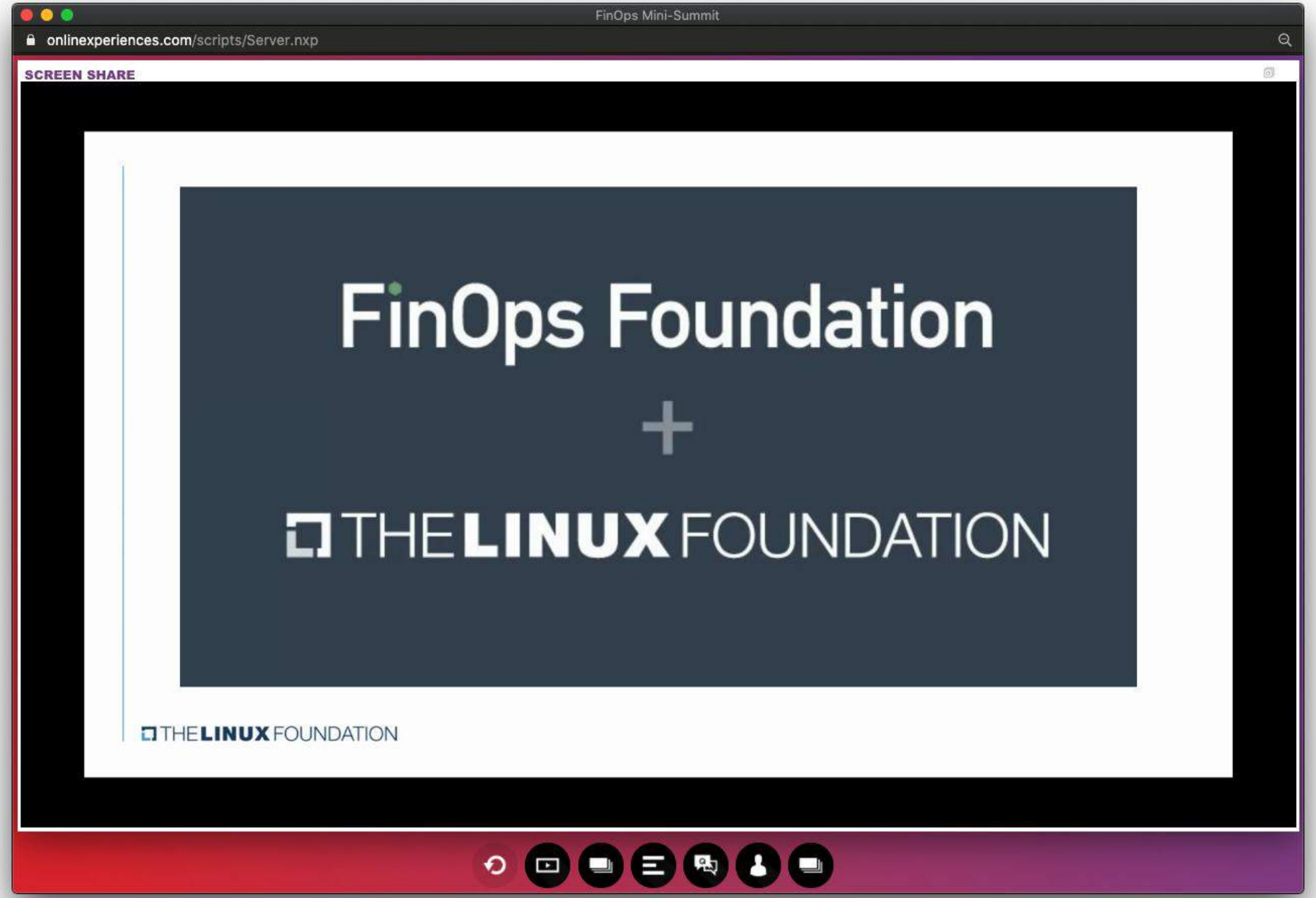
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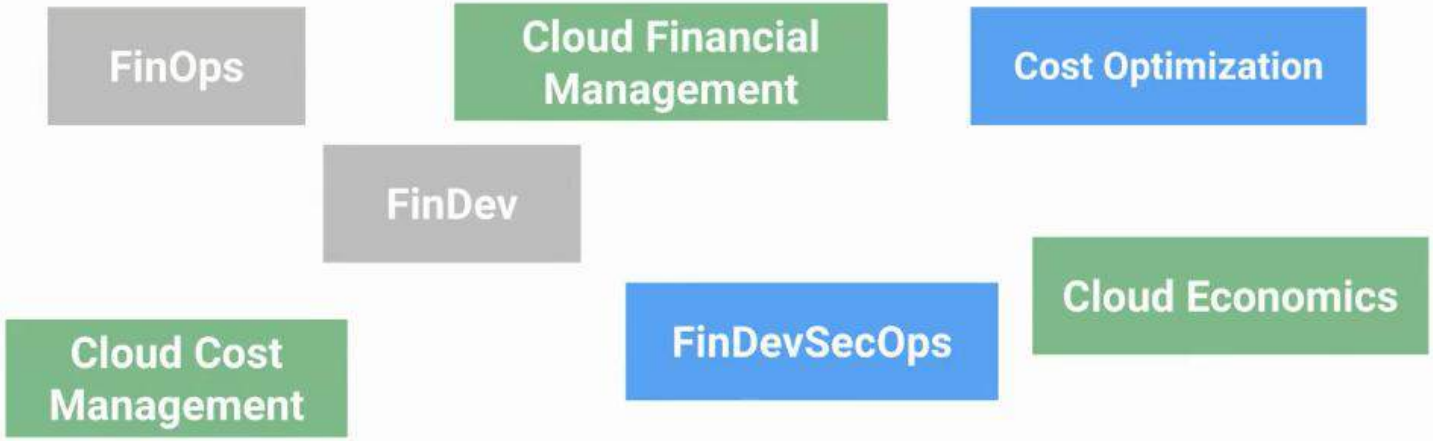
FinOps Foundation
+
THE LINUX FOUNDATION
THE LINUX FOUNDATION

Lots of names for the same type of practice...



They all help get the most value out of your cloud spend.

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FinOps is the operating model for cloud spend

A prescriptive model of actions, best practices and culture...

Enabling business, engineers & finance teams to work together...

To get the most *value* out of every dollar spent in cloud.

FinOps Foundation

Mission of the FinOps Foundation *(F2)*

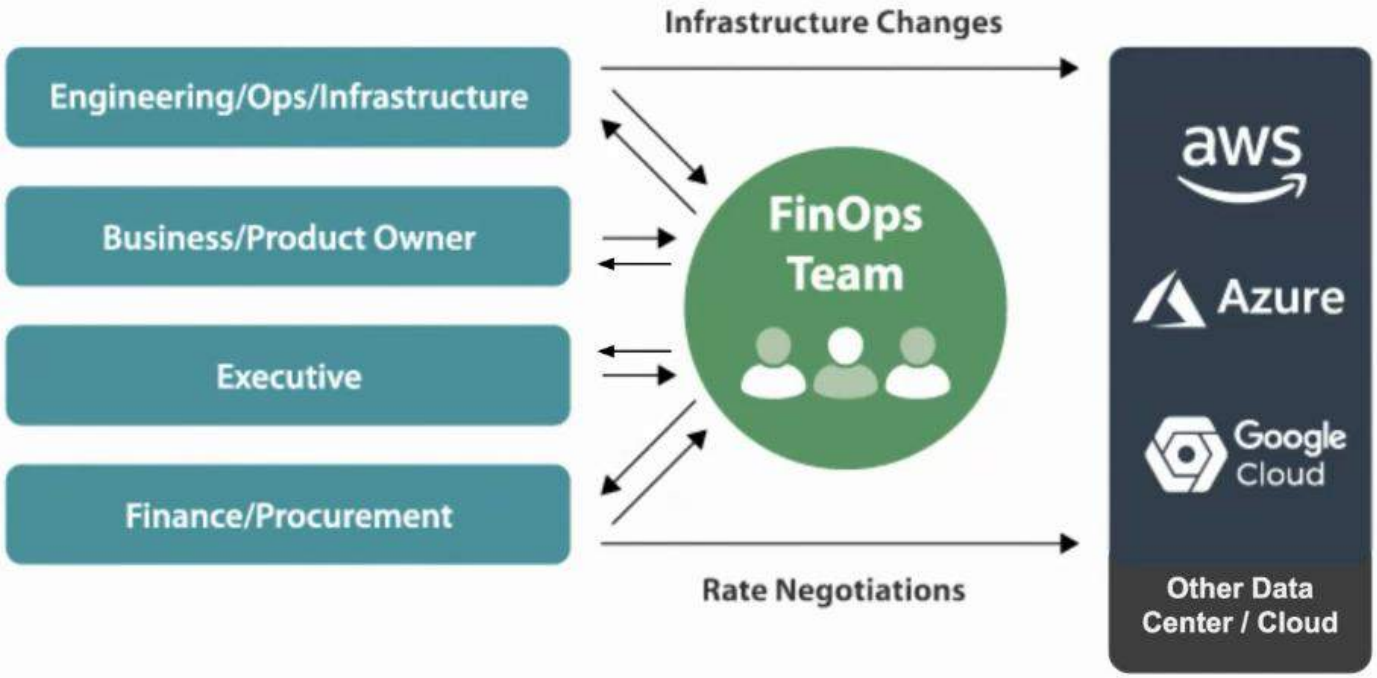
- **Central community for cloud financial management**
  (through virtual events, meetups, and slack)

- **Advance careers of FinOps practitioners**
  (through career development, training and certification)

- **Define cloud financial management standards**
  (through open source collaboration)

FinOps Foundation


I NEED TO KNOW WHY MOVING OUR APP TO THE CLOUD DIDN'T AUTOMATICALLY SOLVE ALL OUR PROBLEMS.
YOU WOULDN'T LET ME RE-ARCHITECT THE APP TO BE CLOUD-NATIVE.
JUST PUT IT IN CONTAINERS.
YOU CAN'T SOLVE A PROBLEM JUST BY SAYING TECHY THINGS.
KUBERNETES.
Dilbert.com @ScottAdamsSays
11-08-17 © 2017 Scott Adams, Inc./Dist. by Andrews McMeel



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Agenda

- Intro to FinOps - J.R. Storment, FinOps Foundation
- Metric Driven Cost Optimization - Engineers Edition - Mike Fuller, Atlassian
- Cost-Aware Software Development in the Cloud - Joshua Kwan, Sasha Kipervarg, Patrick Raymond, LiveRamp
- FinOps from Migration to Operation - Ashley Hromatko, Pearson
- Panel Discussion, Q&A

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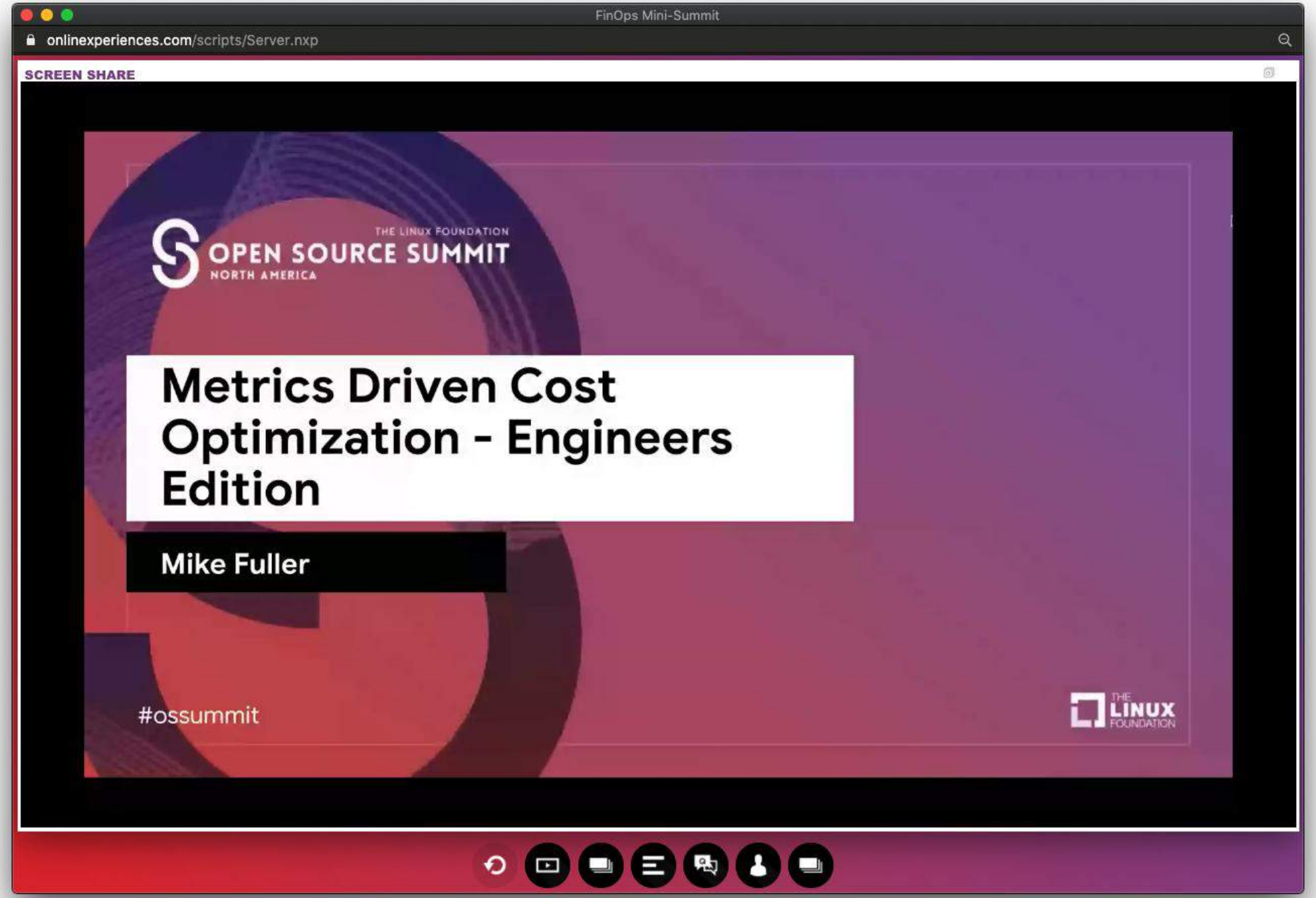
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NORTH AMERICA
Metrics Driven Cost Optimization - Engineers Edition
Mike Fuller
#ossummit
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Platform Team

