

**DEVOPS  
ENTERPRISE  
SUMMIT**

October 13-15, 2020

# **Runbook Automation: Old News or a Key to Unlock Performance?**

**Damon Edwards**



**Damon Edwards**



Damon Edwards



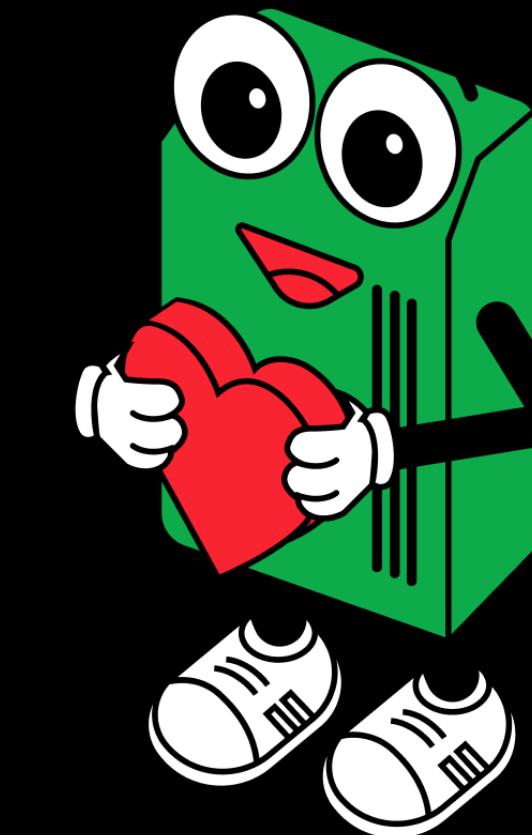
 RUNDECK



Damon Edwards



 RUNDECK

The RunDeck logo consists of a red icon followed by the word "RUNDECK" in a bold, white, sans-serif font.

PagerDuty





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**SLOs**

**Lean/Flow**

**CI/CD**

**3 Ways / 5 Ideals**

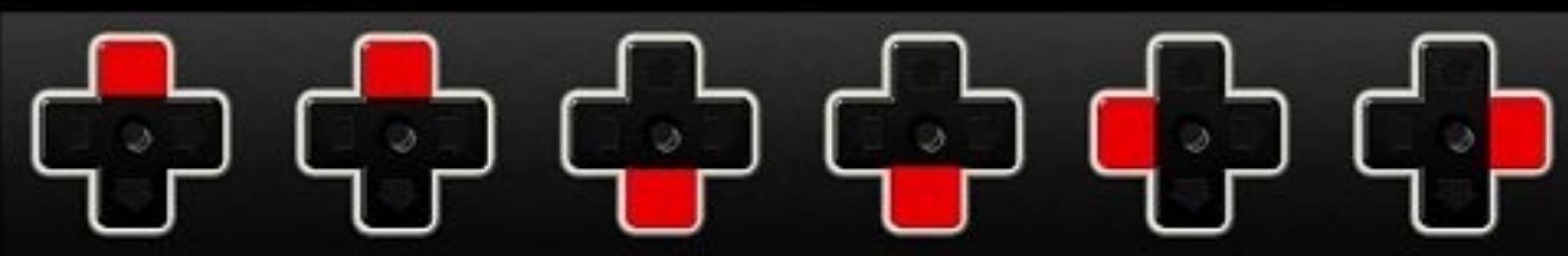
**Shift Left**

**Microservices**

**Kanban**

**Fast Feedback Loops**

**Small Batch Sizes**



**Automated Governance**



**You build it, you run it**

**Continuous Testing**

**Cloud Platforms**

**Infrastructure as Code**

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**What's Next?**

***Thesis:***

**The Next Great Unlocks Will  
Come from Ops...**

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**Incident Management**

***Thesis:***

**The Next Great Unlocks Will  
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**Incident Management  
Service Requests**

# Incident Management

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**What do we all want?**

# Incident Management

What do we all want?

**Shorter Incidents.**

**Fewer Escalations.**

# Incident Management

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What always gets in the way?

# Incident Management

What do we all want?

**Shorter Incidents.**

**Fewer Escalations.**

What always gets in the way?

**Complexity.**

**Our world is complex,  
and *not* deterministic!**



**J. Paul Reed**



**John Allspaw**

# Development

vs

# Operations

# **Development**

**(deterministic POV)**

**vs**

# **Operations**

# Development

vs

# Operations

(deterministic POV)

**Code → Build → Run? (👍 / 👎 )**

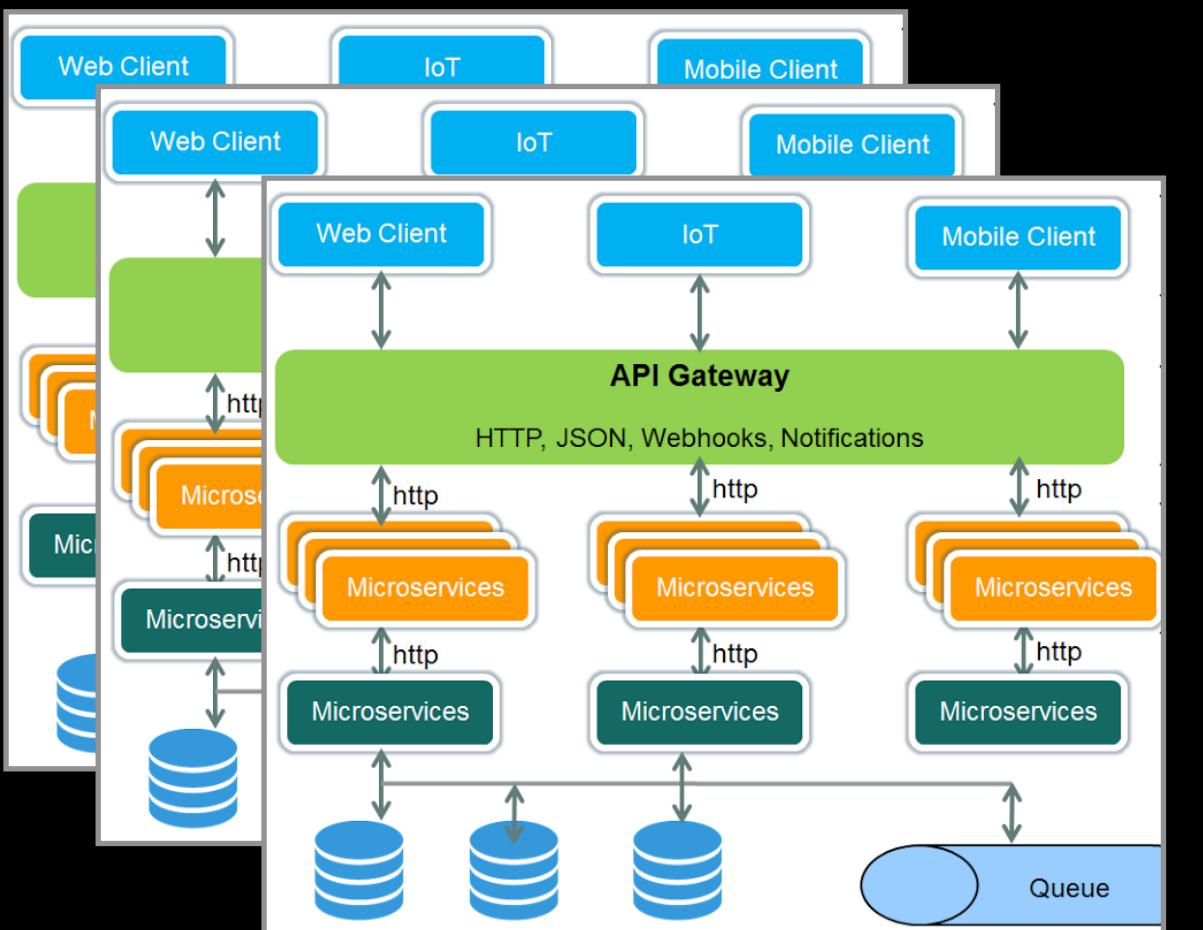
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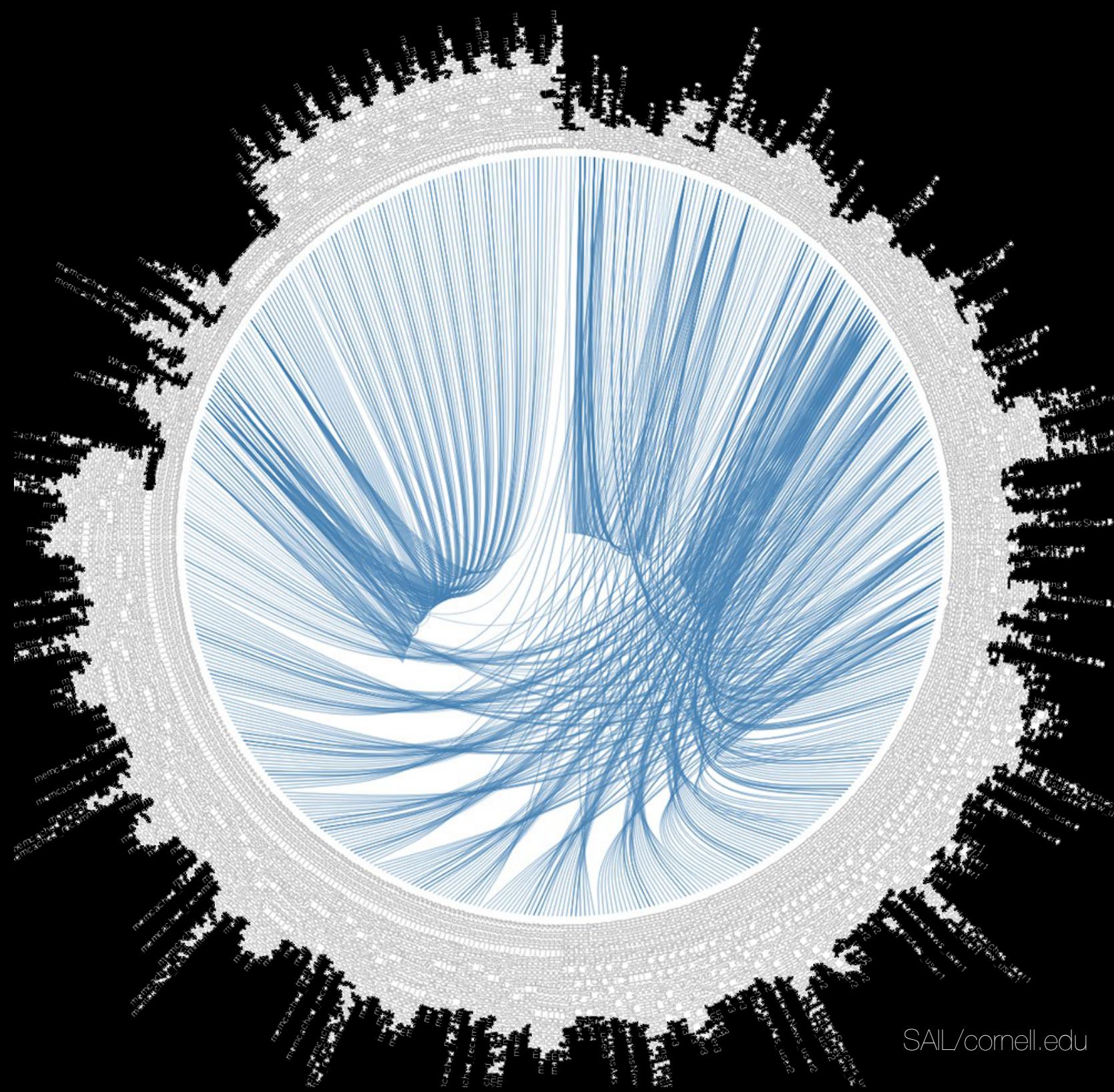
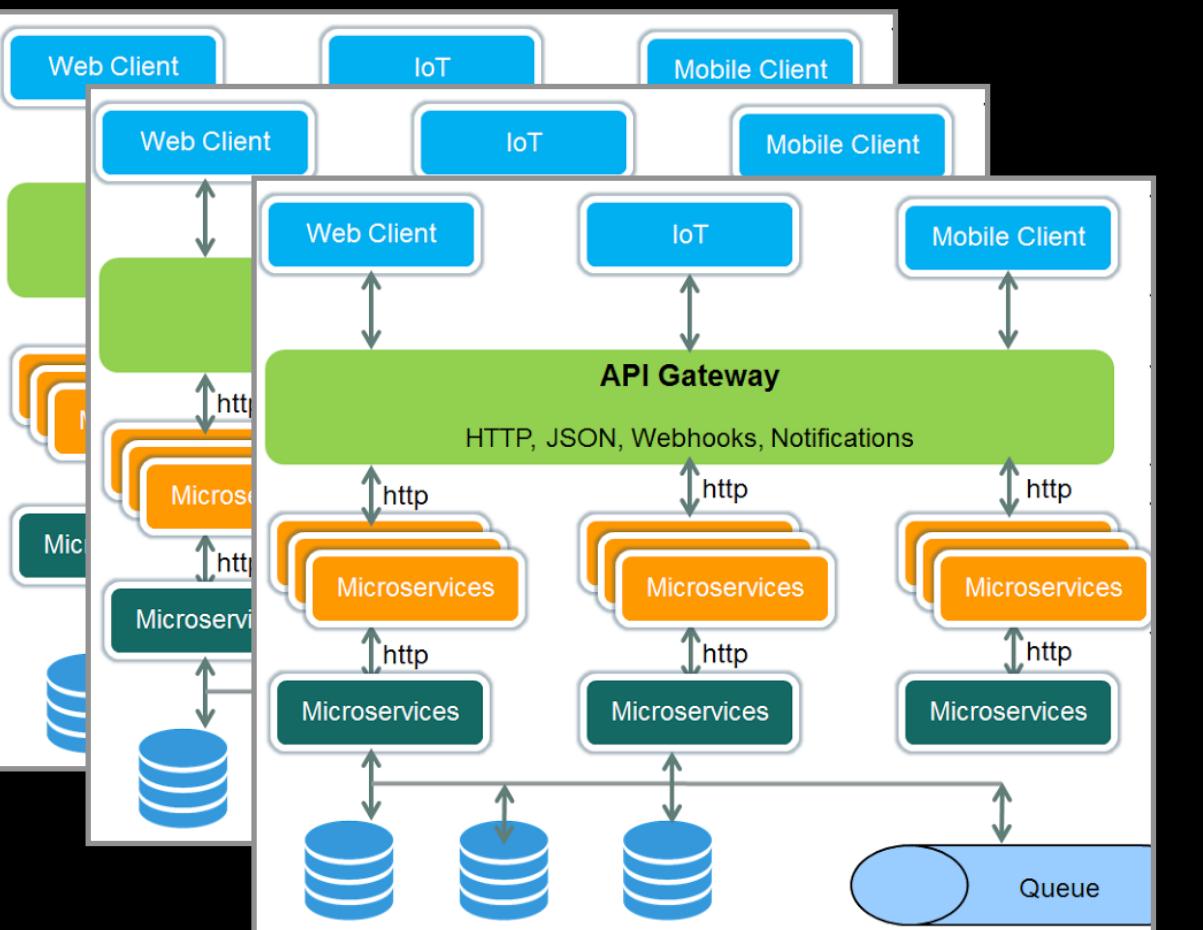
(deterministic POV)

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# Operations

(stochastic POV)

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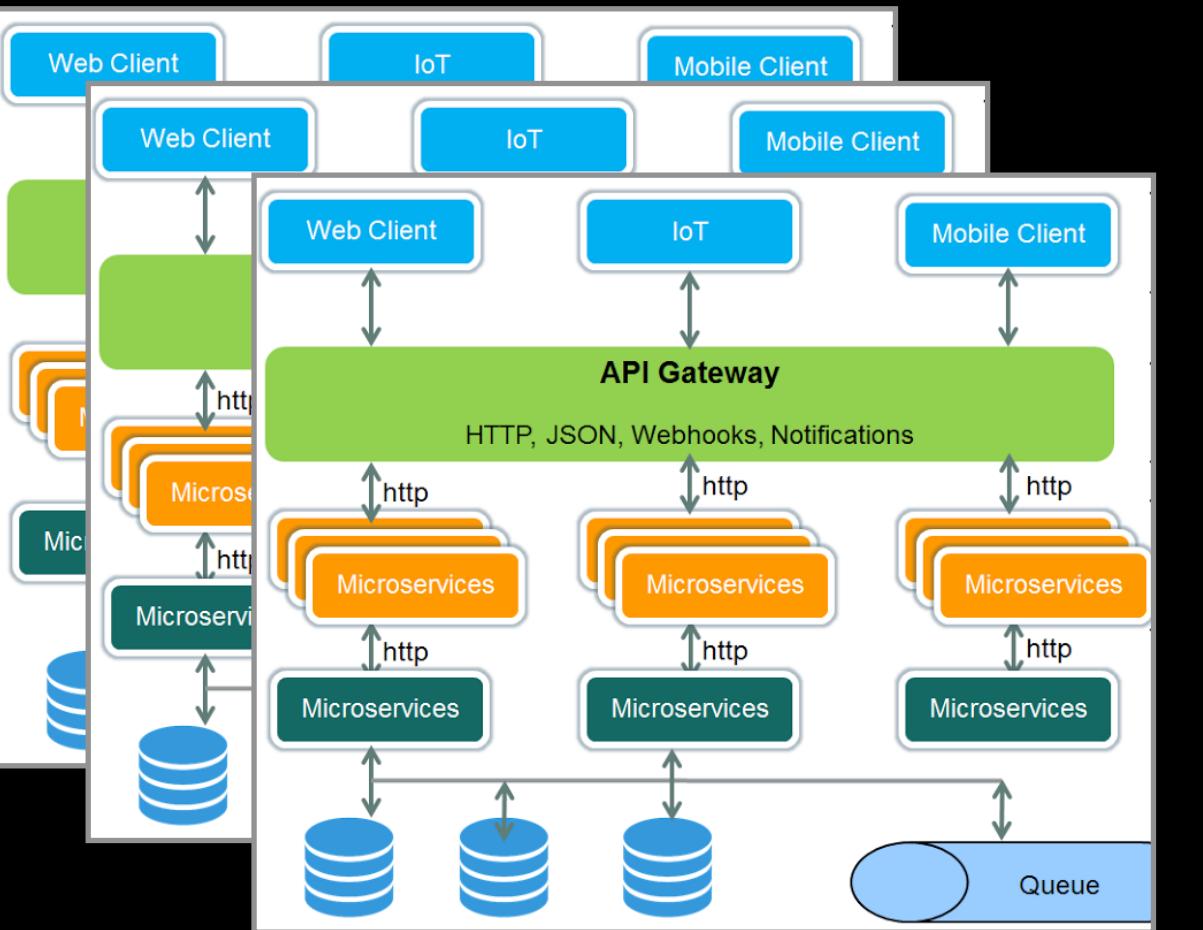


SAIL/cornell.edu

# Development

(deterministic POV)

**Code → Build → Run?** (👍 / 👎)



vs

# Operations

(stochastic POV)

