

# *Netflix Built Its Own Monitoring System (And You Probably Shouldn't)*

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**NETFLIX**



# Not So Much About Telemetry

- I  telemetry
- Architecture track Open Space,  
11:30AM, Fleming 3rd Floor

***The Knights  
Who Say  
NIH***



# Agenda

- **Introductions**
- **On Judgment**
- **Your Problem**
- **Your (no, really) Solution**
- **Mitigation and Anecdotes**
- **(Not) building your own monitoring system**

# Introductions: Me

- About 23 years in technology
- Systems engineering, networking, software development, QA, release management
- Time at Netflix: 2076 days (5y:8m:7d)
- At Netflix:
  - Systems Engineering, Service Delivery in IT
  - Troubleshooter and Builder of Python Things in Product Engineering
- Now: Engineering Manager, Insight Engineering

# Introductions: Netflix

## “Freedom and Responsibility”

- Optimize speed of innovation
- Constrain availability
- Cost is what it is
- Hire smart people, get out of their way
- Anti-process bias

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A graphic featuring the word "Judgment" in white, sans-serif font, centered within a dark blue circle. A thick red circle with a diagonal slash through it is superimposed over the dark blue circle, effectively crossing out the word. The background is a dark blue gradient.

~~Judgment~~

# You Have a Problem

(Your job would likely be boring otherwise)

- Are you the first
  - To have it?
  - To care?
- Are you sure?



One that looks nice  
And not too expensive



# You Have a Problem

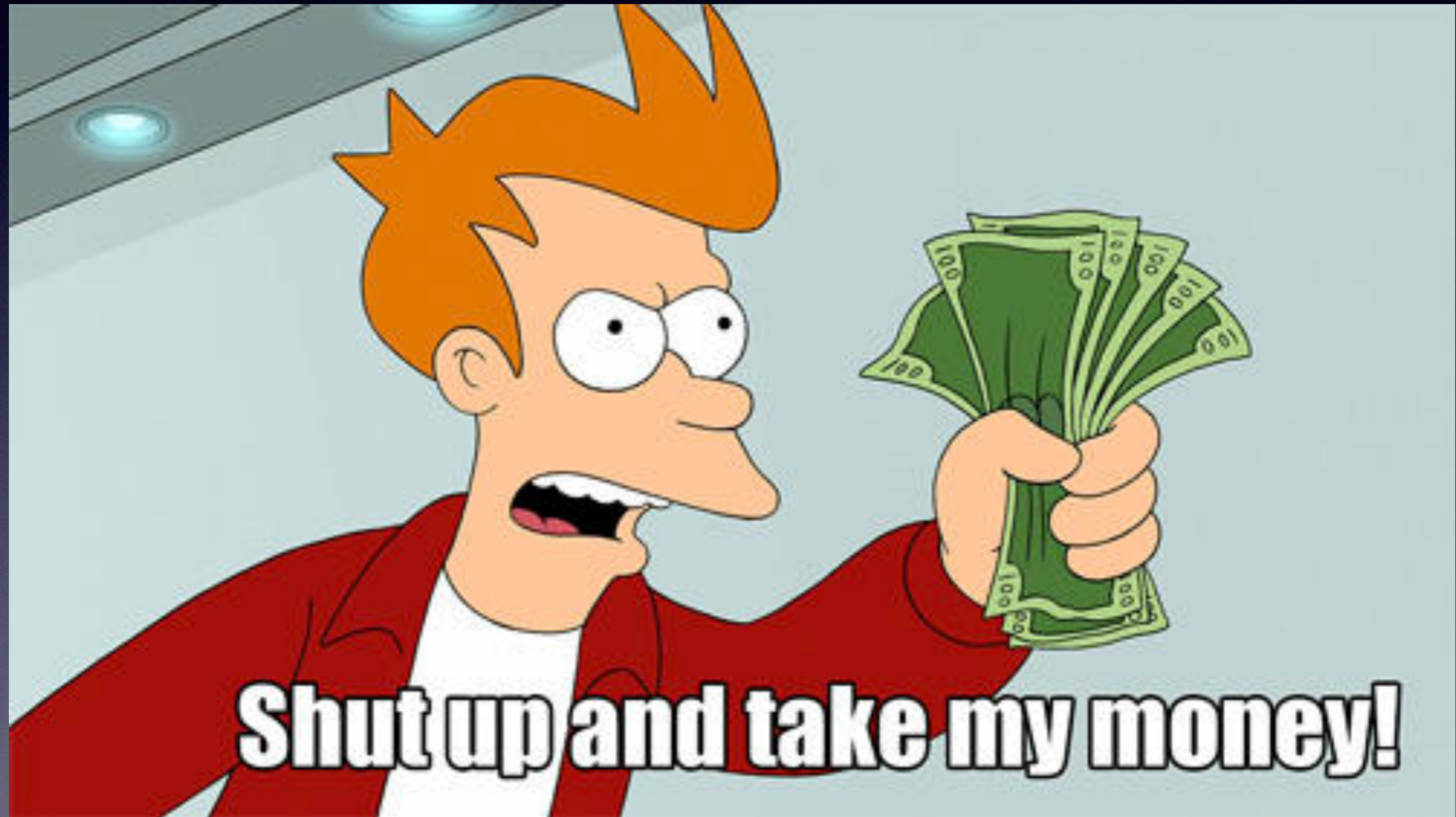
(Your job would likely be boring otherwise)

- You're not the first, or only
- Good news!
- Then what?

# Adventures in IT-Land

- (import disclaimer)
- Not developers
- Cautious about ongoing support load
- Not well-trusted

# Adventures in IT-Land



# A Little Bit of ...

- Time, courage, knowledge, pride
- Cynicism, hubris, fear



**KEEP**

**CALM**

**AND**

**BUILD IT**

**YOURSELF**

# Technical Reasons for Rejection

(Or: It's Not You, It's ... Actually, It's You)

- Financial Cost
- Technical incompatibility

**Overqualified!**





# A Moment for Pedantry

Or: Requirements for “Not Invented Here”

***The Knights  
Who Say  
IBPWAWU***



# A Question of Trust

- **Technical: I don't trust your product**
- **Organizational: I don't trust you**

# I Don't Trust You

To Care About Me as a Customer

- You're selling me something
- I'm not your only customer
- I'm not an important customer
- You don't care about your customers

# I Don't Trust You

To build a good product

- Past performance ...
- “Good for me”
- Because you said so, that's why!