FinOps Foundation

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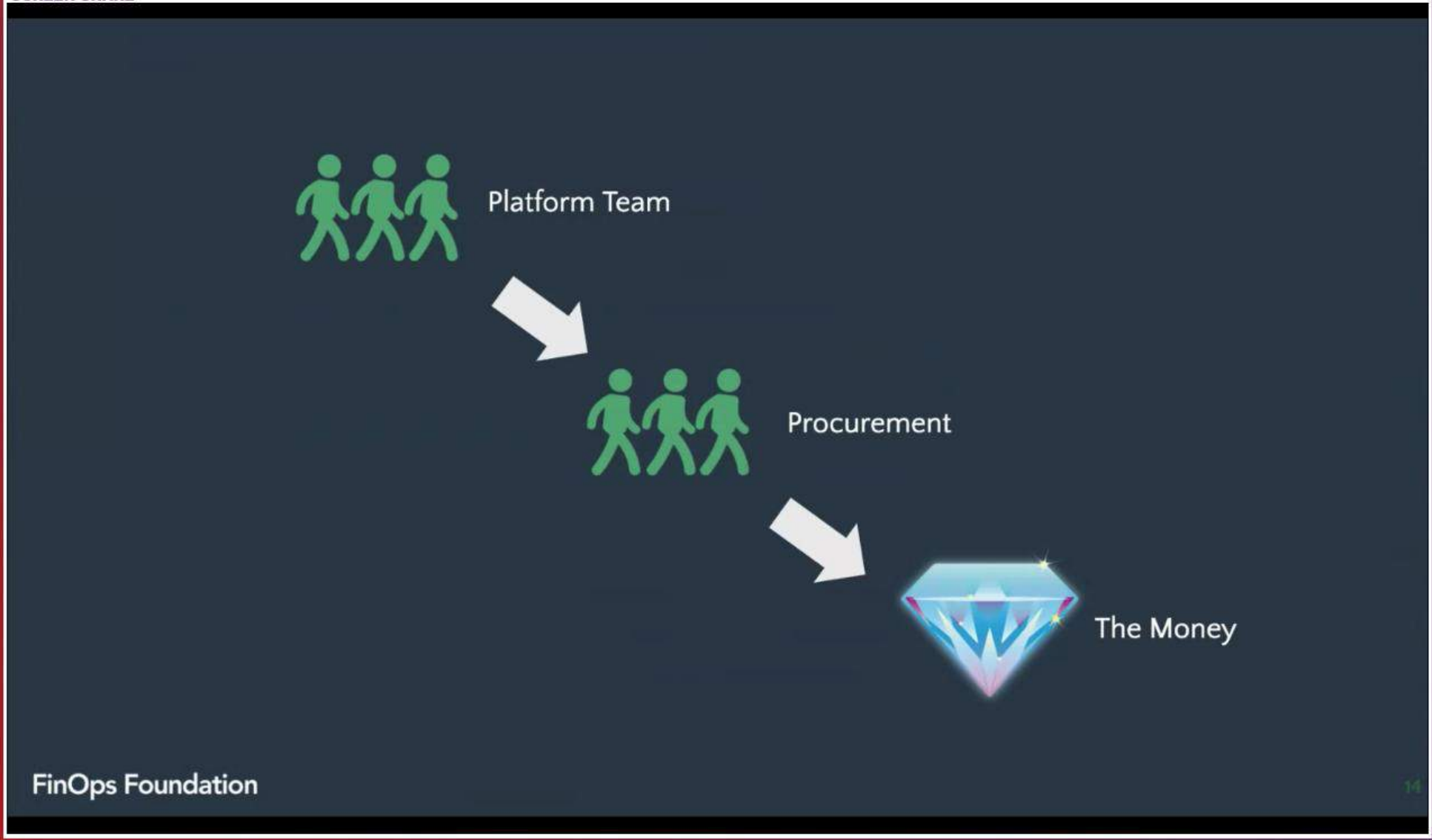
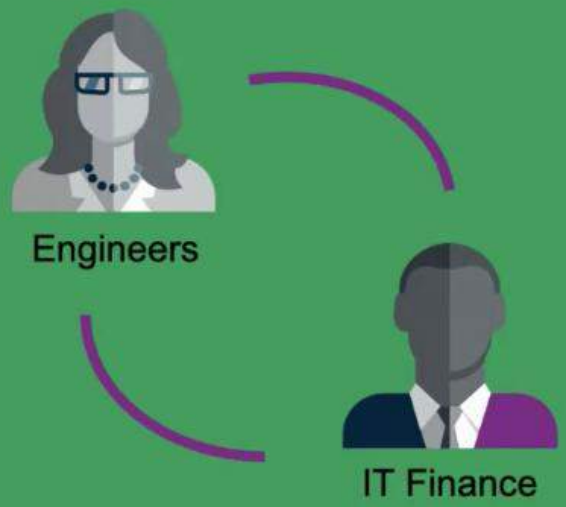


Traditional Technology Consumption



Model
Engineers as requesters
Finance as Approvers
Spend is predictable and static
Long procurement cycles
High cost of failure

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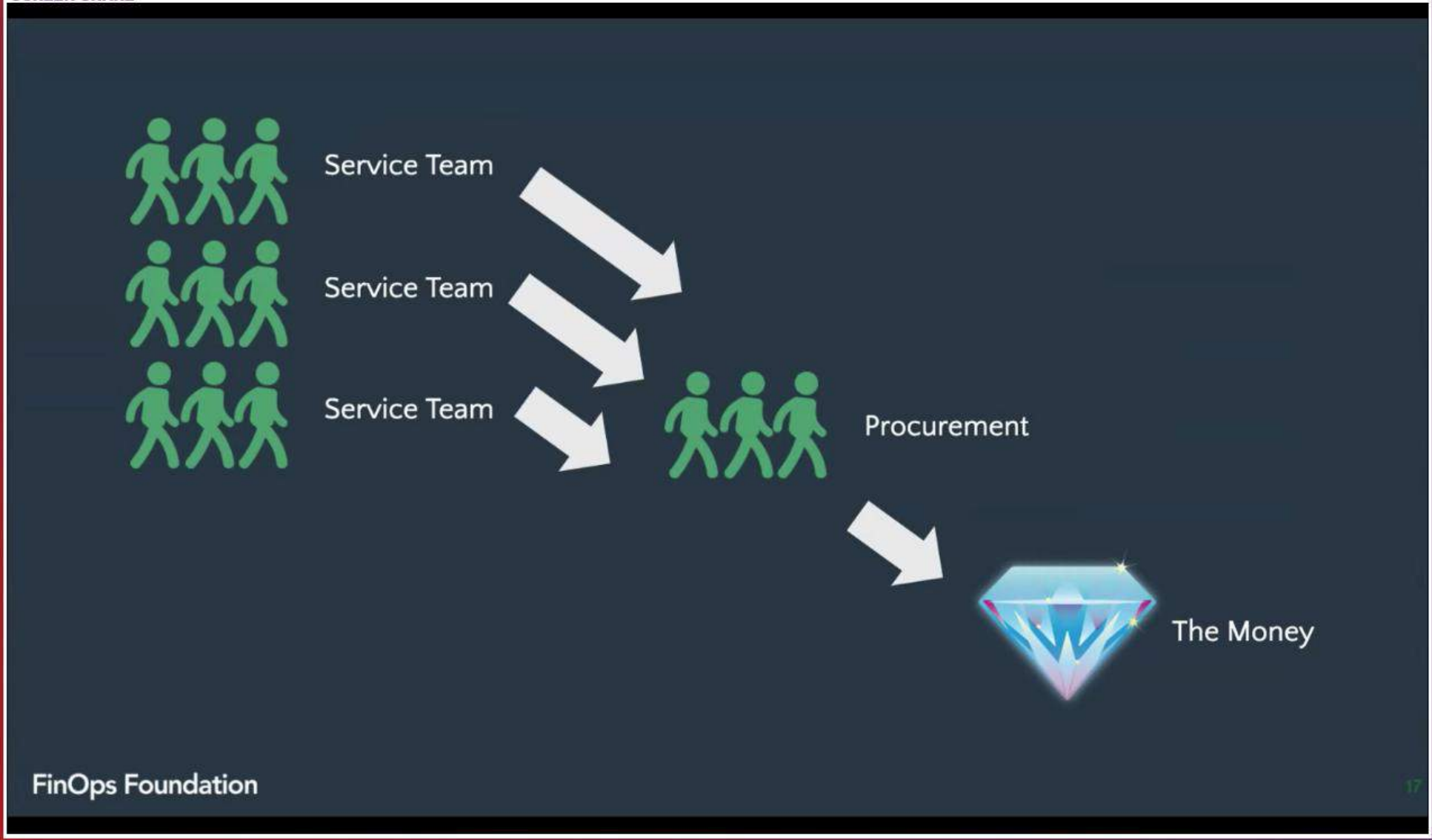

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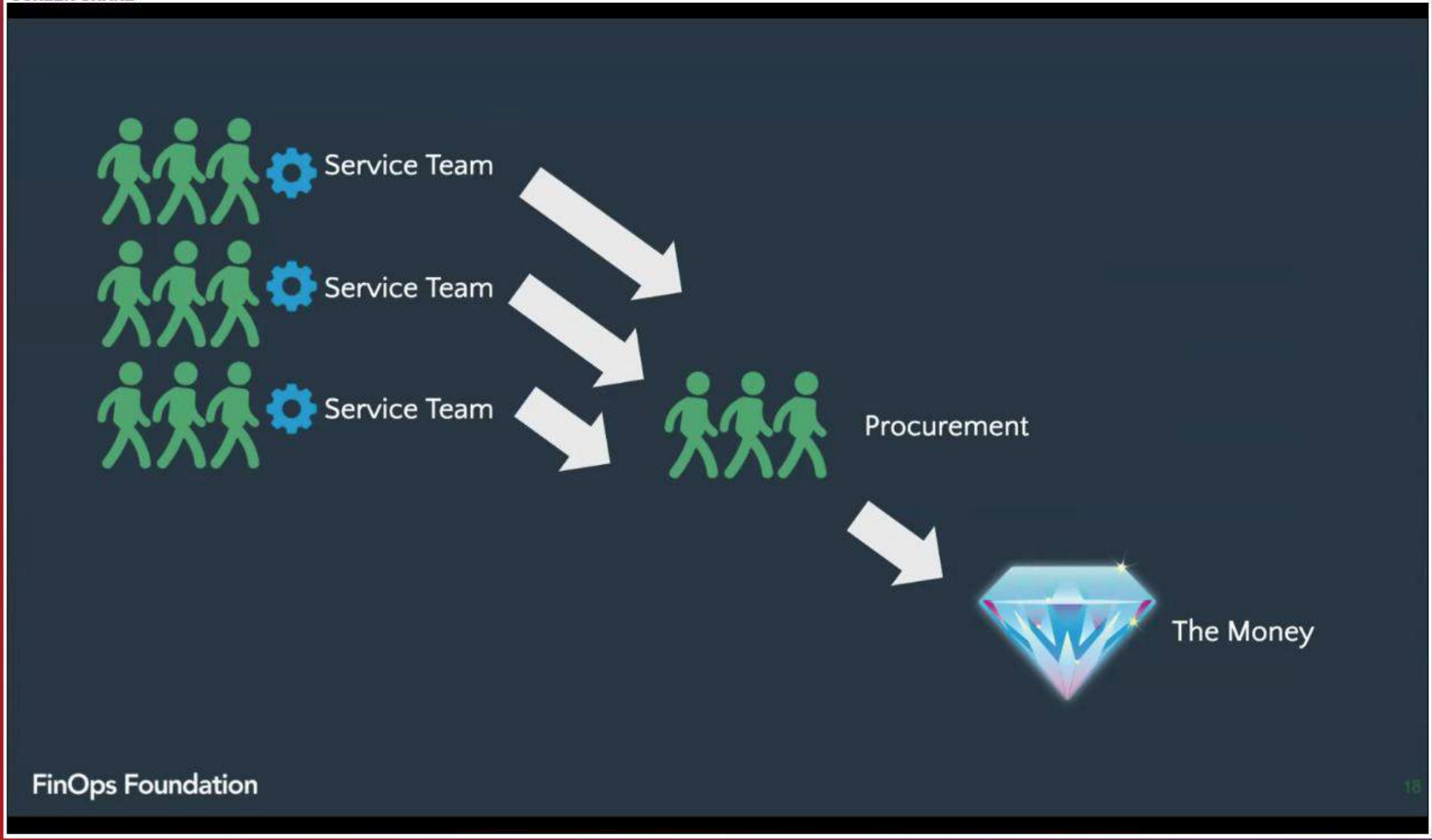
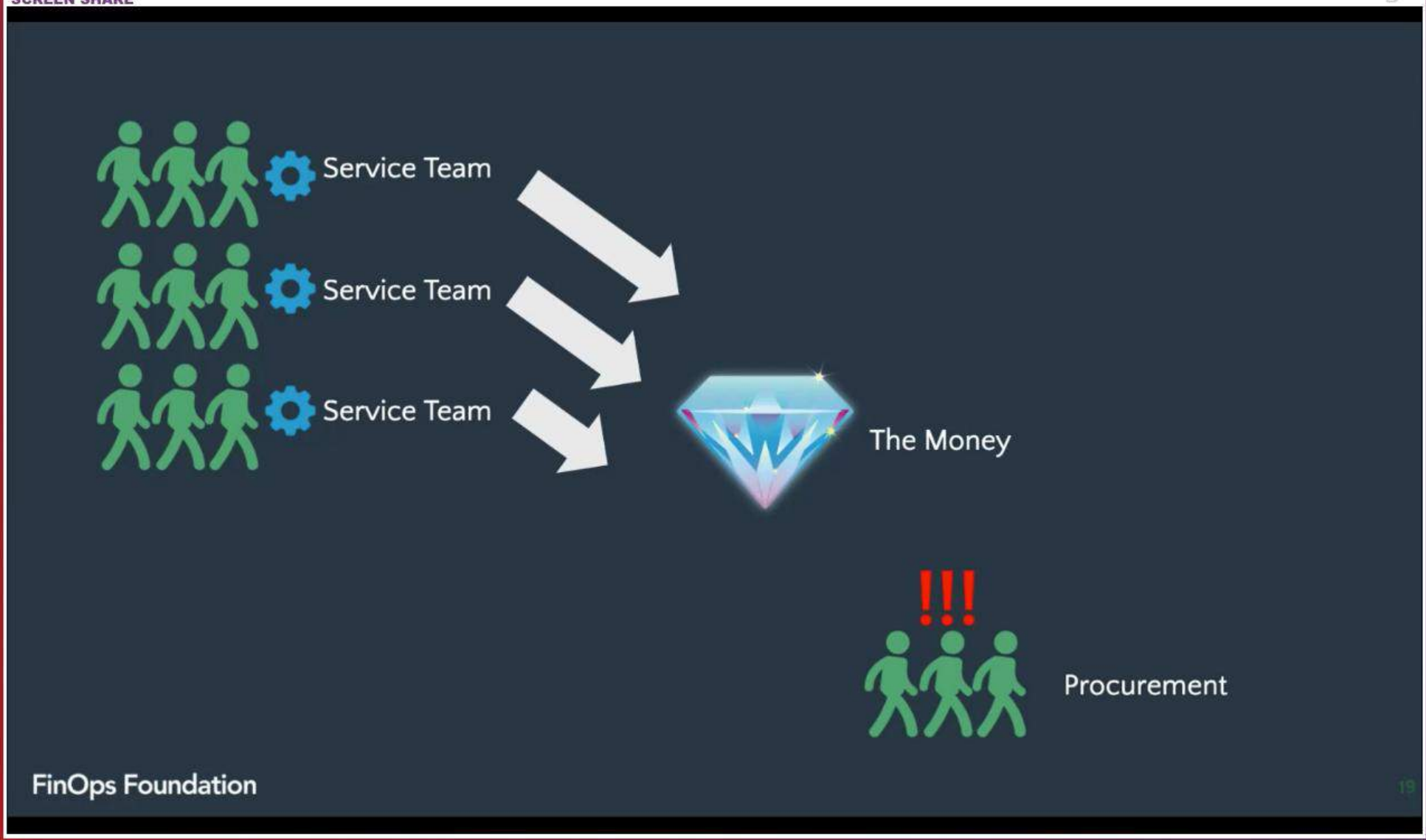
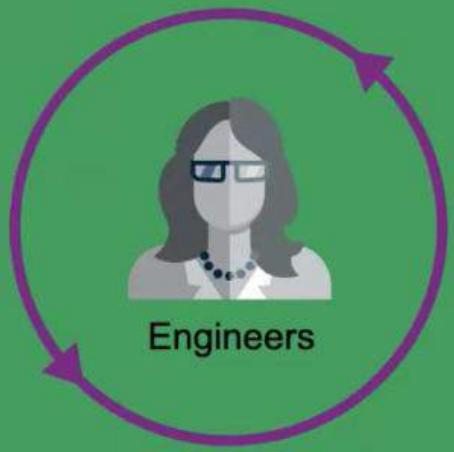