API performance

Platform changes

Network traffic

Usage patterns

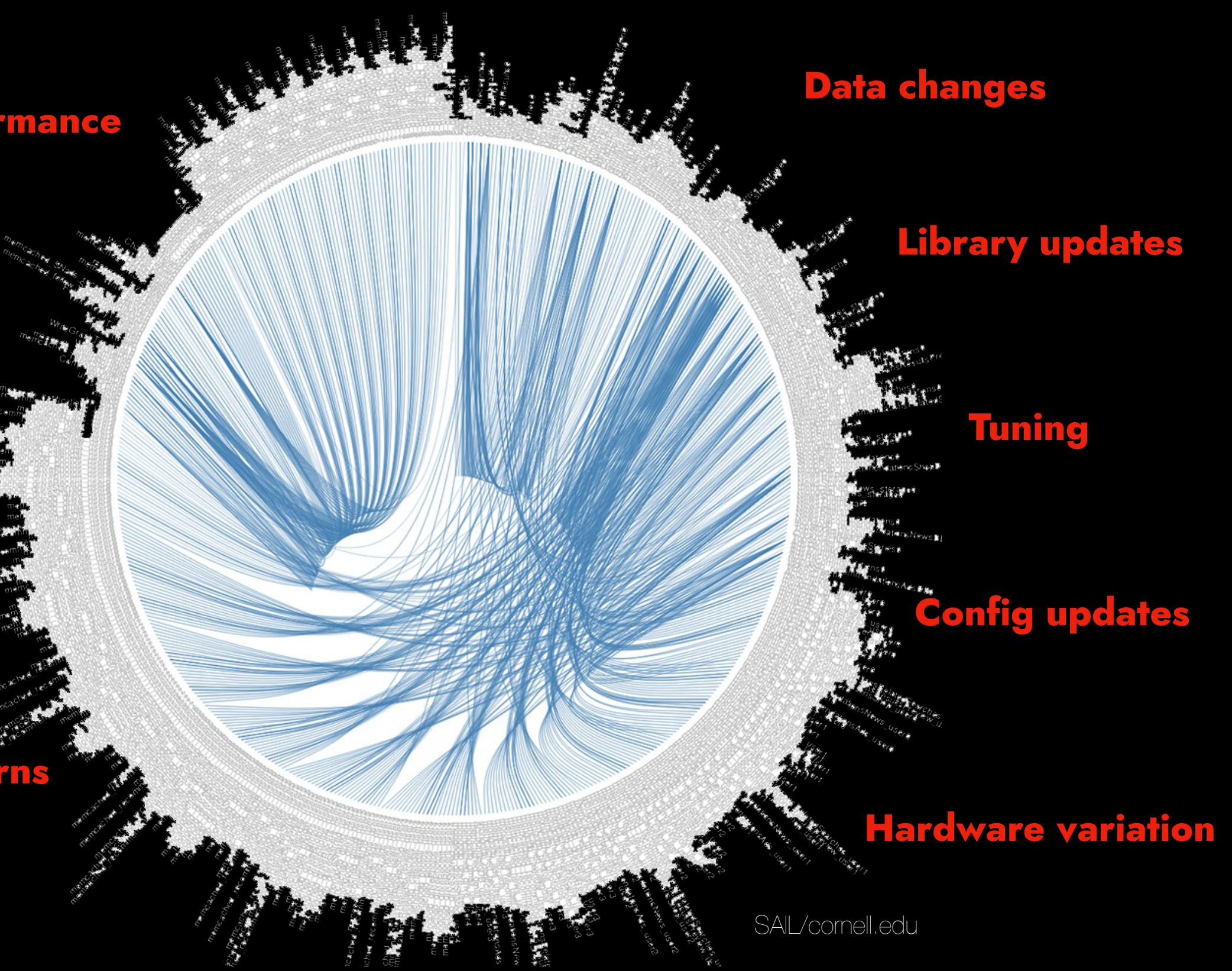
Data changes

Library updates

Tuning

Config updates

Hardware variation



# Development

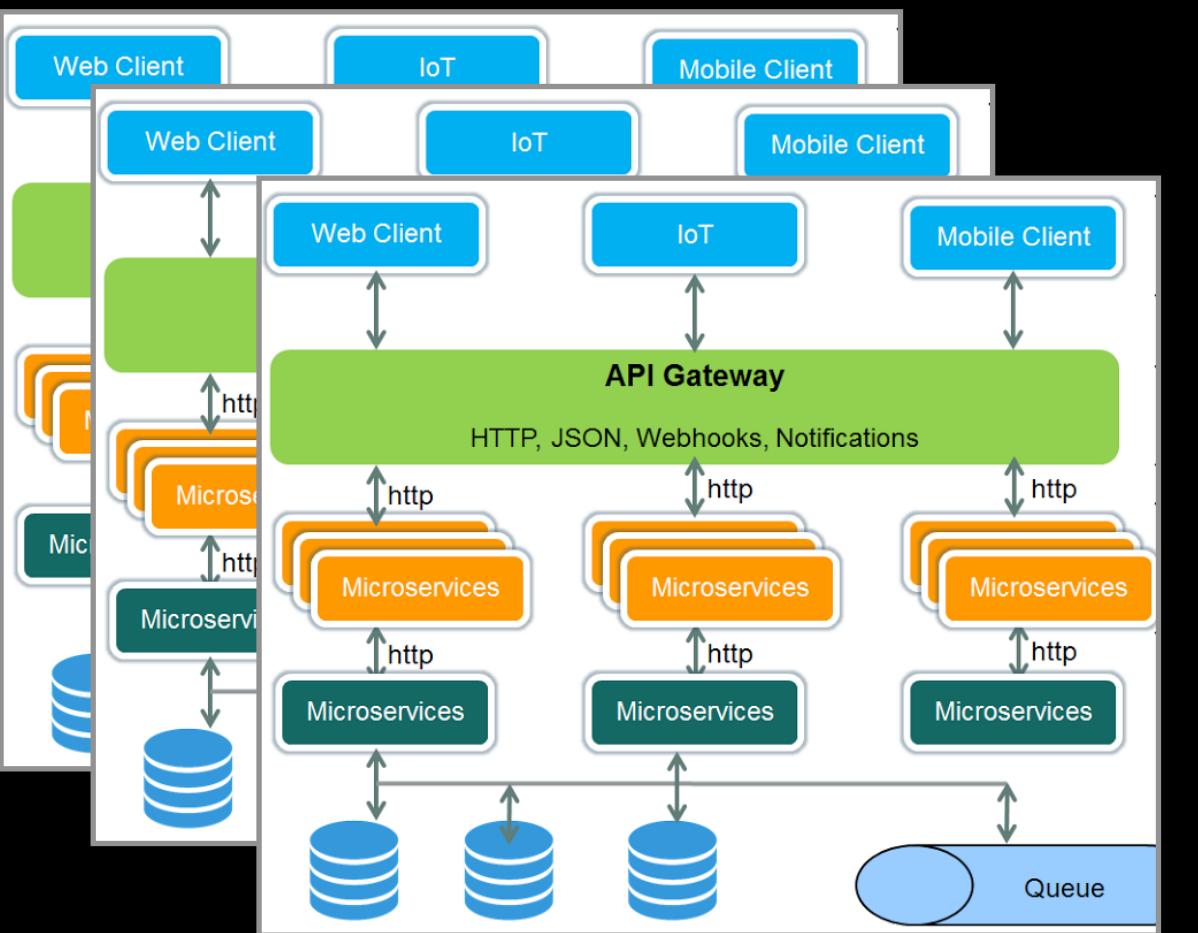
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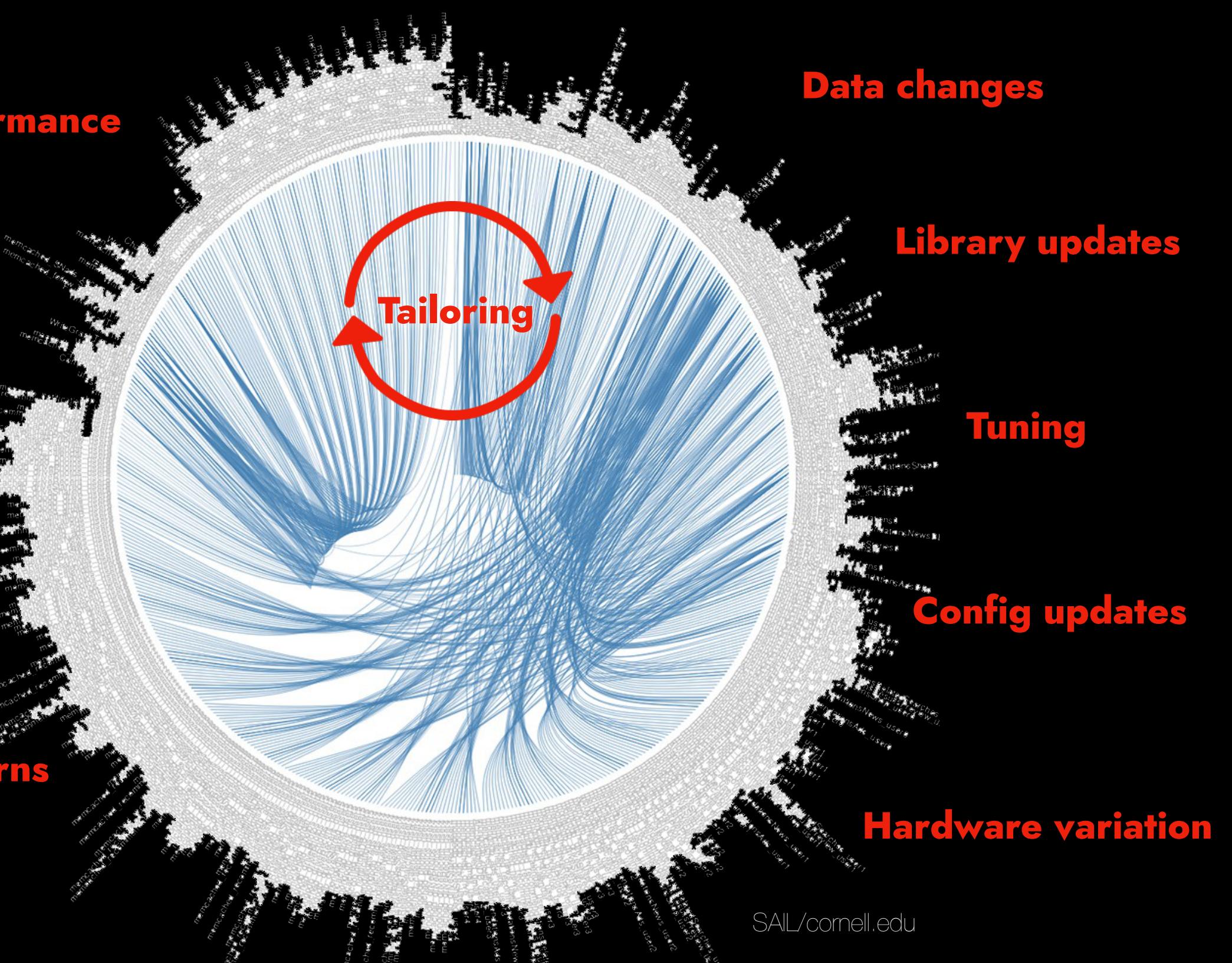
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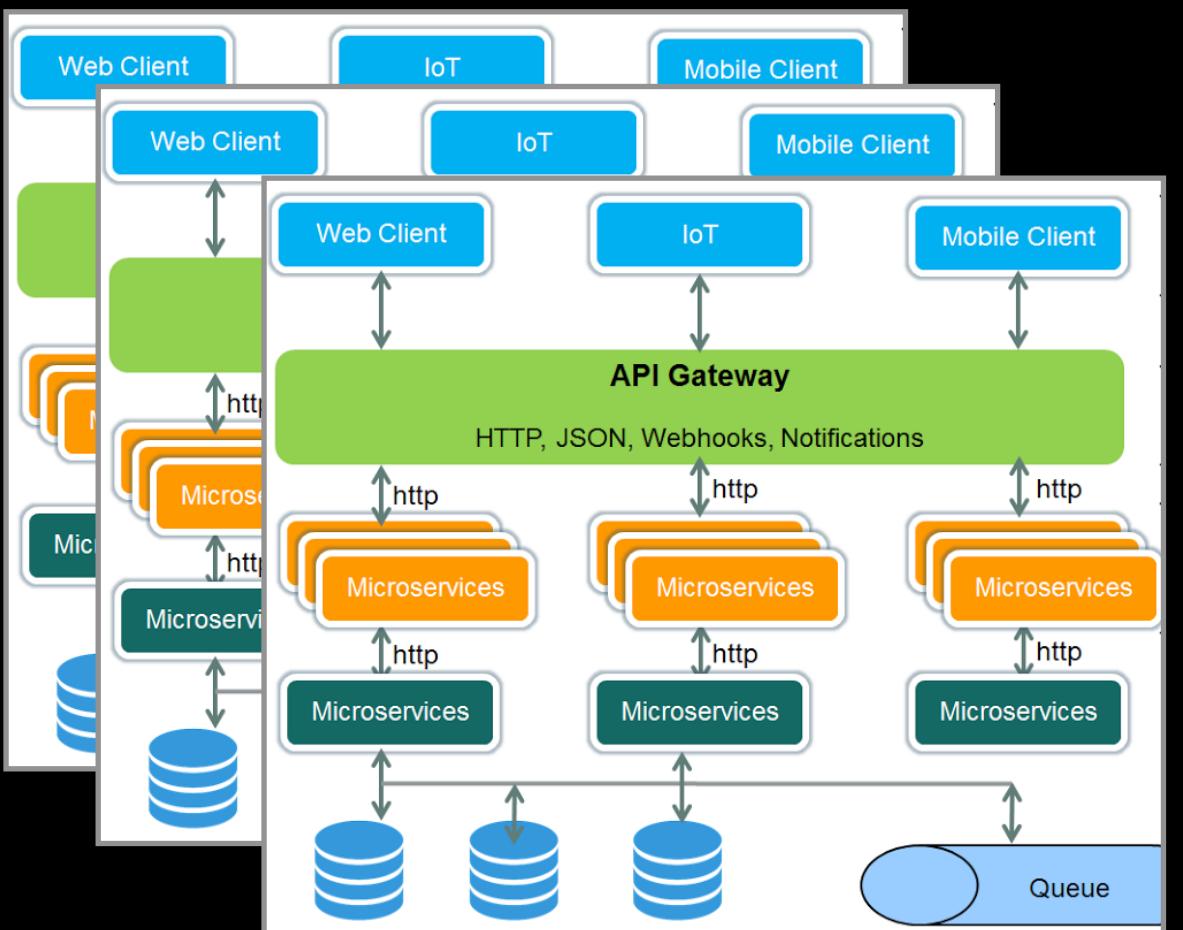


# Development (deterministic POV)

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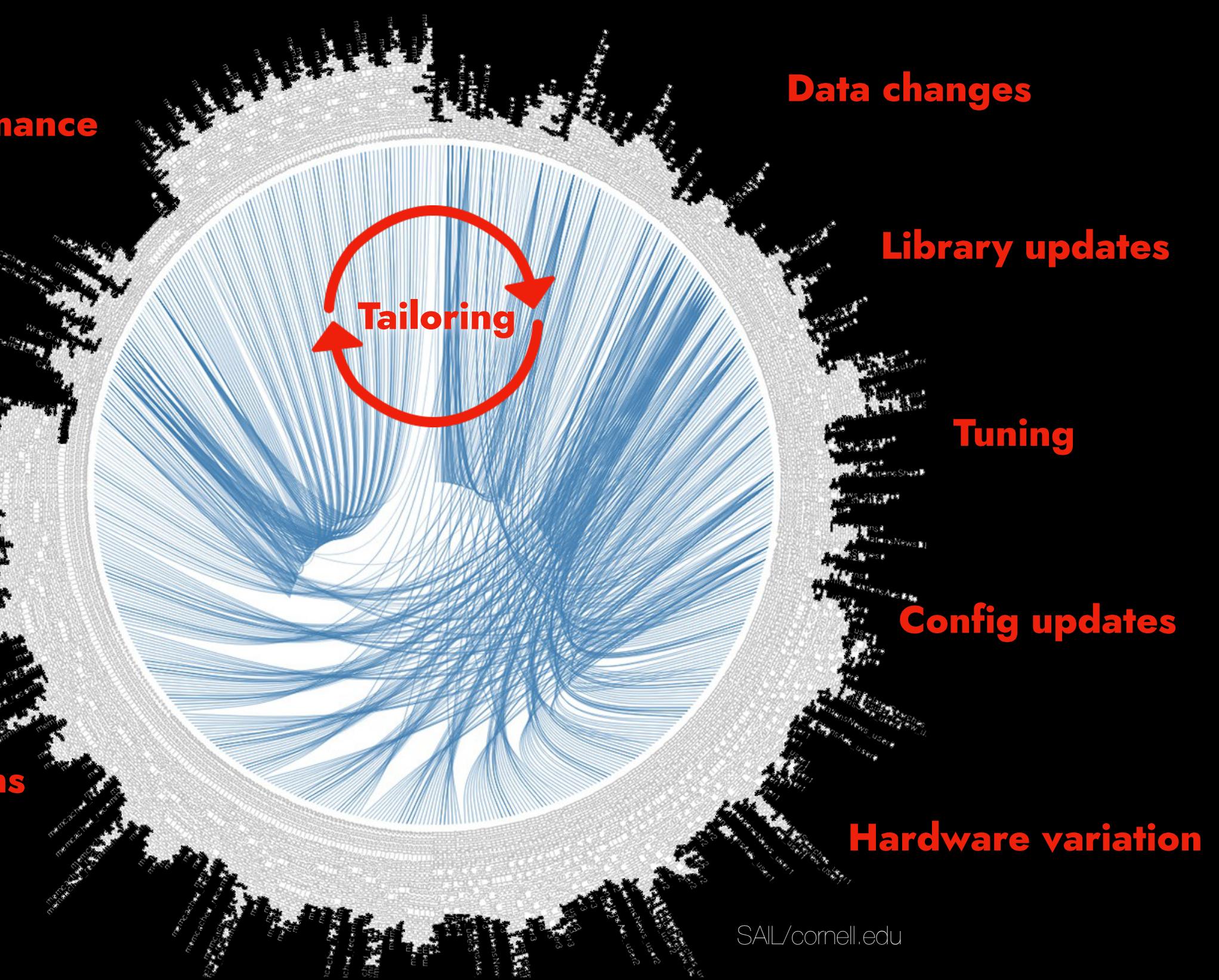
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Richard Cook, M.D.

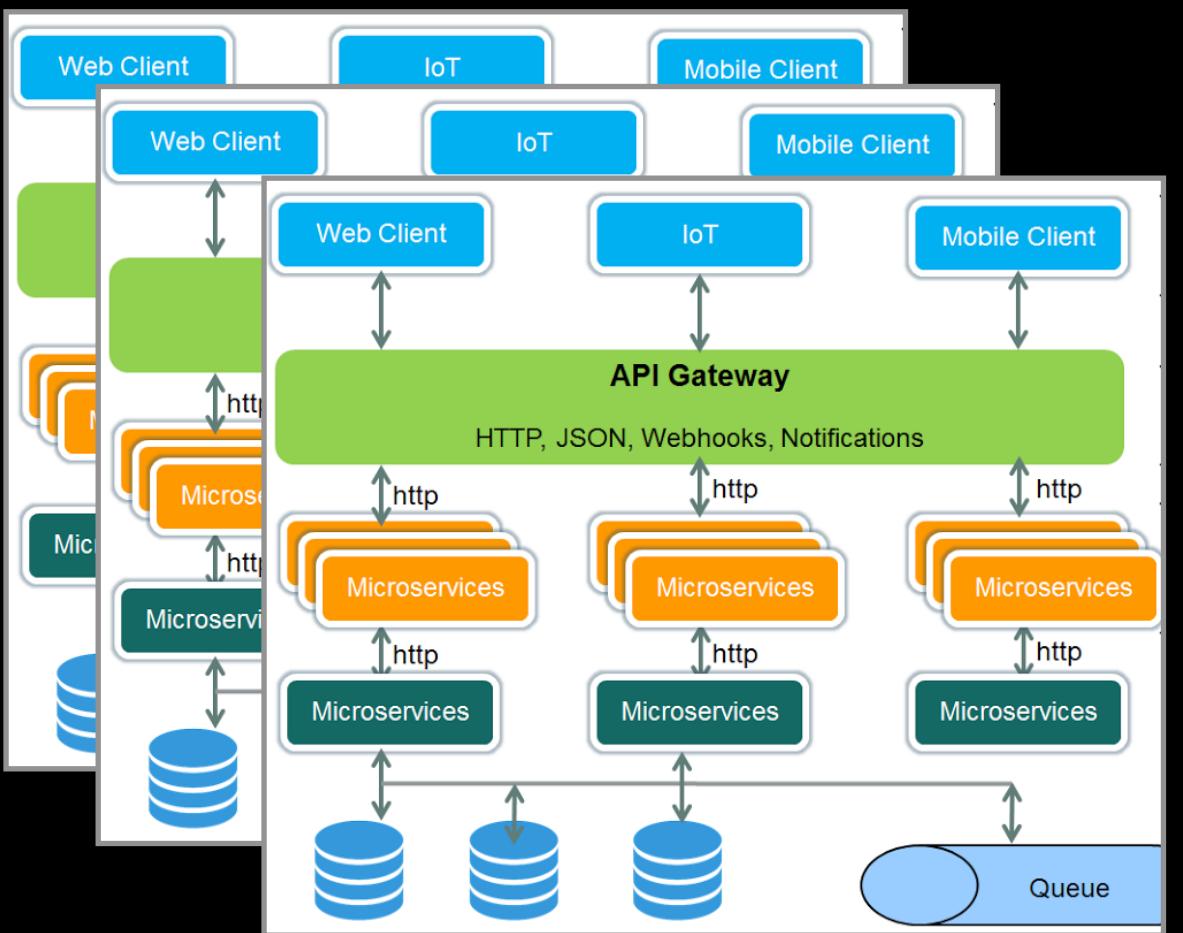


# Development (deterministic POV)

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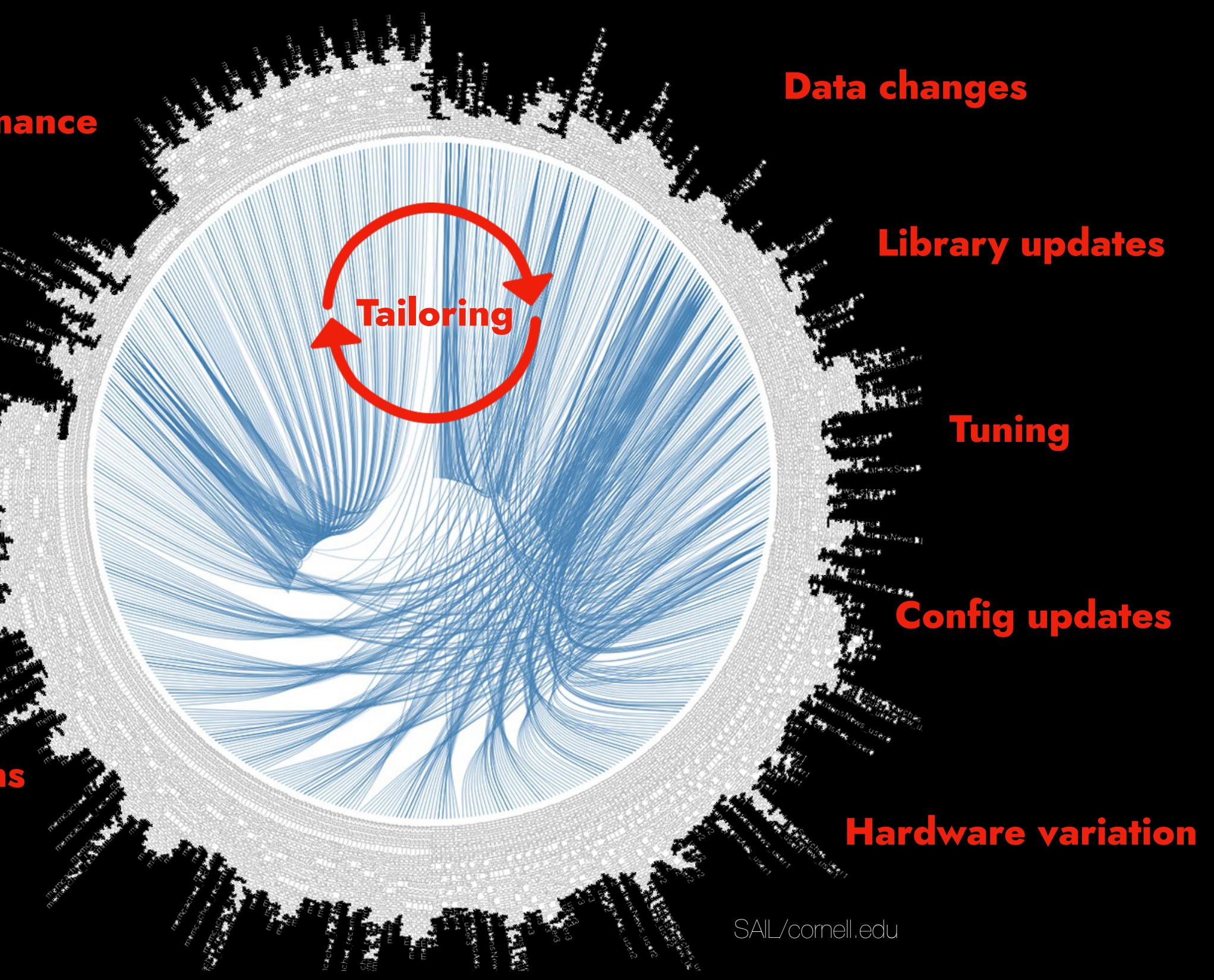
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**“System as imagined”**



