THE INCIDENT COMMANDER FOR THE AVENGERS?



ROTATIONS MATTER



ESCALATE AND BRING IN HELP



HERO CULTURE



TEAMWORK MAKES THE DREAM WORK



SHARE ON-CALL

- ▶ Carol Danvers is the only one who carries a pager!
- ▶ The more folks on-call, the less the load for everyone
- ▶ Having a consistent mechanism for bringing in experts for incident response is key





Matt Stratton

@mattstratton

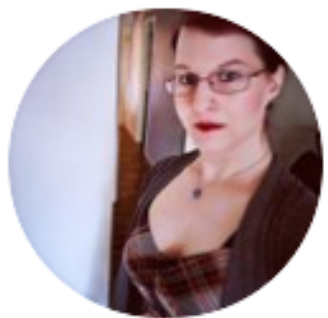


Replying to @saraislet

I wonder if PagerDuty works in intergalactic space

4:19 PM · Oct 13, 2019

||| View Tweet activity



insecurity princess 👑💖 @saraislet · 11h



Replying to @mattstratton

Sure, but the latency ⌚



A scene from the movie Iron Man showing Tony Stark sitting in his workshop, looking weary. He is wearing a blue t-shirt with the Iron Man arc reactor glowing. Next to him is the Iron Man armor, which is partially assembled. The background shows various tools and equipment hanging on the walls.

SO WHAT HAVE WE LEARNED?



AND PERHAPS MOST OF ALL...



<https://speaking.mattstratton.com>

ACKNOWLEDGEMENTS

- ▶ Jeremy Meiss @IAmJerdog
- ▶ Karissa Peth @karissapeth
- ▶ Nell Shamrell-Harrington @nellshamrell
- ▶ Sarai Rosenberg @saraislet
- ▶ Ryan Kitchens @this_hits_home