# I Don't Trust You

To build it fast enough

- Unpredictable velocity
- When best-case is too slow
- Or maybe ever (OSS)

**What Now?**

# Eventual Consistency

- Fork n' merge
  - THE model for OSS
  - Works better for incremental changes
  - Requires alignment of goals



# Eventual Consistency

No Fork Required

- Start With a New Idea
- Eventually merge concepts

# Eventual Consistency Example

2011

**Mainline**

Cloud Orchestration

# Eventual Consistency Example

2011

2013

**Mainline**

Cloud Orchestration



# Eventual Consistency Example

2011

2013

**Mainline**  
Cloud Orchestration



**Insight Engineering**  
CD Automation

# Eventual Consistency Example

2011

2013

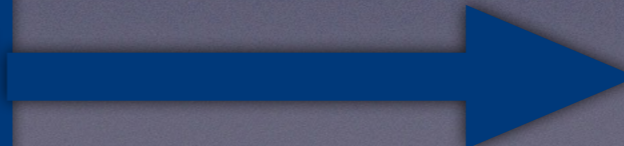
2014

**Mainline**  
Cloud Orchestration



**Mainline**  
CD Automation

**Insight Engineering**  
CD Automation



# Eventual Consistency Example

2011

2013

2014

2015

**Mainline**  
Cloud Orchestration



**Mainline**  
CD Automation



**Insight Engineering**  
CD Automation



# Eventual Consistency Example

2011

2013

2014

2015

**Mainline**  
Cloud Orchestration



**Mainline** **Insight Engineering**  
CD Automat CD Automation

# Composability

- **Want this anyway**
- **Map scope to options' scopes**



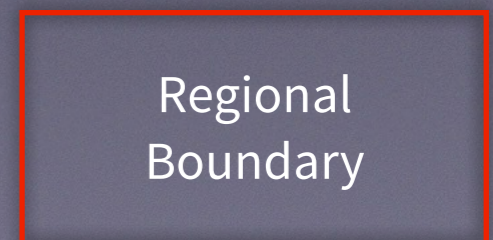
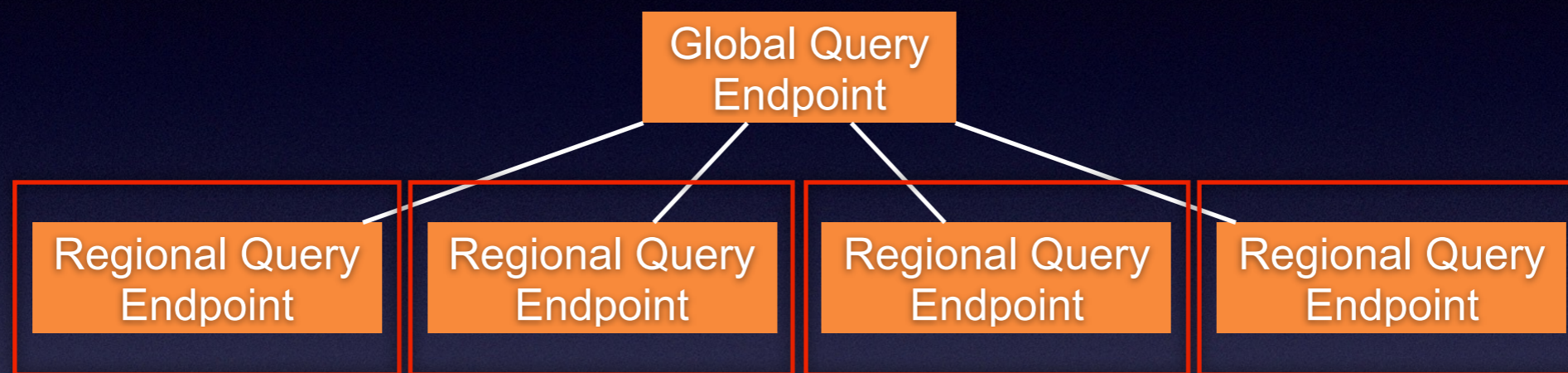
# Composability: Example