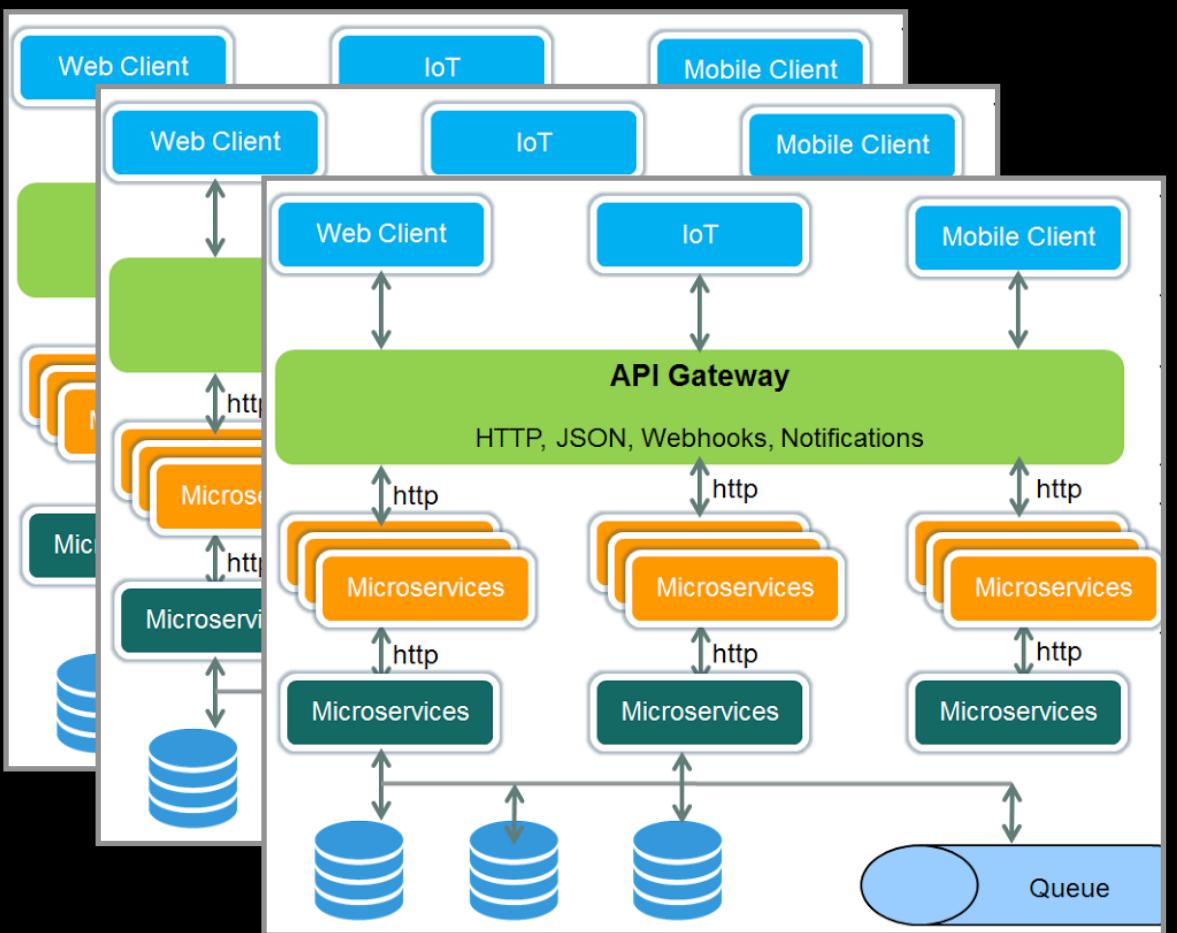
Richard Cook, M.D.

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**Code → Build → Run? (👍 / 👎)**



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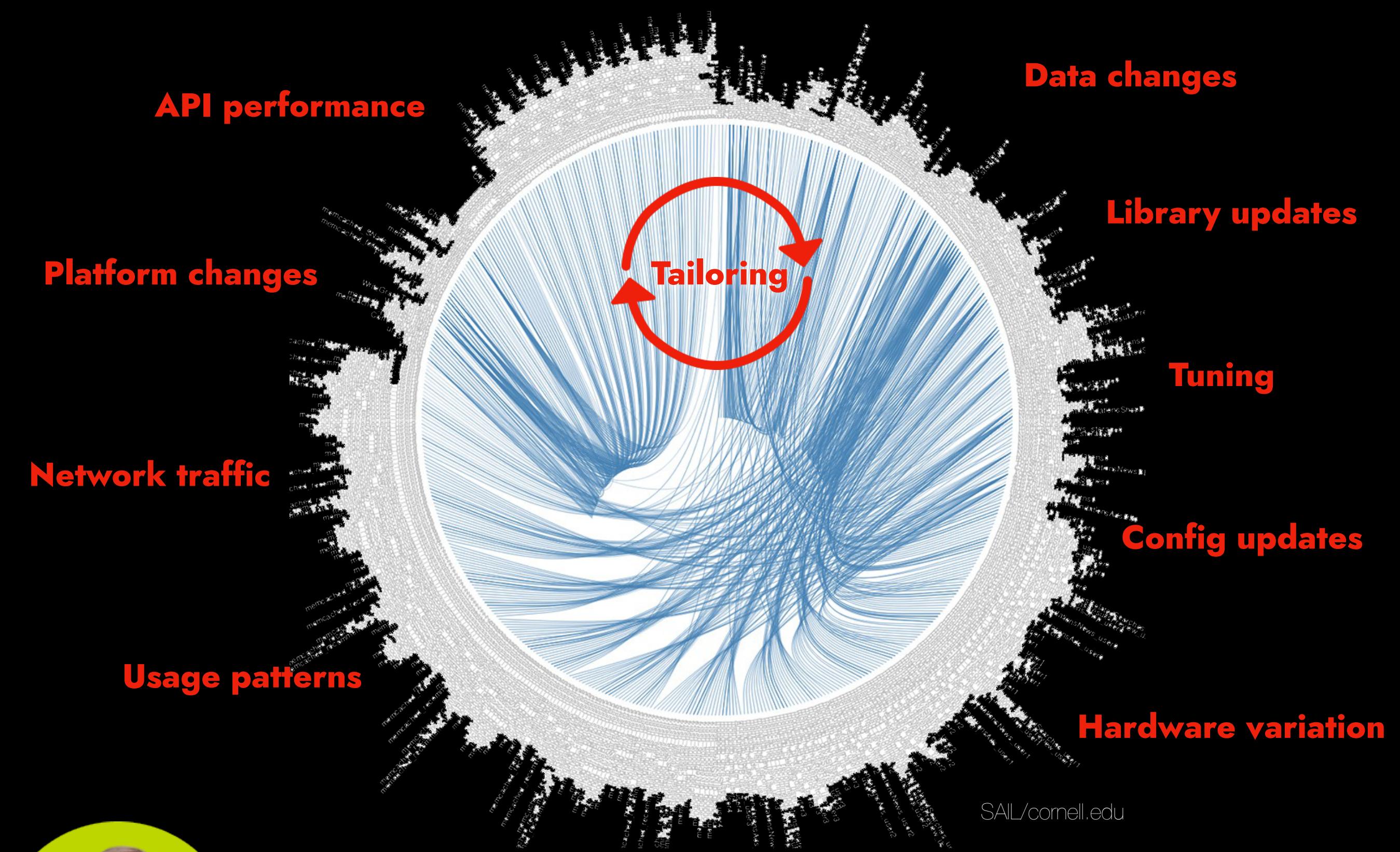
Usage patterns

**“System as imagined”**



Richard Cook, M.D.

**“System as found”**



# **What are people doing in “systems as found”:**



**Richard Cook, M.D.**

# **What are people doing in “systems as found”:**

## **1. Monitoring**



**Richard Cook, M.D.**

# **What are people doing in “systems as found”:**

- 1. Monitoring**
- 2. Responding (making sense of what they are seeing)**



**Richard Cook, M.D.**

# **What are people doing in “systems as found”:**

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- 3. Adapting (more tailoring of the complex system)**



**Richard Cook, M.D.**

# **What are people doing in “systems as found”:**

- 1. Monitoring**
- 2. Responding (making sense of what they are seeing)**
- 3. Adapting (more tailoring of the complex system)**
- 4. Learning (feedback loops and understanding)**



**Richard Cook, M.D.**

# **What are people doing in “systems as found”:**

**Automation alone  
can't do this**

- 1. Monitoring**
- 2. Responding** (making sense of what they are seeing)
- 3. Adapting** (more tailoring of the complex system)
- 4. Learning** (feedback loops and understanding)

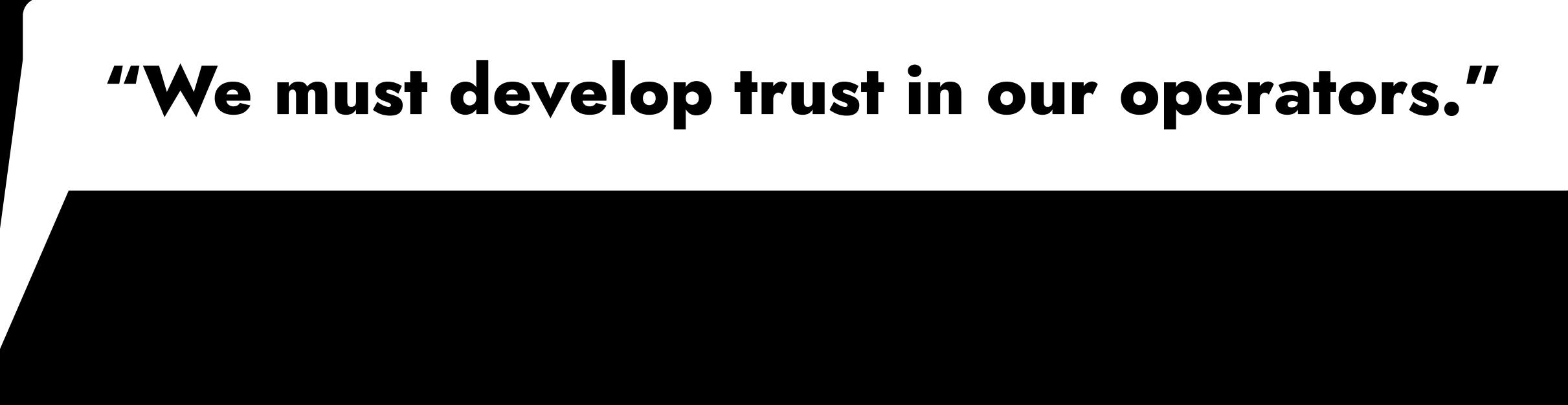


**Most important lesson from other high-consequence fields:**



**Most important lesson from other high-consequence fields:**

**The role of automation is to support the human operator,  
not to replace the human operator.**



**"We must develop trust in our operators."**



**Richard Cook, M.D.**



**Richard Cook, M.D.**

**"We must develop trust in our operators."**

**"Too much design goes into preventing  
people from doing things"**



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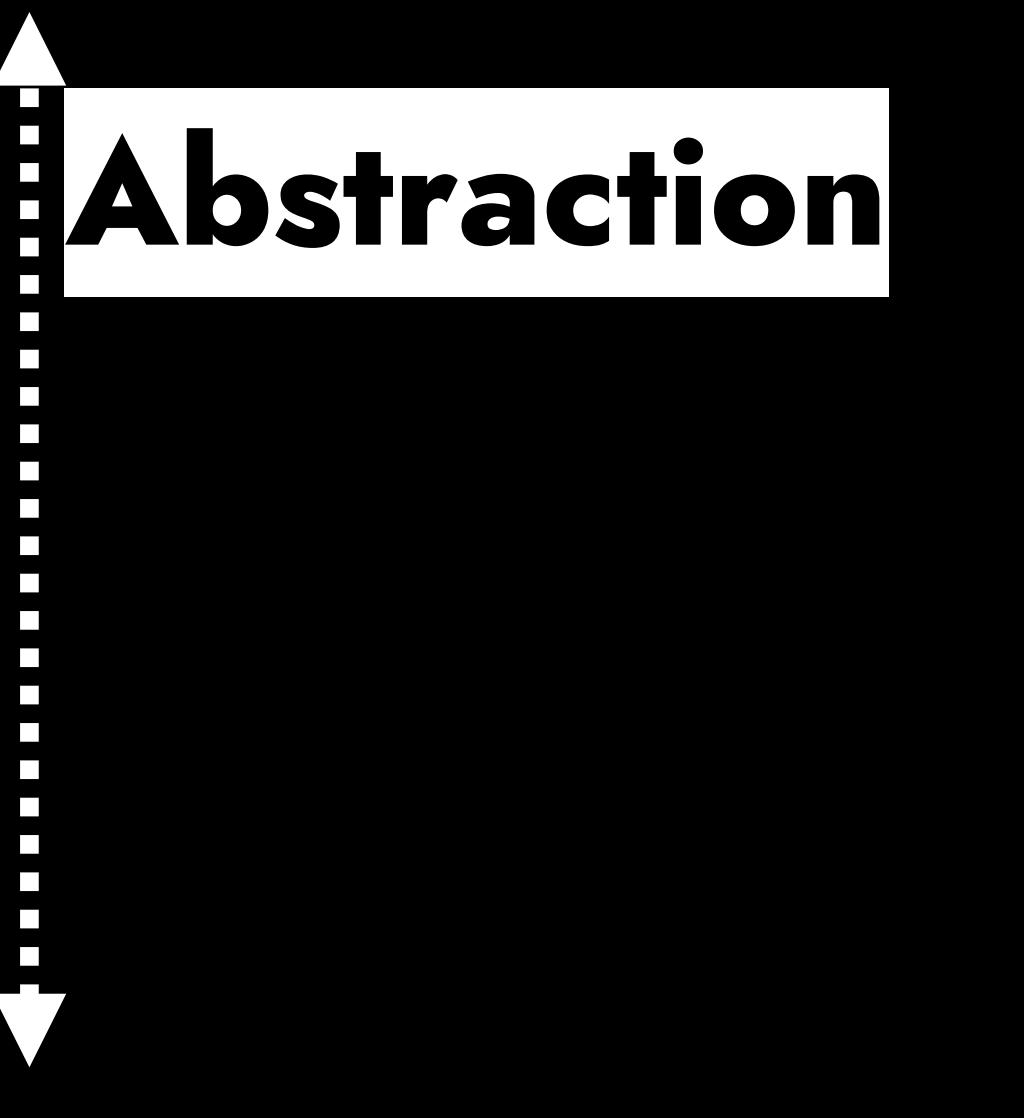
**"We need to reveal the actual controls that are available"**

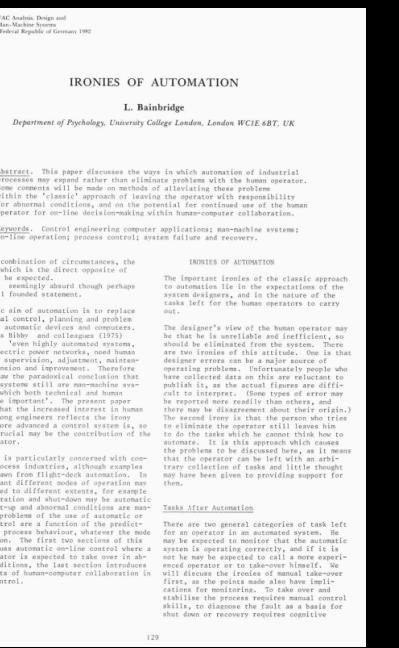


**Abstraction**

**Too high: *Black Box.* (bad)**

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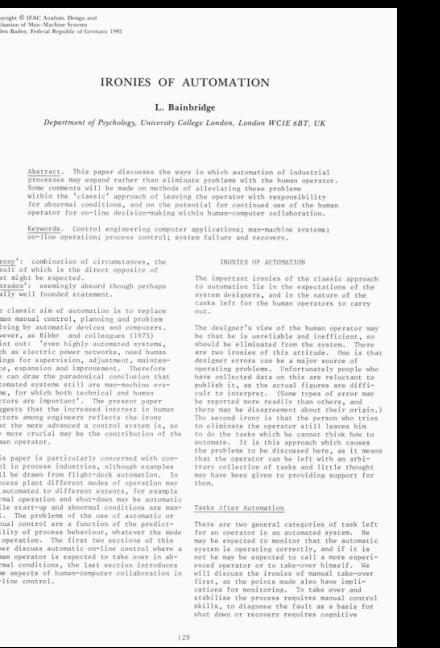
# "The Ironies of Automation"

1982

Dr. Lisanne  
Bainbridgee

## Too high: *Black Box.* (bad)





# "The Ironies of Automation"

1982

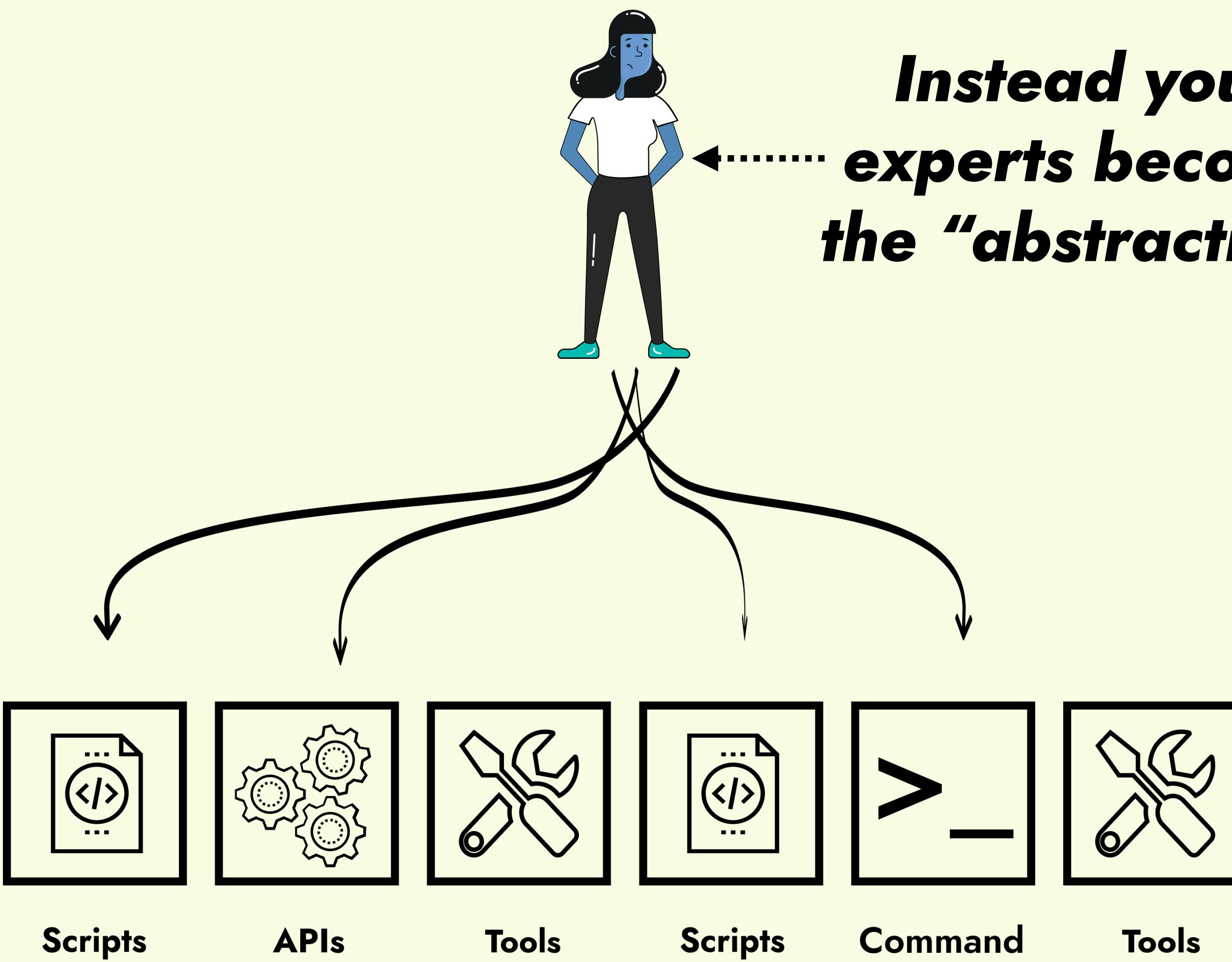
Dr. Lisanne  
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## Too high: **Black Box.** (bad)