Service Team
Service Team
Service Team
The Money
!!!
Procurement
FinOps Foundation
19

Cloud Changes the Dynamic



Model

- Engineers spend money with code
- Finance with no visibility
- Spend is dynamic and less predictable
- Agile experimentation (and some waste)
- Lack of communication

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FinOps Practitioner Metrics

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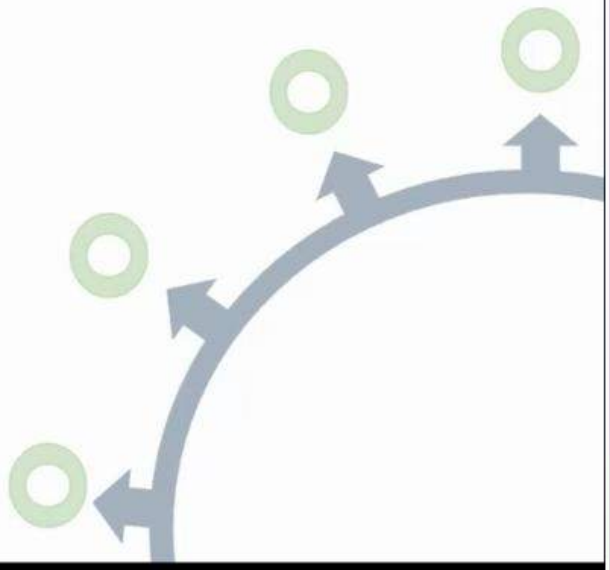
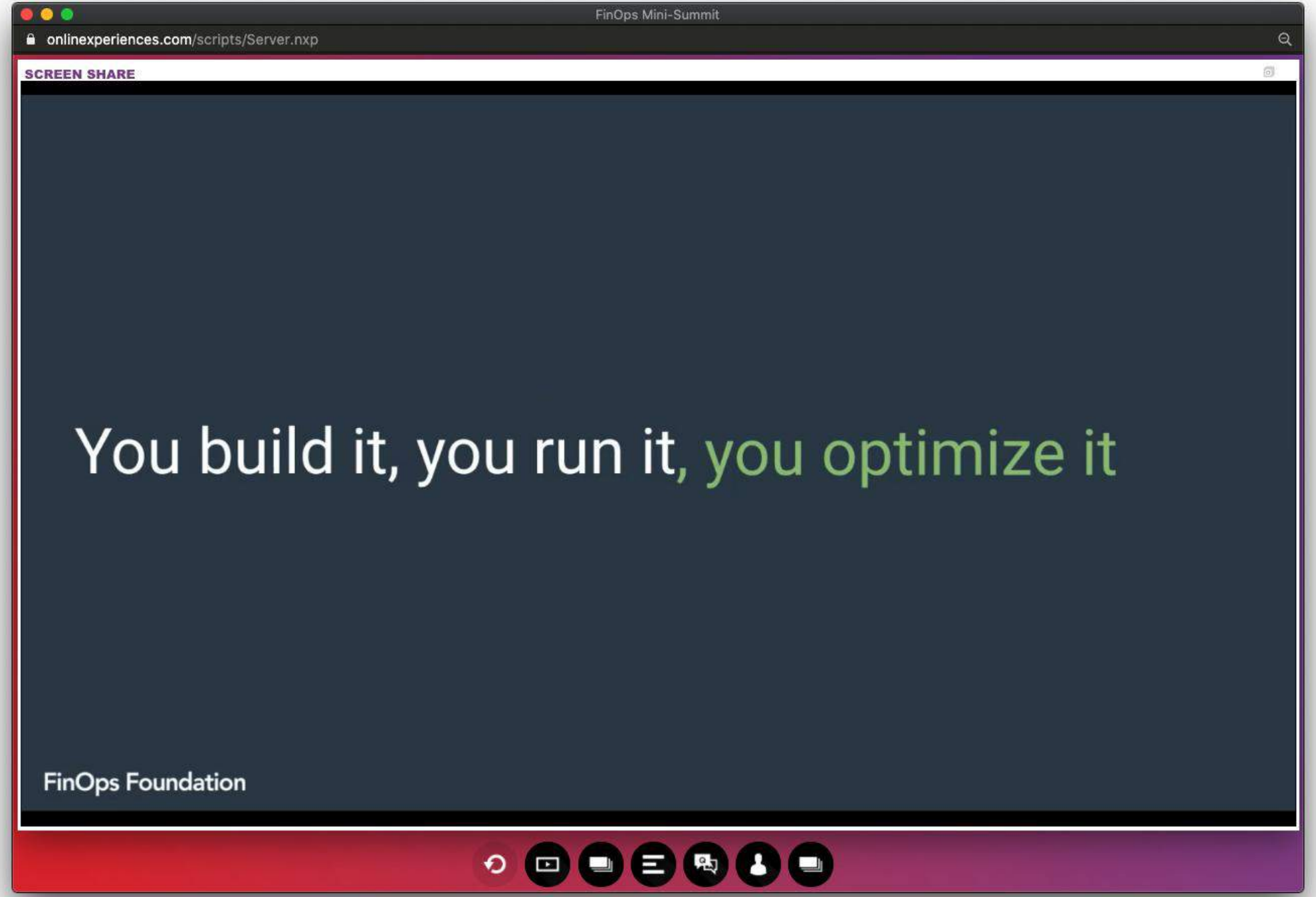
Accountability is pushed to the edge

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You build it, you run it, you optimize it
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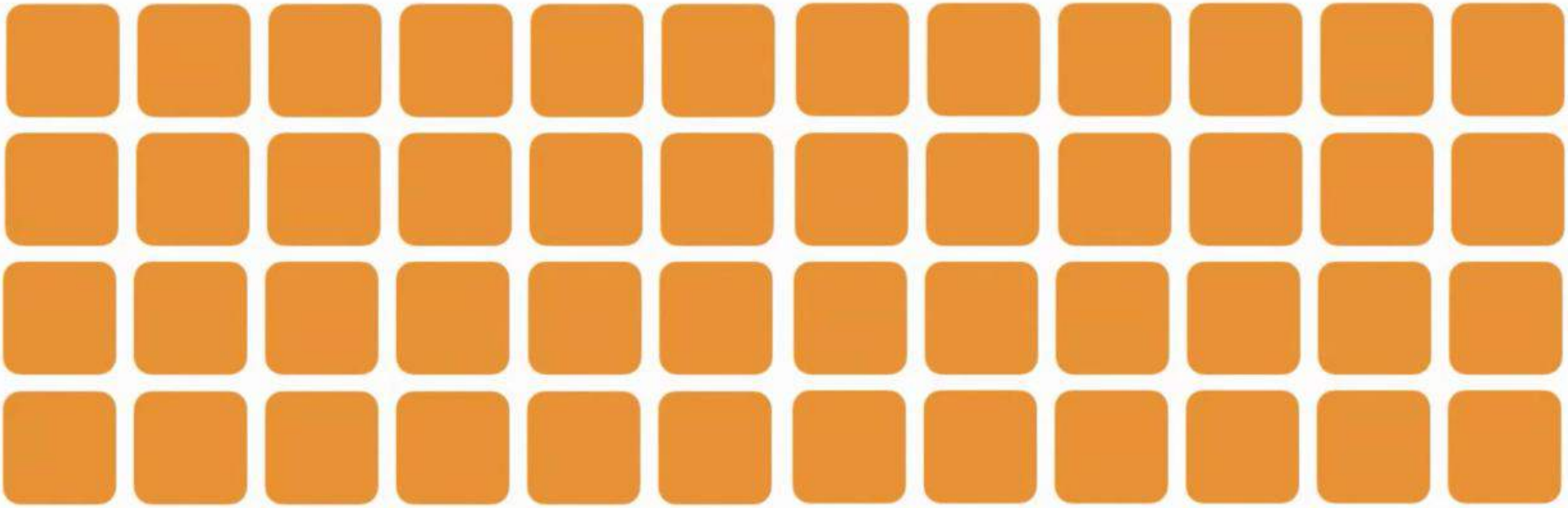
Usage Optimisation



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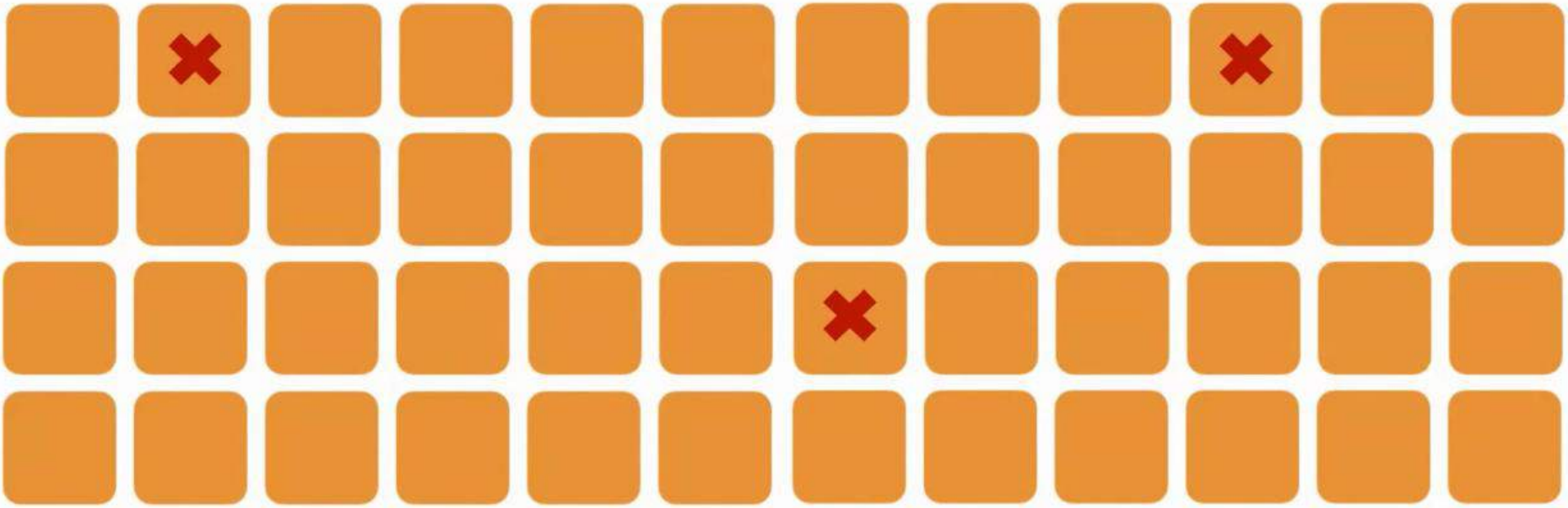
Idle Resource Removal



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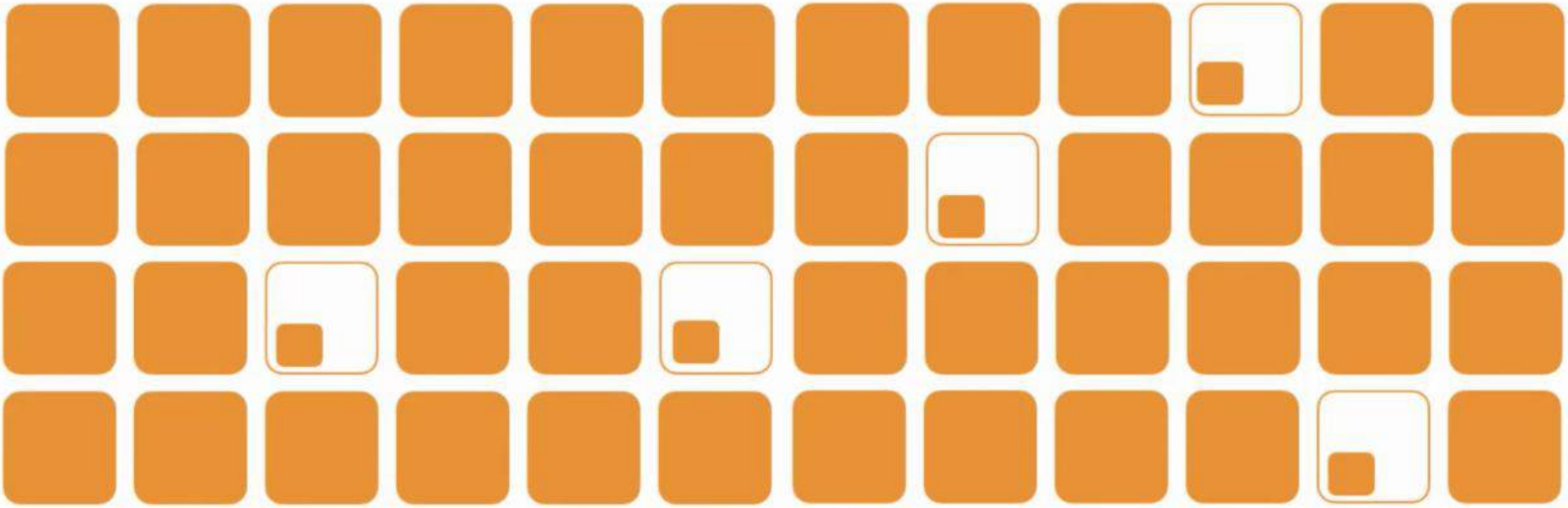
Rightsizing



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Recommendations to Teams

Team A

Team B

Team C

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Performance benchmarking provides context

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Wastage now

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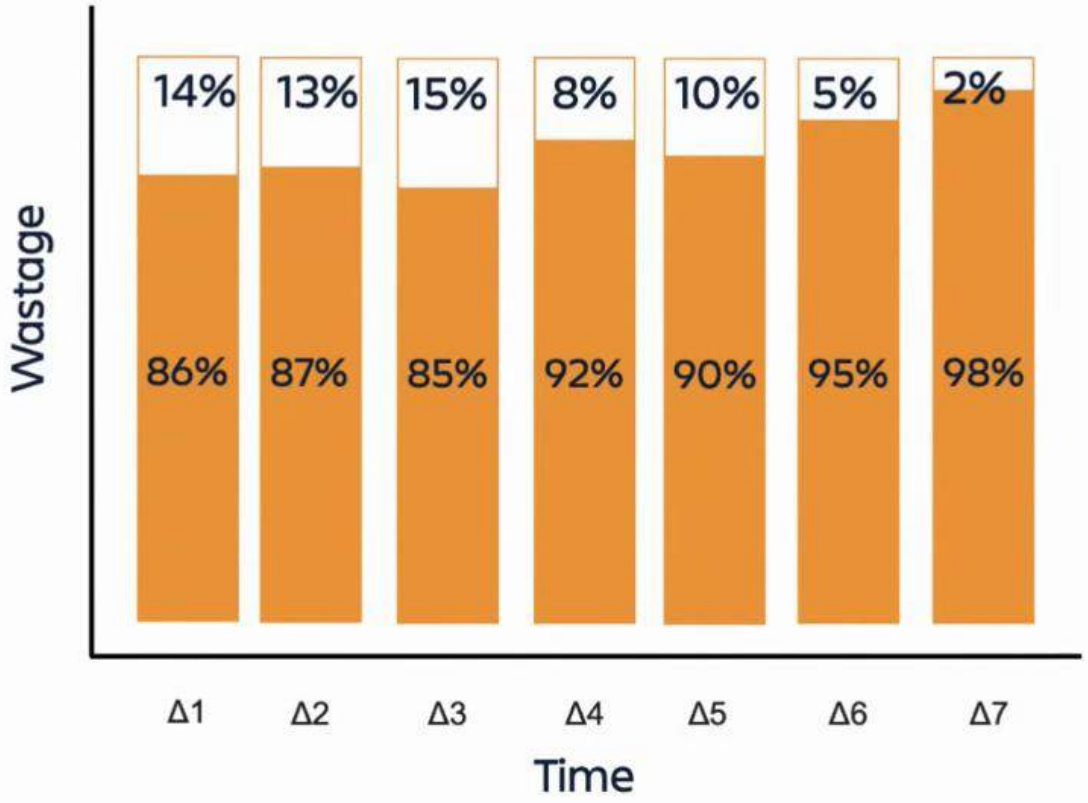
Wastage over time