Netflix's Atlas Telemetry Platform

Global Query  
Endpoint

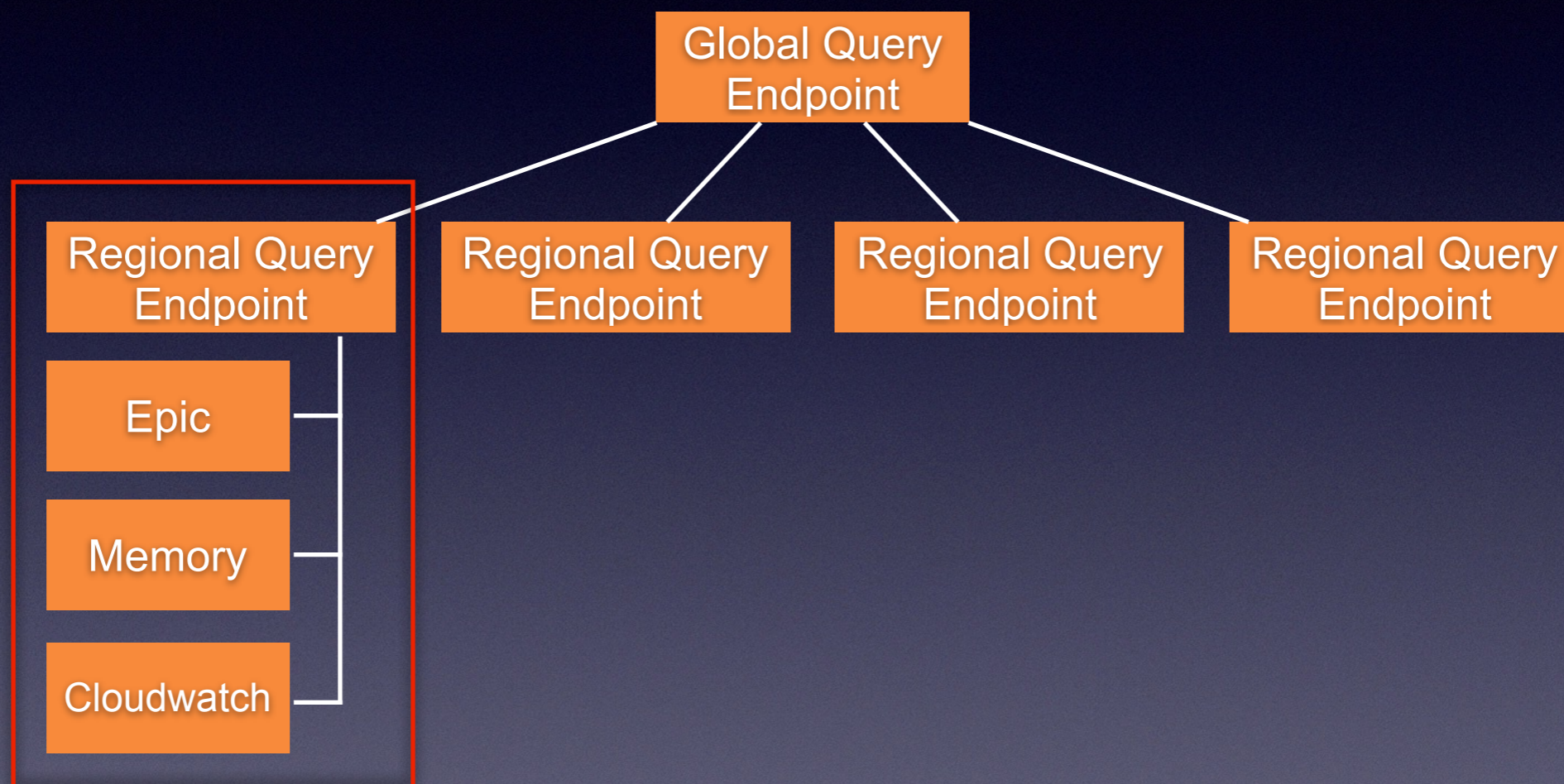
# Composability: Example

## Netflix's Atlas Telemetry Platform