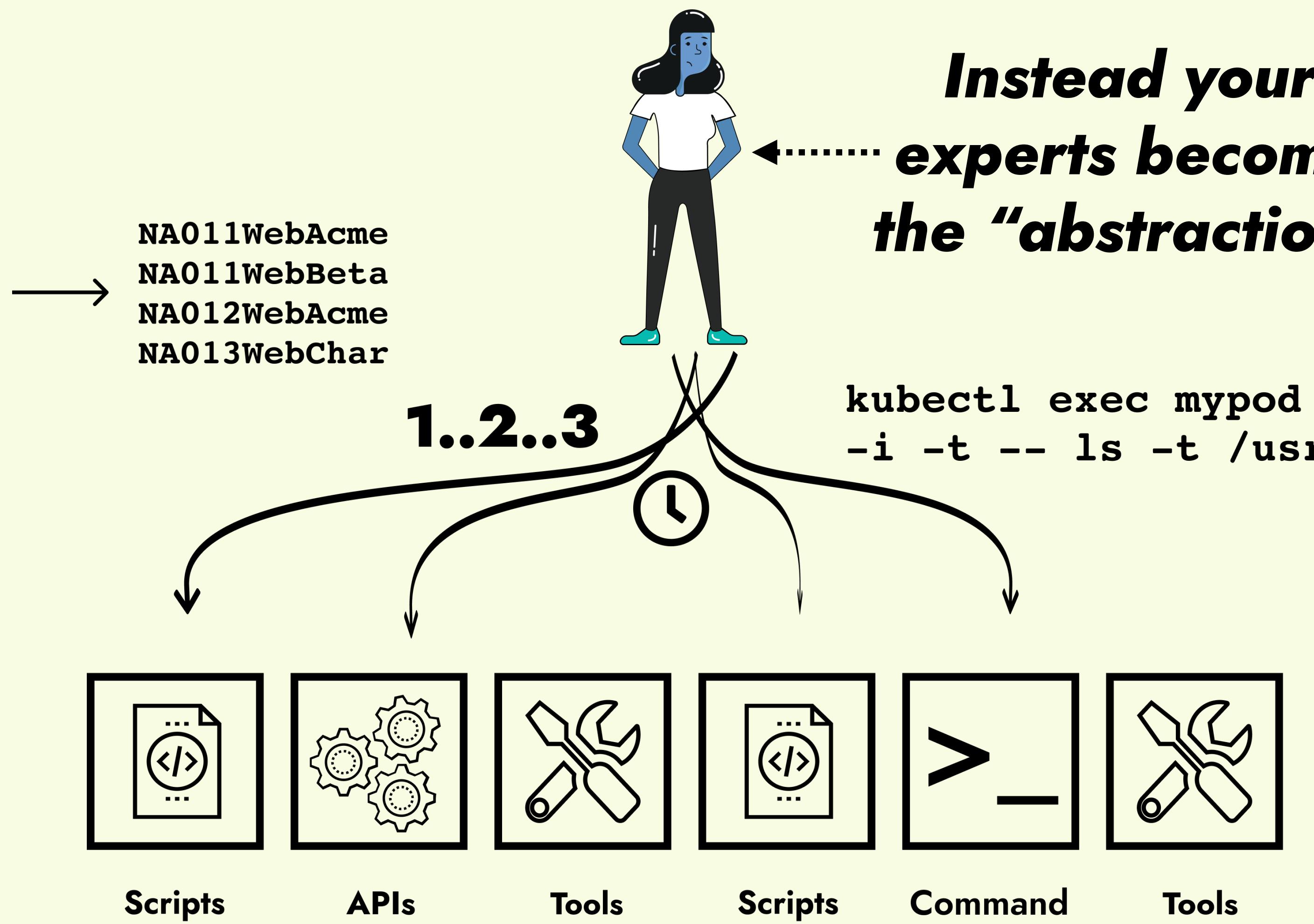


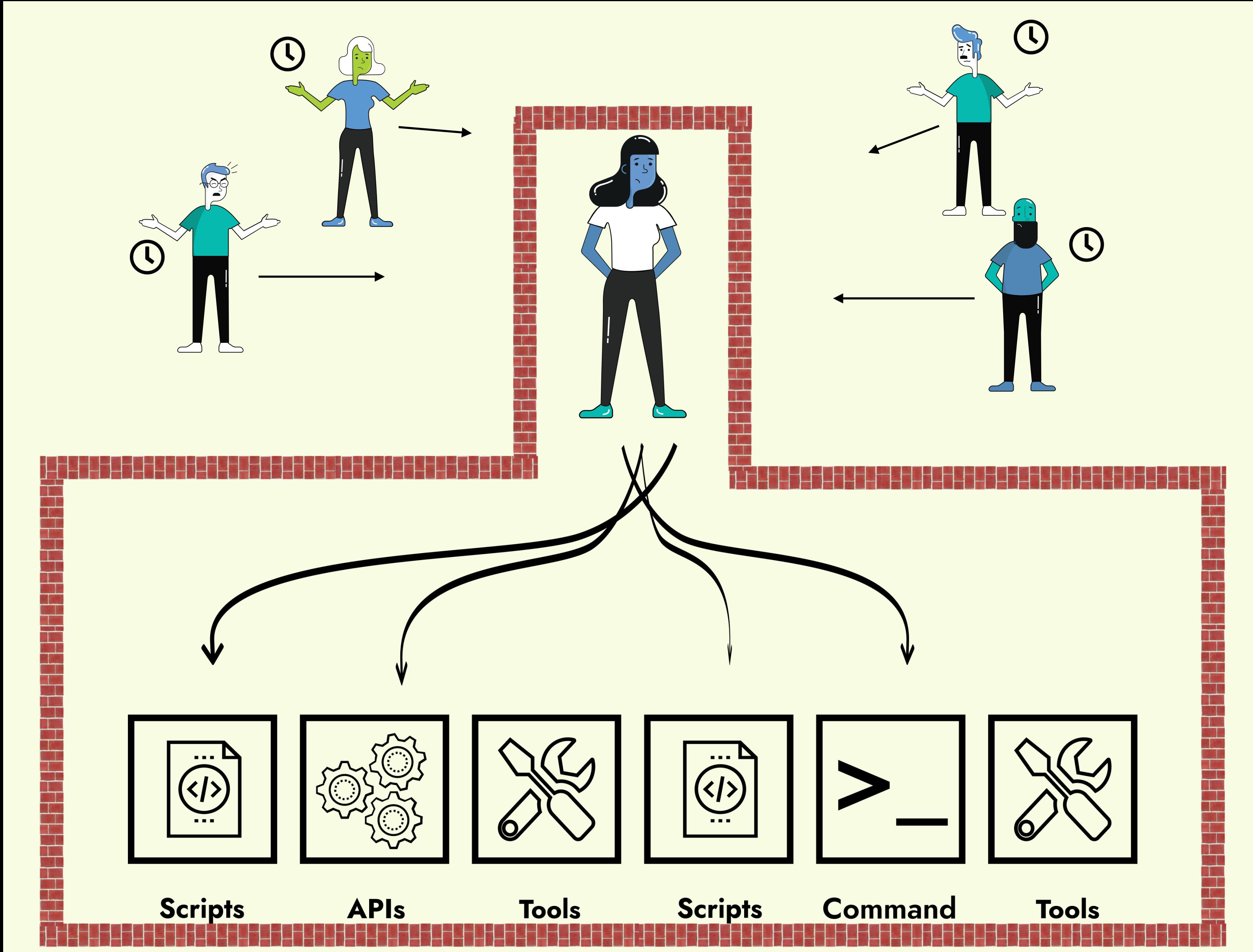
## Too low: **ssh, sudo, and 🙏** (bad)

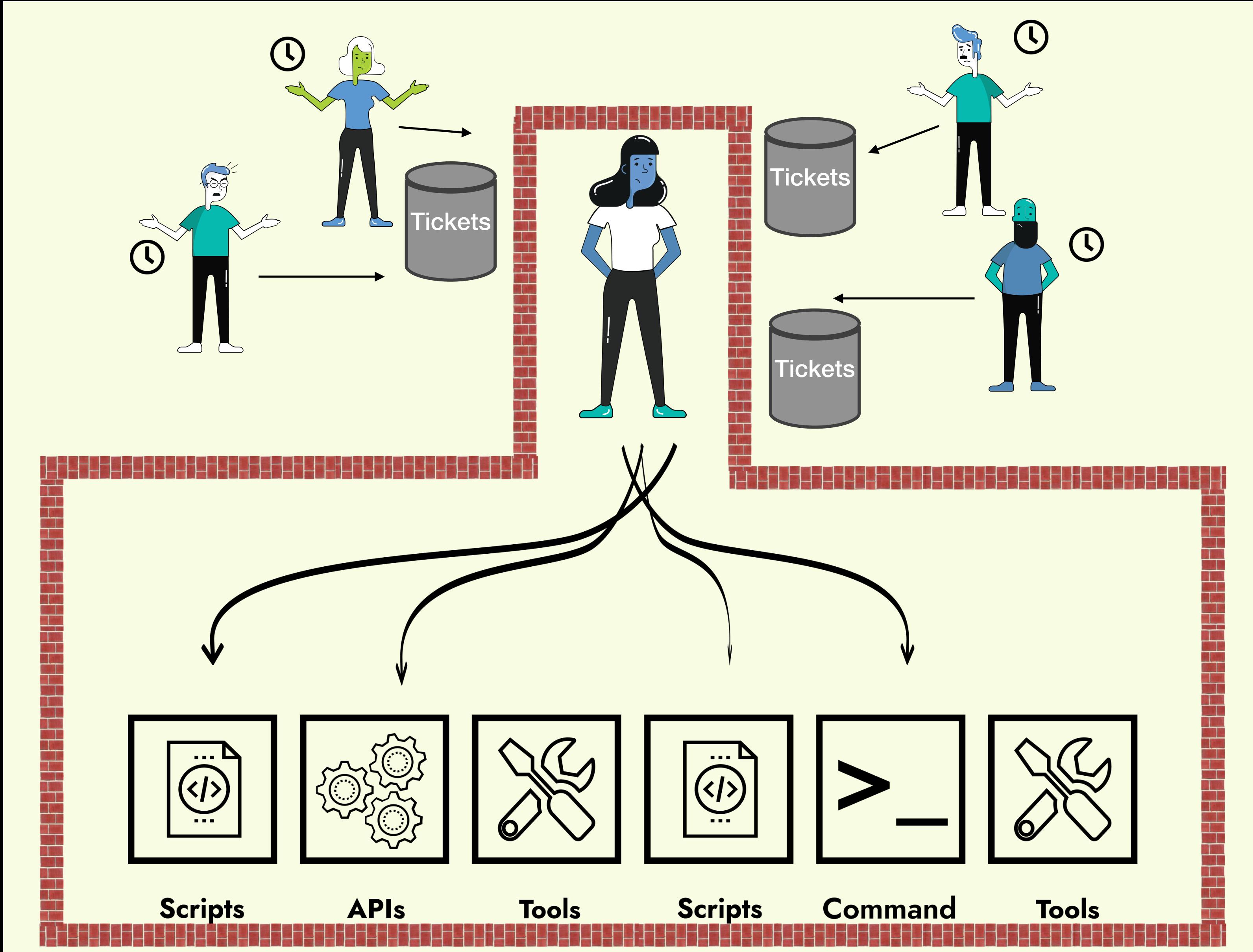
***Instead your  
experts become  
the “abstraction”***

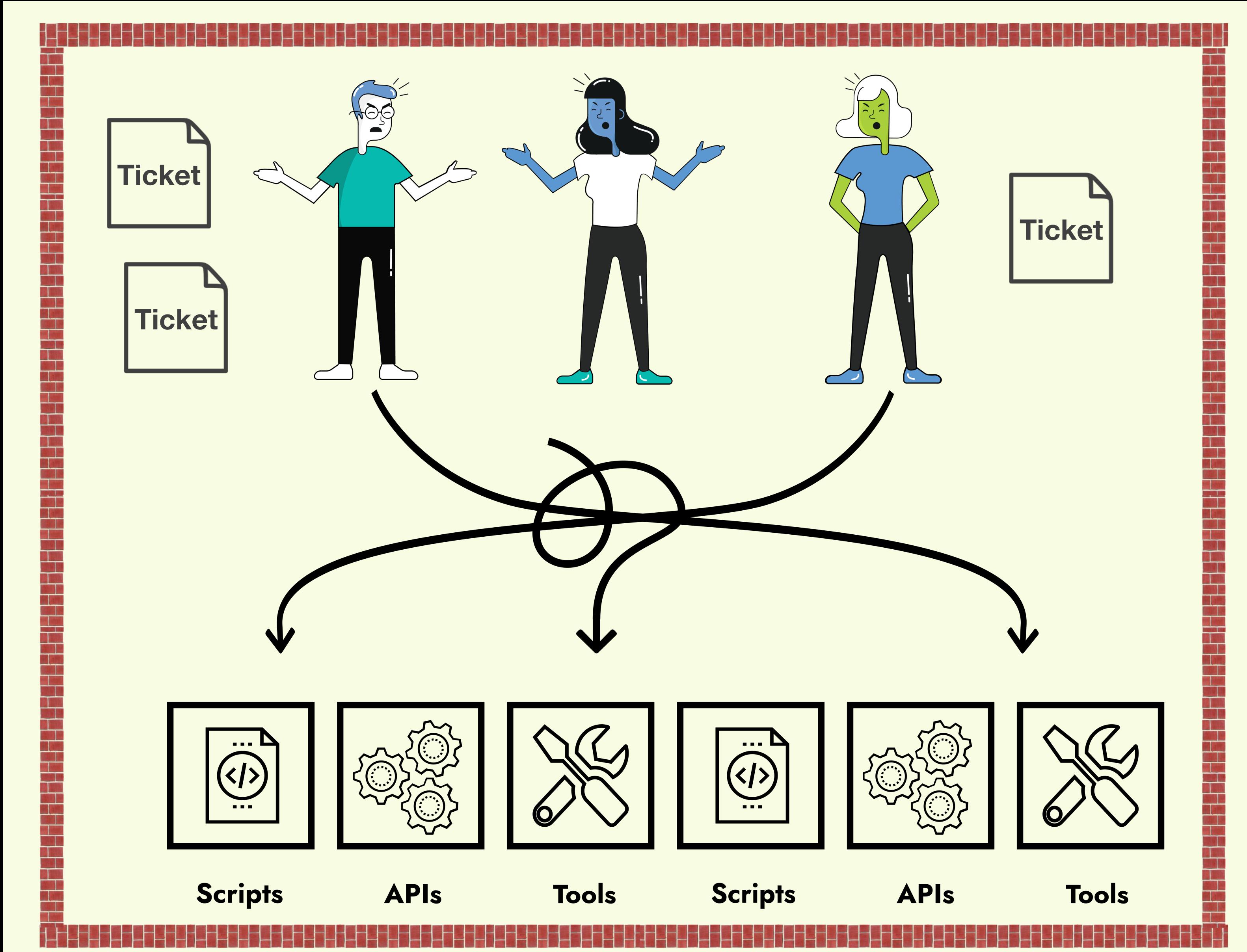


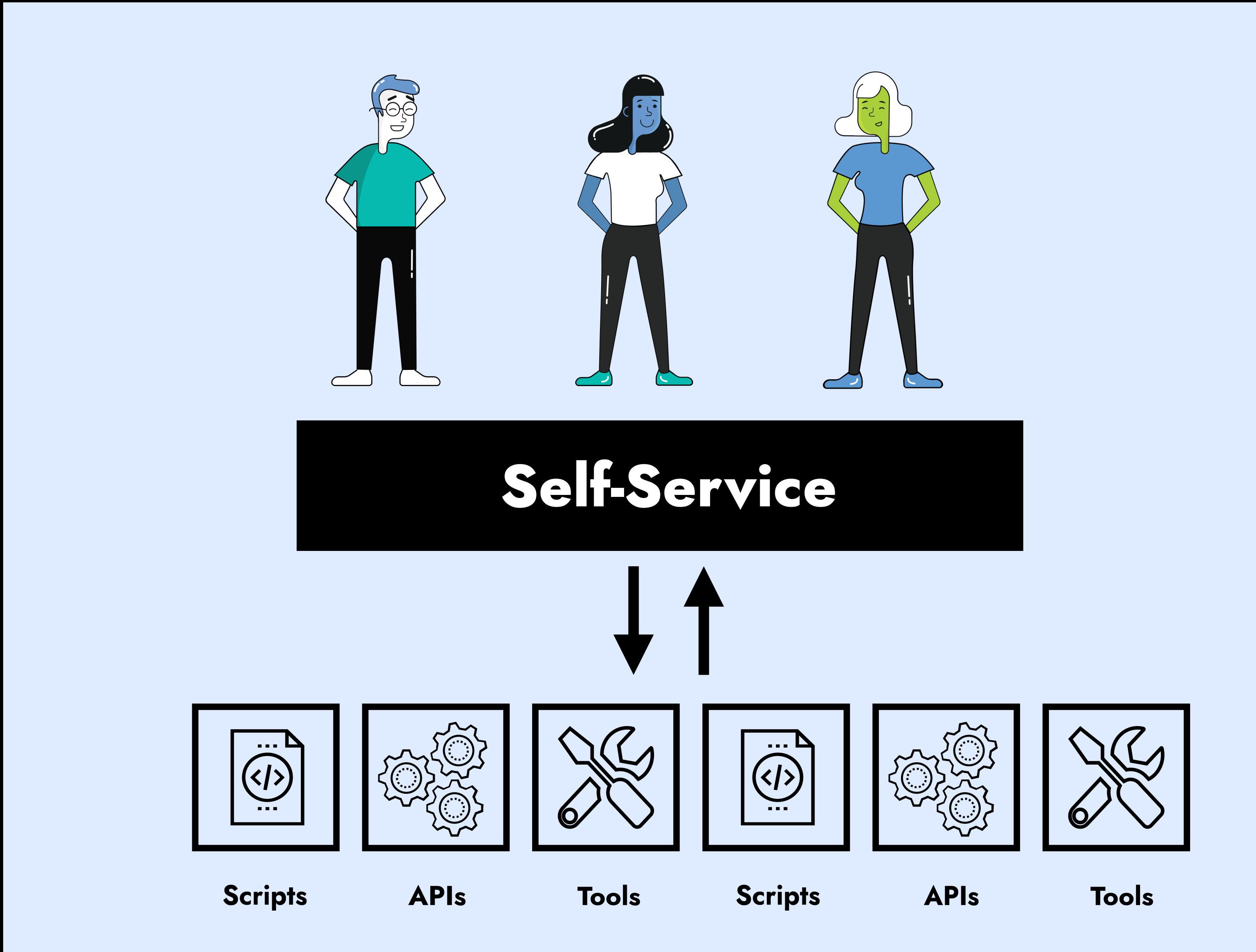
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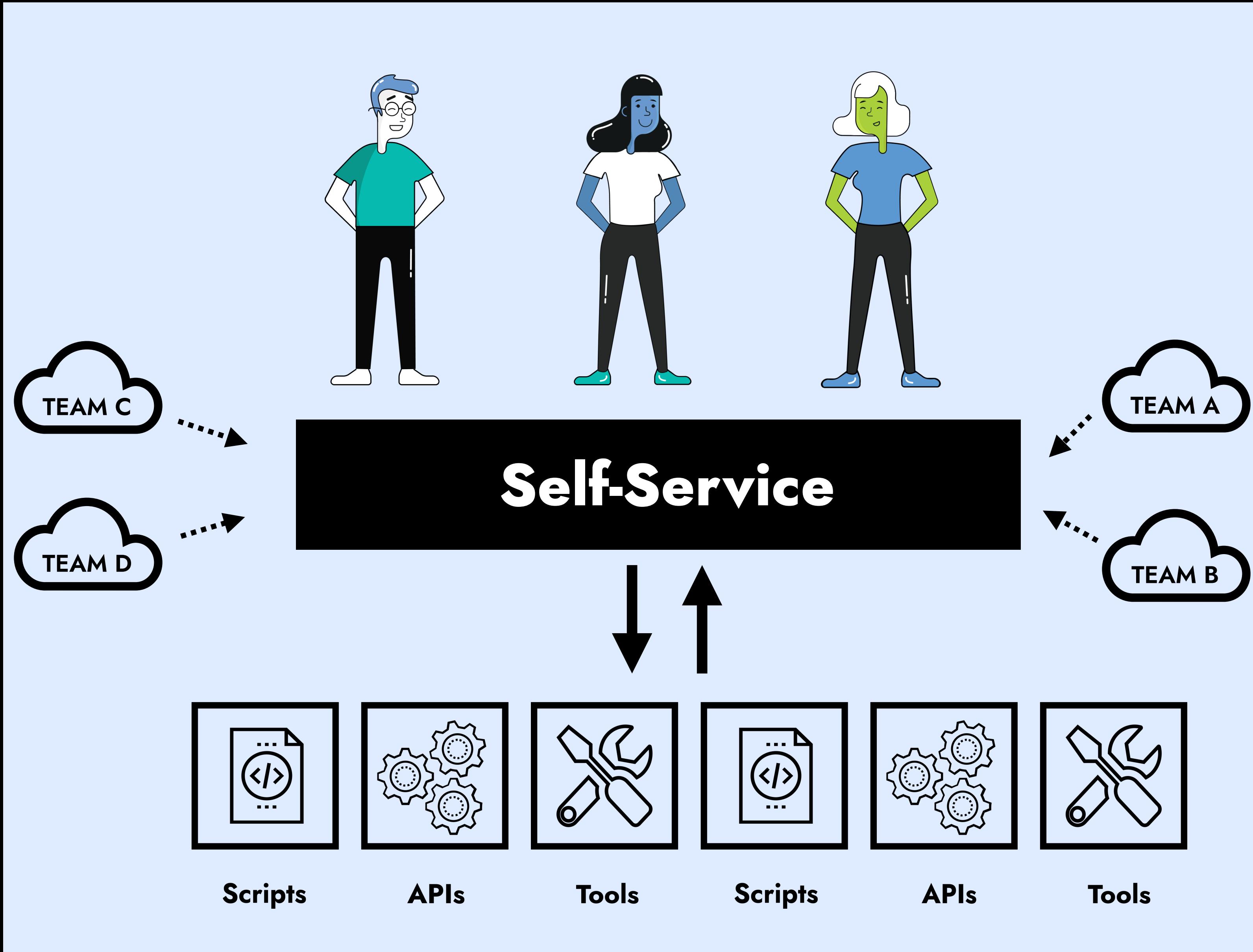