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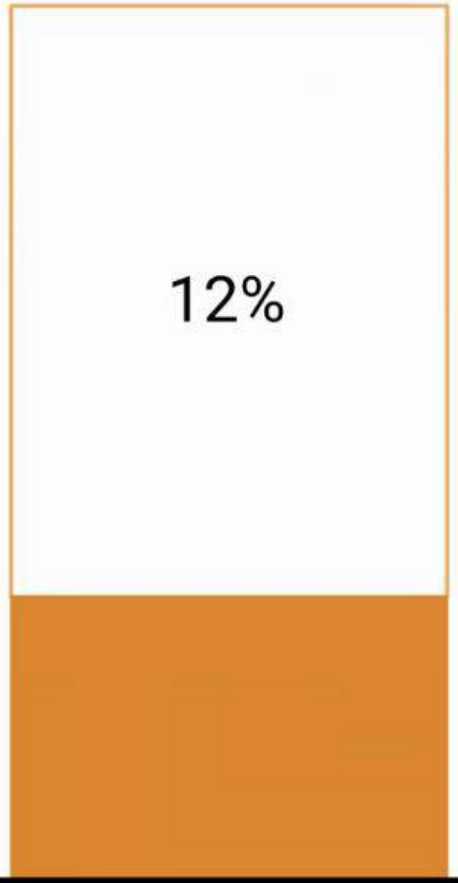
Wastage by team



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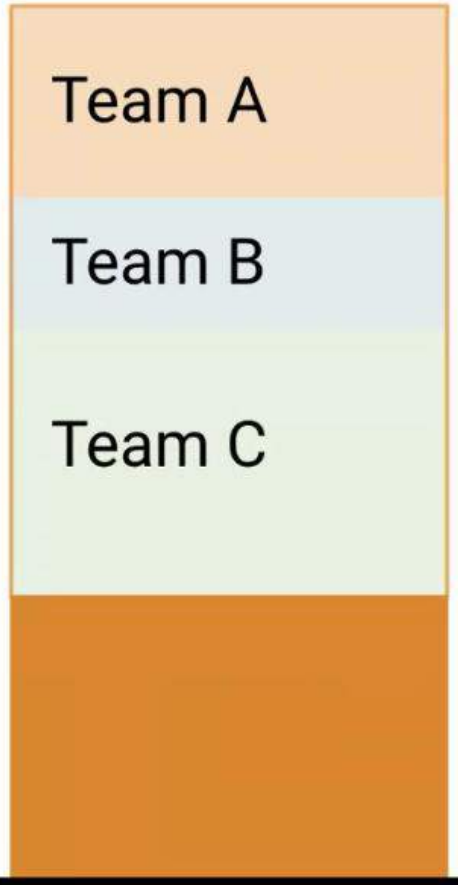
Wastage by team



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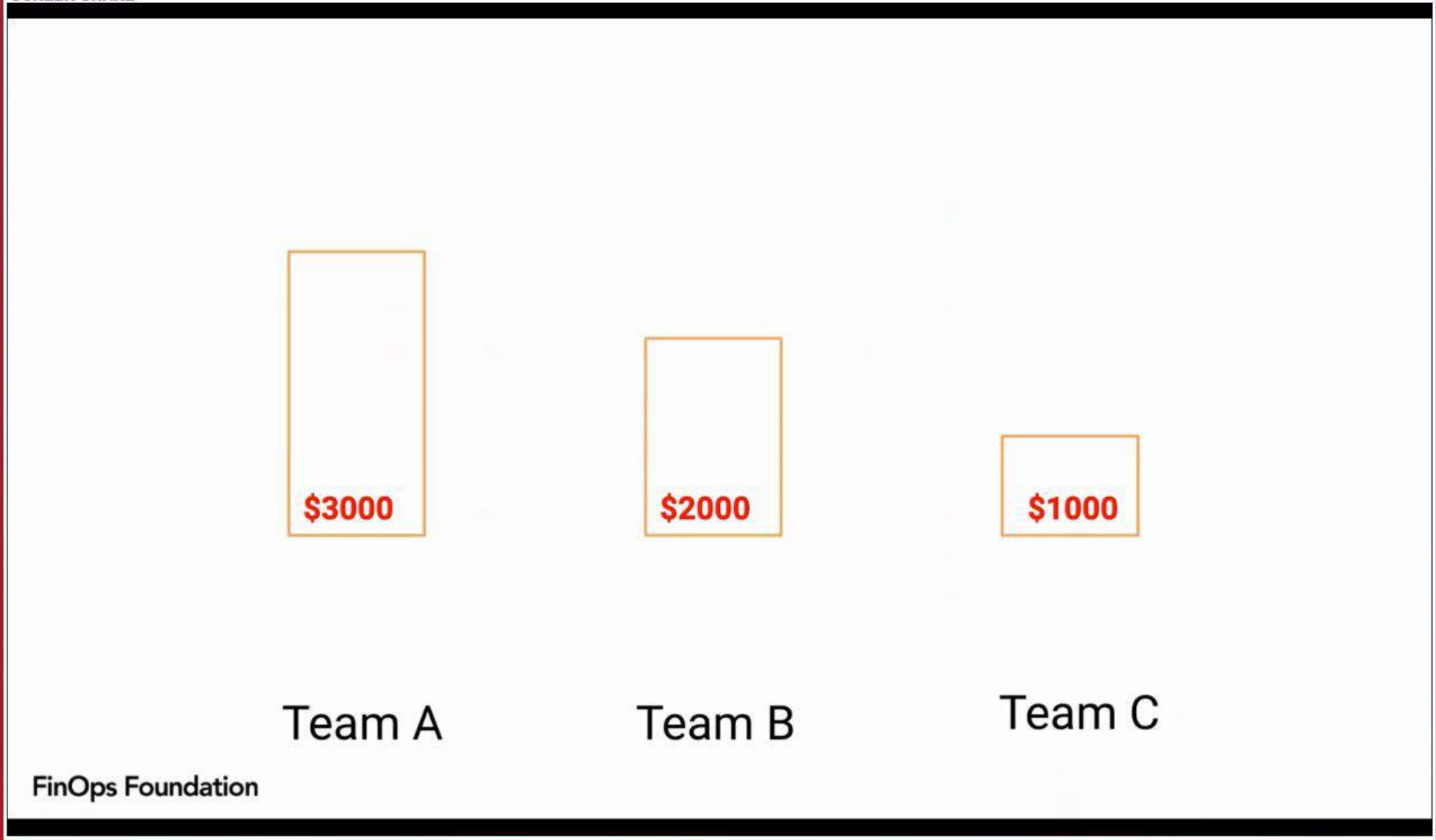

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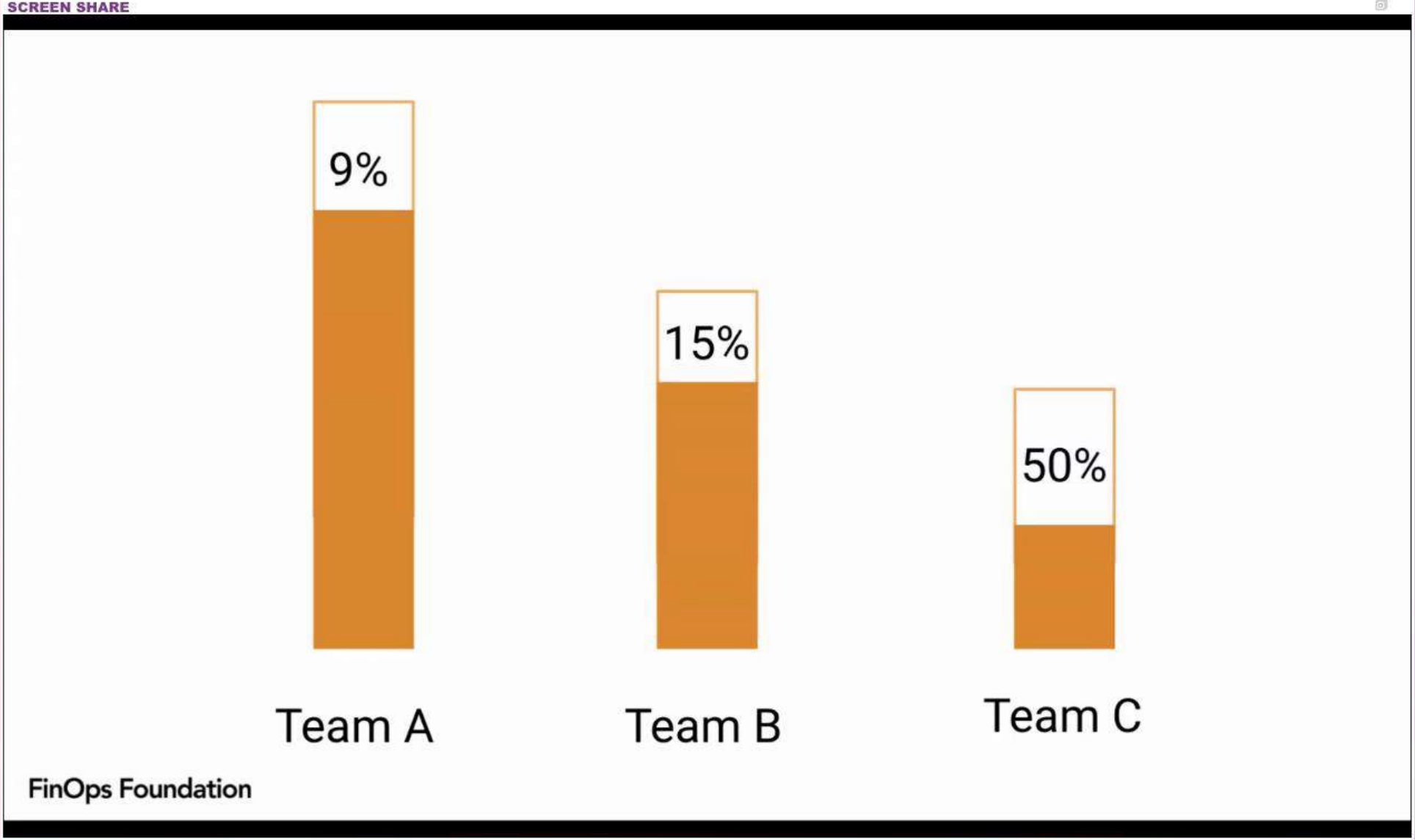

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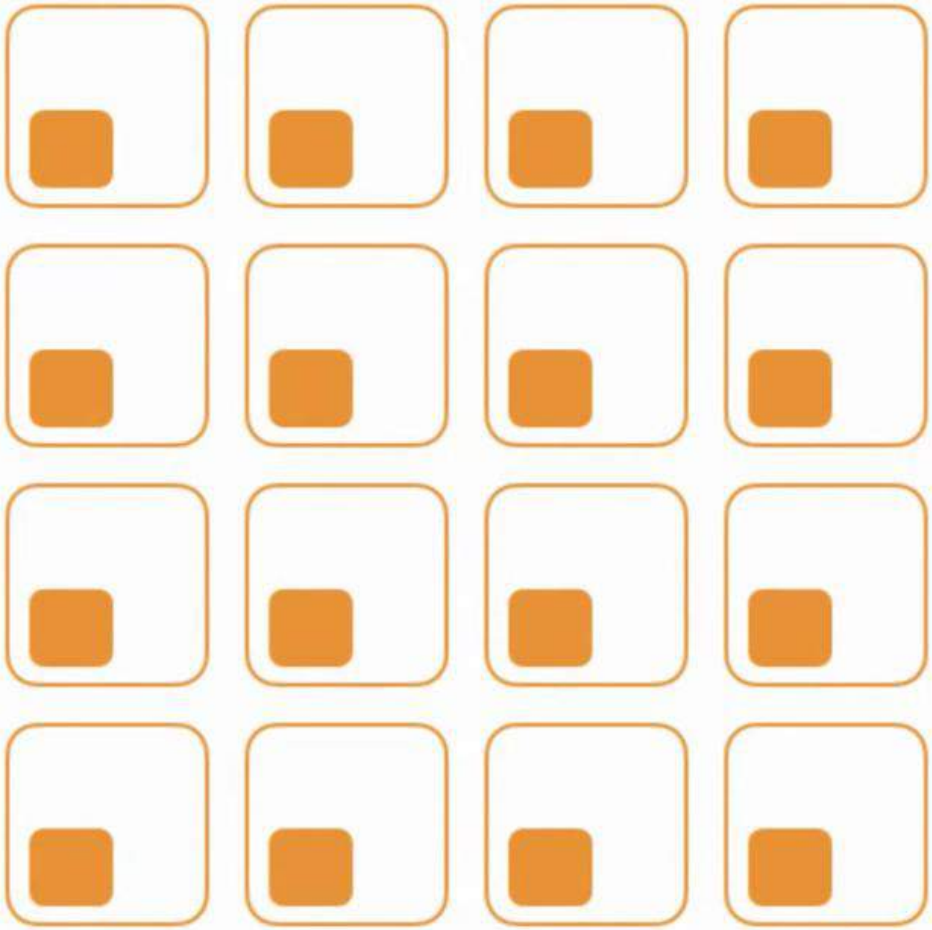

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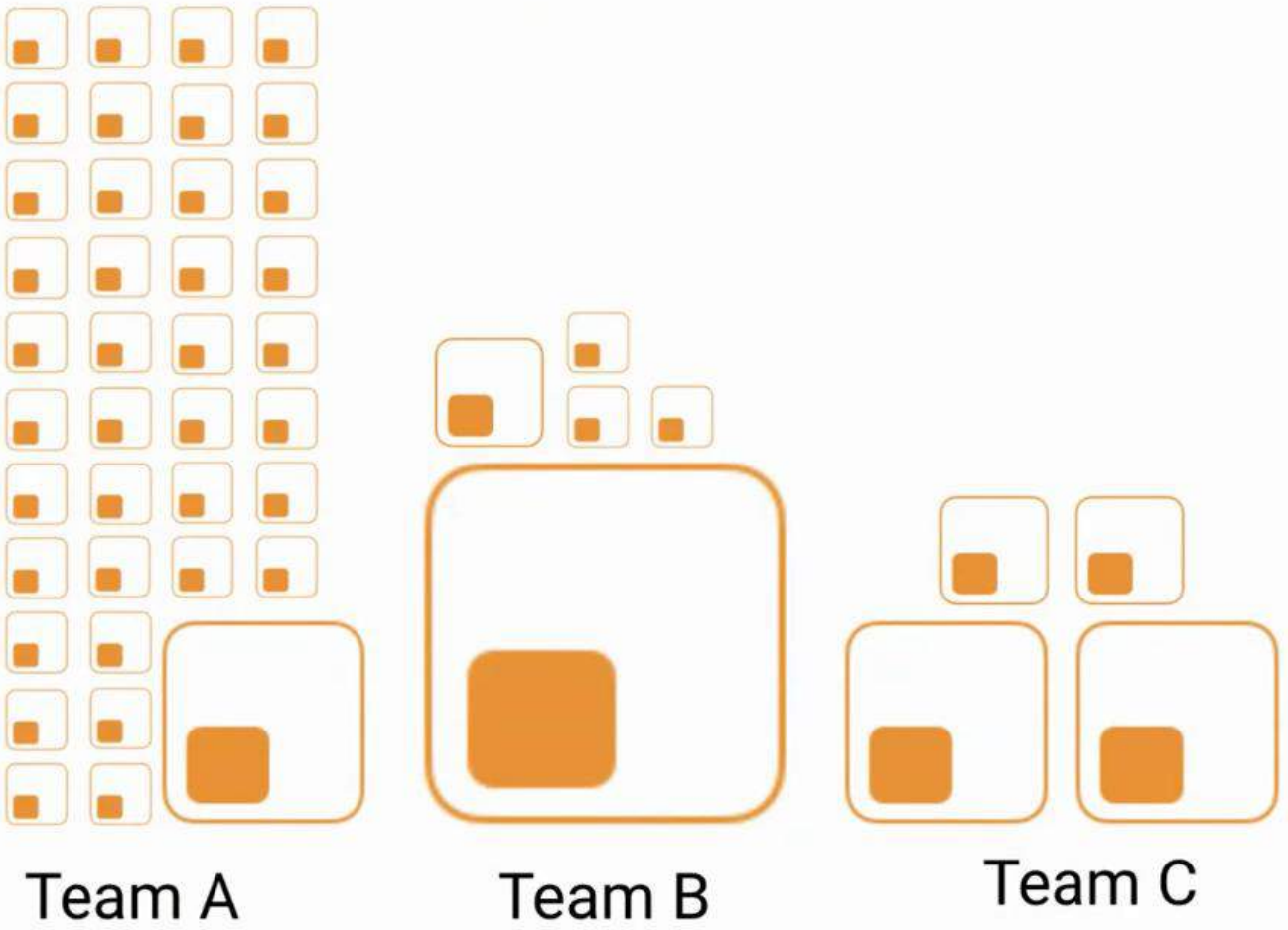