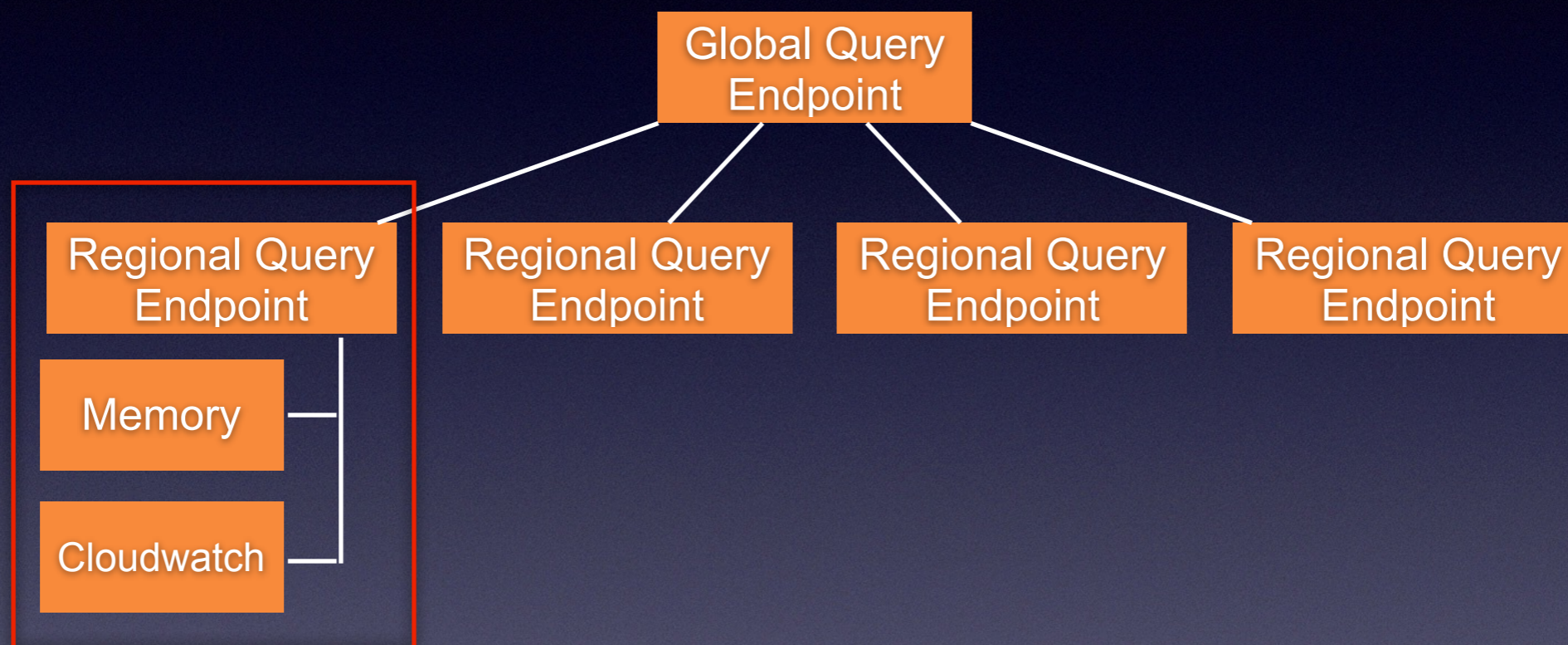
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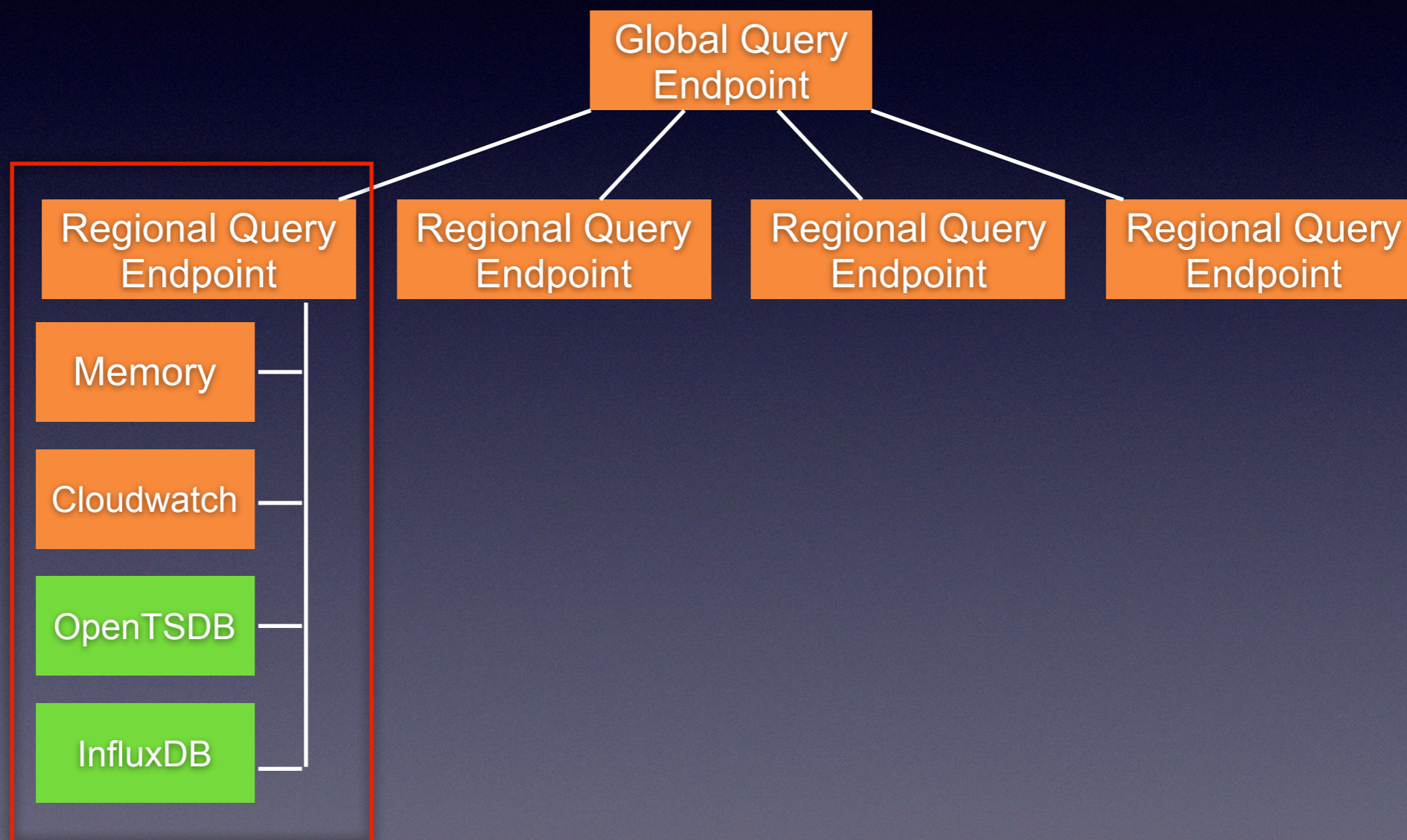
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