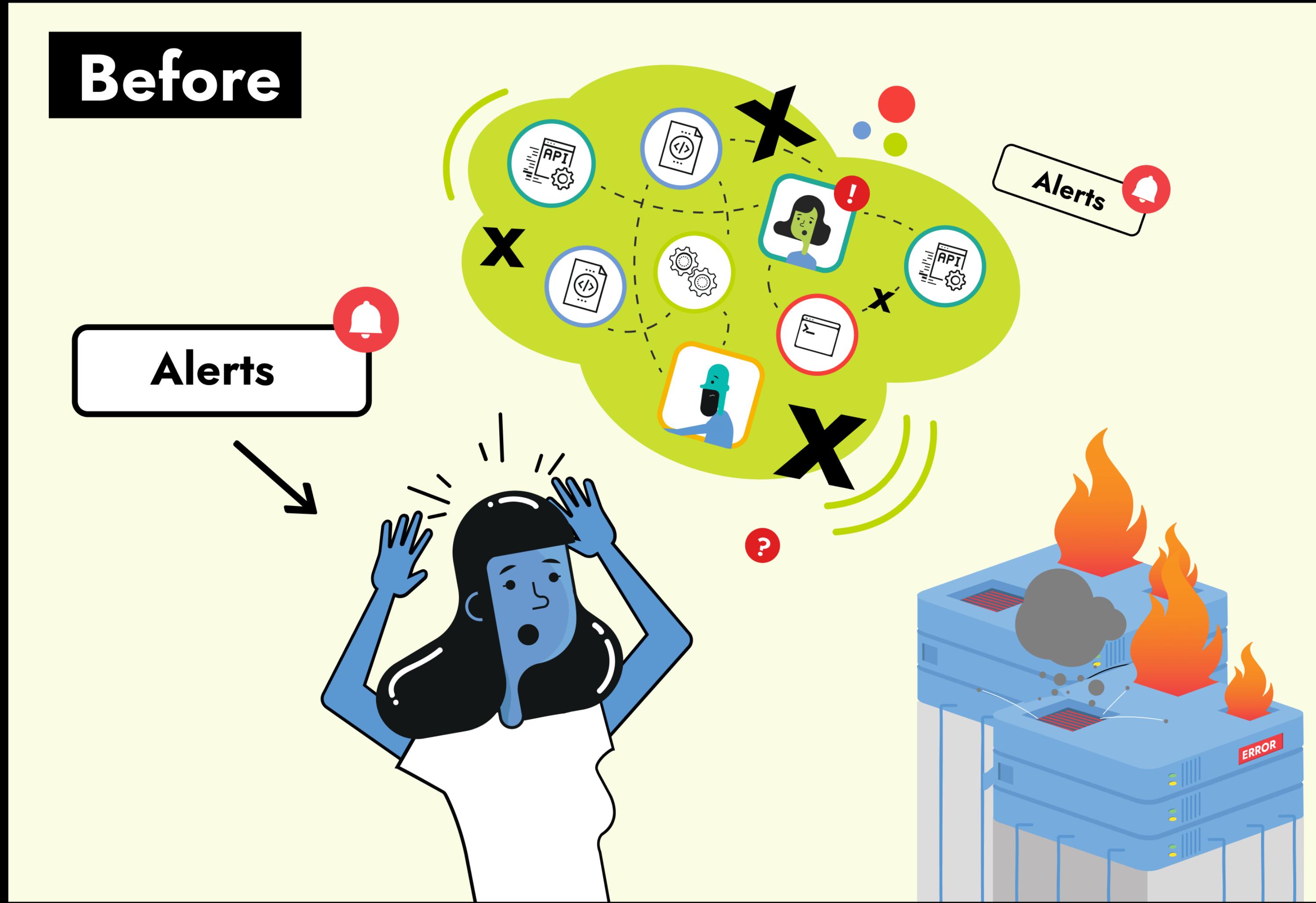


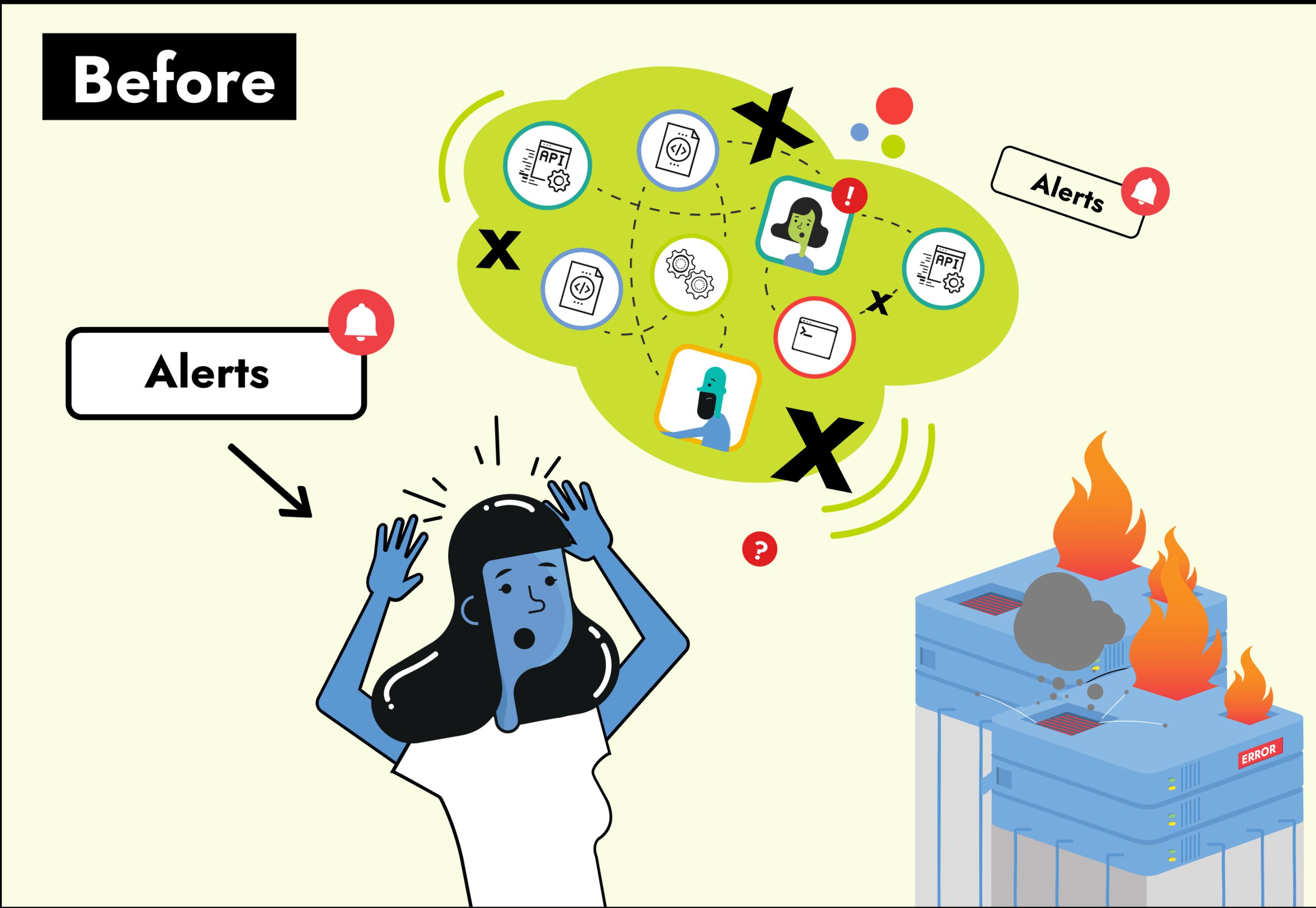




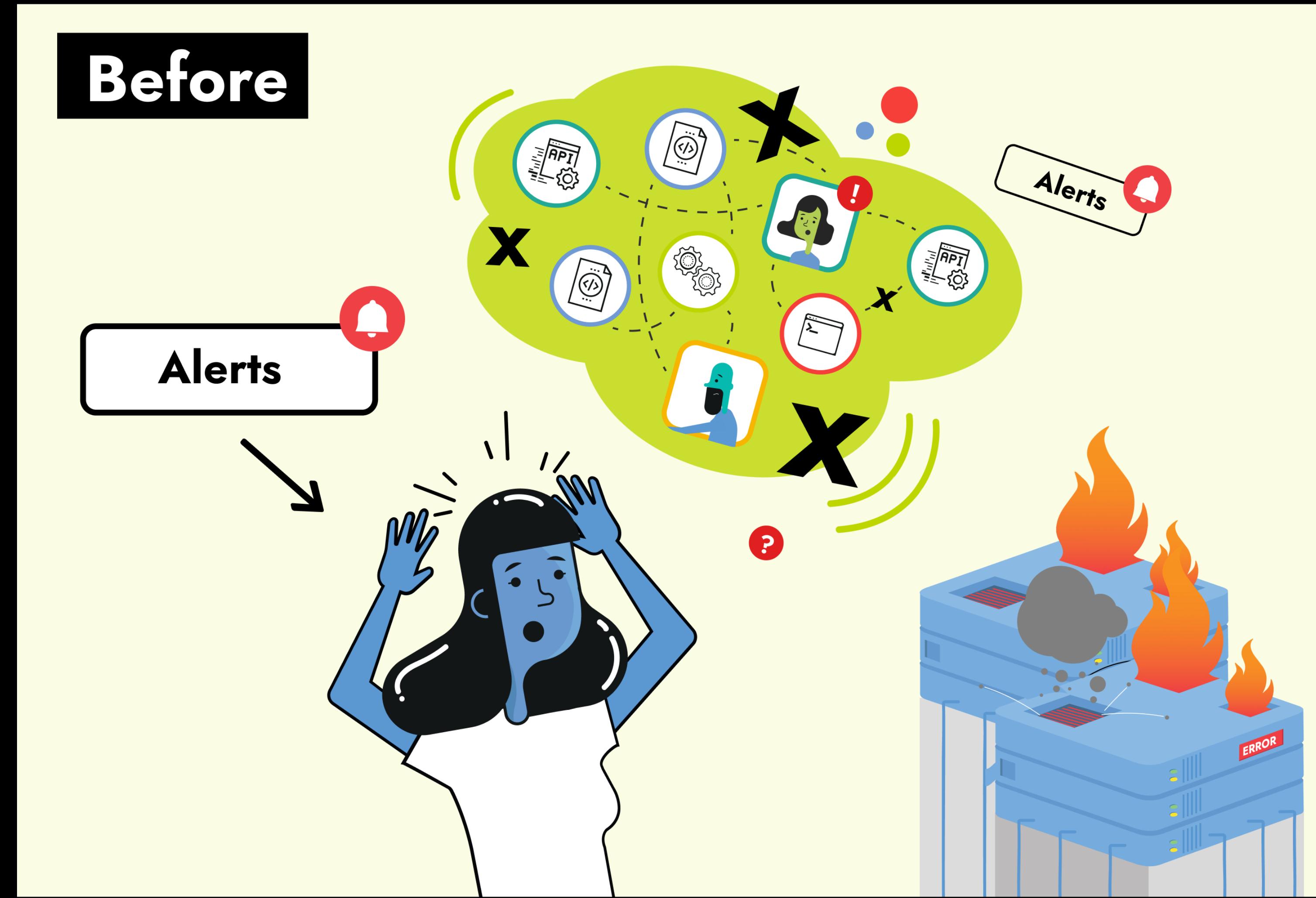


# **An Incident Management Example...**

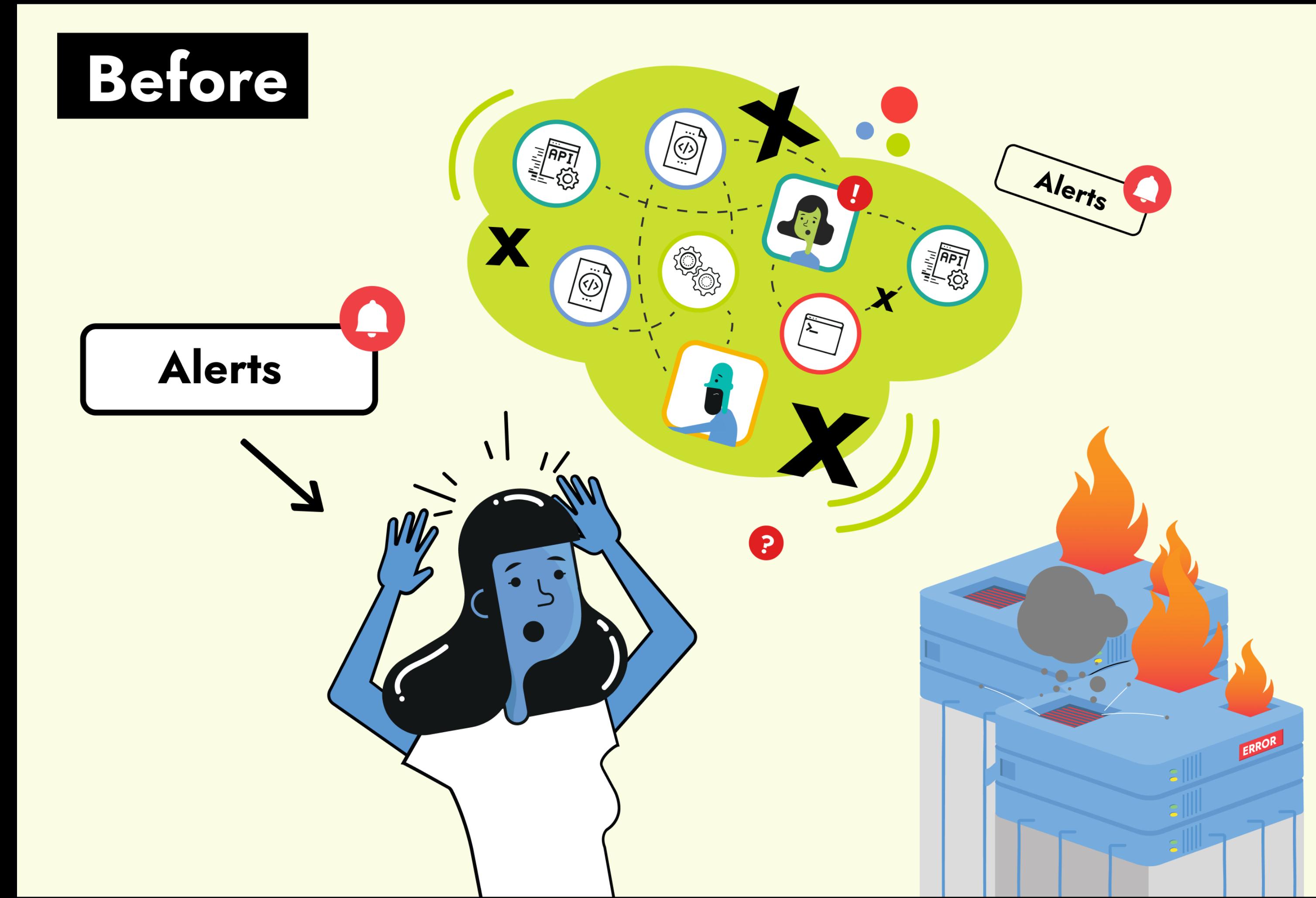




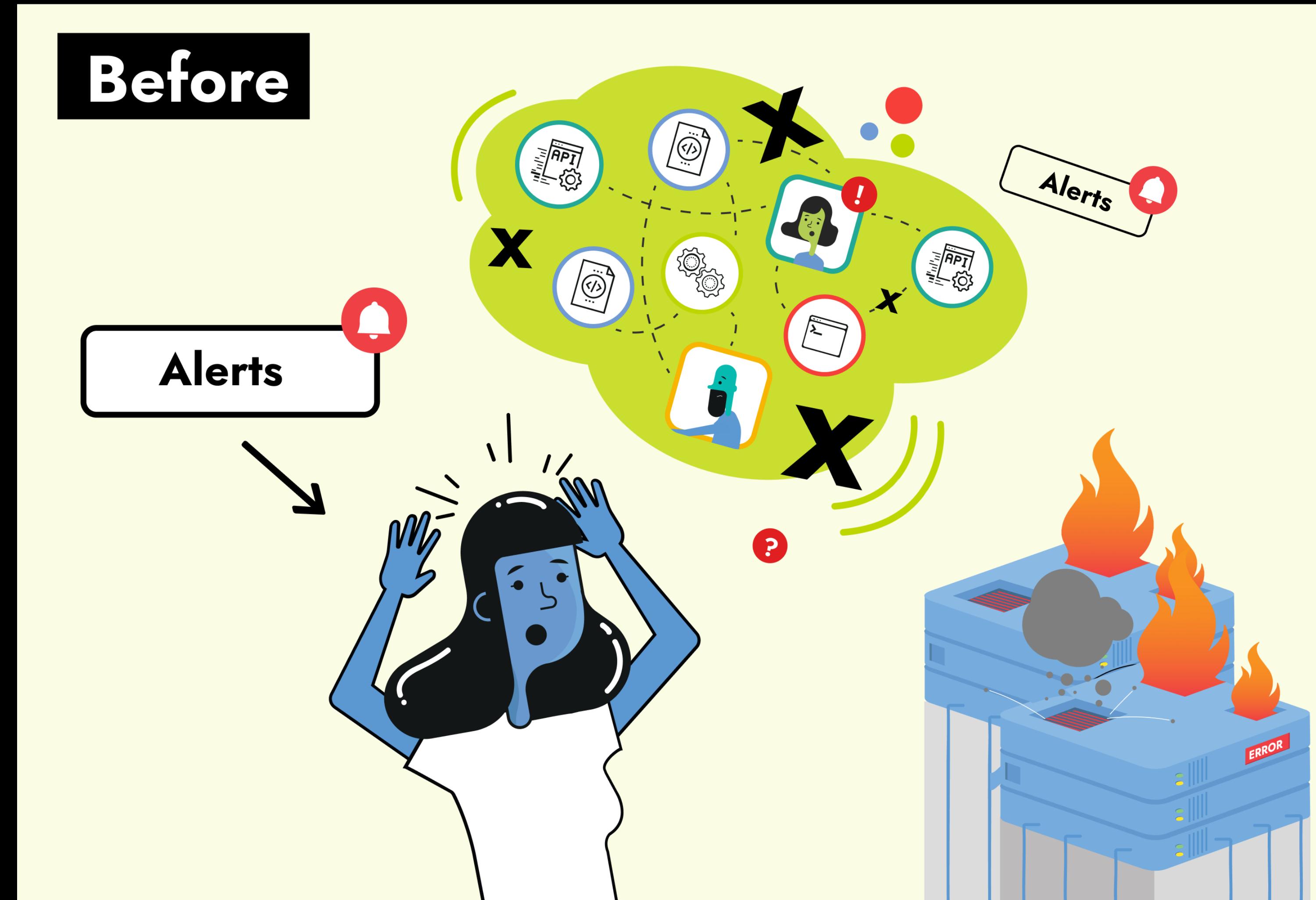
**3 Options:**



3 Options: 1. Decipher the wiki

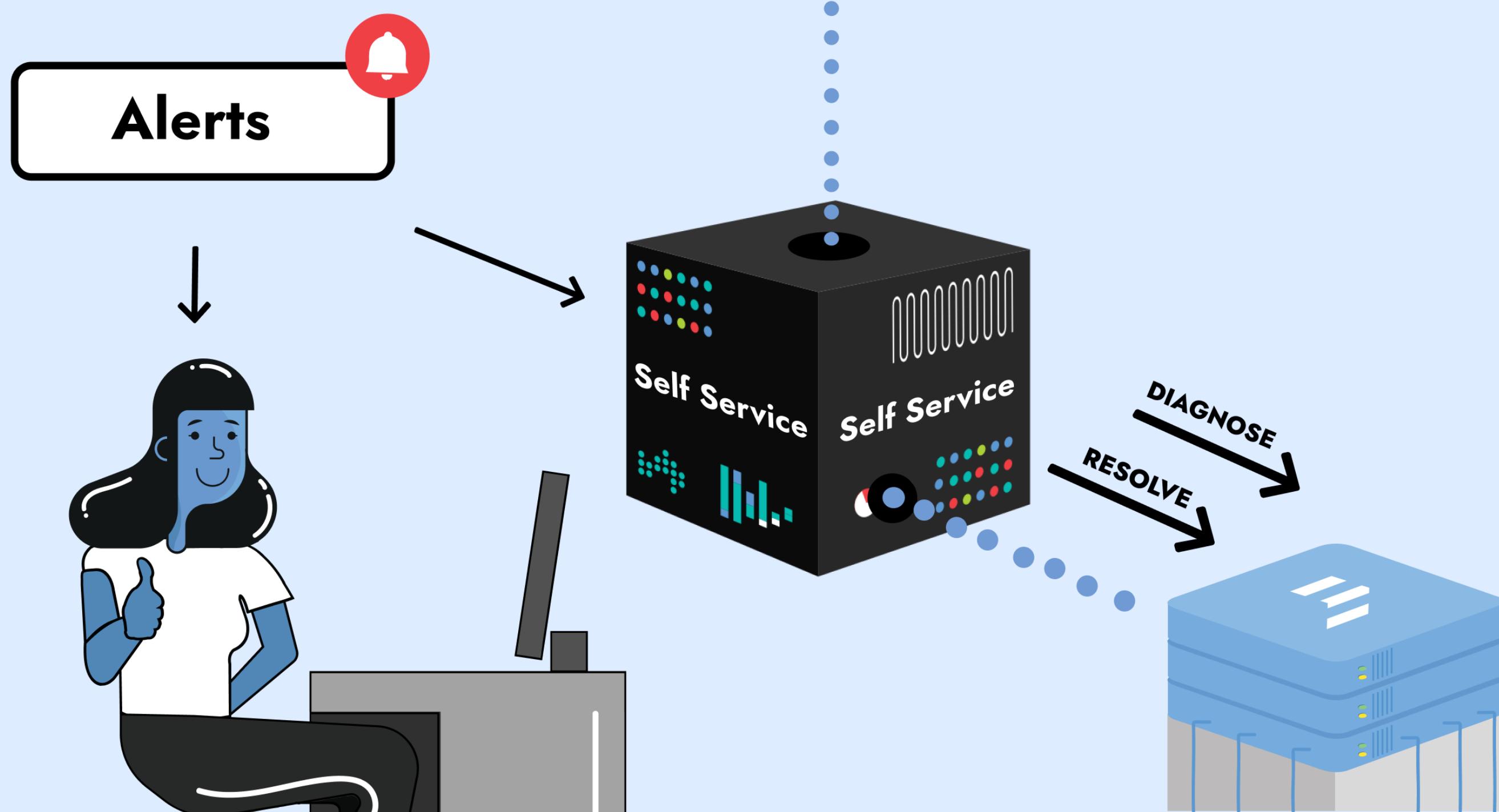
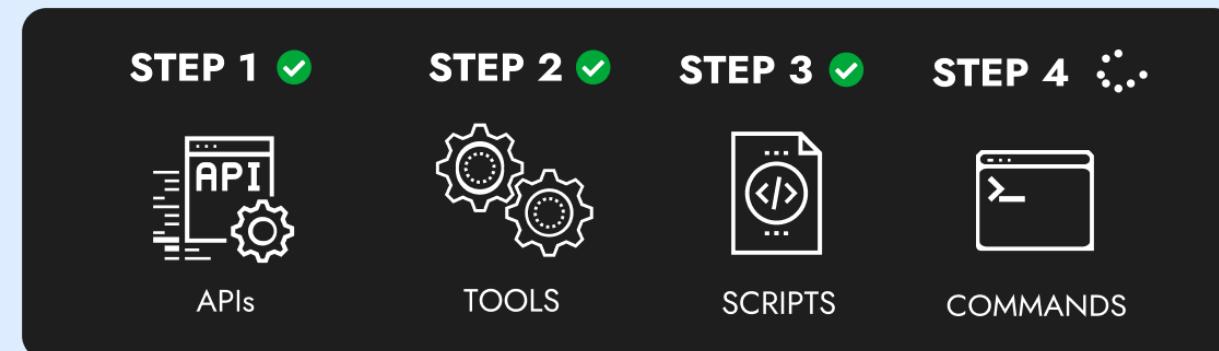


