

Monitoring, Workload, and Shared Situational Awareness

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Objectives

- ▶ Understand division of labor in incident handling
- ▶ Build awareness of situational awareness issues and how to handle them

Definitions

Workload Number of tasks that need to be tracked and executed concurrently

Monitoring The process of observing the situation in order to maintain awareness.

Situational Awareness Having a safe and useful mental model of the situation which allows for successful execution of current tasks

Nature of Situational Awareness

- ▶ A useful skill anyone can master
- ▶ Mental models of problems
- ▶ Involves monitoring the situation to maintain that model
- ▶ Can sometimes be wrong, so must be prepared

Levels of Situational Awareness: 1, Tuned Out



Levels of Situational Awareness: 2, Relaxed Awareness

- ▶ City Driving
 - ▶ Stress is low
 - ▶ You have to pay attention somewhat
 - ▶ But you don't have to be focused too much
 - ▶ You can do this for a long time

Levels of Situational Awareness: 3, Focused Attention

- ▶ Driving under hazardous conditions, like in a snow storm
- ▶ Focused attention is required
- ▶ Is exhausting over time
- ▶ Allows us to rise to challenges
- ▶ Stress is relatively high.

Levels of Situational Awareness: 4, High Alert

- ▶ At the top of the stress/performance curve
- ▶ Auto racing, or emergency reaction
- ▶ We cannot sustain this for very long.

Levels of Situational Awareness: 5, Comatose

- ▶ Freezing up under stress
- ▶ Overfixation
- ▶ Can no longer react
- ▶ Well on the downward slope of stress/performance curve

Multitasking

How good are we actually at multitasking? Introductory exercise:

Everybody do this all at once: <https://www.youtube.com/watch?v=4r5-jrzNjI4>

Ok let's compare numbers.

Now let's divide the work up and try again.

Multitasking problems

Why is that exercise so hard?

Many parts of our cognitive processes do not work in parallel. Here we have multiple sensory inputs which conflict in different spots.

(open discussion of exercise)

Division of work

- ▶ Improves situational awareness
- ▶ Reduces cognitive load
- ▶ Improves accuracy

How do we divide work in incident response?

Improving Situational Awareness: NITS

This is a communication structure that helps with communicating and maintaining situational awareness.

1. Nature of situation or emergency
2. Intentions
3. Time expectations
4. Special instructions

For example: We have an NVME failing on our database server. We intend to fail over and replace this drive in one hour, starting at 13:30. Please postpone large data loads while we do this.

NITS exercise

Everyone think of a case where they needed to communicate an incident. Try to formulate it in NITS format. We will go around the room and share.

Intervention Strategy: open questions

Discussing the role of open questions in intervention when situational awareness differs.
(We will cover Bishop's Framework from firefighting in a later exercise).

Near Disaster Due to Situational Awareness Breakdown

Exercise: We will watch this film together. Write down where you note that each party's situational awareness breaks down. Note when they should have been aware of it. <https://www.youtube.com/watch?v=equVF3ULVw8>

Discussion on Exercise