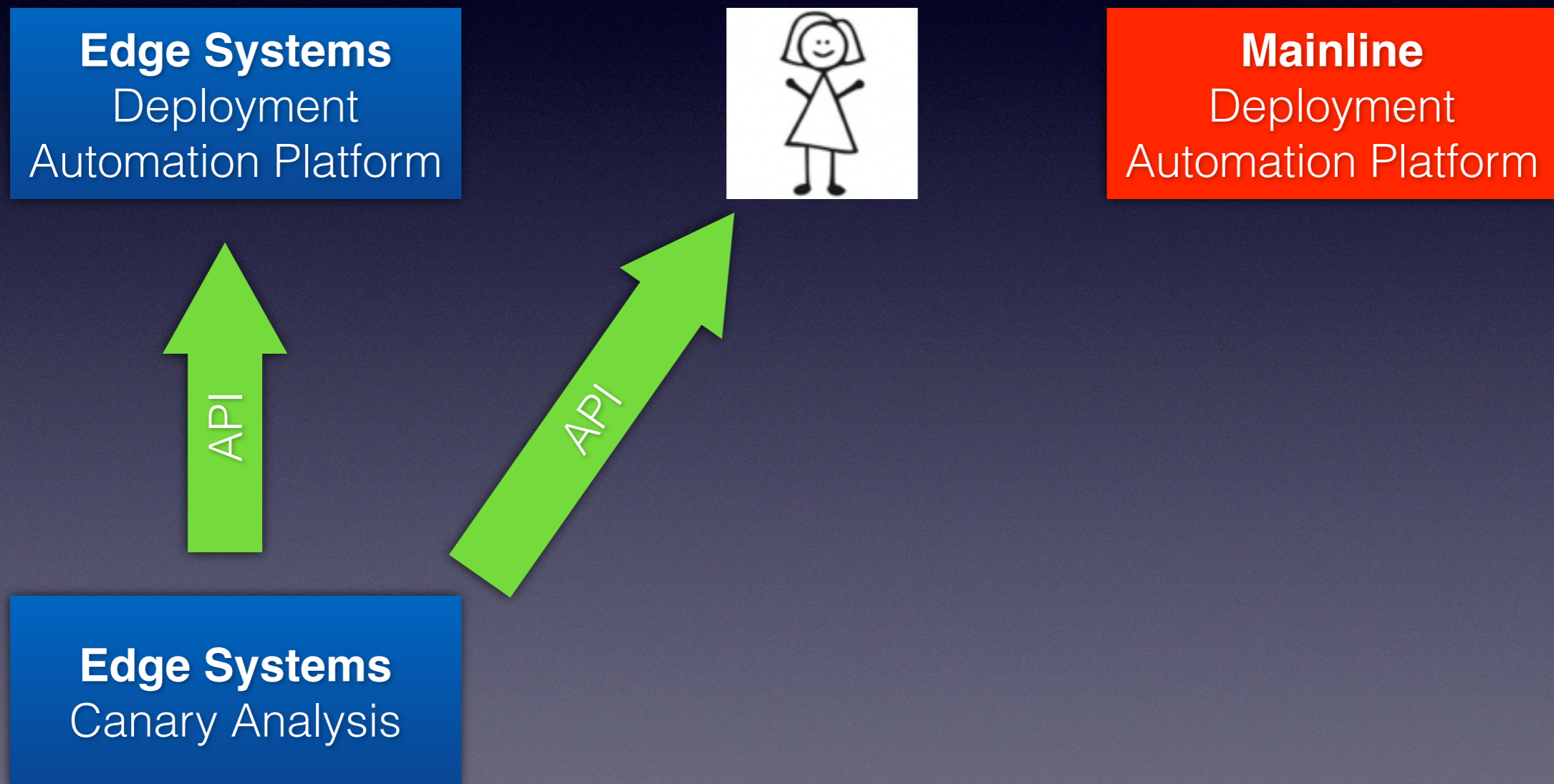
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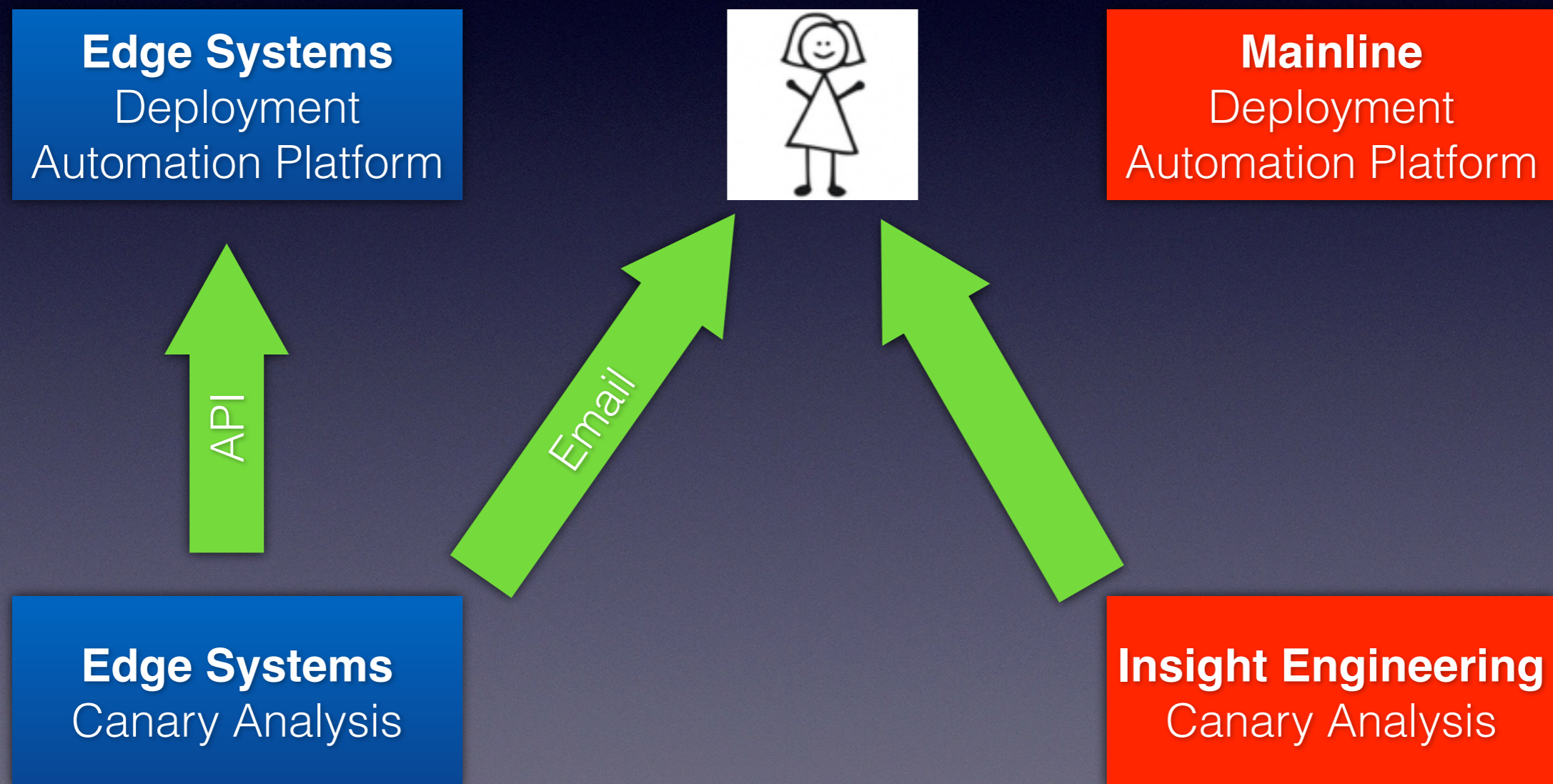
# Composability: Example

