

Software Engineer(ing) Working Group

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NCAR/CGD

CESM Workshop - June 2023



Overview

- NCAR & CESM:
 - Why do I work here?
 - The CESM *Software Engineer* Community
- Directions
 - CAM-SIMA
 - Science & Software Parity
 - Community Engagement
 - CESM *Software Ecosystem*

Why do I work here?

CESM is *unique*:

- World's most sophisticated earth system model
- Open and available everywhere
- Constantly improving

I work *at* NCAR, but *for* CESM.

Software Engineers

First, a note of thanks to three key people who've left NCAR:

- Mariana Vertenstein
- Steve Goldhaber
- Rocky Dunlap

CESM wouldn't be where it is now without them.

The CESM Software Engineer Community

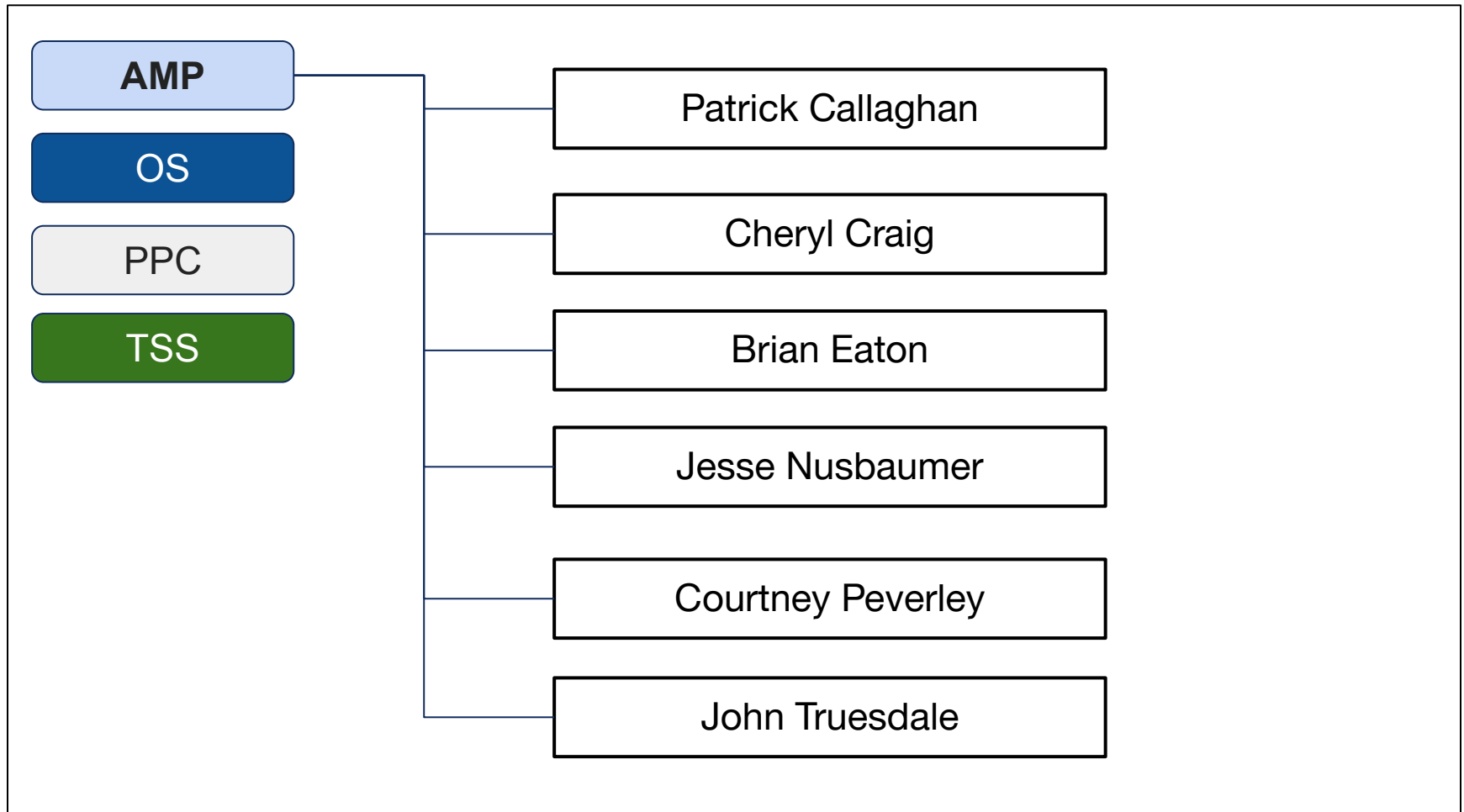
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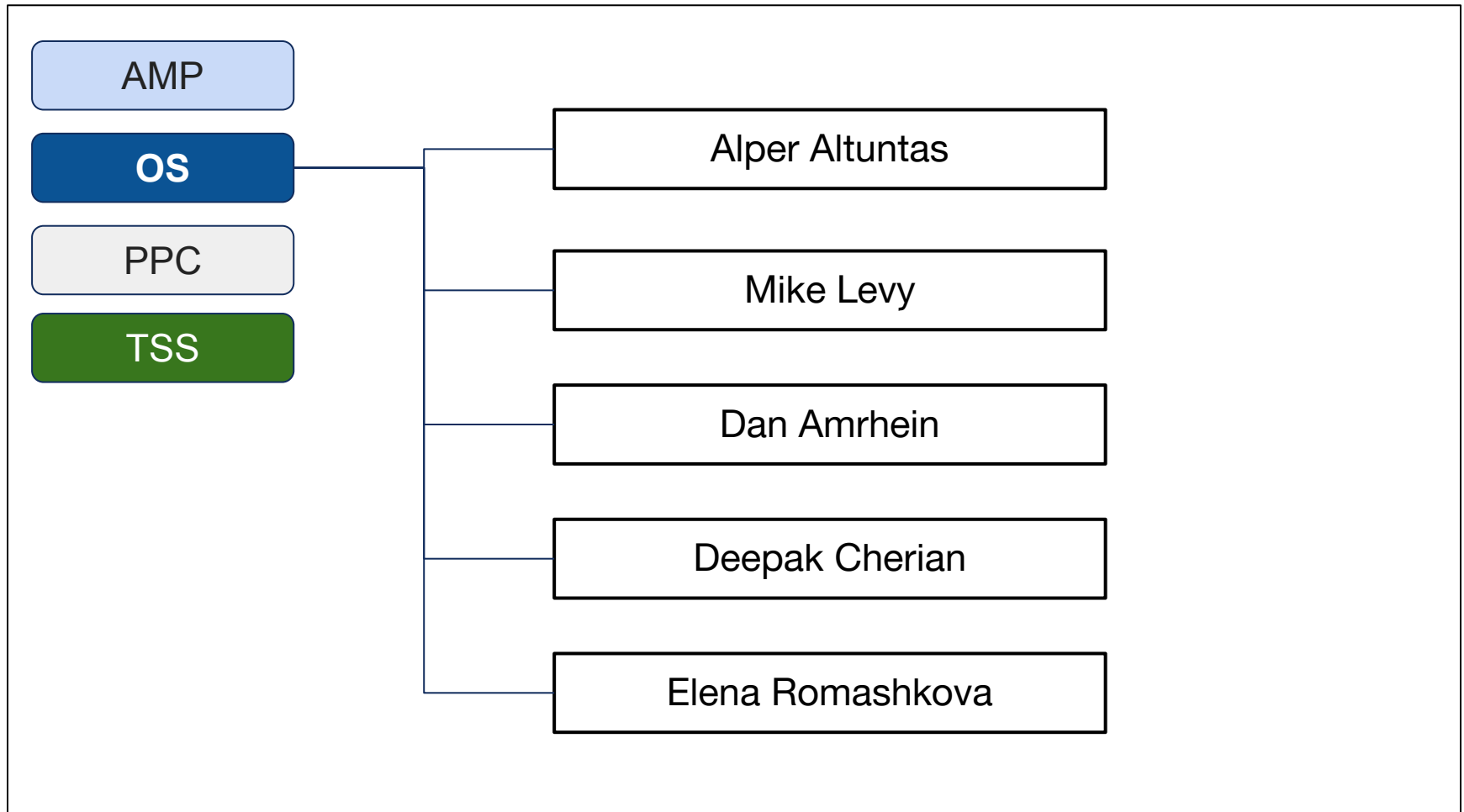
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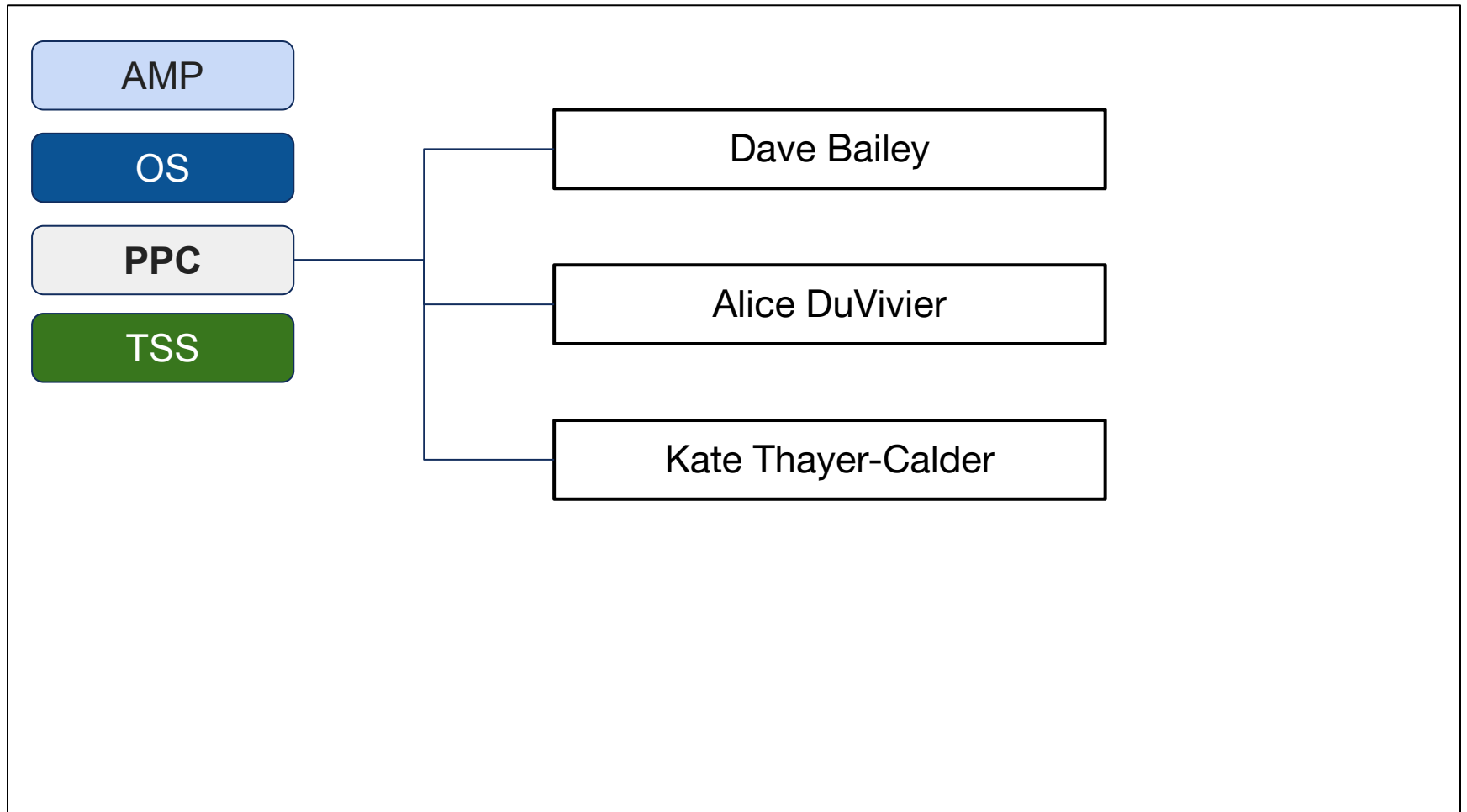