3 Options: 1. Decipher the wiki    2. Ad-hoc tool/script usage

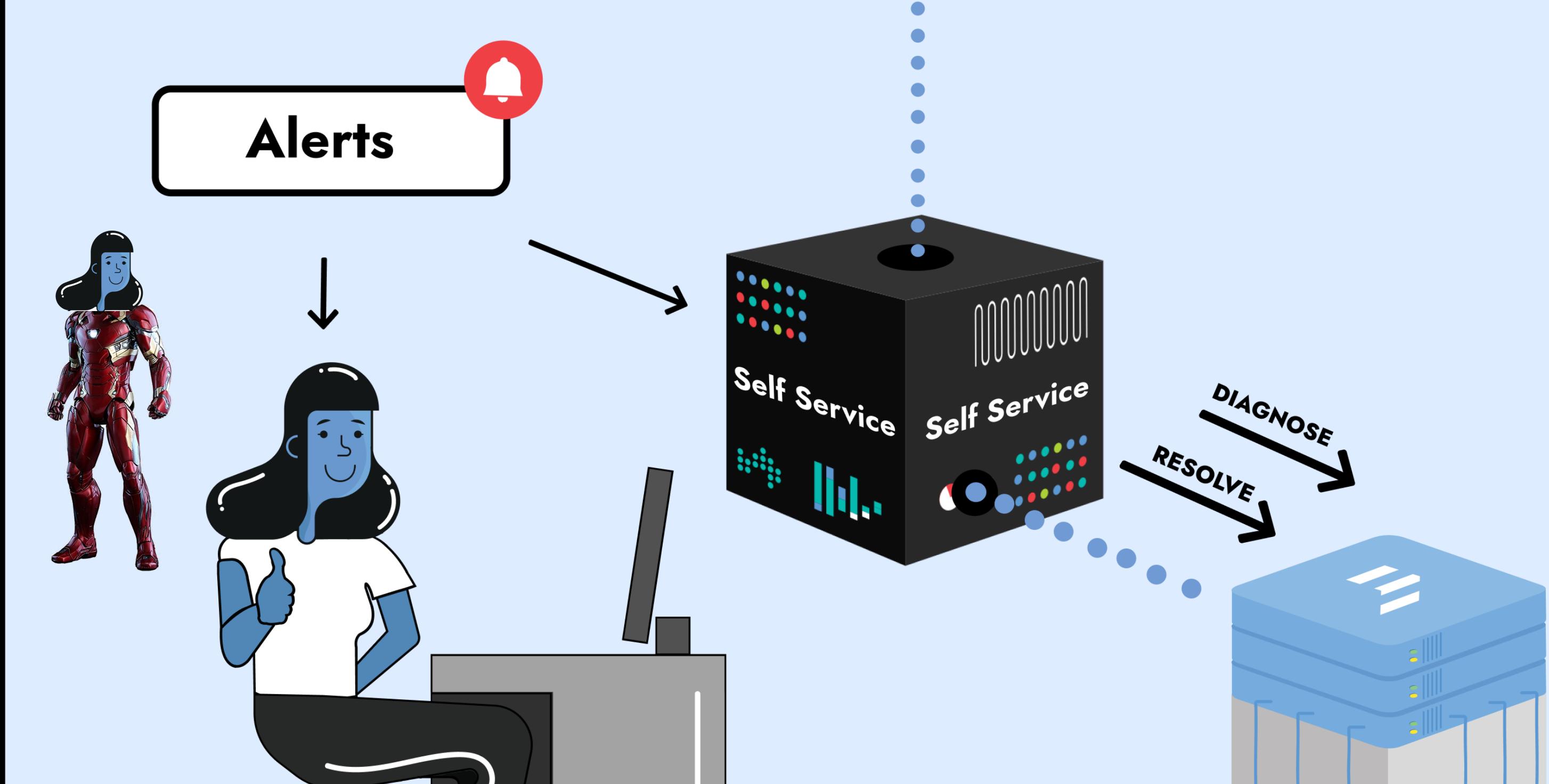
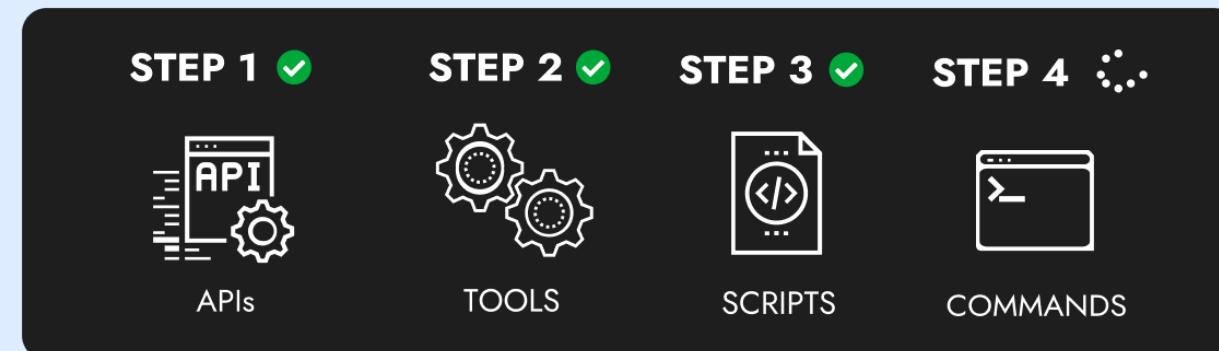


3 Options: 1. Decipher the wiki    2. Ad-hoc tool/script usage    3. ESCALATE!!

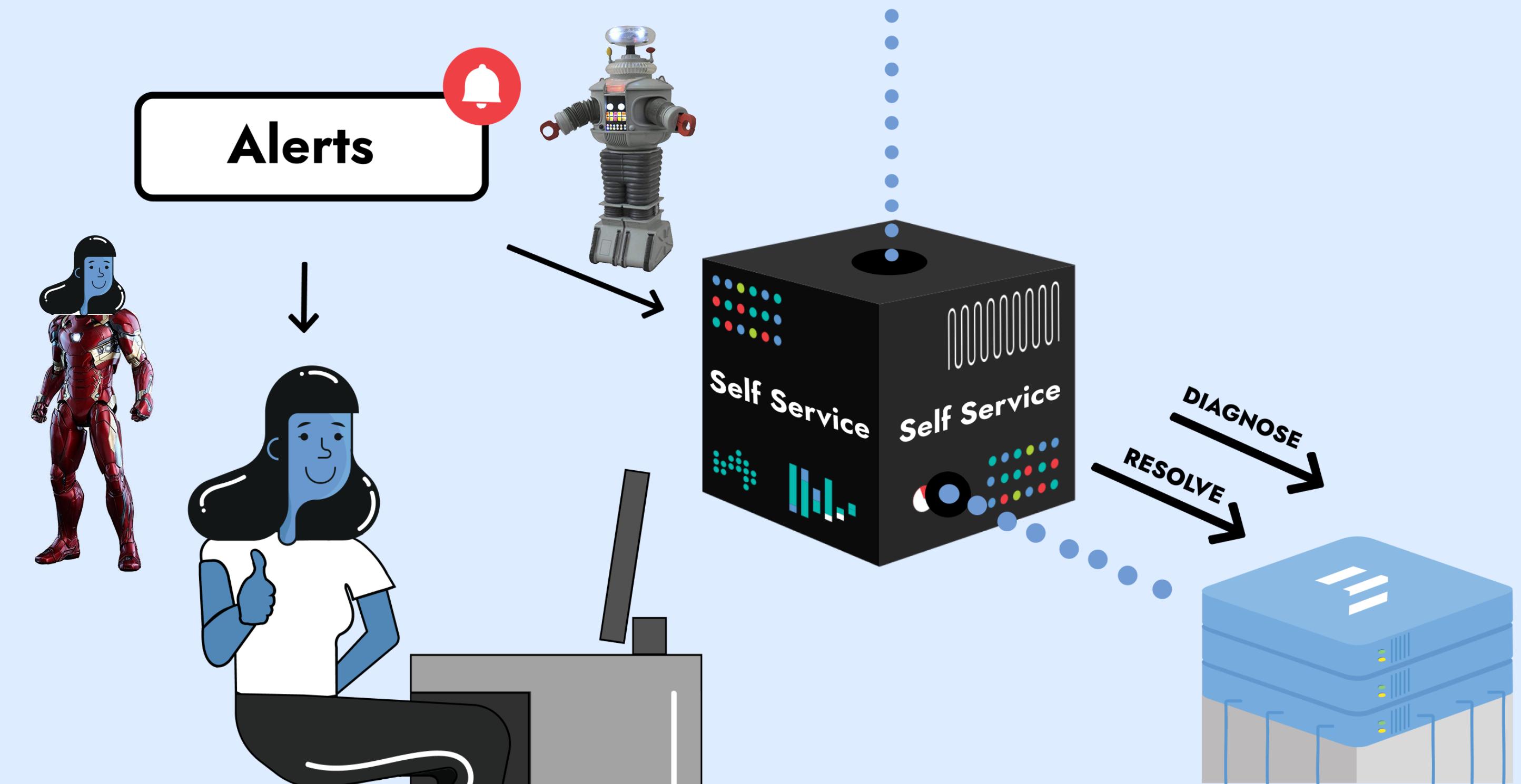
# After



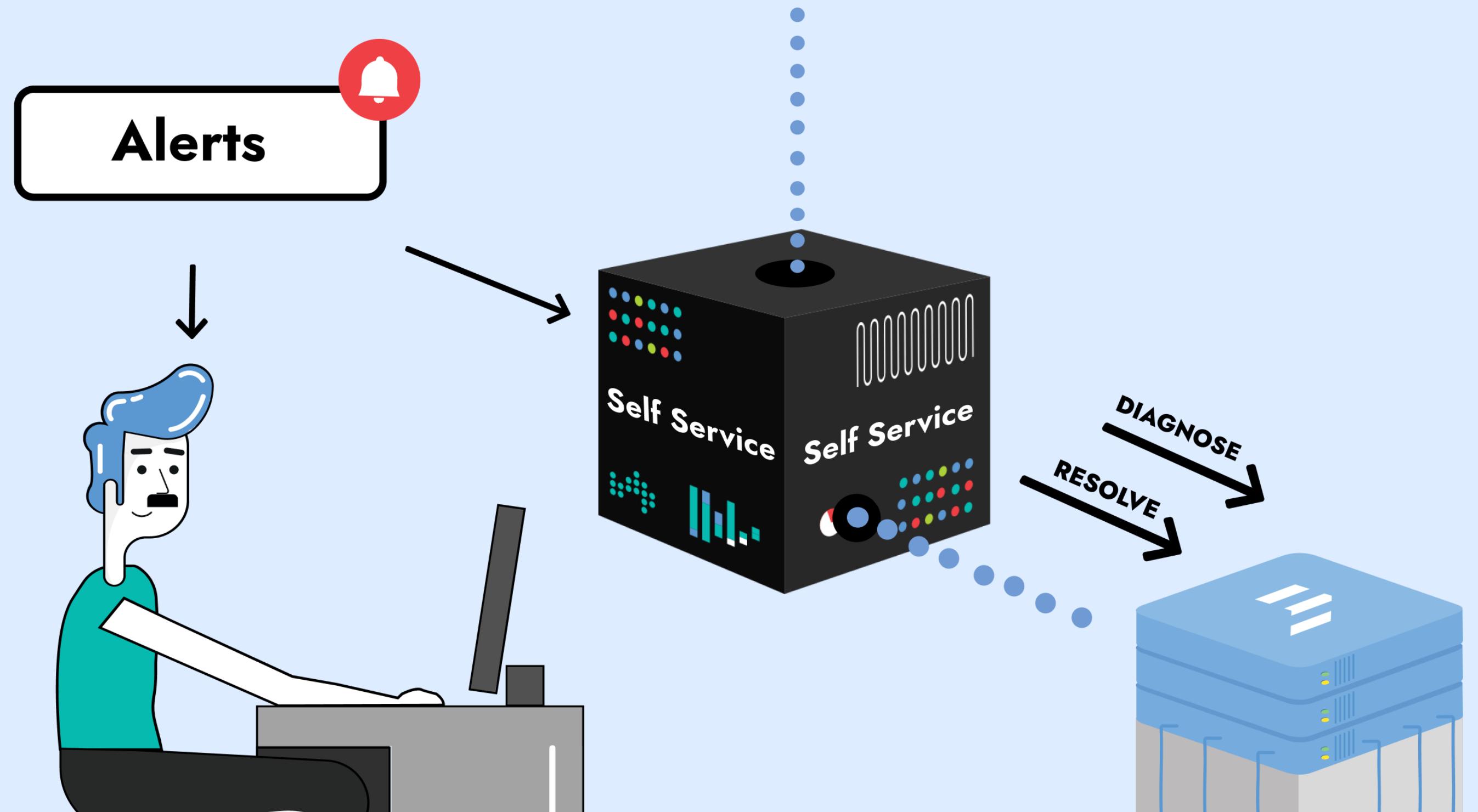
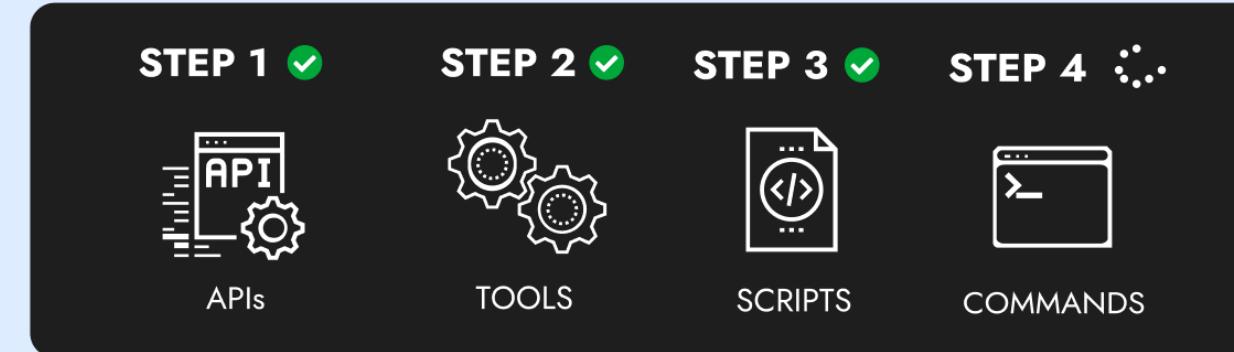
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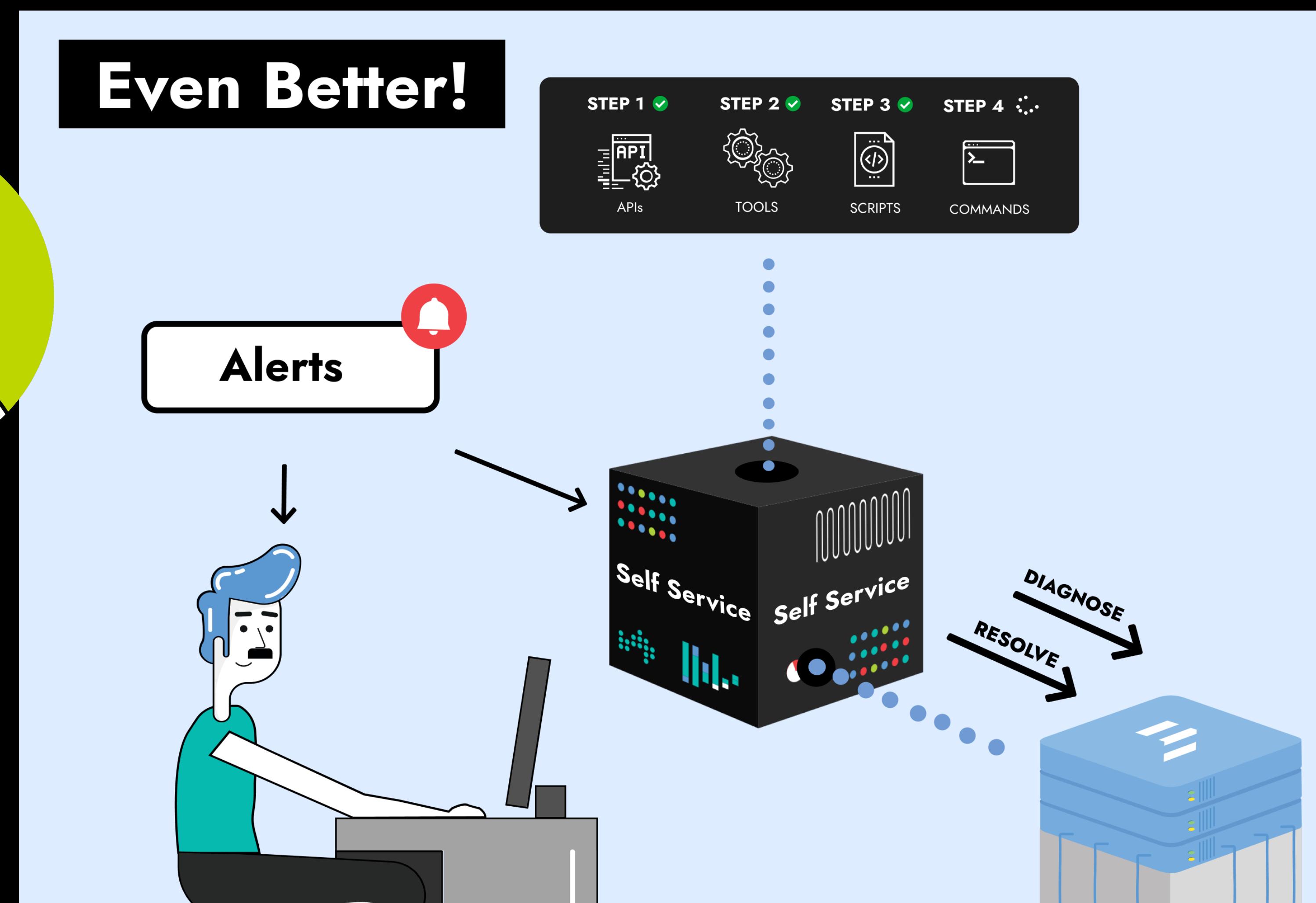
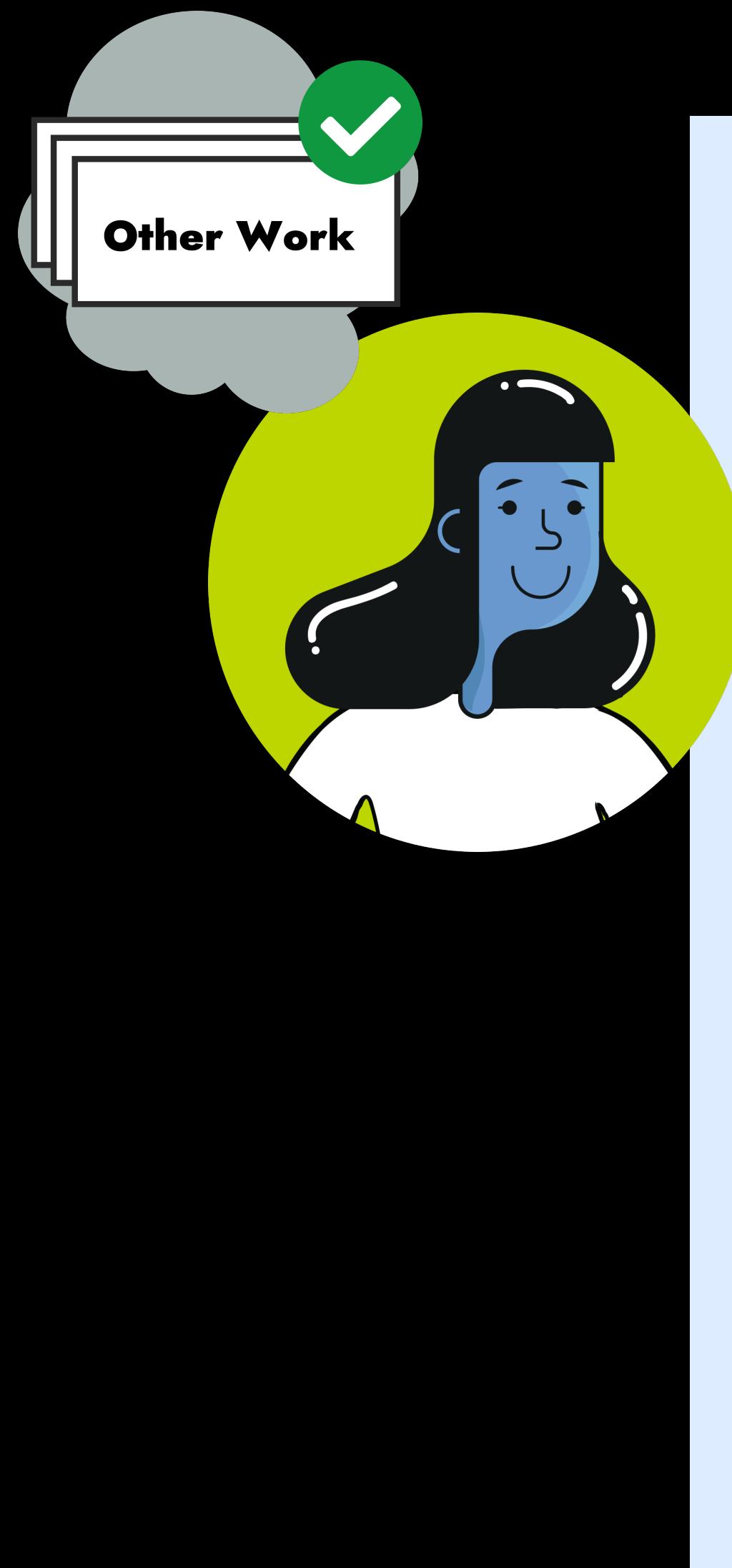


