Earthquakes, Forest Fires and Your Next Production Incident
THE LAGUNA FIRE

- Third largest recorded California fire at the time
- Spread over 30 miles in just 24 hours
THE LAGUNA FIRE

- Impact:
  - 175,425 acres of woodland
  - 382 residences
  - 16 humans
1970 CALIFORNIA FIRE SEASON:
576,508 ACRES
722 BUILDINGS
> $1.5B IN DAMAGES
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SRE @ Squarespace
The 1970 California fire season was one of the worst on record.
CHANGES IMPACT EVERYTHING

- New land-use legislation
- The Wilderness Act of 1964
- A growing population
NO GRAY WOLVES

- Elk less likely to move around
- Ate the same willow plants to the ground
- Beavers didn’t have their supplies
Thursday, January 12, 1995

Reintroduction of Gray Wolves
WITH GRAY WOLVES

- Elk more likely to move around
- Willows left more intact
- Beavers have supplies
MORE WOLVES = MORE BEAVERS = WATERSHED CHANGES
BACK TO FOREST FIRES
CHANGES EMIT CHANGES

- New land-use legislation
- The Wilderness Act of 1964
- A growing population
- More responding agencies
Fall of 1970

A meeting of the minds
RESPONDING AGENCIES MEET

Problems:

- Terminology differences
- Containment techniques
- Organizational structures
- Poor communications
92nd Congress of the US, 1971

Funding approved
Firescope
Firefighting
Resources of
Southern California
Organized for
Potential Emergencies
SERIOUS RESEARCH COMMENCES

- Studies!
- Research!
- More studies!
- Collaboration!
- Feedback from others!
AFTER LOTS OF RESEARCH

Concluded requirements:

◦ Formalized communications
◦ Formalized hierarchies
◦ Formalized response
◦ No more freelancing!!!
Research continued for many, many years...
Fire Season, 1978

The Incident Command System is used
SUCCESS!

As time progressed, ICS was adopted for:

- Other forest fires
- HAZMAT situations
- All natural disasters
- Urban Search & Rescue
Monday, November 25, 2002

ICS is mandatory
“Why do I care about any of this?”
The tech industry is hurtling towards adopting known processes instead of continuing to invent our own.
ALMOST NOTHING IS NEW

- Engineers have been focused on reliability for as long as humans have been building stuff
- Statisticians have been analyzing data for centuries
- The ICS has been around for decades
PROBLEMS THE ICS ADDRESSES (that probably apply to you)

- Lack of insight
- Poor communications
- No established hierarchy
- Too much freelancing
It’s gotten complicated...
“How can I use the ICS?”
Just one example of how this might work...
INCIDENT COMMANDER
INCIDENT COMMANDER (IC)

- In charge of the incident and holds all high-level state about it
- This is the only role that must always exist during any incident response
- Is responsible for delegating other roles to other engineers
INCIDENT COMMANDER (IC)

- If the other roles have not been delegated, it should be assumed the IC is also fulfilling those roles.
- The role of IC can and perhaps should be handed off.
OPERATIONS LEAD

- In charge of making changes to the system in order to mitigate or resolve the problem
- No one else should be touching the production besides the OL
- Often is the original responder
OPERATIONS LEAD

- Actions taken should be documented in a command post
- This role is delegated, not free for anyone to pick up
COMMAND POST

- Establish a clearly defined communications channel
- New or old is fine
- Text is preferred over voice
- IC should feel free to police this channel as much as needed
COMMUNICATIONS LEAD

- Responsible for all communications, both internally and externally
- Should be the only one updating things like your status page
COMMUNICATIONS LEAD

- May also be a good option for keeping up an Incident State Documents (ISD)
- This role is delegated, not free for anyone to pick up
INCIDENT STATE DOCUMENTS

- Used to consolidate the current state of the world
- Documents which roles have been defined and who currently has them
- Templates are good (tooling, too!)
/copy is a neat hack
PLANNING LEAD

- In charge of supporting the other leads as needed
- Others Leads are focused on an immediate fix, the Planning Lead may be focused on future
- Responsible for finding new engineers
PLANNING LEAD

- Support could extend as far as ordering dinner or fetching coffee
- This role is delegated, not free for anyone to pick up
ICS AND FLEXIBILITY

- The ICS has been deliberately designed to be able to expand and contract
- Make it work for *you*, don’t just listen to me
An example of expansion
Handing off is important
INCIDENT COMMANDER 2

INCIDENT COMMANDER 1
“Am I having an incident?!?”
IS THIS AN INCIDENT?

- If you’re wondering if it is, it probably is.
- It’s easier to declare an incident for something that turns out to be small than it is to apply the framework to an incident after time has passed.
IS THIS AN INCIDENT?

- Do not try to hide an incident.
- Stuff breaks! It’s just how it is!
The ICS works... mostly...
2005: HURRICANE KATRINA
80% OF NOLA FLOODED
1826 DEATHS
> $125B IN DAMAGES
DEPARTMENT OF HOMELAND SECURITY
Office of Inspector General

A Performance Review of FEMA’s Disaster Management Activities in Response to Hurricane Katrina

Office of Inspections and Special Reviews

OIG-06-32 March 2006
“The federal government, in particular the Federal Emergency Management Agency (FEMA), received widespread criticism for a slow and ineffective response to Hurricane Katrina. Much of the criticism is warranted.”

https://www.oig.dhs.gov/assets/Mgmt/OIG_06-32_Mar06.pdf
LOTS WENT WRONG

Final lessons:

- Anticipate
- Train
- Test
ANTICIPATE

- Incidents will occur.
- Make sure your version of the ICS is ready and documented.
TRAIN

- Develop workshops and training sessions
- Provide tooling and templates
- Conduct meaningful incident retrospectives and share them widely
TEST

- Run test scenarios
- Use chaos engineering
- Operational underload can be as dangerous as operational overload
Have an Incident Commander
Delegate all roles and enforce them
Establish a command post
Communicate and document incident state
Expand and contract at will
Hand-off regularly
Test and train your processes and procedures
Use the ICS, because, mostly, the ICS works.
Thank you!

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Shout Outs:
Squarespace Engineering
LFI Slack
Slidesgala.com