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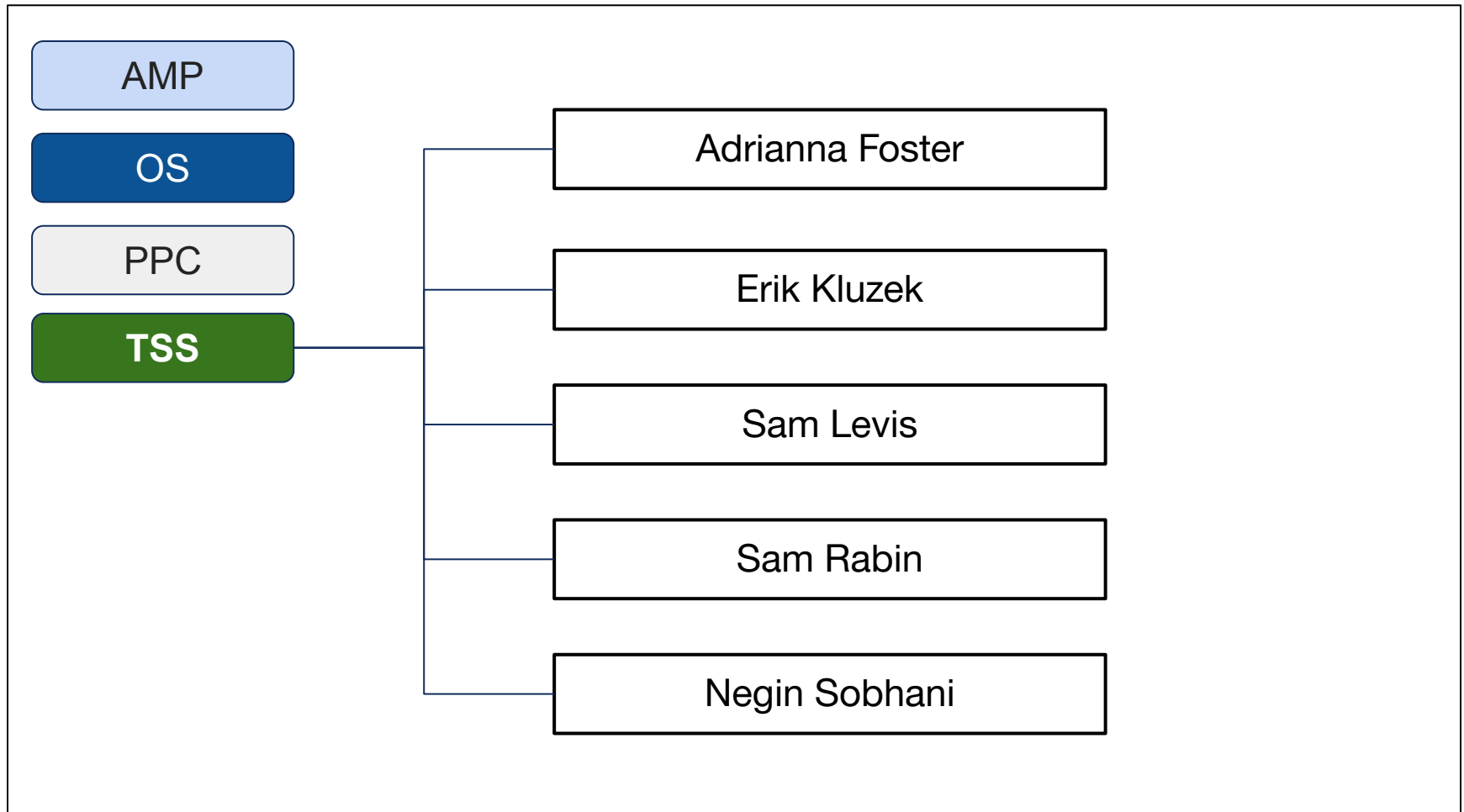
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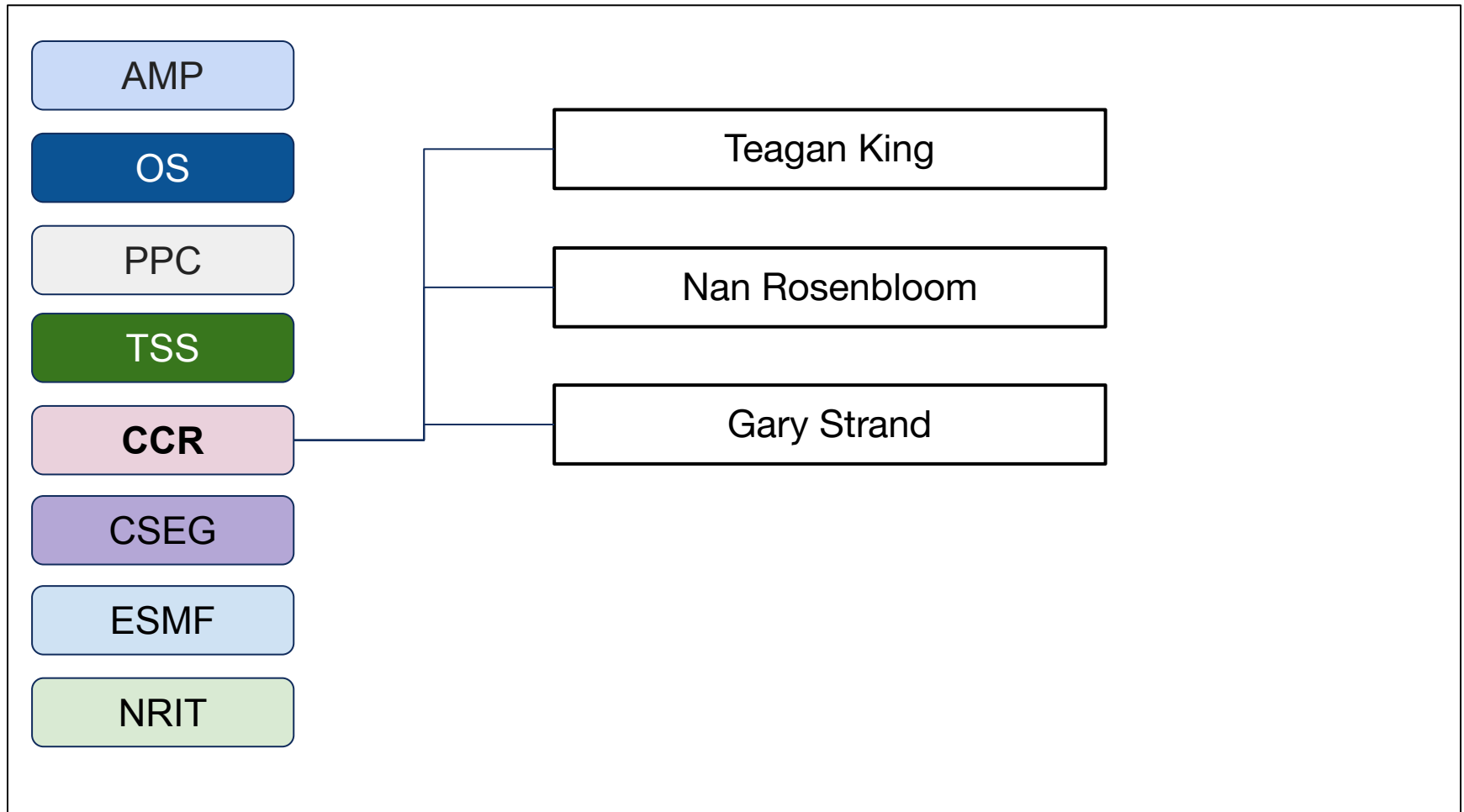
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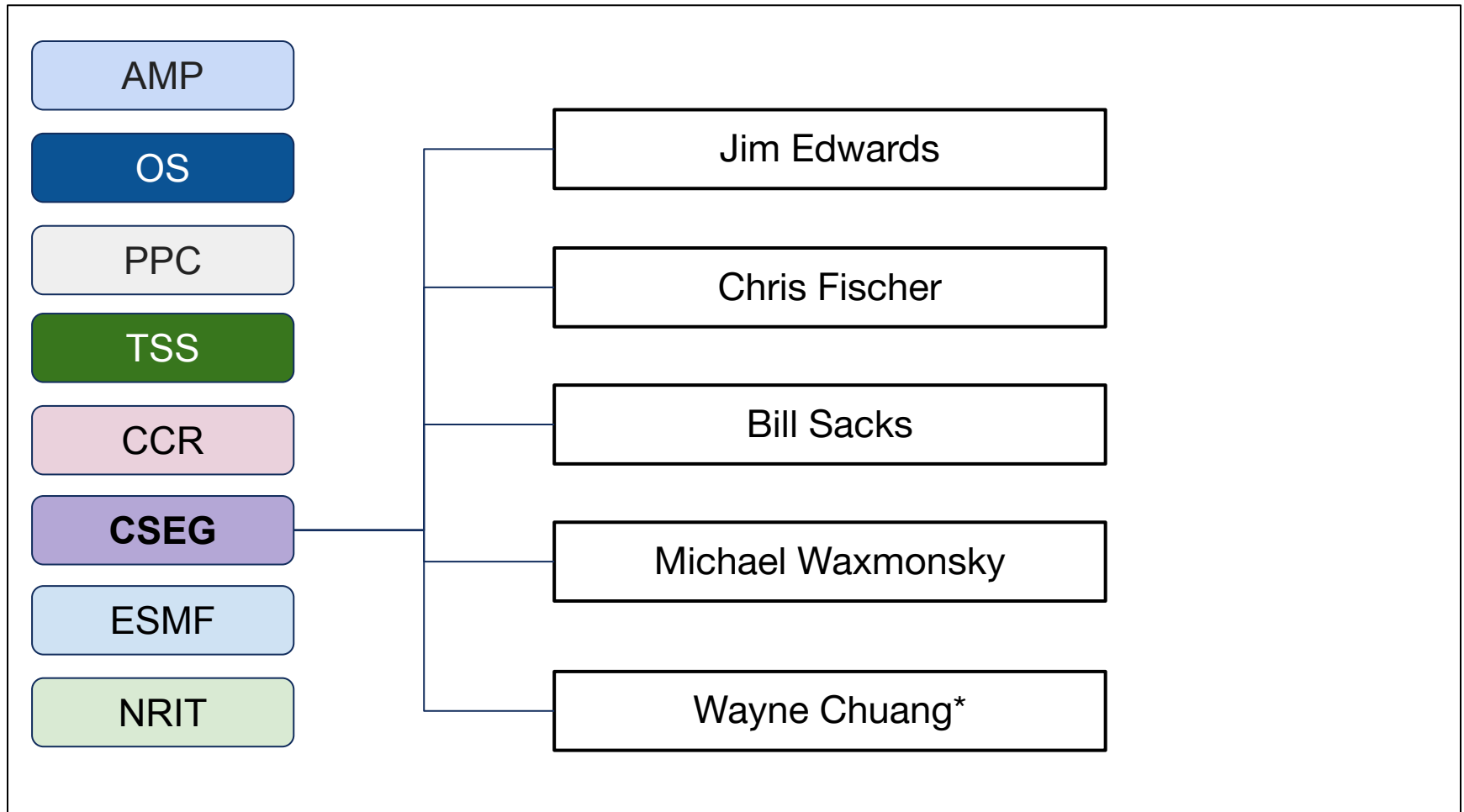
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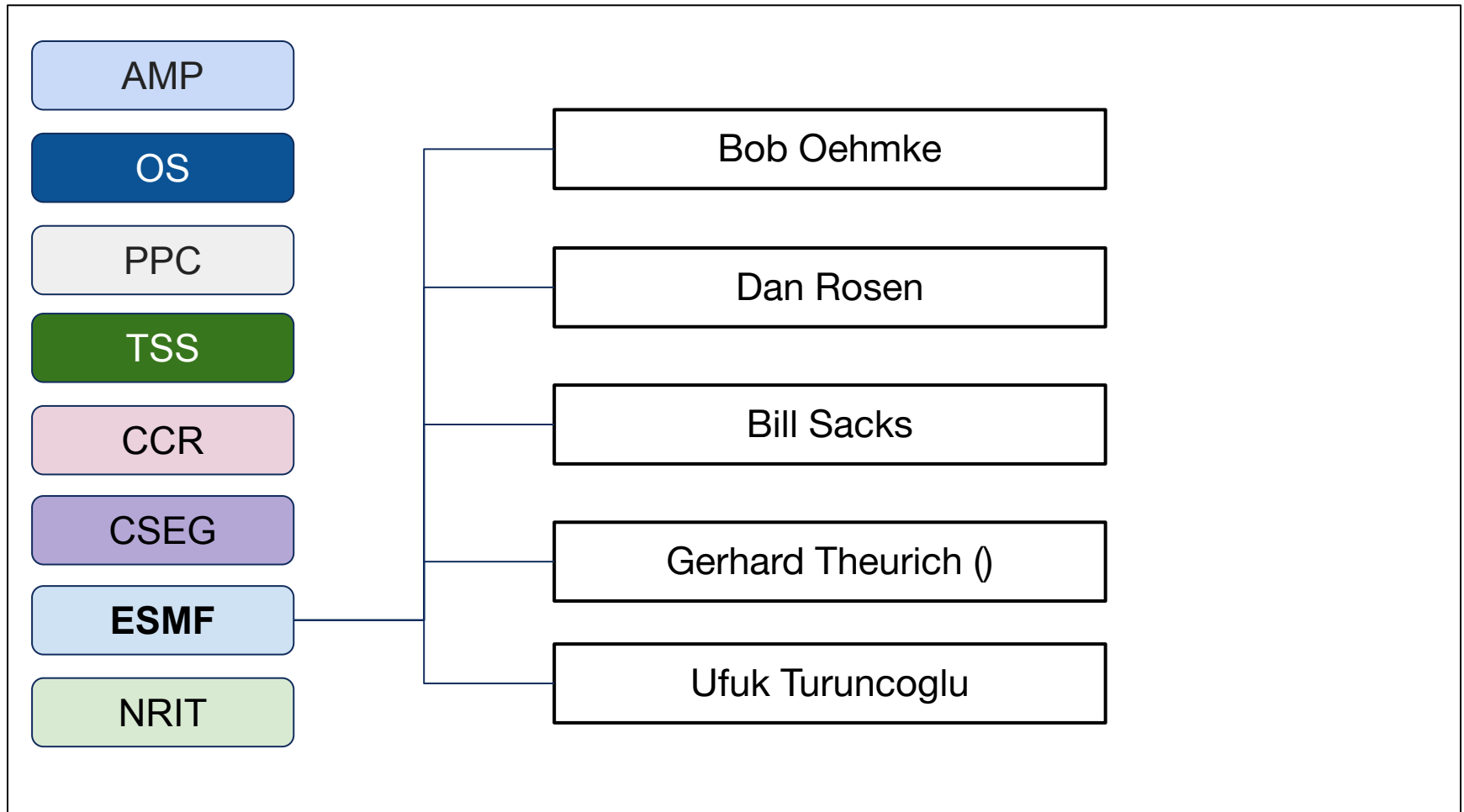