# After



# Even Better!





**Service Requests Too...**

## Without Self Service

**"I NEED..."**



**"CAN YOU..."**



**"HELP..."**

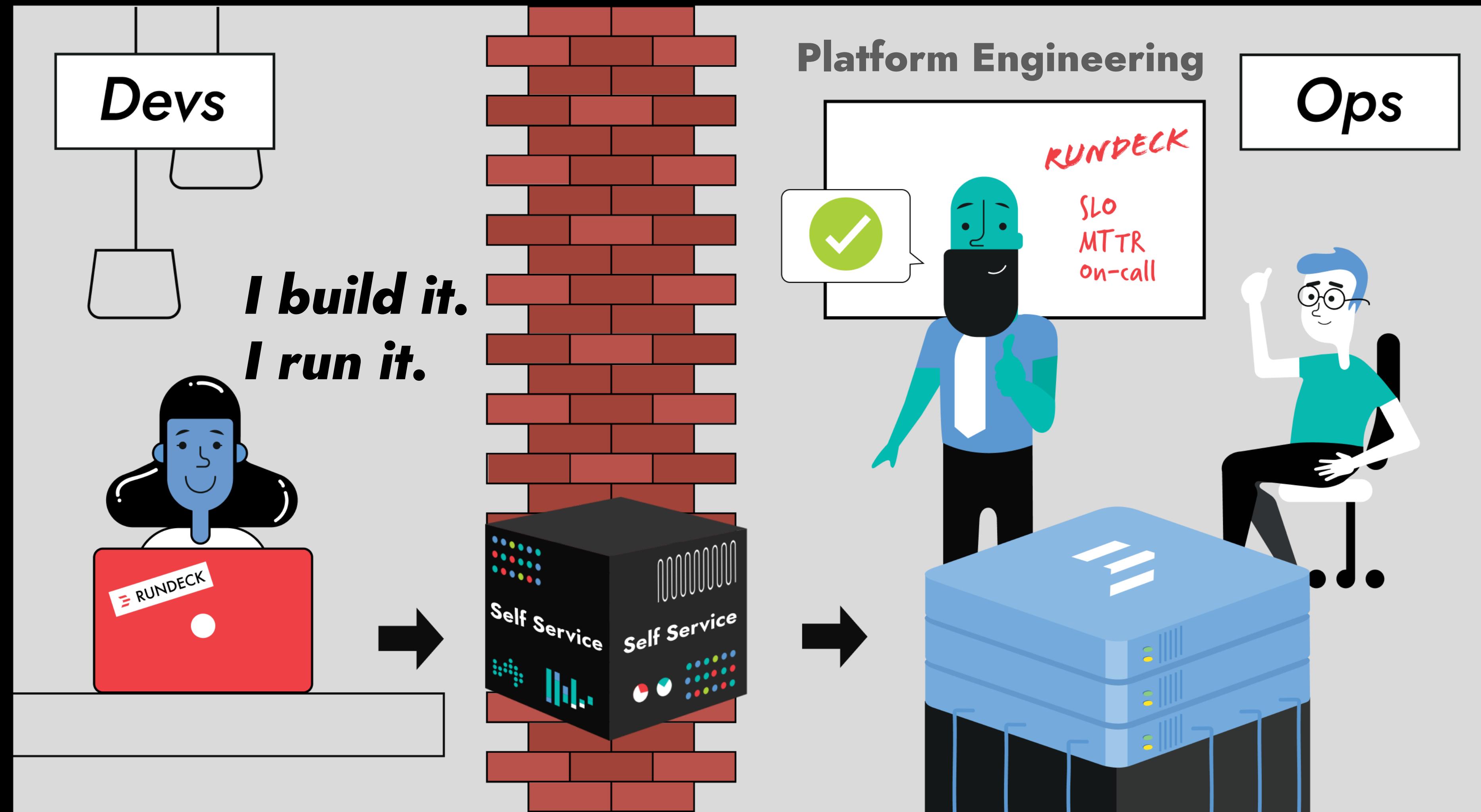








**Enable New Org Models...**



**What's the magnitude of impact?...**

**What's possible?  
(#YMMV)**

# What's possible? (#YMMV)



**60%**  
**Shorter**  
**Incidents**

**What's possible?**  
**(#YMMV)**



**60%**

**Shorter  
Incidents**

**50%**

**Fewer  
Escalations**

**What's possible?  
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**60%**

**Shorter  
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**Fewer  
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**99%**

**Faster  
Turnaround  
Time**

**What's possible?  
(#YMMV)**



**CFO**

**60%**

**Shorter  
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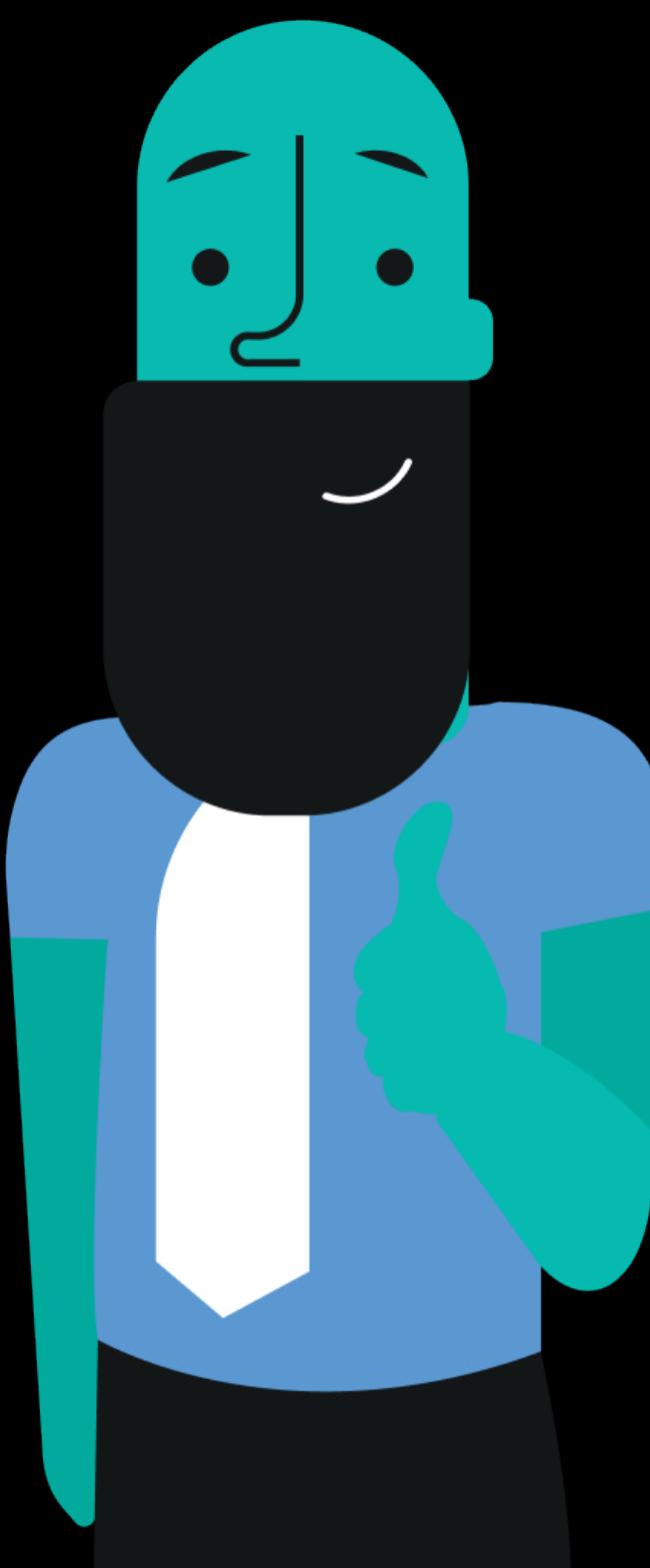
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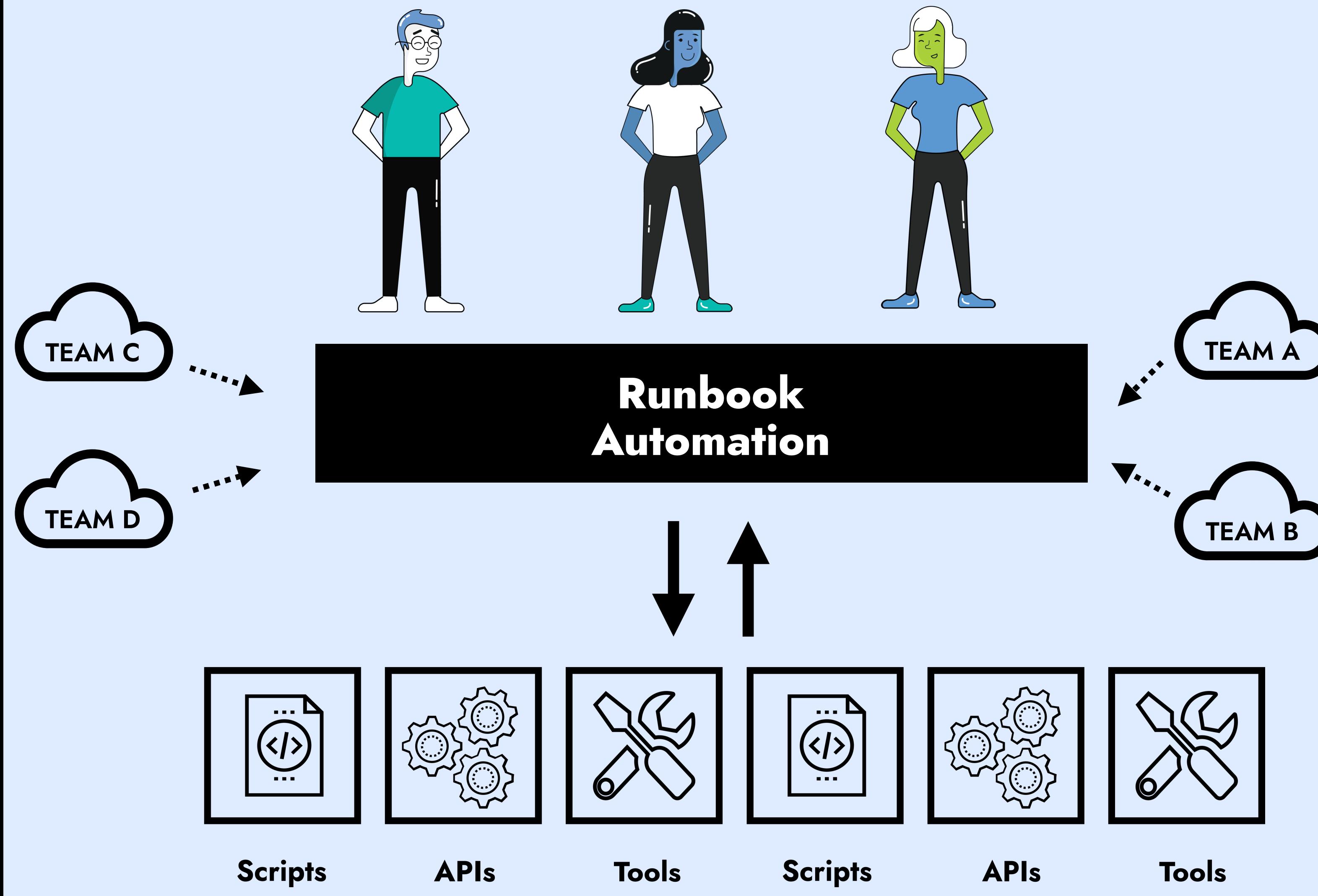
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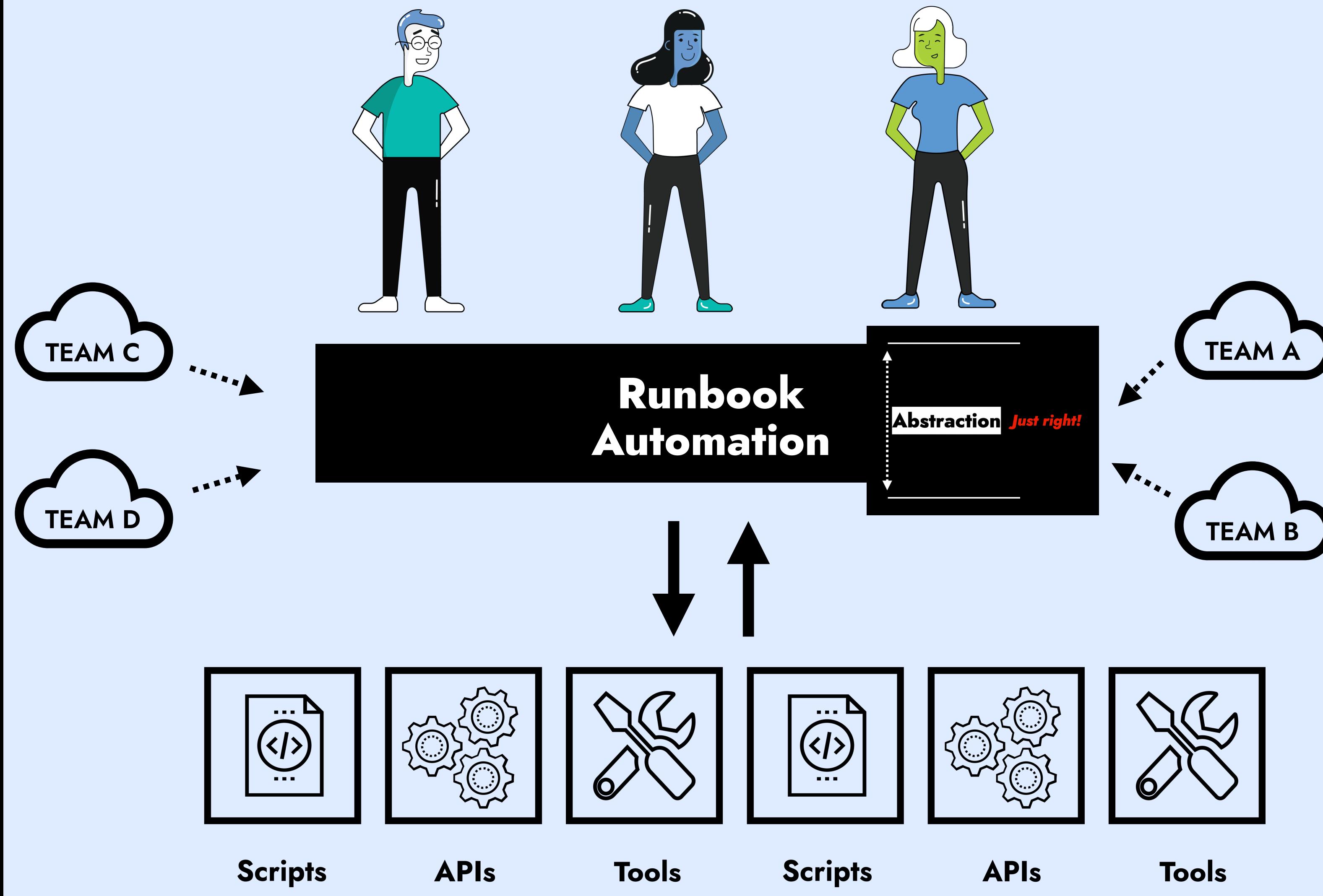
**We've got  
Budget!**