Deployments and Automated Canary Analysis at Netflix



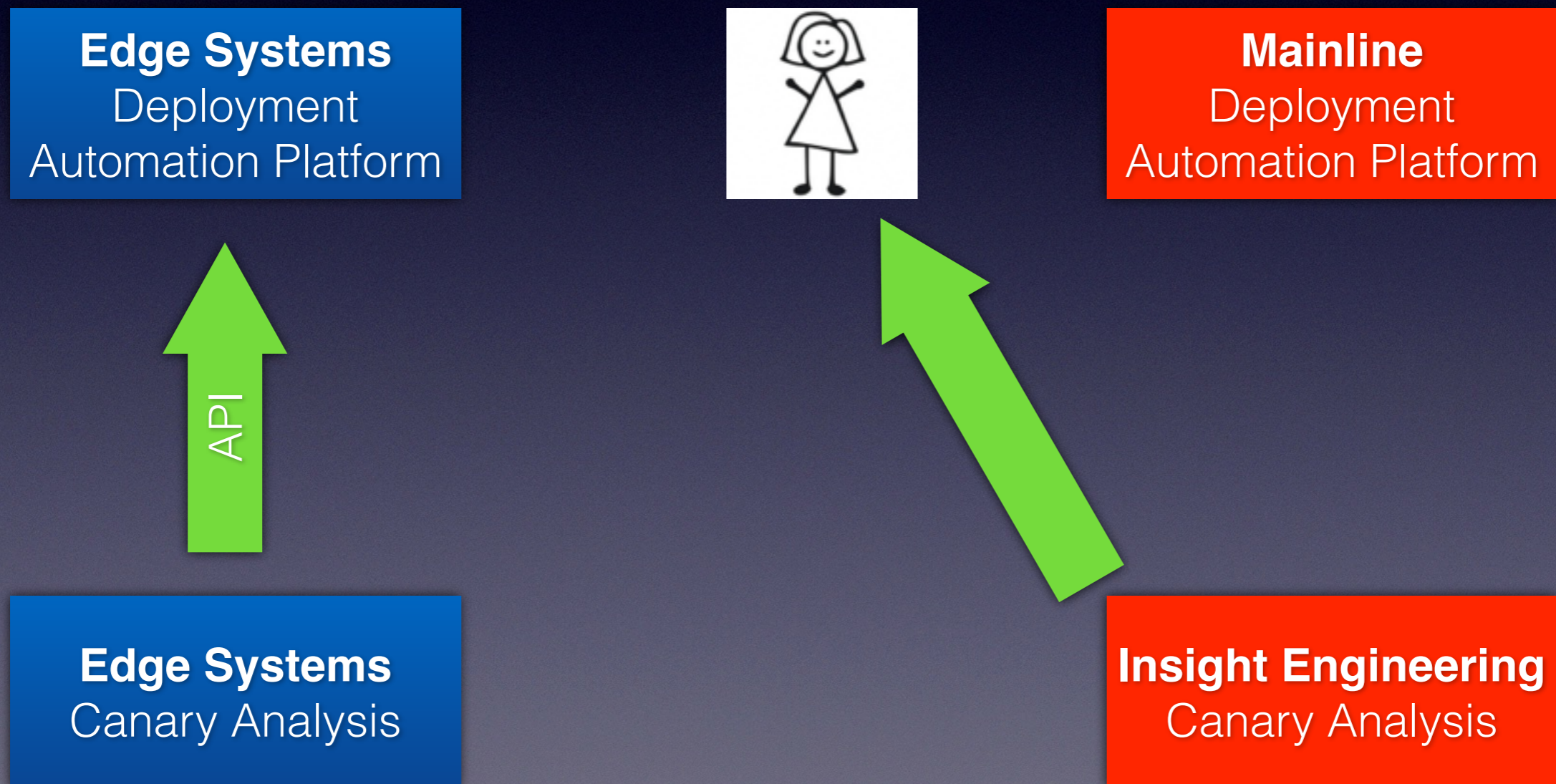
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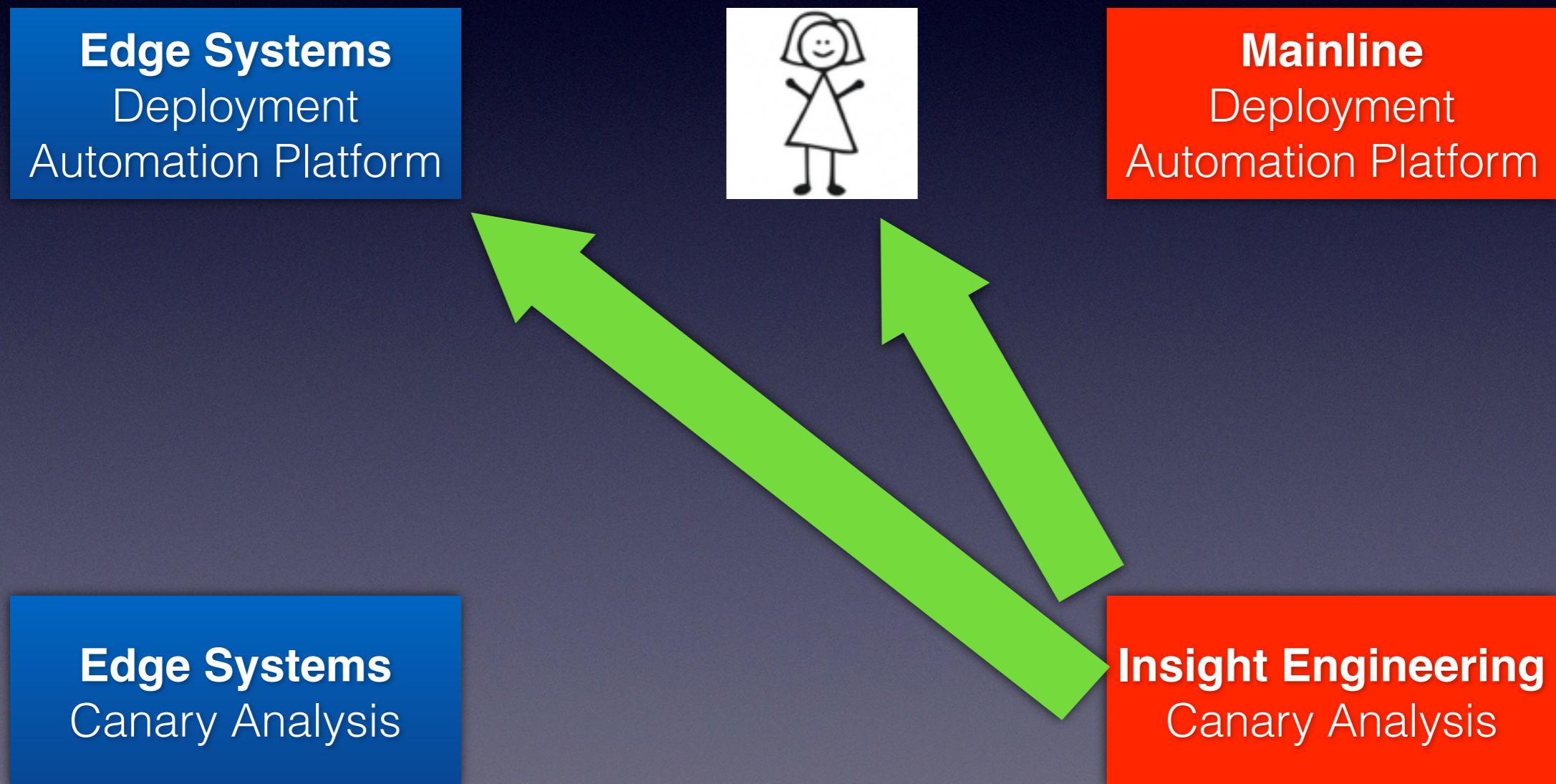
Deployments and Automated Canary Analysis at Netflix