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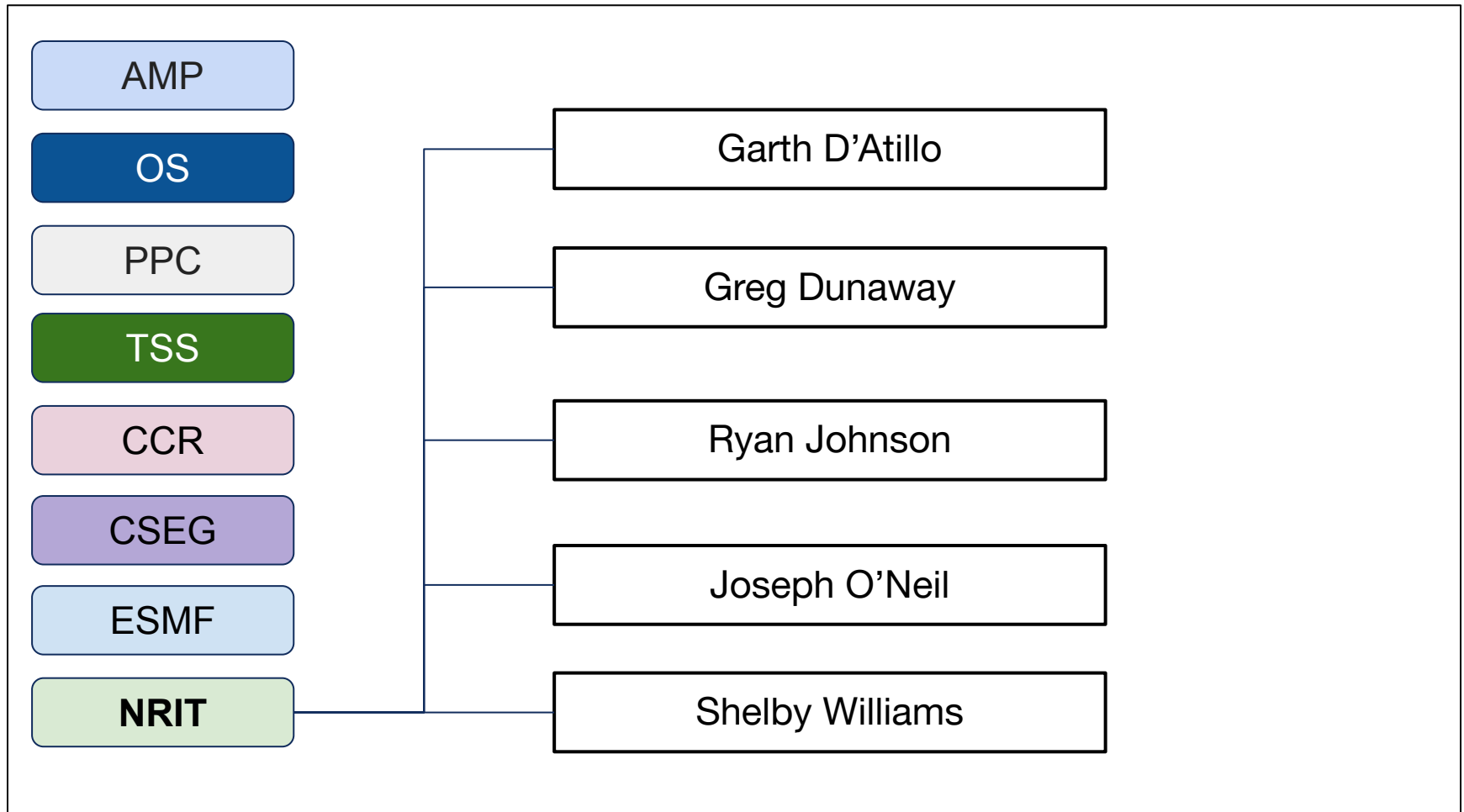
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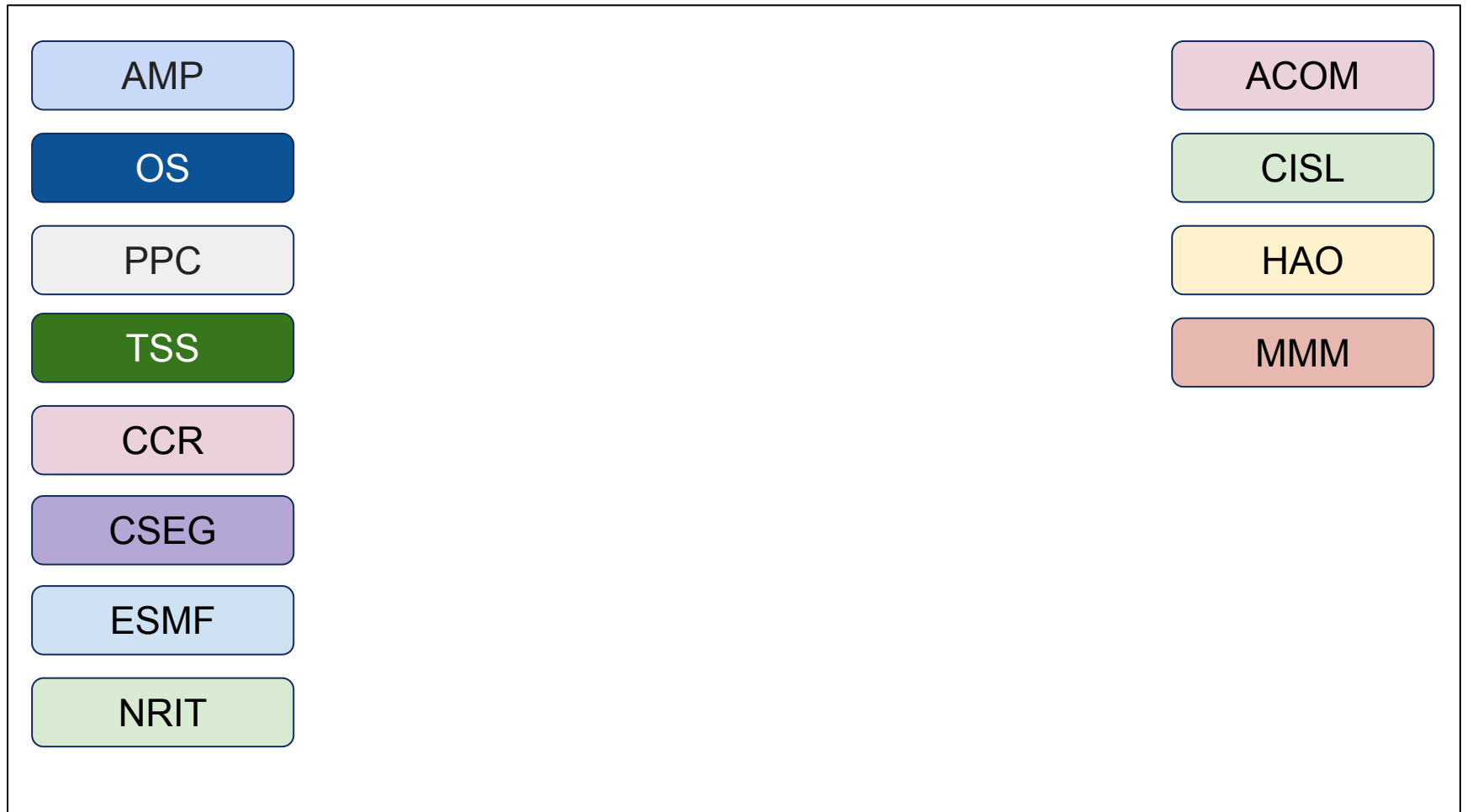
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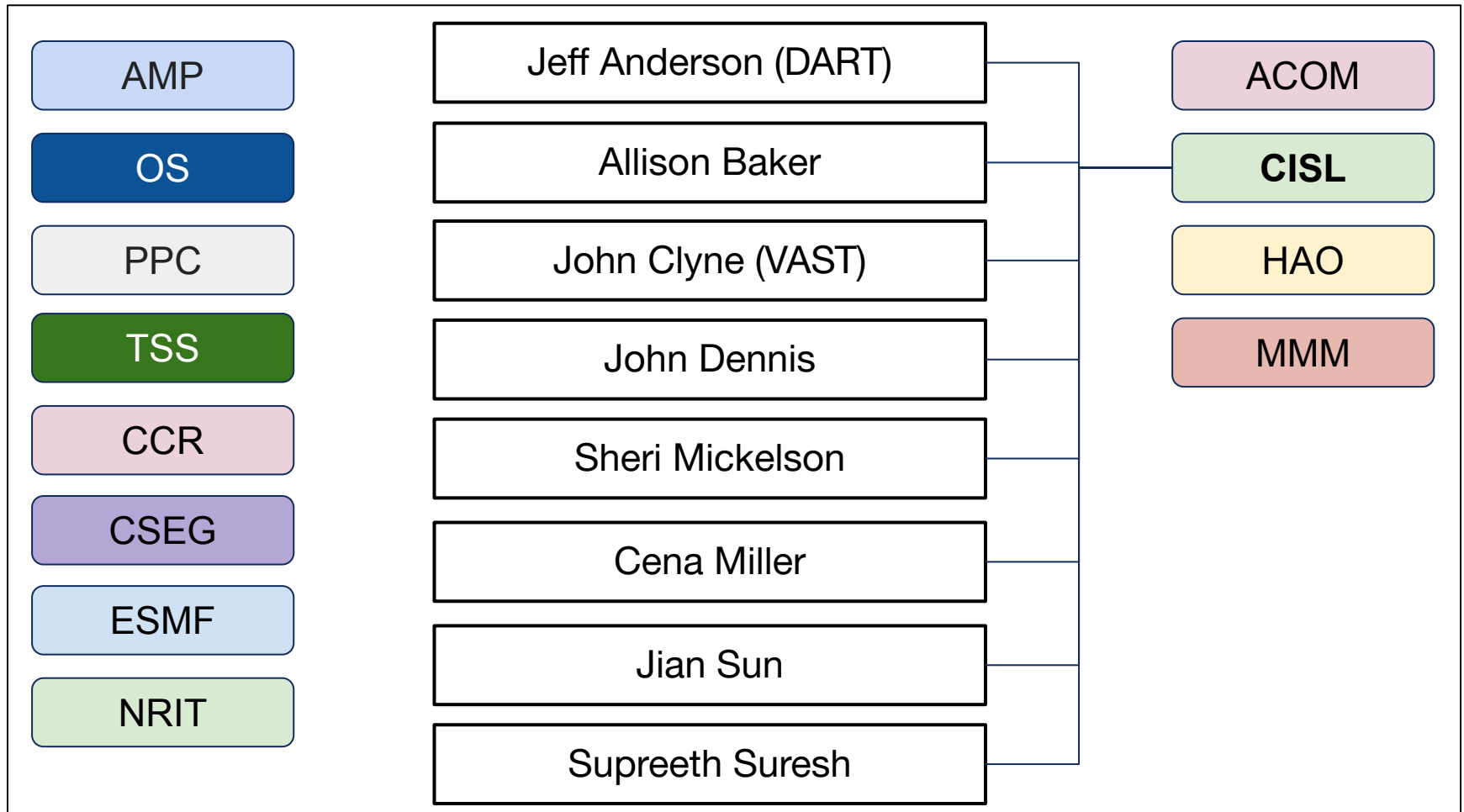