**CFO**

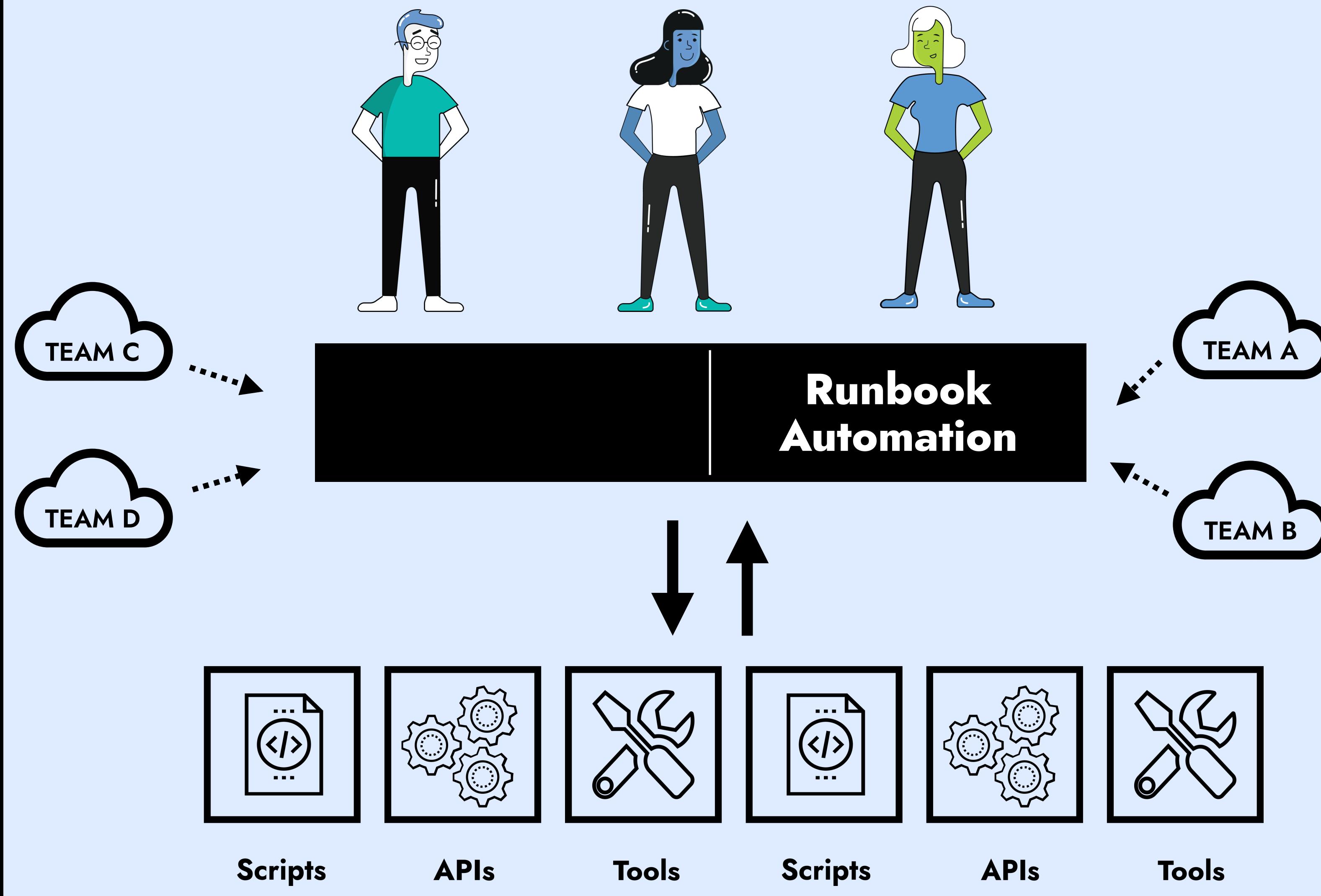
## Creating Self-Service



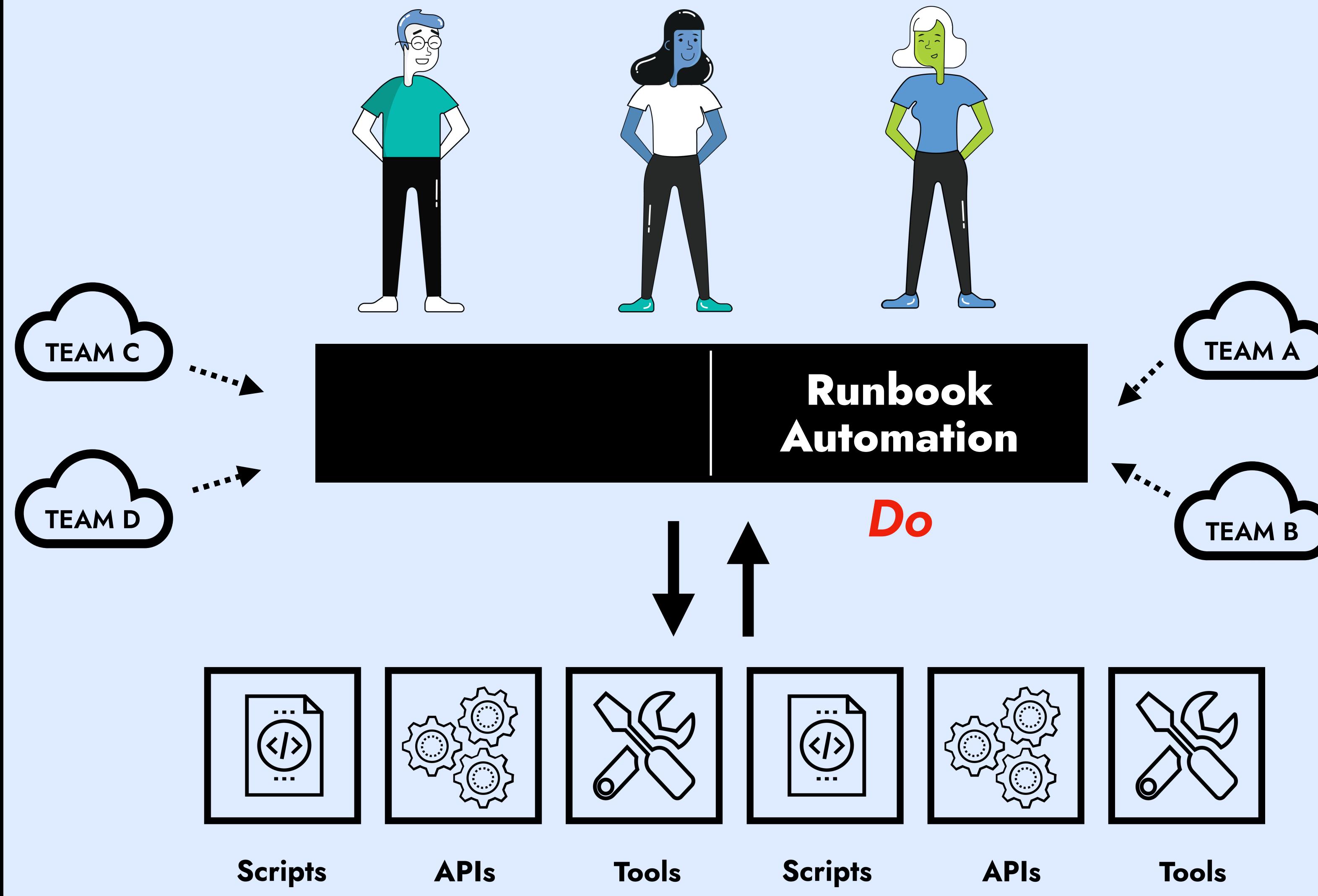
## Creating Self-Service



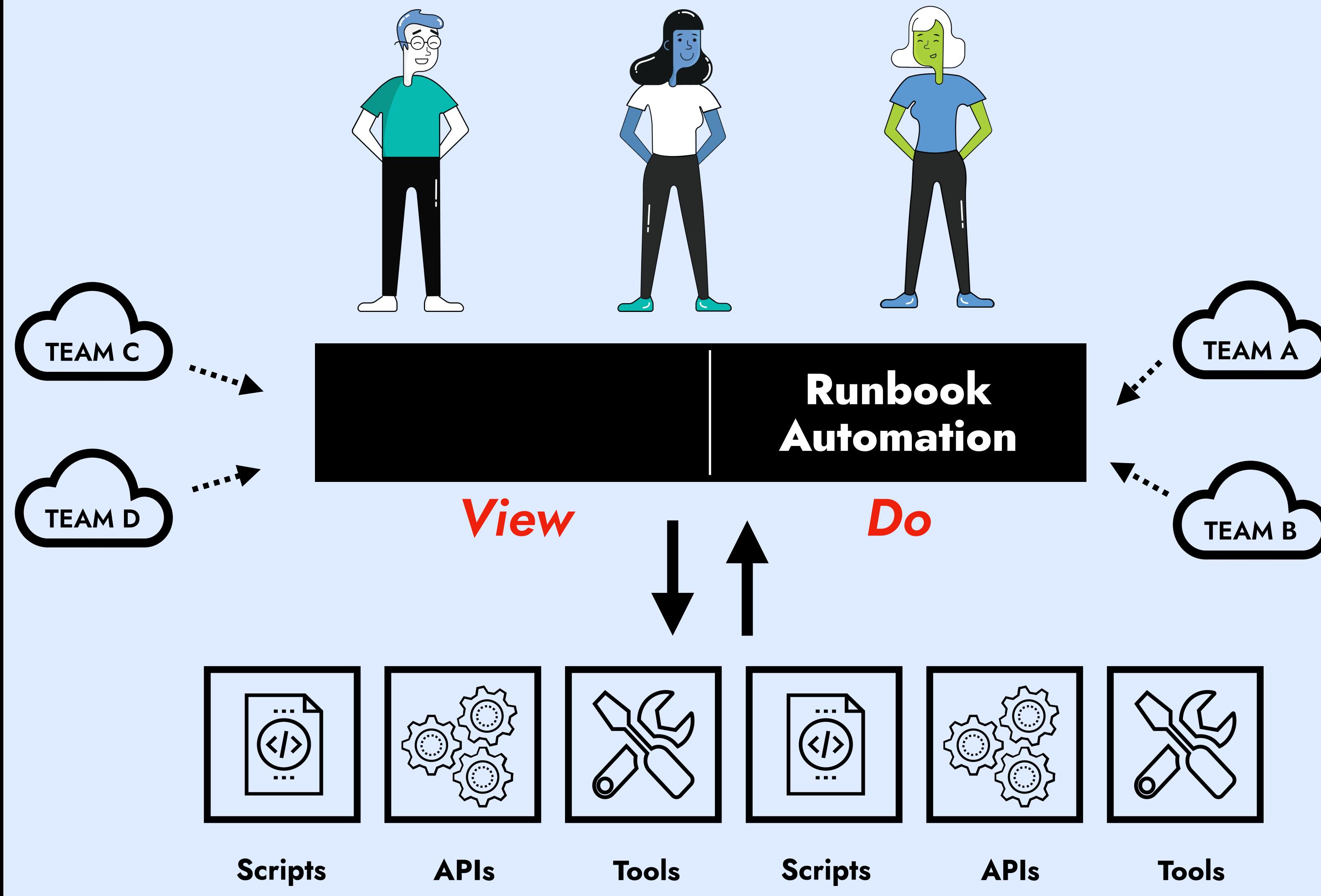
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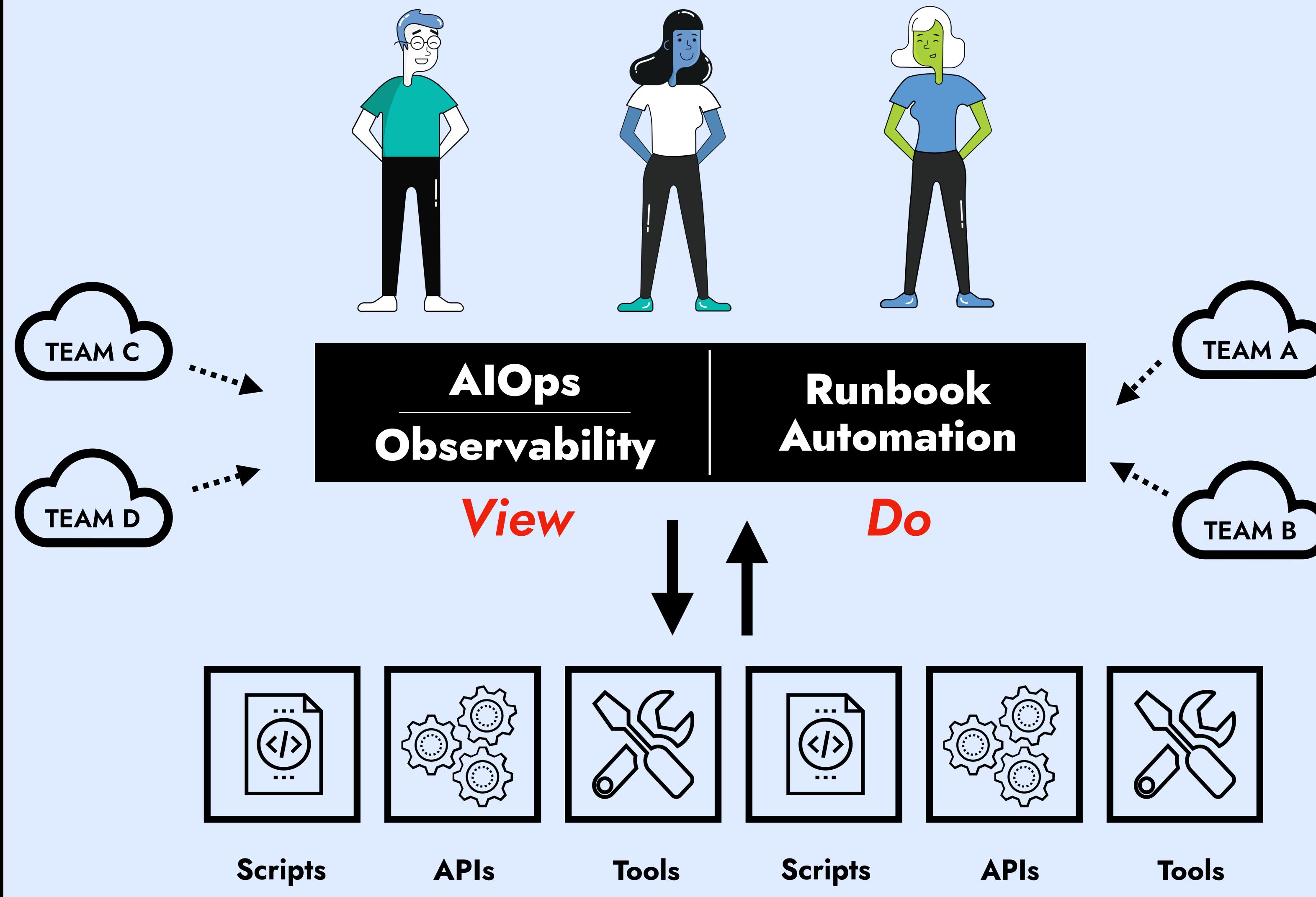
## Creating Self-Service



## Creating Self-Service



## Creating Self-Service



# The next great unlocks?



**Self-Service Operations**  
**Runbook Automation**  
**AIOps / Observability**

# Let's Talk!

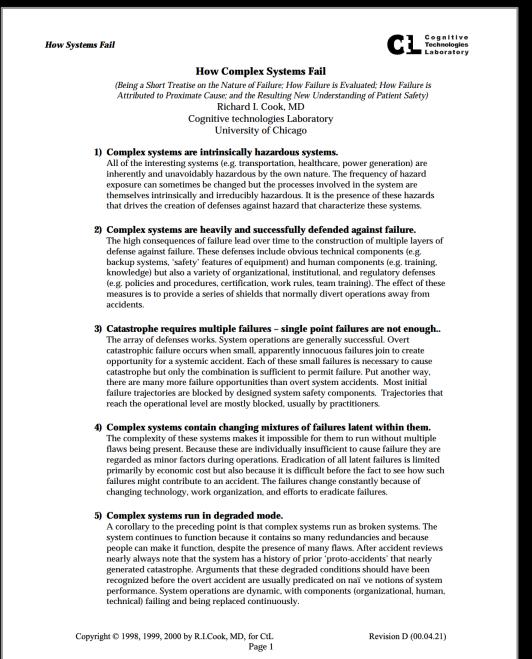


Damon Edwards



damon@pagerduty.com  
@damonedwards

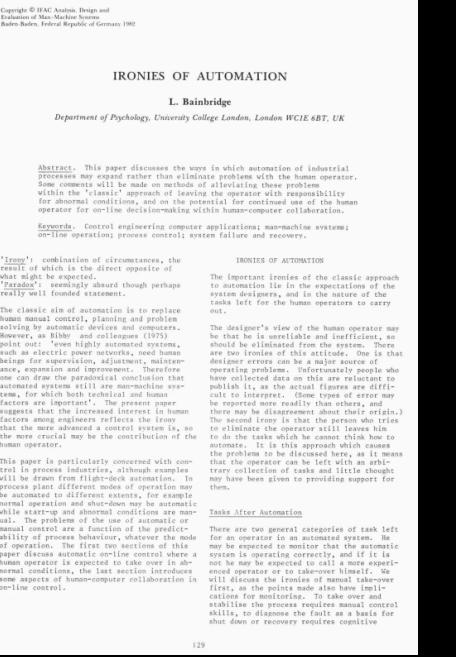
# Slides: [rundeck.com/does20](http://rundeck.com/does20)



"How Complex Systems Fail" - 1998

Dr Richard Cook, MD

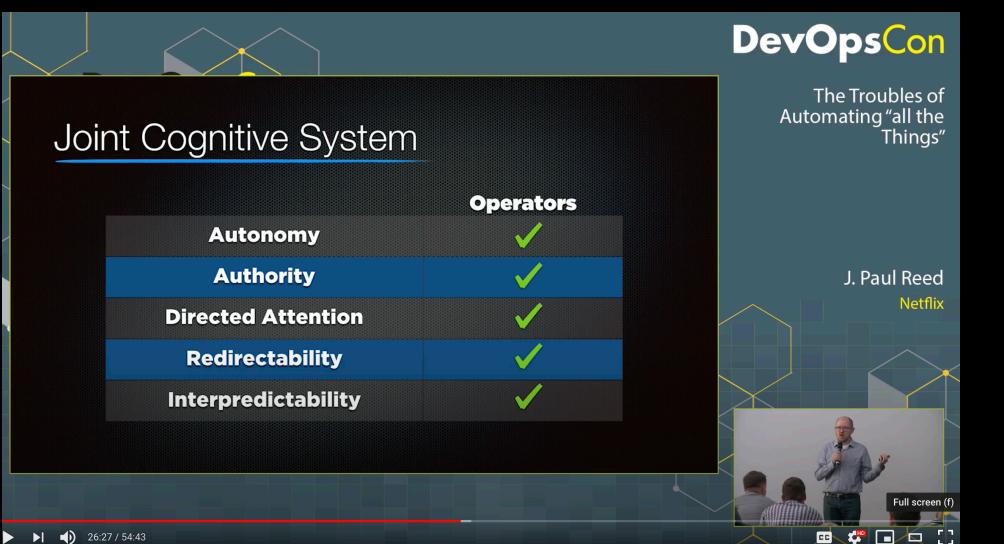
<https://how.complexsystems.fail/>



"Ironies of Automation" - 1982

Dr. Lisanne Bainbridge

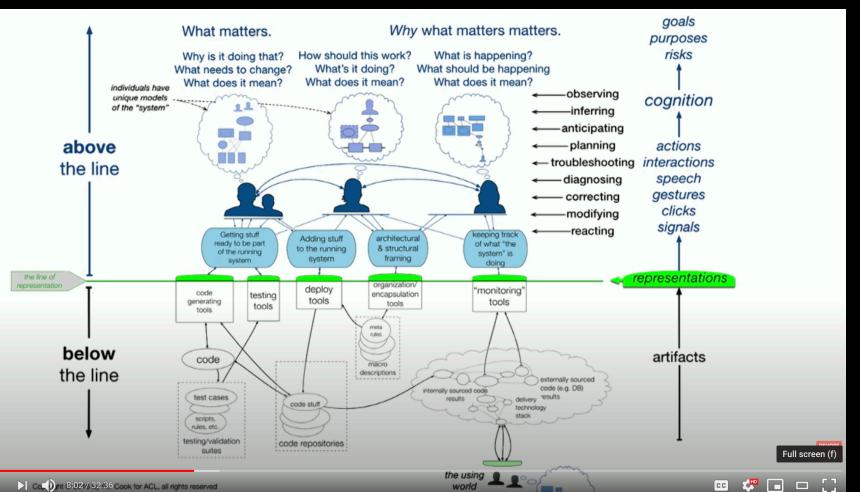
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The Troubles of Automating "All the Things" - 2019

J. Paul Reed

[https://youtu.be/URDBE4q\\_IgM](https://youtu.be/URDBE4q_IgM)



How Your Systems Keep Running - 2017

John Allspaw

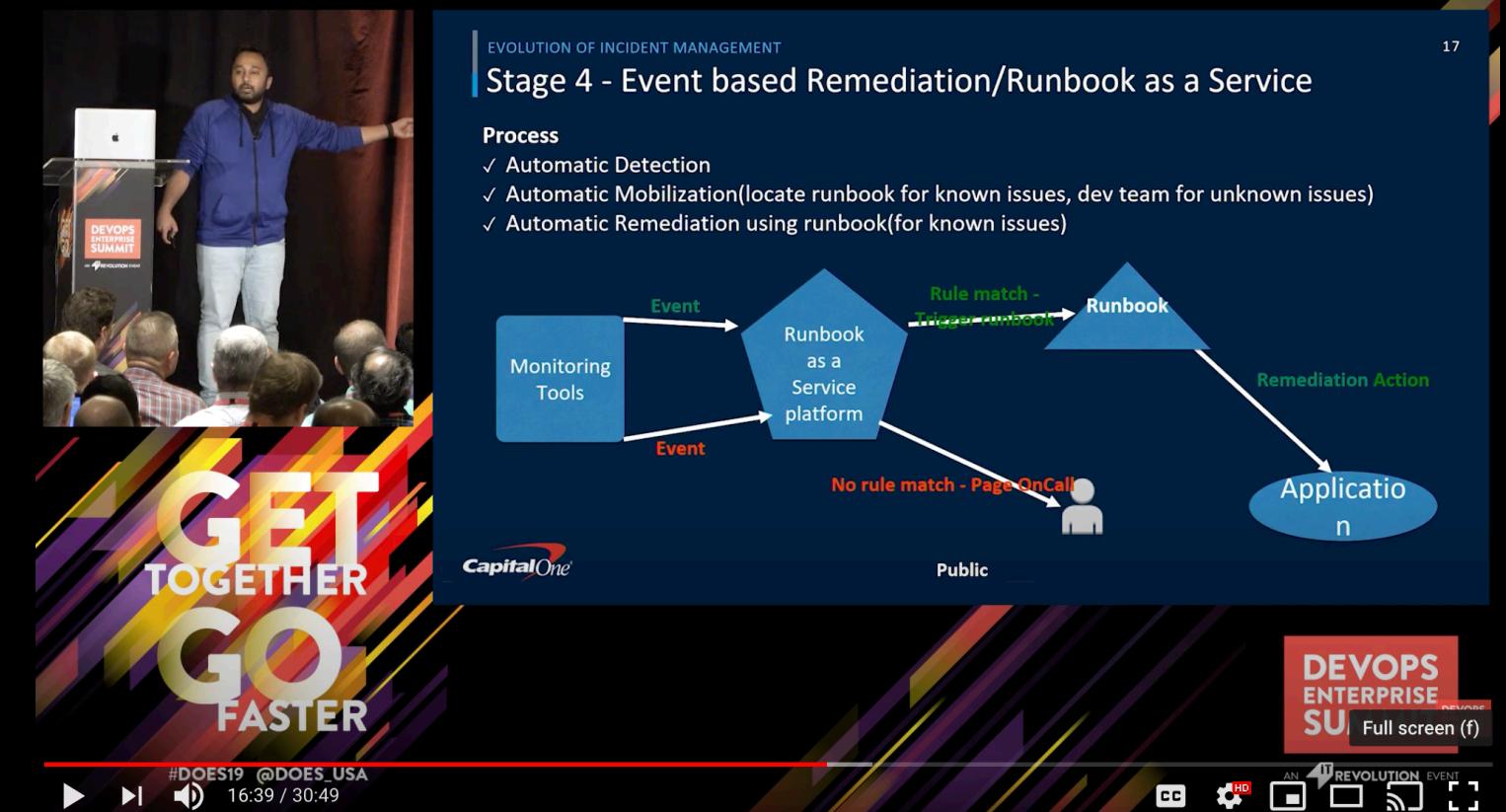
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Operations: The Last Mile

Damon Edwards

<https://youtu.be/1zUtBLZ4Lus>



Incident Management Meets DevOps

Bhavik Gudka & Surya Avirneni

<https://youtu.be/6W-HuG5a8L0>