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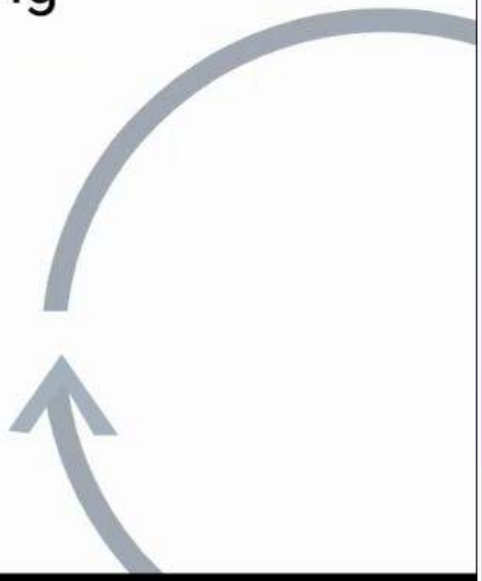
Real-time visibility drives better decision making



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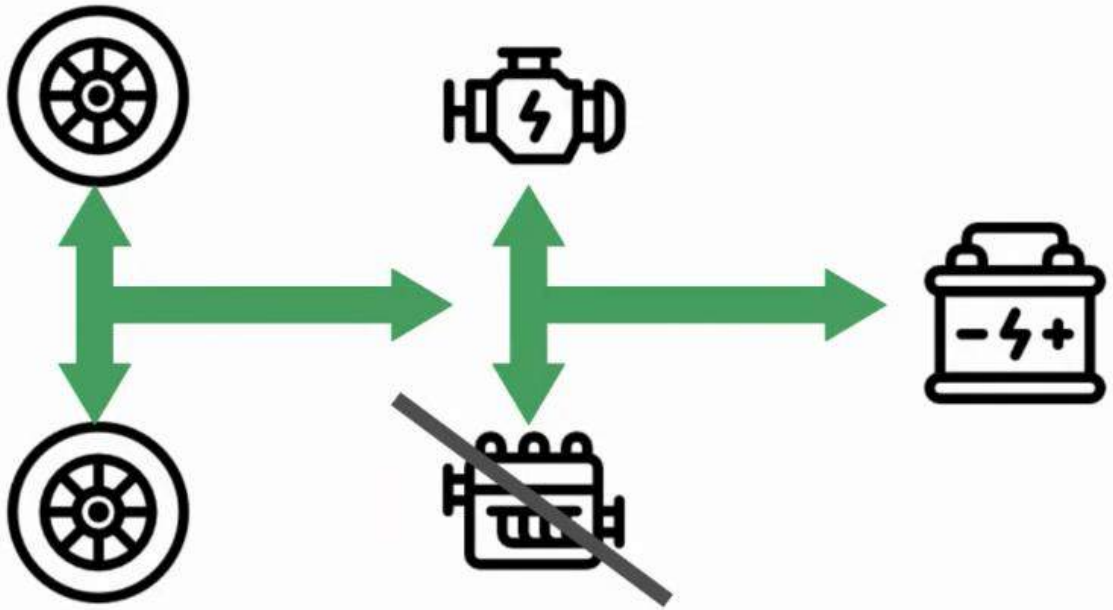
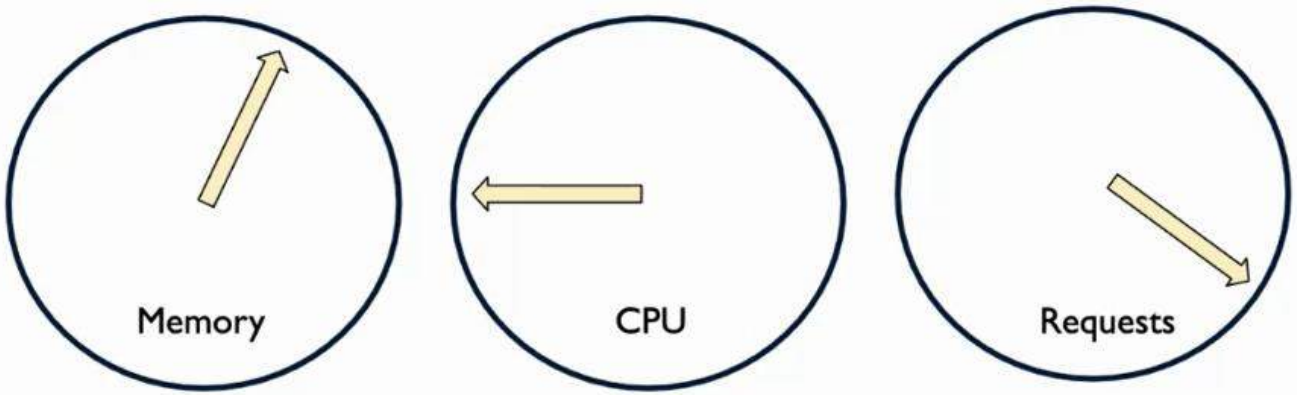
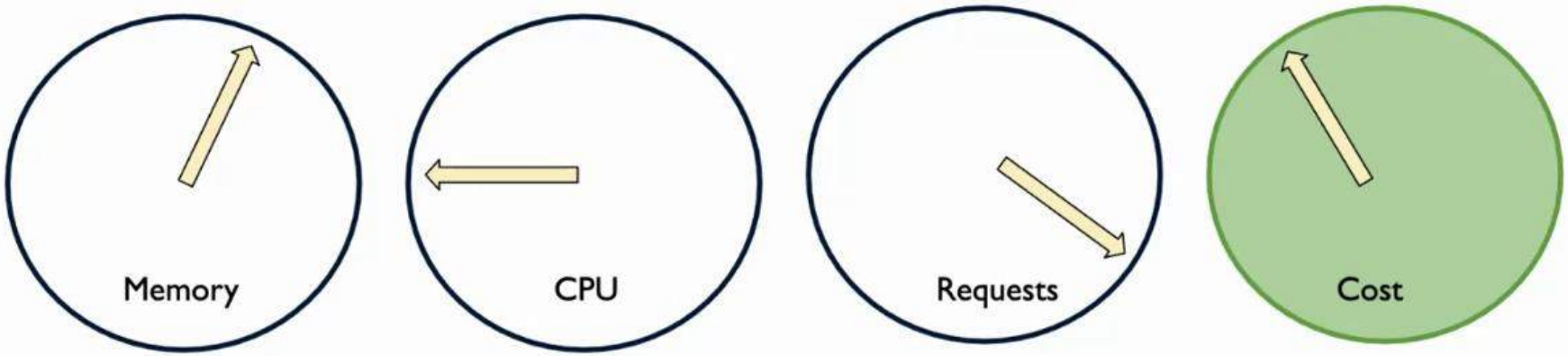
The ~~Prius~~ Tesla Effect



Engineering Metrics



Cost as an Engineering Metric



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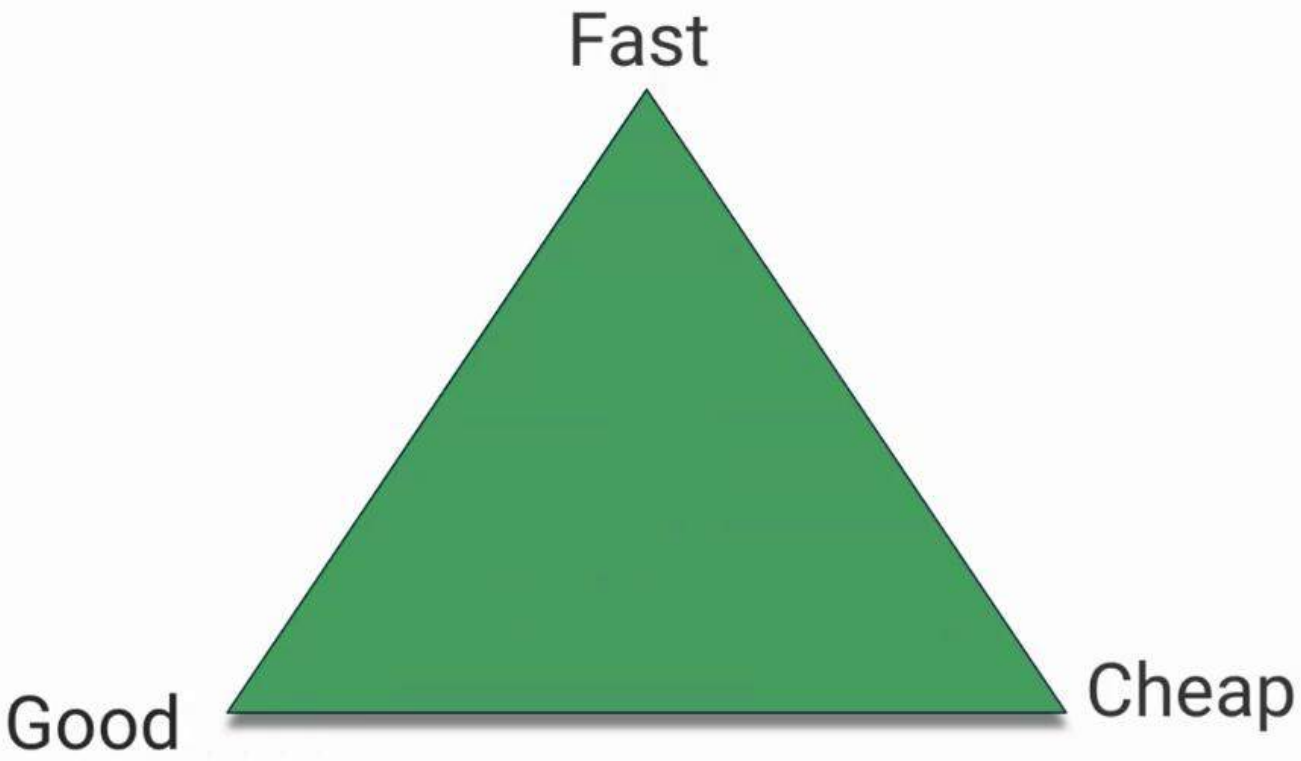

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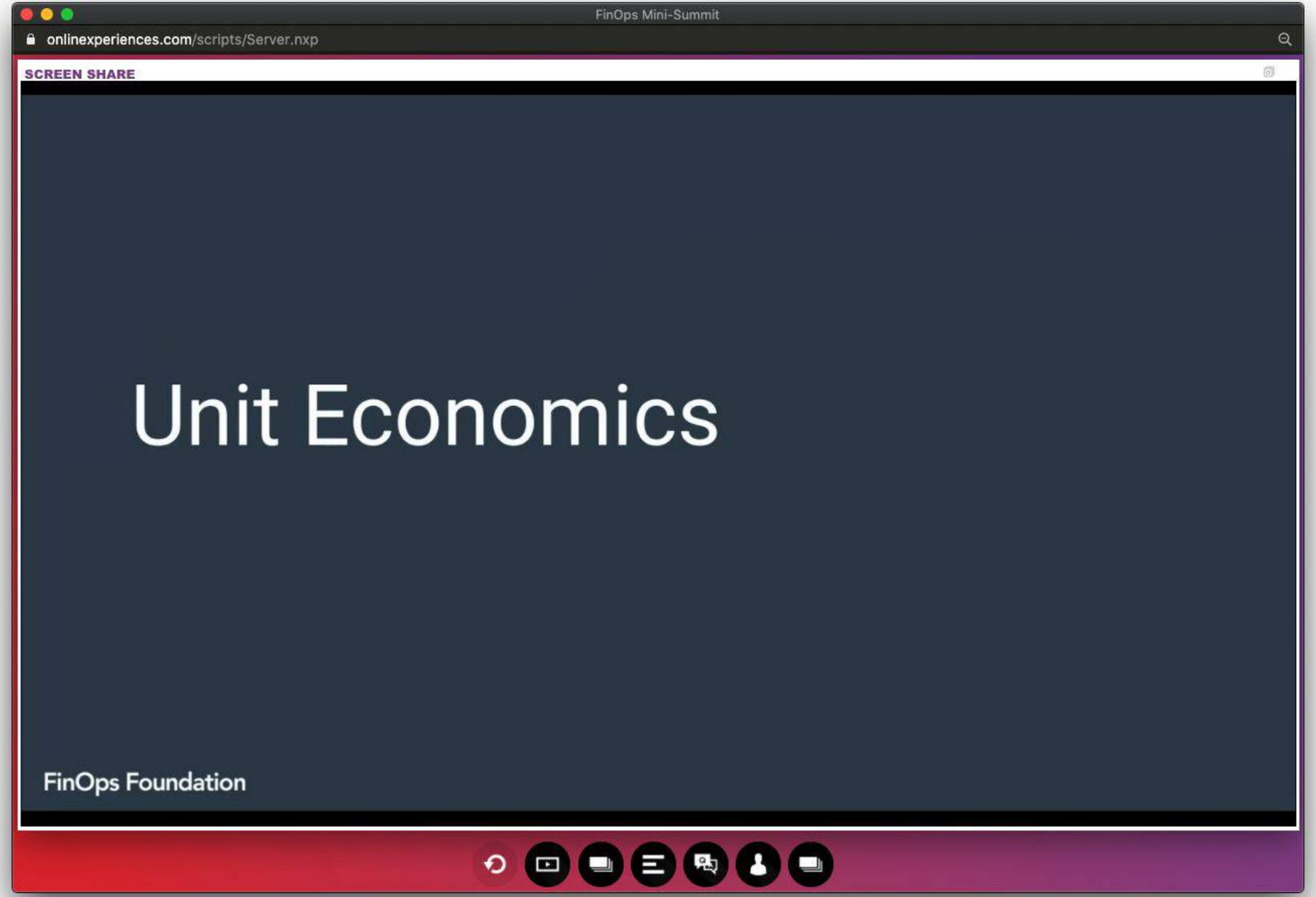
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Unit Economics
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Cost of the service

Cost of serving

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How much are you going to spend on cloud?