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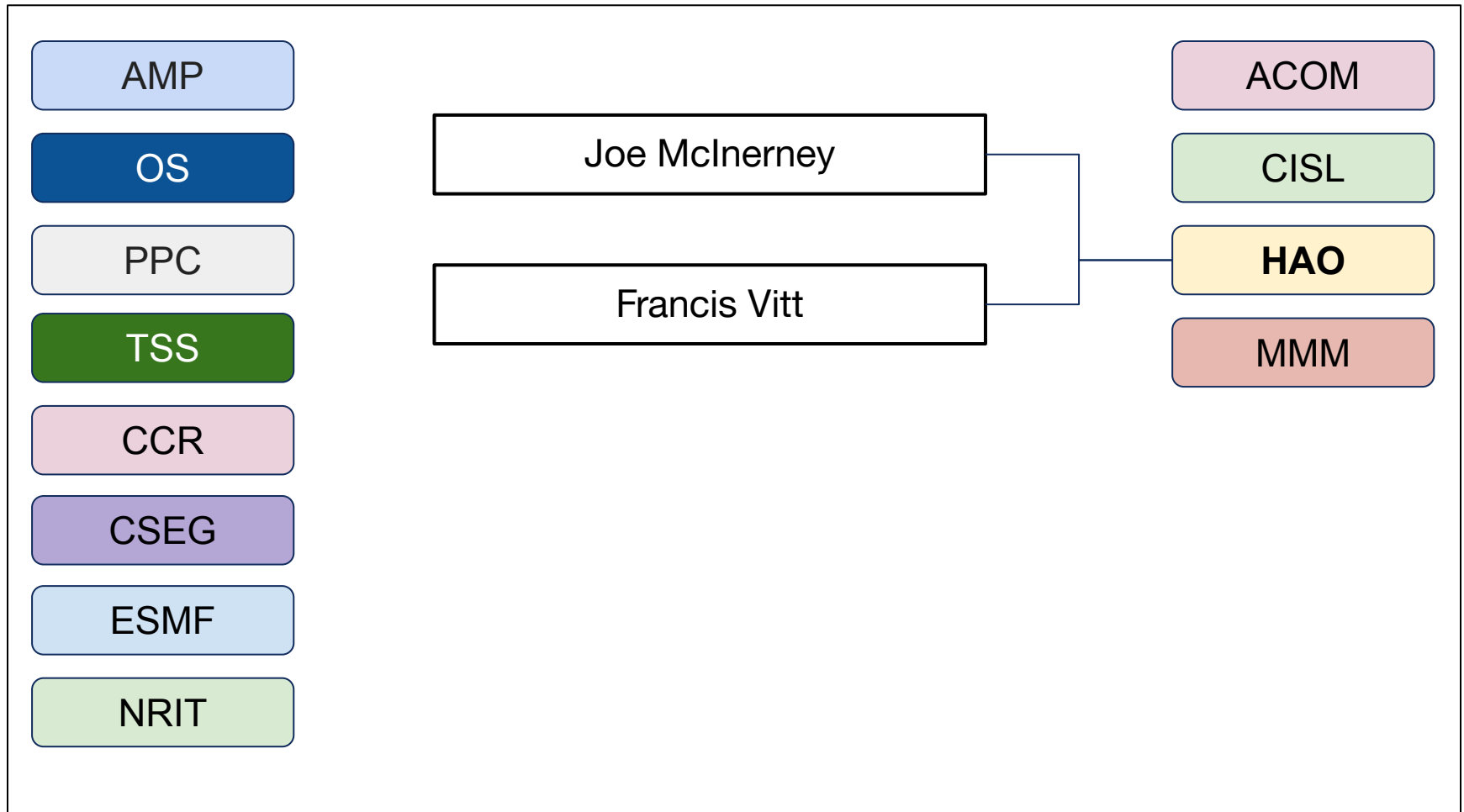
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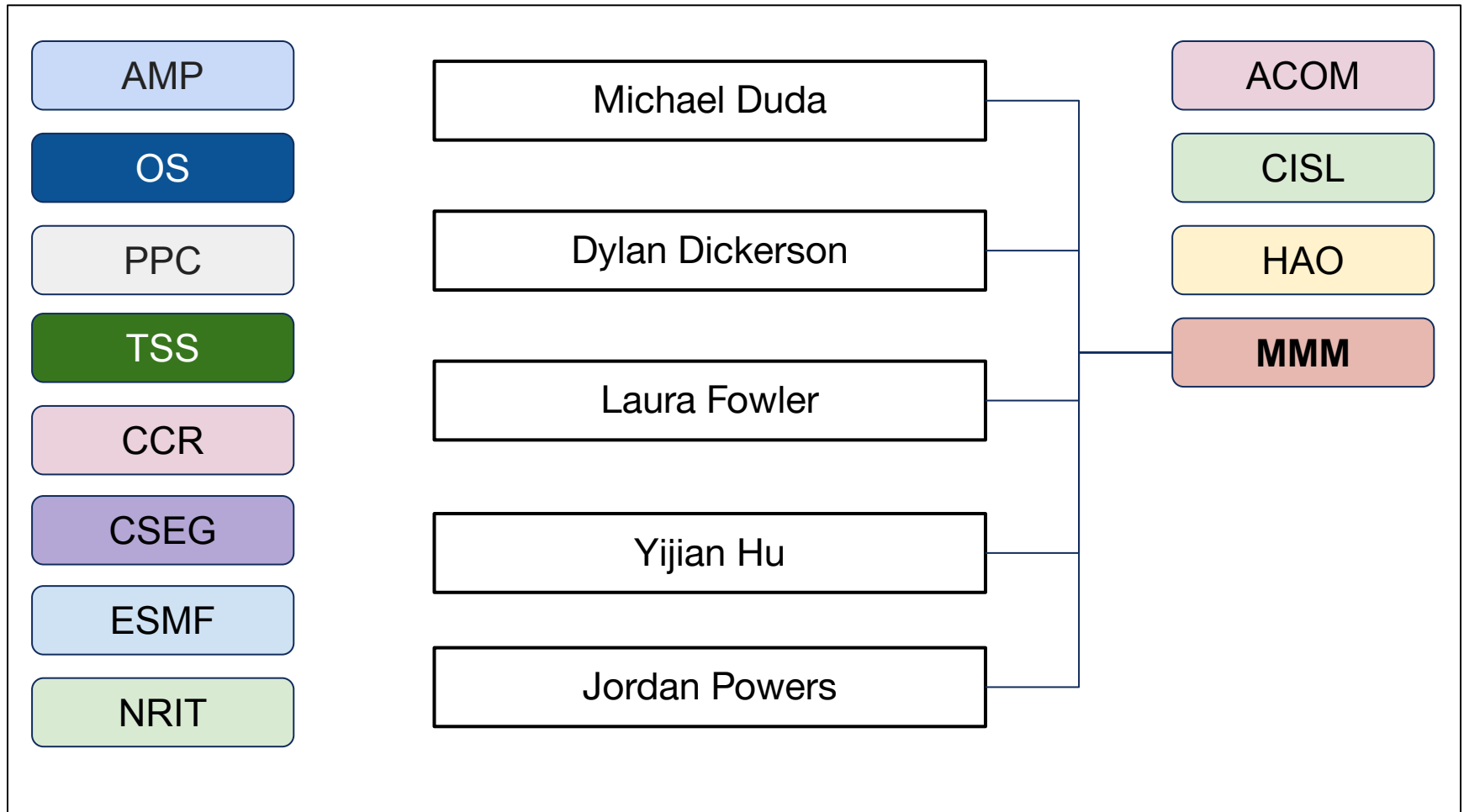
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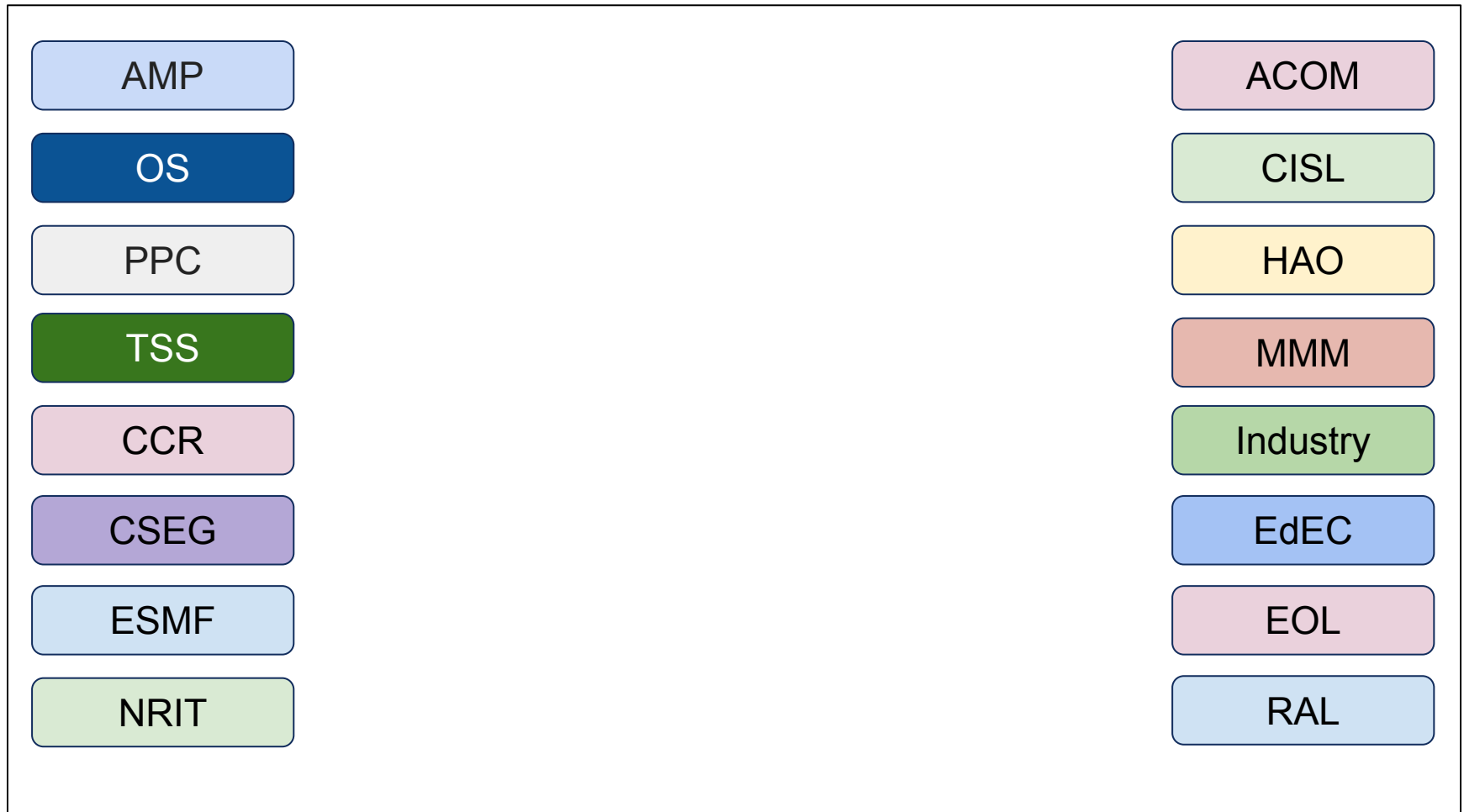
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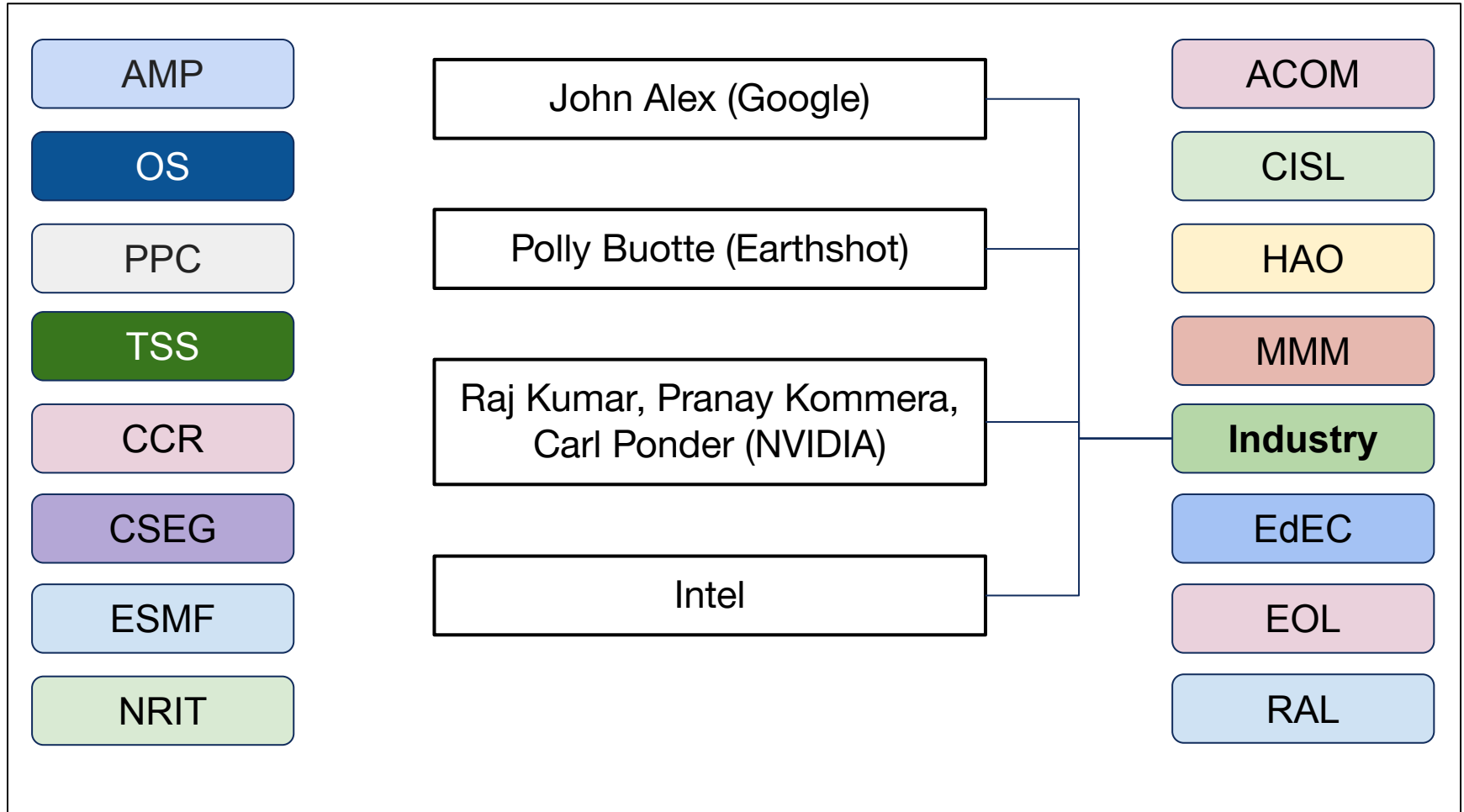