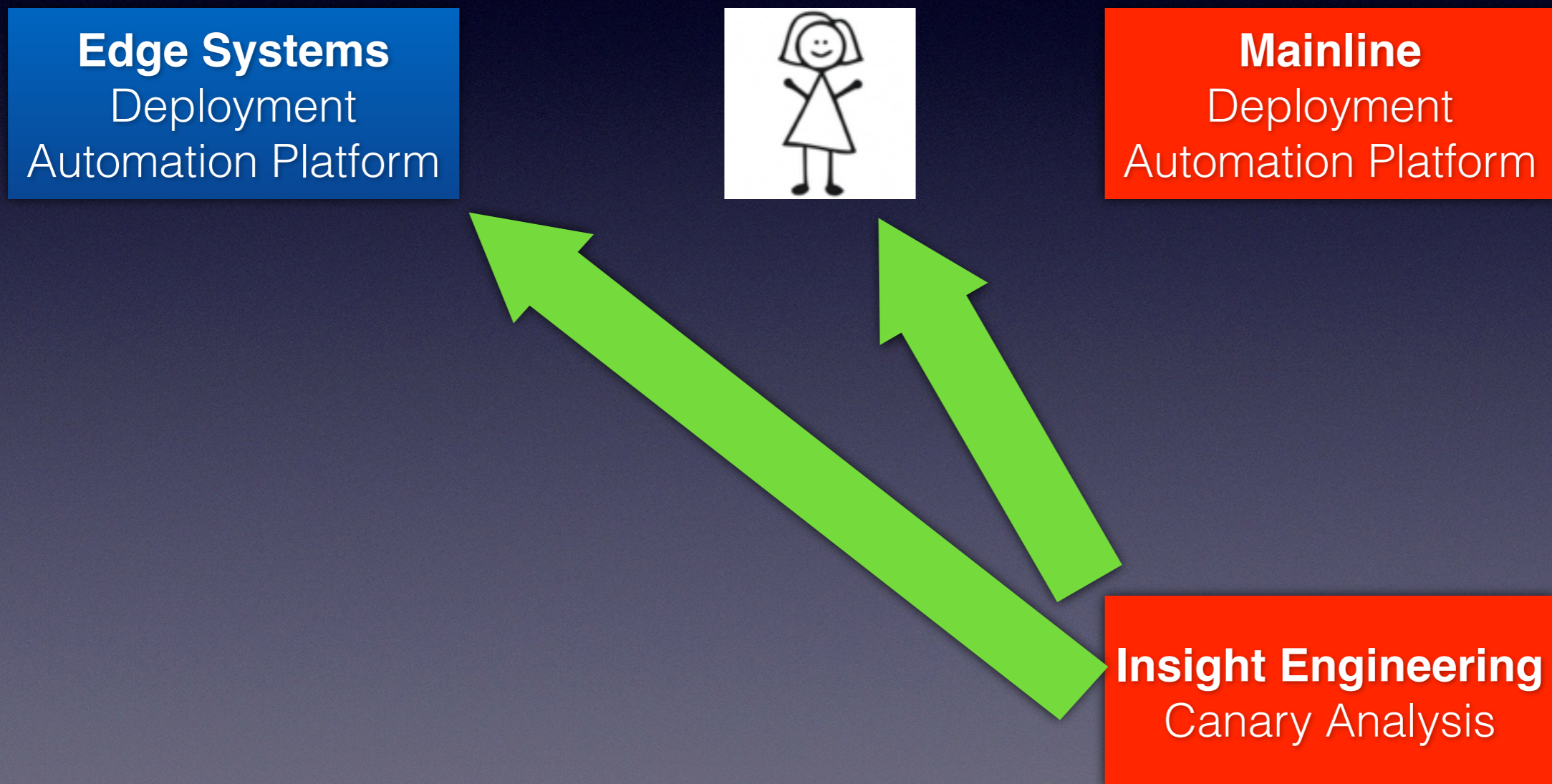
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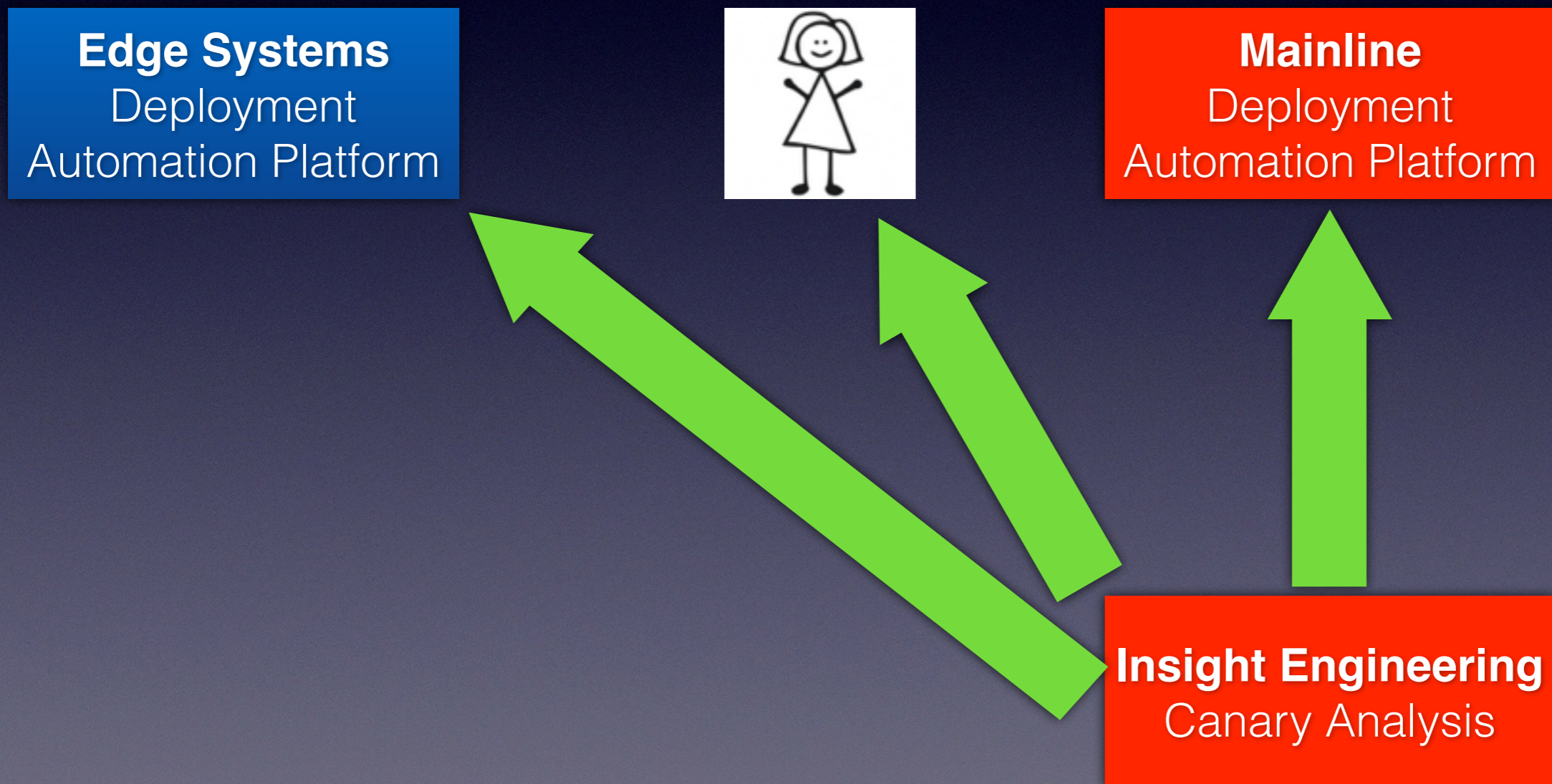
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Deployments and Automated Canary Analysis at Netflix



