

# SRE stands for ...

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Skydiving Resilience Engineer

Why you should skydive and how it relates to SRE

# All views and opinions expressed are my own

I am not qualified nor trained to give instruction.

Consult and reference the following for official information

1. FAA regulations
2. a properly licensed instructor (in the US an AFF, advanced free fall, instructor)
3. USPA SIM (United States Parachute Association Skydiver's Instruction Manual)

As an audience member, I agree to these terms and conditions and take responsibility for any and all actions after this presentation.

Sign Here:

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# About This Presentation

Expose you to the world of skydiving and  
mirror the parallels of skydiving with good SRE practices





What happens if risk management is forefront and personal?

Inspired by similarly themed talks in SRECon21:

- [When Systems Flatline—Enhancing Incident Response with Learnings from the Medical Field](#)  
Sarah Butt, Salesforce
- [Food for Thought: What Restaurants Can Teach Us About Reliability](#)  
Alex Hidalgo, Director of Site Reliability Engineering at Nobl9



## - What's the risk?

Car	Skydiving	Plane	Shark
			
1 in 10,000	1 in 500,000	1 in 3,000,000+	1 in ?
over 30,000 deaths in US per year 1 fatality in 100 million miles driven simple estimation from fatalities more people driving in general pandemic stats show riskier driving NHTSA tracks	about 10 fatalities in recent years estimated 3 million jumps per year number is for tandem jumps only more people skydiving fatalities over time has decreased and the industry has standardized USPA tracks	rarely one commercial flight per year millions of commercial flights yearly non commercial flights comparable commercial flights picking up again aviation crashes over time has decreased, many regulations IATA, FAA, NTB, etc tracks	< 100 attacks reported in US yearly unknown number of ocean goers more people now do ocean sports than when JAWS premiered humans kill 100 million sharks yearly International Shark Attack File tracks

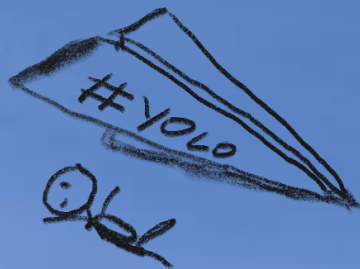
USPA Safety Stats - <https://uspa.org/Discover/FAQs/Safety>

USPA Incident Reports - <https://uspa.org/Safety-and-Training/Incident-Reports>

Concepts: locus of control, normalization/desensitization through repeated exposure, fear of unknown, lethality

# The Bus Factor (or lottery/attrition factor)

Just in case someone on your team disappears,  
make sure that critical knowledge is replicated and distributed.



# Why should SREs Skydive?

- Normalize working with risk
  - Natural curiosity for understanding
  - Motivated risk assessment
- Incident Management
  - Practice emergency procedures
  - Learning how to rehearse a plan
  - Contingency plans
- Develop emotional resilience
  - Know how you react under stress
  - Become comfortable in uncomfortable circumstances

# Your First Skydive

Tandem Skydiving is like shadowing your first oncall shift where you're watching how the backup resolves everything.

The new variable to the system is you.

Simple instructions:

Don't be like a 🍈, be like a 🍌

Legs in between, arms crossed

All this tends to go right out the door



# Safety Mechanisms in play

## Backup Reserve Parachute

mitigates the risk of a catastrophic main parachute failure

## Audible Altimeter

provides the equivalent of a page at a warning threshold altitude

## Decision Altitudes - Safety margin

early trigger for monitoring, gives adequate time to react

## Automatic Safety Trigger - AAD

automatic failsafe based on velocity and altitude



# Getting Certified

USPA has a license system that demonstrates proficiency.  
requirements and goals are listed in their application.

The first jump is no longer tandem.

What kind of onboarding would you like?



