SRE

Site Reliability Engineering in Storage Infrastructure at Google

SRE is what happens when you ask a software engineer to design an operations function.
Papers


Benefits of Automation

- Better results, same system
- Frees up resources: offloads work
- Frees up resources: focus attention on right answer
- Fewer knowledges required by operator
- Machines are autonomous
- System feedback unchanged
- Machines are flexible
- Reduce Human Error
Substitution Myth

MABA-MABA: Men(sic) Are Better At/Machines Are Better At

Belief that people and machines have fixed strengths and weaknesses.

But, automation creates new strengths and weaknesses.

(c.f. “Don't’ Automate, Obliterate.” HBR for other arguments against substitution)
Automation Surprises

- transforms practice of work and roles of people
- create new kinds of cognitive work, often at wrong times
- more threads to track, harder to remain aware of activity and changes
- new knowledge and skills required
- machines are not working in isolation
- new types of feedback required to support new roles
- feature creep creates new demands, errors and paths towards failure
- both machines and humans are fallible, new problems with human-machine coordination
Change in Workload

Many automation systems assist in low load environments but are useless (or worse a hindrance) when help is most needed.
Attention and coordination demands

Compensates for abnormal behaviour in system up to a limit, and then fails or returns control to human when its capacity is exhausted.
Complacency

Mostly reliable systems become trusted to do the right thing even when they are no longer acting reliably.
Training

Rote memorization of training material does not prepare human for activation of knowledge in context.
Make Humans and Automation Place Nicely

Human-centered instead of technology centered.

The automation must become a team player.

- observable
- directable
Why is this important?

HCI is not “UI fluff.”

Outages are caused by clunky automation.

Time to recovery is slowed by clunky automation.