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This is what you are going to spend on cloud

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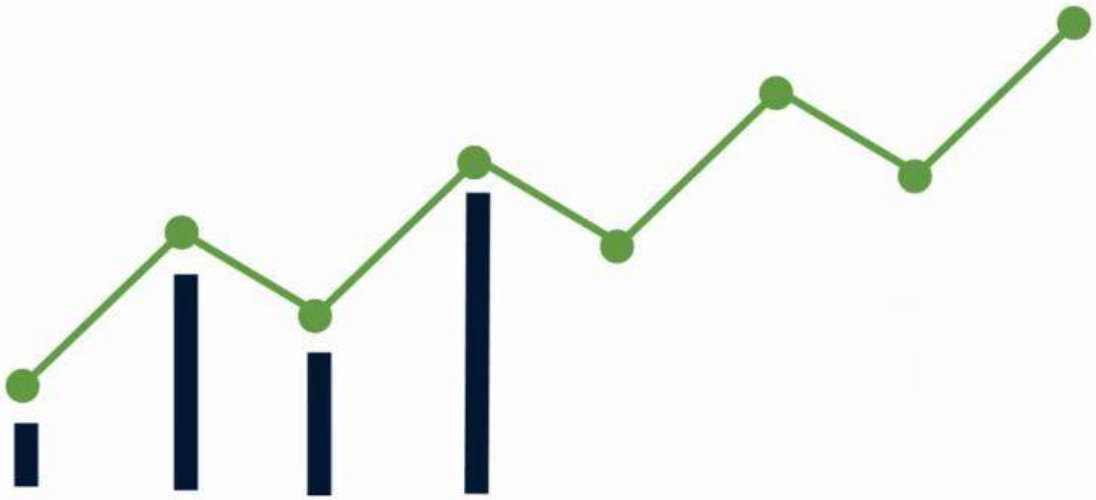
Cloud Spend Forecast



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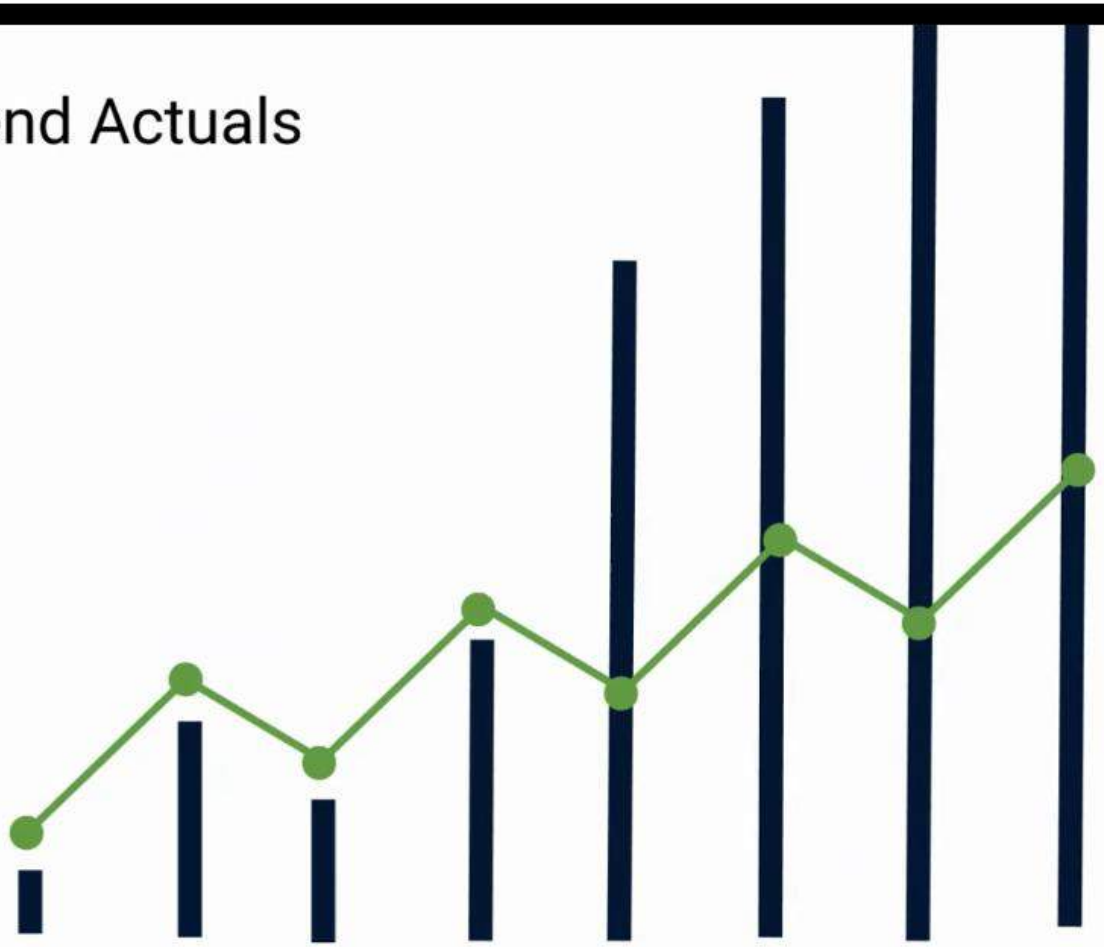
Cloud Spend Actuals



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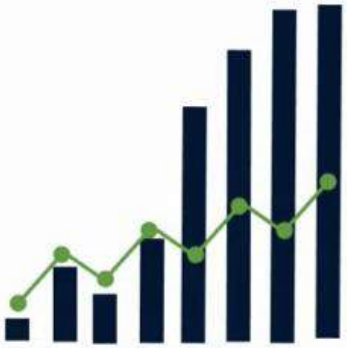
Unit Economics



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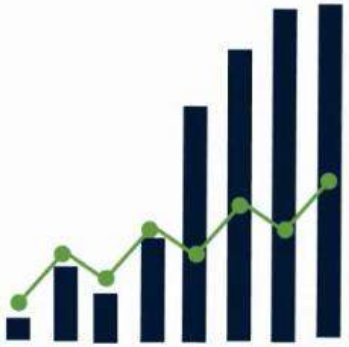

Users

Cost per MAU

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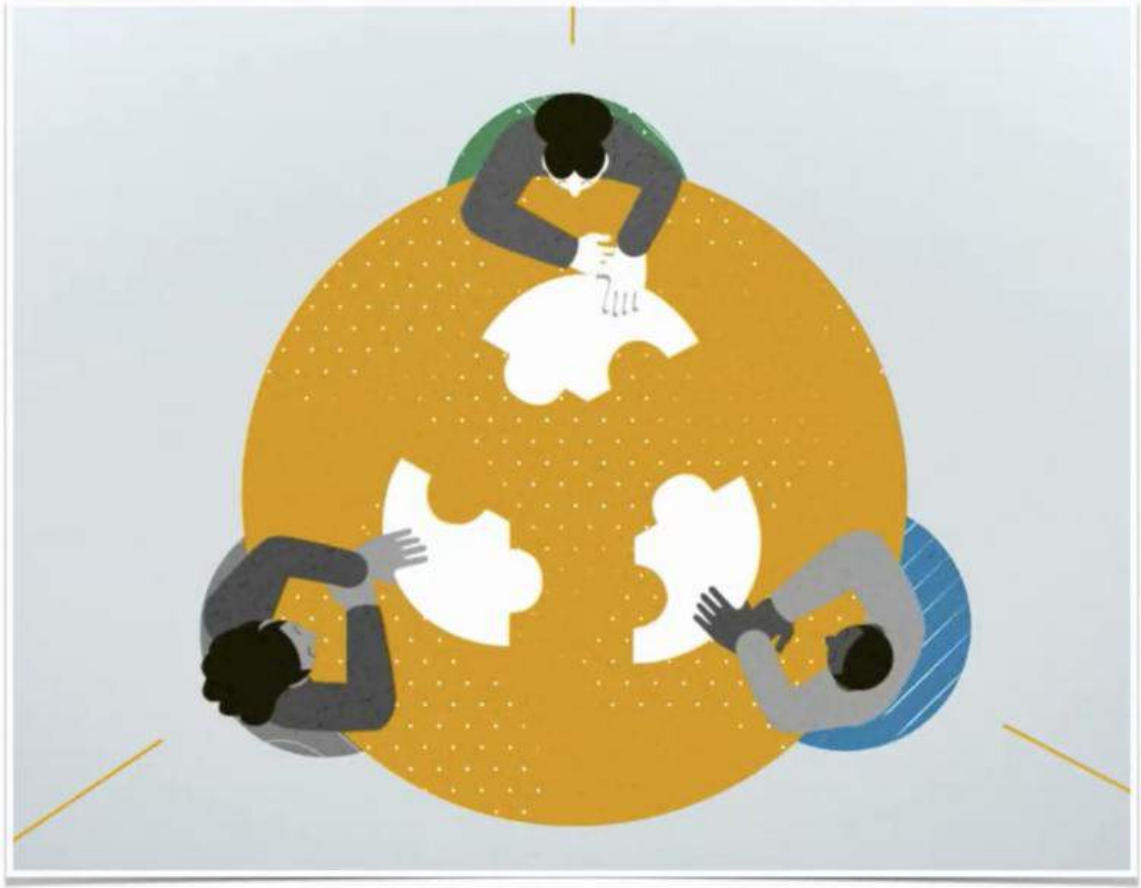

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NORTH AMERICA

Embedded Linux Conference
North America

VIDEO

ABSTRACT

The FinOps Mini-Summit is a 90-minute, single-track event on the topic of cloud financial management best practices. It will feature real-world stories, expertise, and inspiration for and by FinOps practitioners on cloud financial management best practices in engineering-focused companies. Topics to be covered: Why Cloud Financial Management has developed Shifting responsibility for cloud spending to product teams Implementing cost accountability and allocation Strategies for ensuring developers take action on cost actions Metrics-driven cost optimization in cloud

SLIDES

The presentation will begin momentarily.

Joshua Kwan

DevOps / SRE Consultant / Sysadmin
Independent (formerly LiveRamp)

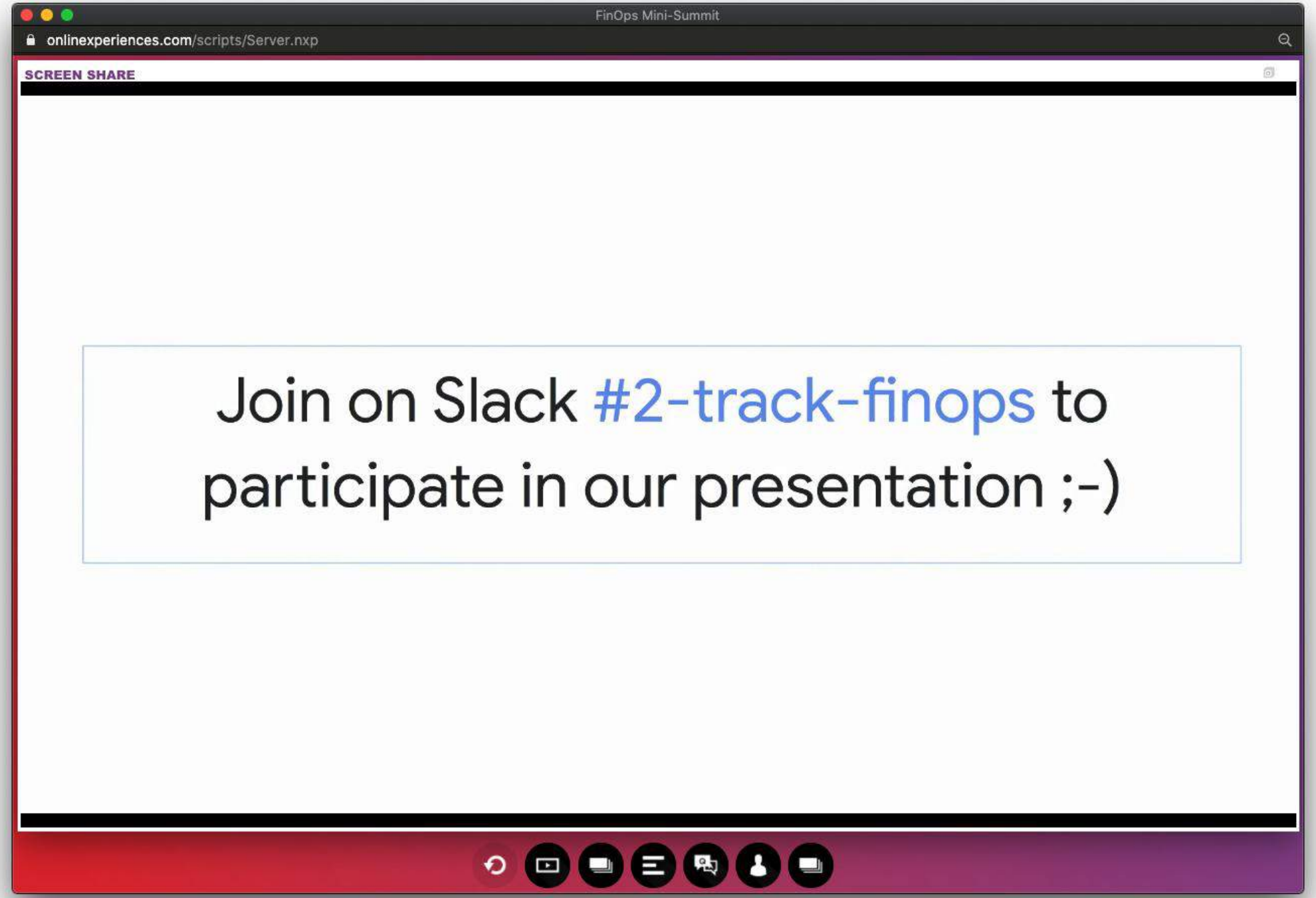
@joshk0

Sasha Kipervarg

Head of Global Cloud Operations
LiveRamp

Patrick Raymond

Sr Product Manager, Infrastructure
LiveRamp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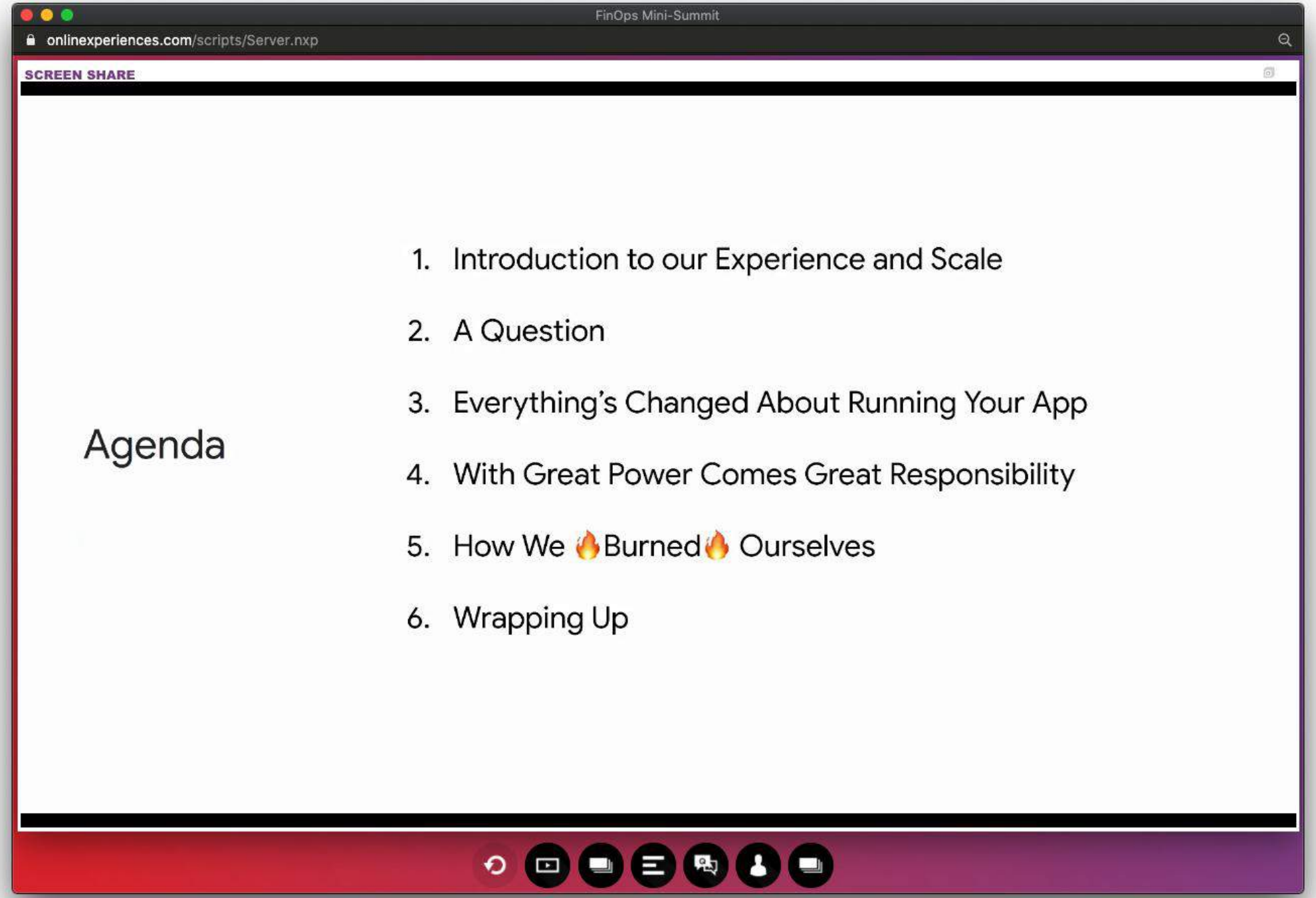
Join on Slack #2-track-finops to participate in our presentation ;-)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Agenda
1. Introduction to our Experience and Scale
2. A Question
3. Everything's Changed About Running Your App
4. With Great Power Comes Great Responsibility
5. How We 🔥Burned🔥 Ourselves
6. Wrapping Up