# Gear Checklist and Pre-flight Plan



with permission from Skydive Spaceland

# Malfunction Junction



with permission from Skydive Spaceland

# Identifying type of failure

**High Speed Malfunction**



**Low Speed Malfunction**



# Important altitudes

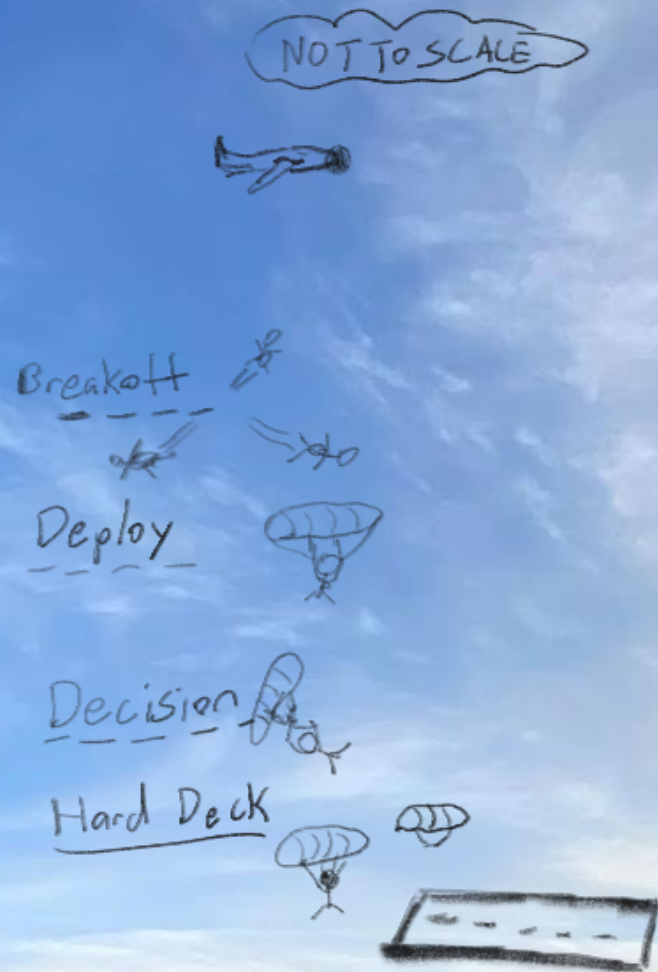
Break off altitude - reduce exposure

Deployment altitude - activate main

Decision Altitude - stop attempting fixes

Hard Deck - go straight to backup

Predetermined, scales with experience



# Scope of Understanding

Air force pilots - no skydiving training

Reliability is built into the plane's engines

Military parachuting - use RSL and deploy under hard deck

Predictable drop path and evasion

Sport skydiving - learns all protocols

Determines important altitudes based on experience and change

# Every system is different

In the army, you deploy below the hard deck.

In sport parachuting, you pre-determine important altitudes.

In the US, once licensed it's an optional gear check.

In France, C license needs to do a gear check on you.

In the US, FAA Mandate for cloud cover is don't go through it.

In other dzs around the world, it's always cloudy.

# Culture of blameless postmortems

Normalized debrief after every skydive

Ask the skydiver to talk through their understanding

Review of any close calls

Focus on verifying understanding of why

Goal is how can we do better



# Public Post-mortems

## Friday Freakout

<https://jointheteem.com/friday-freakout-skydiving>

## USPA Safety Stats

<https://uspa.org/Discover/FAQs/Safety>

## USPA Incident Reports

<https://uspa.org/Safety-and-Training/Incident-Reports>



# Skydiving Acknowledgements

Skydive Spaceland Houston

Matthew, Stig, Hugues, Mengdi, Nicholas, Hank



# Some Takeaways

Assume failures will occur and actively plan for it

When training for oncall, take time to run through scenarios

Differentiate between recoverable incidents

Research an automated critical failure process

Have premeditated thresholds to stop the bleeding and for escalation

Build customizable warning thresholds and give leeway for new oncall

Normalize debriefs to focus on understanding

Contribute incident reports to centralized public databases



# Awesome Skydiving

Will Smith - What Skydiving Taught Me About Fear

<https://www.youtube.com/watch?v=bFIB05LGtMs>

Harry Potter Skydiving Commercial

<https://www.youtube.com/watch?v=FEiB5kHcmD4>

Nighttime Pyro Jump

<https://www.youtube.com/watch?v=smuNiP9xc8w>

Skydive into Scuba Dive

<https://www.youtube.com/watch?v=pQQb2FP1ewE>