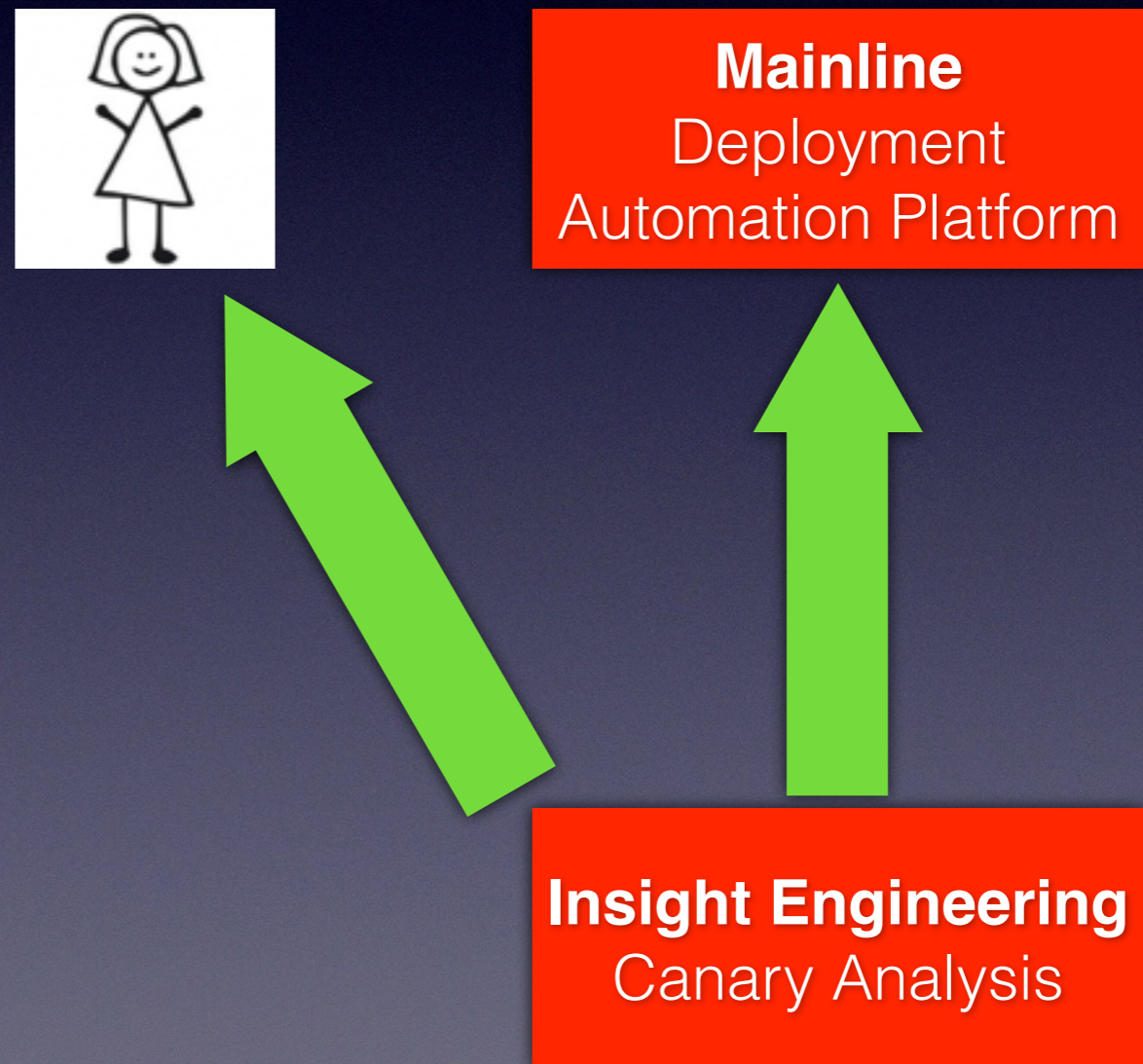
# Composability: Example

Deployments and Automated Canary Analysis at Netflix



# Composability: Example

Deployments and Automated Canary Analysis at Netflix



One More Reason  
***“Think of the glory.***

***Think of your  
reputation. Think how  
great it'll look on your  
next resume.”***

***- Lois McMaster Bujold***

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~~Judgment~~

# The Grand Example

## Netflix's Monitoring Platform

- Prior system owned by IT

# The Grand Example

## Netflix's Monitoring Platform

- Prior system owned by IT
- No great OSS products



# The Grand Example

## Netflix's Monitoring Platform

- Prior system owned by IT
- No great OSS products
- Ridiculous scale

# The Grand Example

## Netflix's Monitoring Platform

- Prior system owned by IT
- No great OSS products
- Ridiculous scale
- Seriously, how hard can it be?

# The Grand Example

## Netflix's Monitoring Platform

- Took longer than expected
- Ongoing maintenance
- UI only recent priority

# The Grand Example

## Netflix's Monitoring Platform

- Scales efficientlyish
- impedance match with dev lifestyle
- Nicely pluggable\*
- Aggressivish OSS efforts

\* Ask me about Real-Time Analytics!

# The Grand Example

## Netflix's Monitoring Platform

- Still the right solution
- Worried about Sunk Cost Fallacy
- Most shouldn't do this

# Can You Repeat That?

Or: What's Your Point?

Or: I was Tweeting. Did I miss something?

- What's important to you?
- Is this a technical decision? Really?
- Honest and non-judgmental
- Any mitigation?
- Don't build your own monitoring system. Seriously.

# Name This Group

- United States
- Europe
- China
- Russia
- India
- Japan
- Blue Origin
- SpaceX
- Virgin Galactic

# 11:30am Frasier Room (3rd Floor)



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