Our Experience

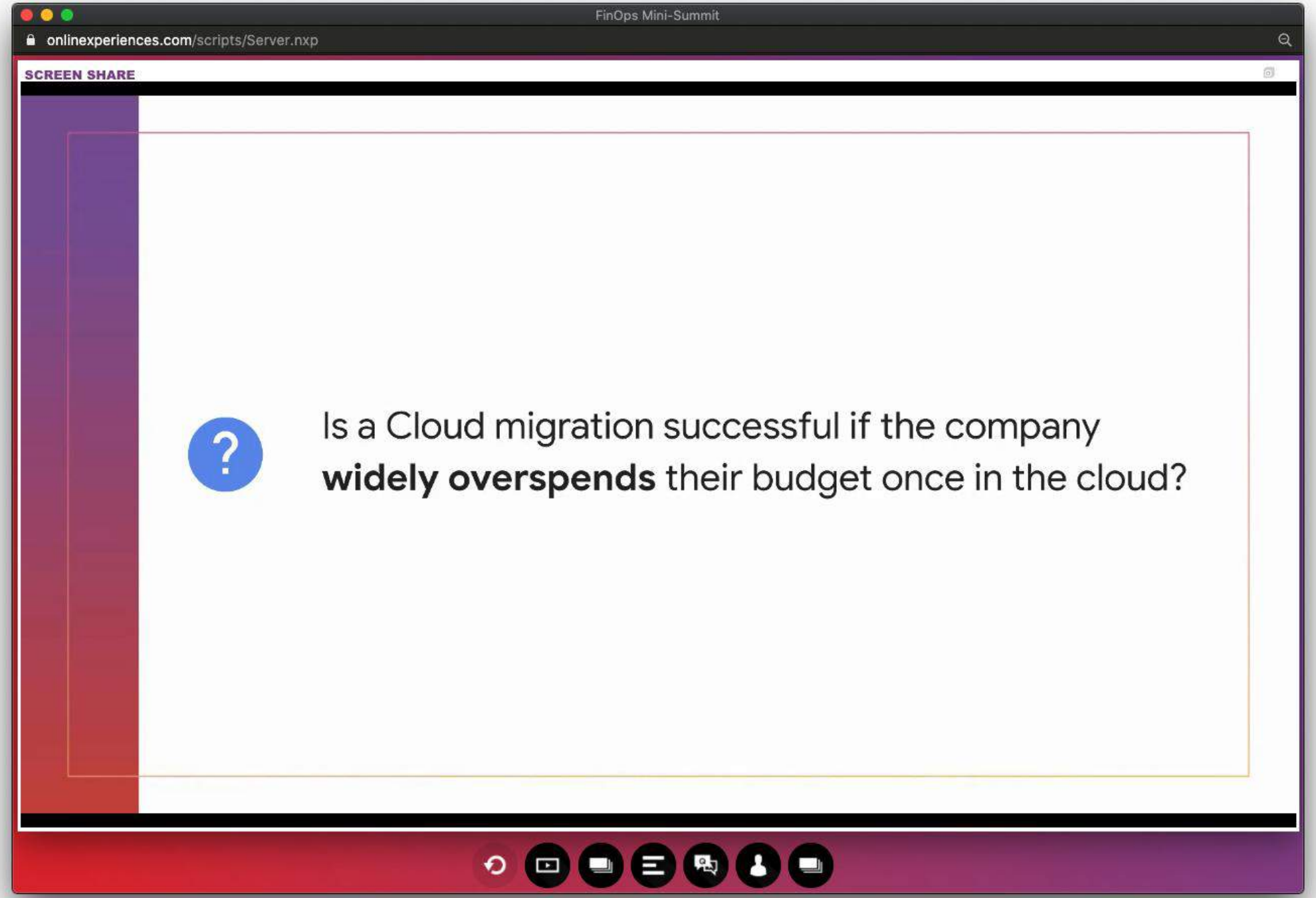
Achieve the impossible: Migrate on prem data center to GCP in 12 months

40 eng teams, 5 countries

Containerize 200+ applications in flight

- 80K CPU cores
- 360TB RAM
- 13PB read+written/day
- 500 projects

- Chef + VMware to Kubernetes
- Terraform for days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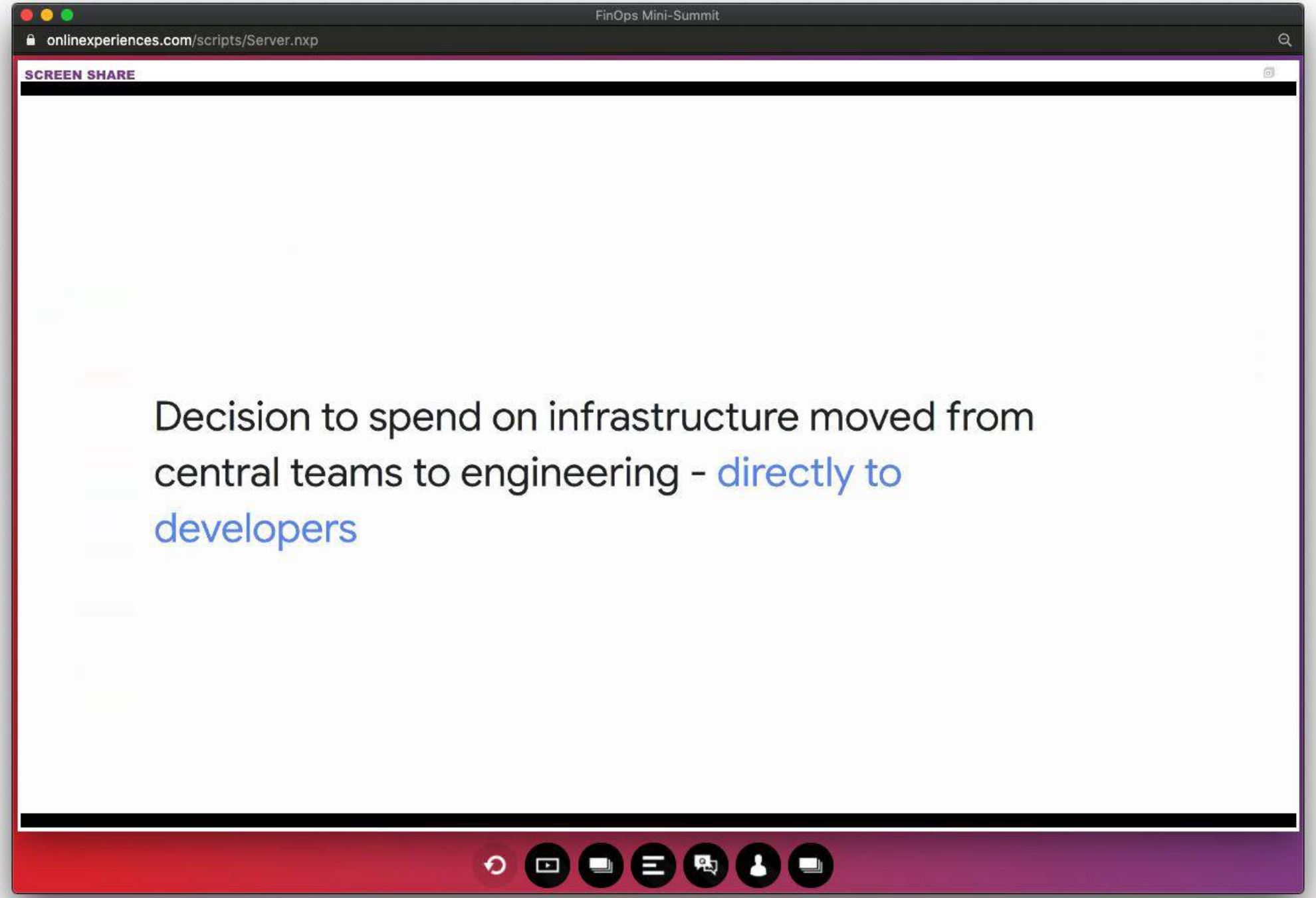
Is a Cloud migration successful if the company
widely overspends their budget once in the cloud?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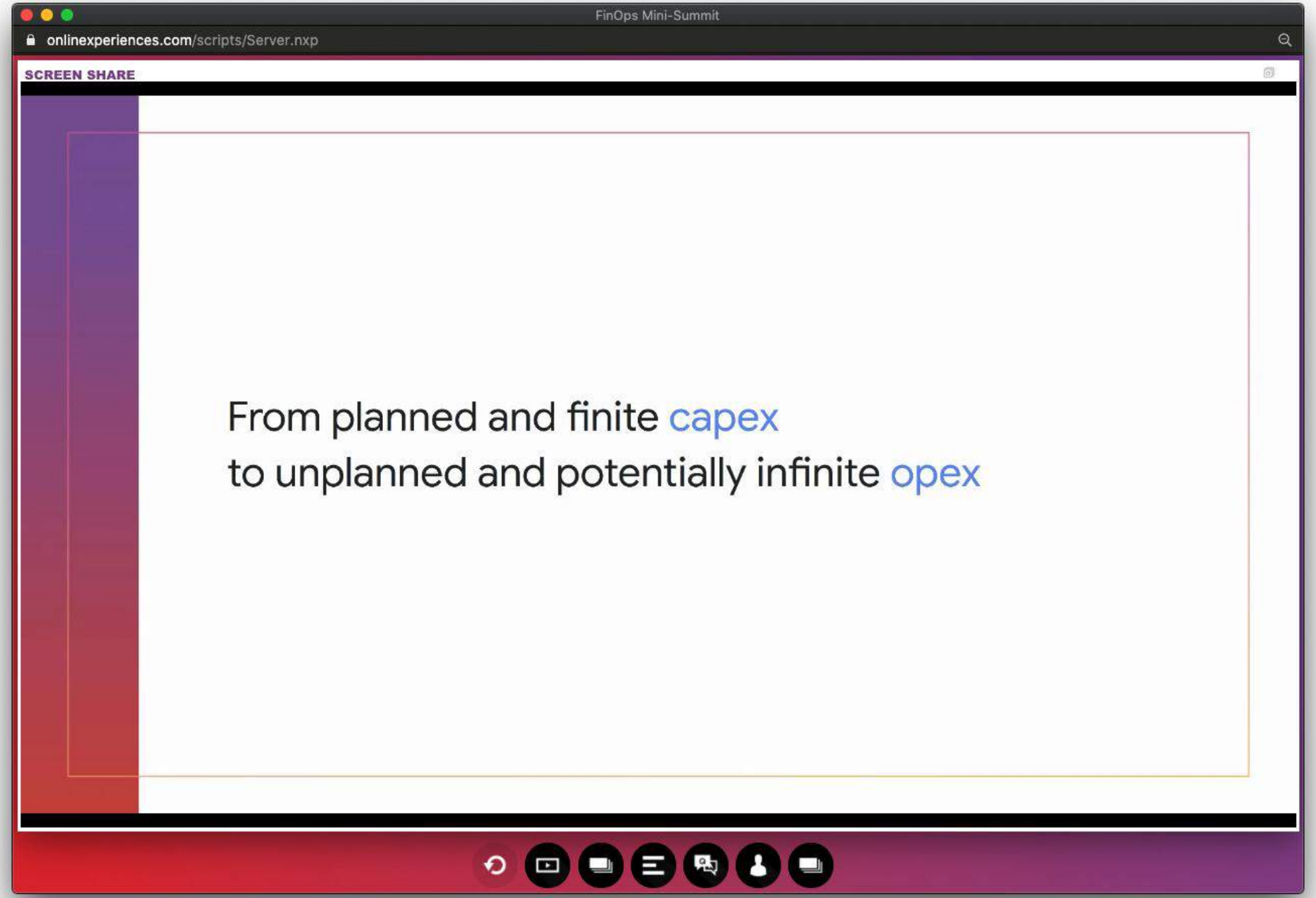
Decision to spend on infrastructure moved from central teams to engineering - directly to developers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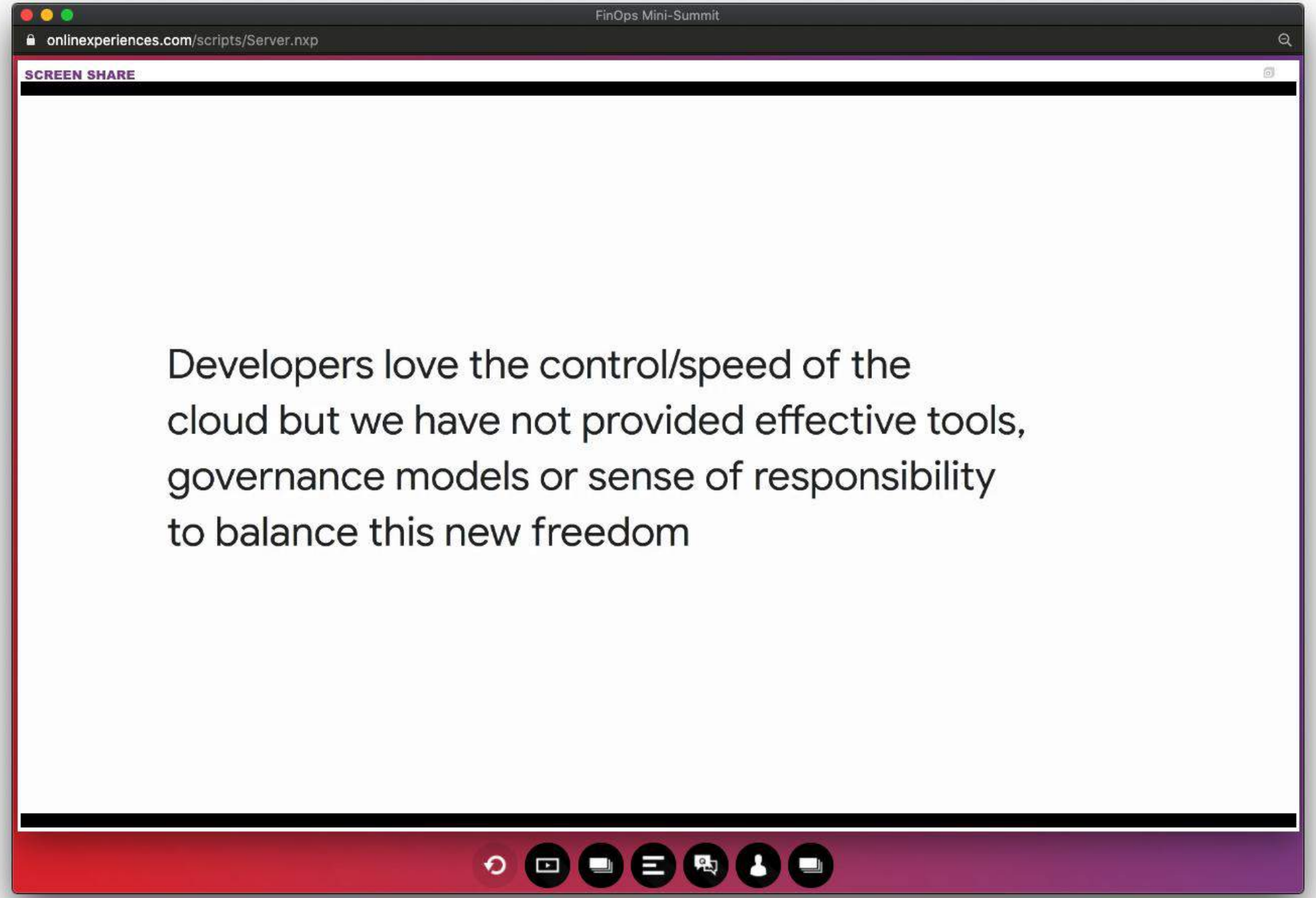
From planned and finite capex
to unplanned and potentially infinite opex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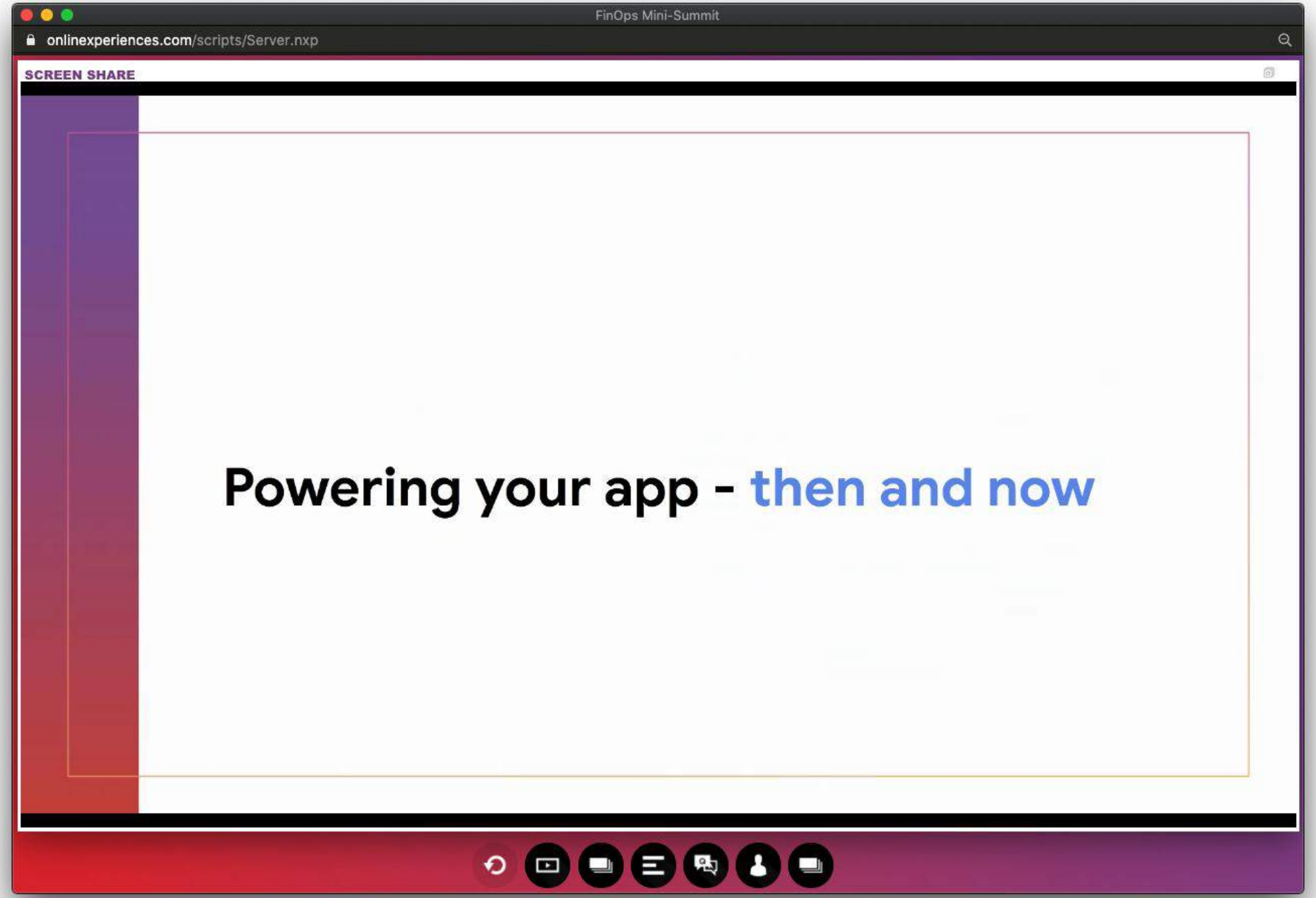
Developers love the control/speed of the cloud but we have not provided effective tools, governance models or sense of responsibility to balance this new freedom