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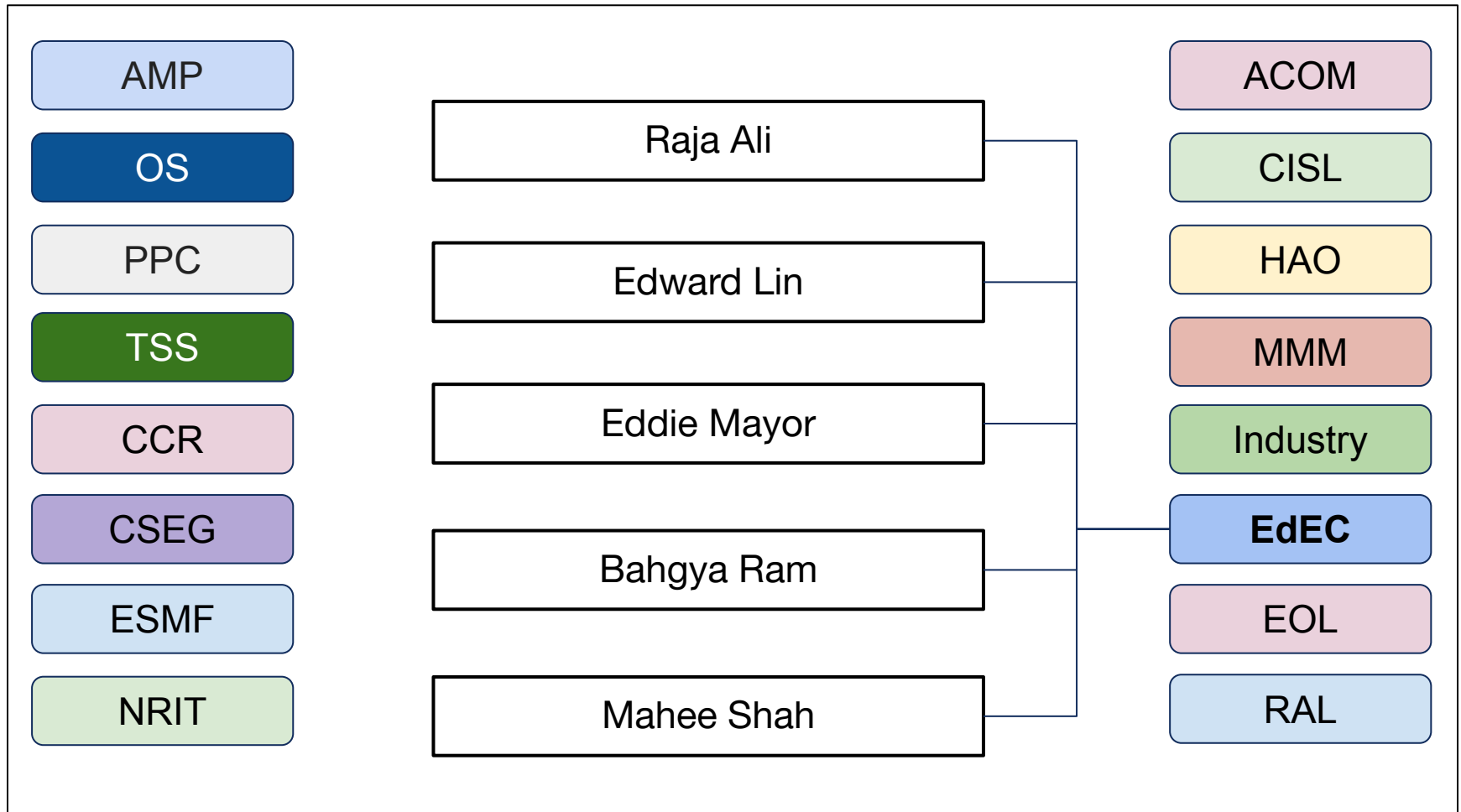
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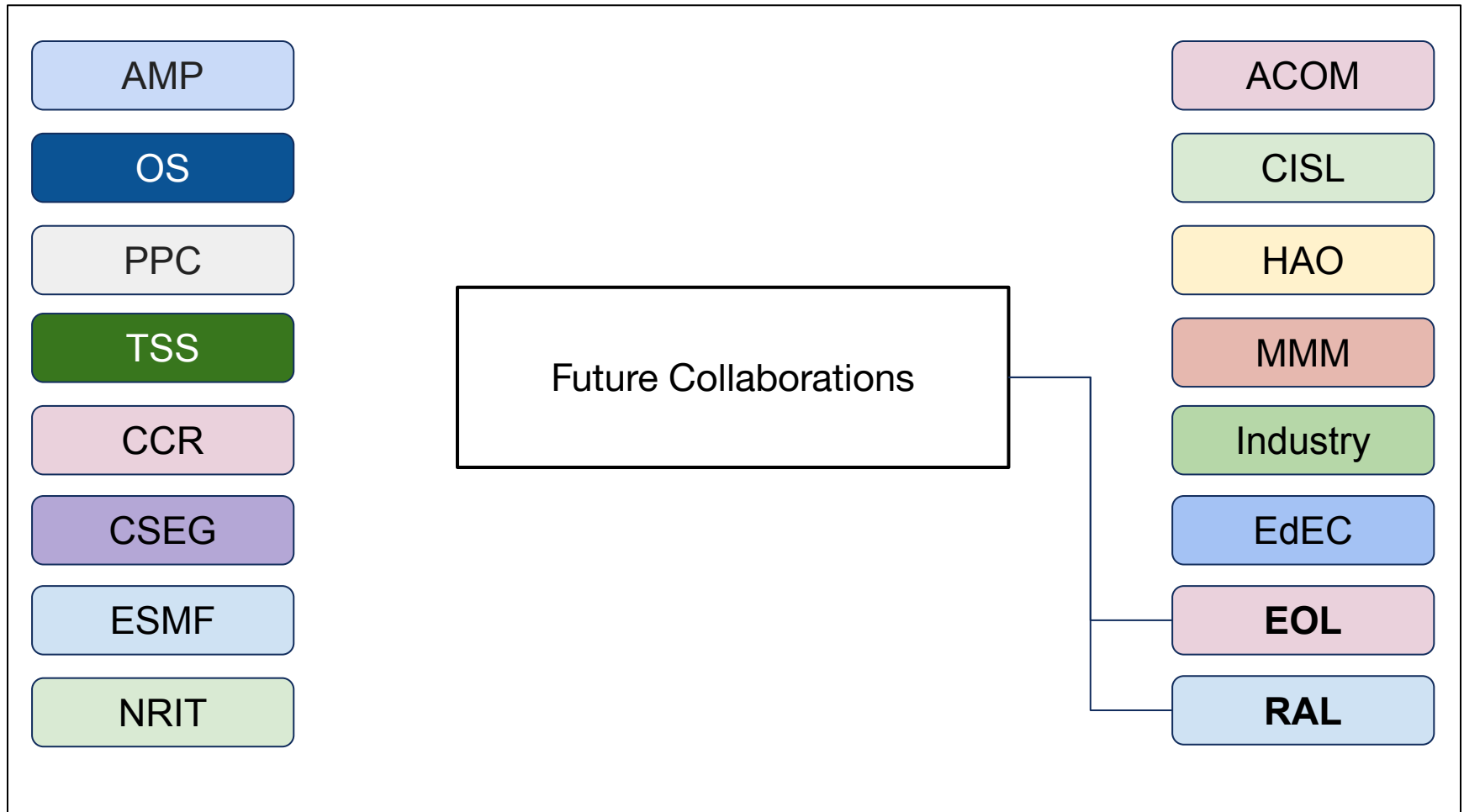
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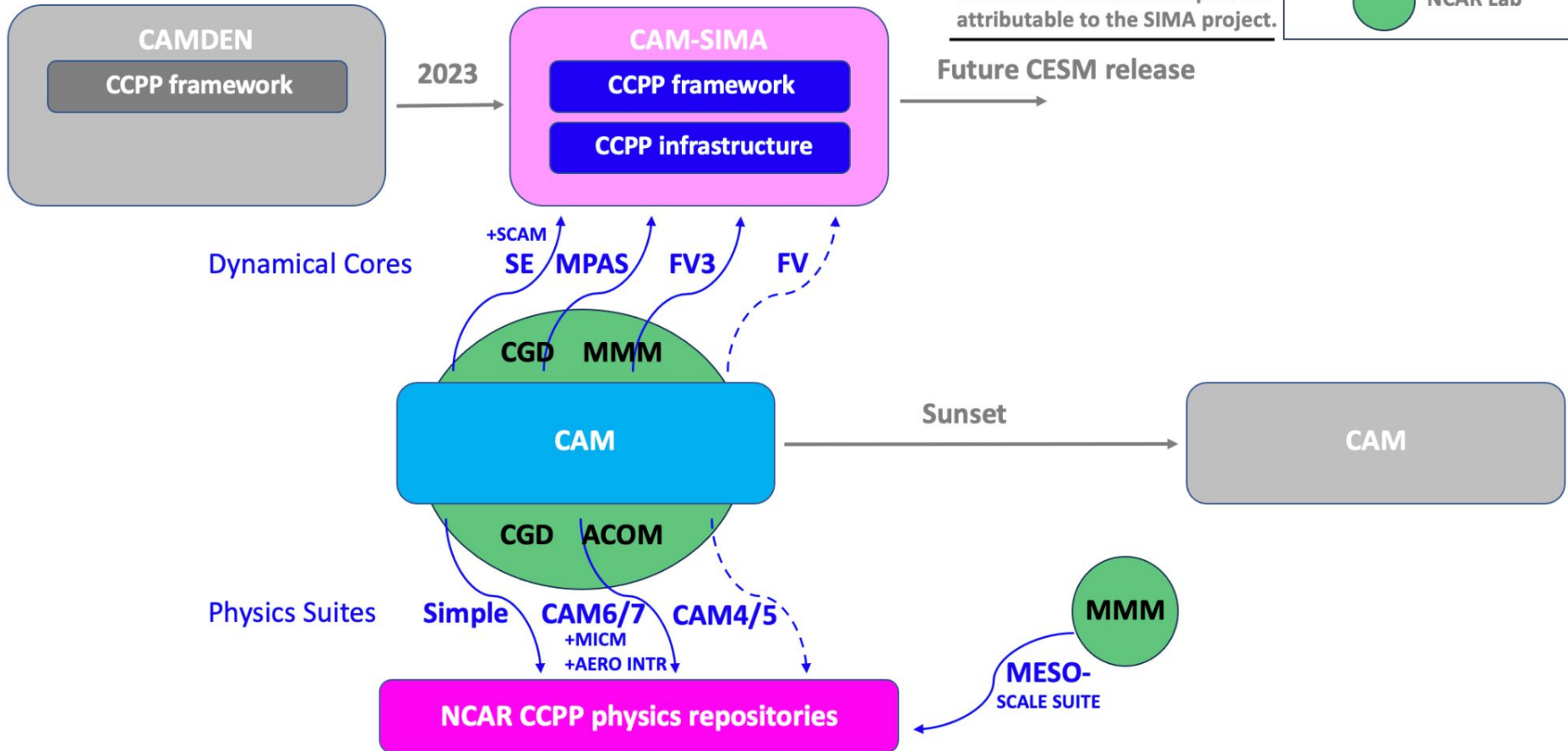
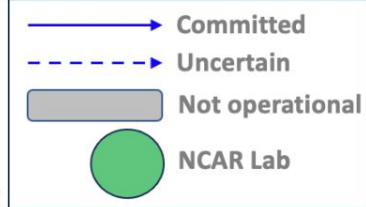
Directions

Directions: CAM-SIMA

From CAM to CAM-SIMA

The future – CCPP compliant – atmospheric component of CESM

This schematic illustrates tasks needed to be completed before CAM-SIMA can be incorporated into a CESM release. It does not include all model developments attributable to the SIMA project.



Directions: Science & Software Parity

NCAR is a *science* organization, but is fully dependent on *technology*.

- Elevating SEs into leadership roles to improve our capabilities
- Co-designing future enhancements

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People often think of software engineering as purely analytical.

- *Programming* is often analytical
- *Problem solving* is often creative
- *Software design* is often creative

Reducing SE workload so we can be *creative* will
vastly improve CESM!

Directions: *Community* Engagement

CESM's biggest asset is the community - to better engage it, we should strive for more *flexible*, *accessible* and *usable* software.

- Enable easier modification of our models
- Enable unique use cases
- Run anywhere

What offers the *most value* to our community?

Directions: The CESM *Ecosystem*

Our focus is almost exclusively on the *model*, to the detriment of the tools needed to use it effectively.

Challenges remain on supported & unified tools for:

- Time-series generation
- Diagnostics & visualization
- Container & cloud environments
- Documentation (developer documentation!)
- ... many more things

Improving in these areas *grows* our community, and aids CESM.

What brings the most *value* to our research community?

Thank You