A cultural shift

FinOps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Powering your app - then and now

Before Public Cloud

Servers, Hard drives, Colos

24x7 sysadmin teams

Moves at the speed of quarterly/annual capital expenses

Decided by CIO, IT, CTO - aka **not you**

Low touch between eng and finance

Before Public Cloud

Have a killer idea but your datacenter isn't set up for it?

Too bad! Wait until we can buy stuff again.

FinOps Mini-Summit

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SCREEN SHARE

Cloud moves at the speed of your idea...

FinOps Mini-Summit

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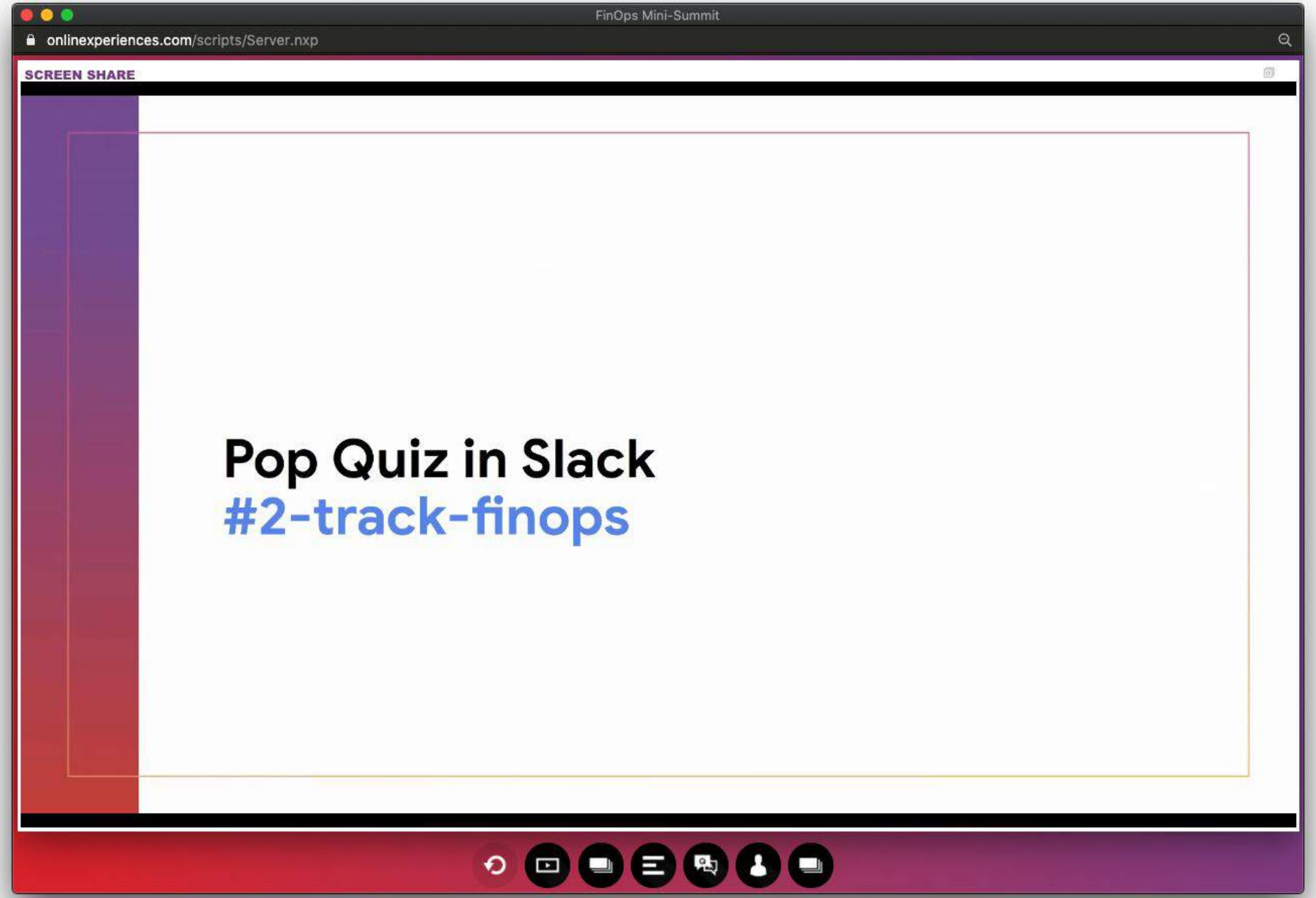
SCREEN SHARE

So do the costs. Now you make the purchasing decisions.
And Finance will notice!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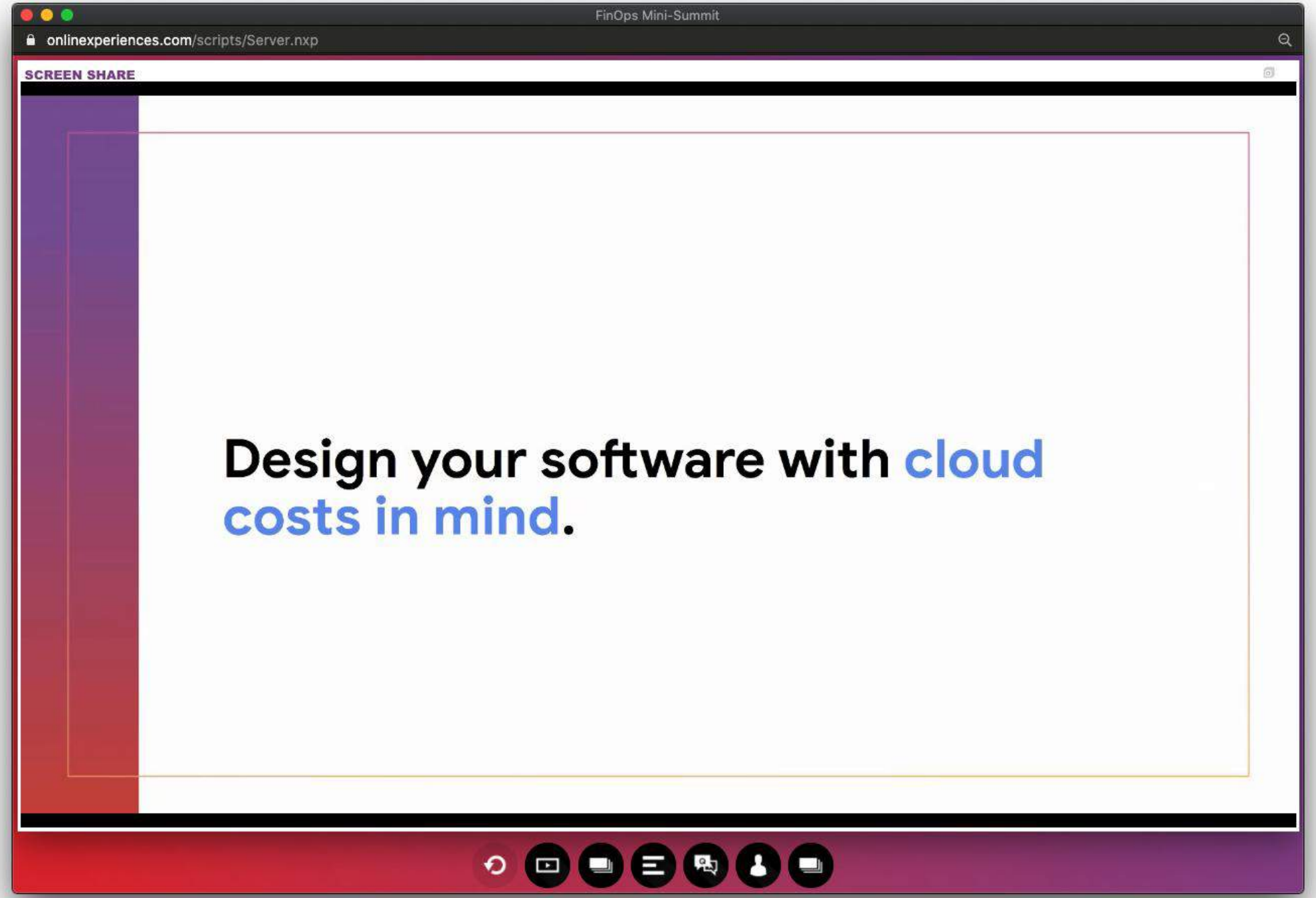
Pop Quiz in Slack
#2-track-finops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Design your software with cloud costs in mind.

Search OSS+ELC

OSS+ELC
Jim Ing

Get started
Next: Add a profile photo

Threads
Mentions & reactions
Channel browser
People
Apps
Files
Show less

Channels
1-helpdesk
1-oss-elc-general-info
1-random
2-track-ai-ml-dl
2-track-finops
2-track-internet-of-thi...
3-ntwk-asktheex... 1
+ Add a channel

Direct mess...
Slackbot
Jim Ing (you)

#2-track-finops
24

Today

Joshua Kwan 5:10 PM
How much does the app / product YOU work on cost every month to run in the public cloud? If you're not in public cloud, how much do you think it would cost? **Add reactions / emoji on each choice to vote or write in your own option!**

Less than $10,000
😀 1 ✅ 1 😊 1 🙂 1

$10,000 - $50,000
✅ 1

$50,000 - $100,000
✅ 1

$100,000 - $200,000

Over $200,000
✅ 3

I have not the slightest idea
🙌 1 😇 1

Doug Whitfield (OpenLogic by Perforce) 5:13 PM
I voted, but I generally work in a consulting role...pretty sure we have customers in all of those ranges

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Great Software Consists of:

- Modern Tooling
- Scalability
- Performant Algorithms
- Error Handling and Resilience
- Efficient Operating Cost

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Alexander Migl

What's the point of a beautifully architected app that costs too much to run?

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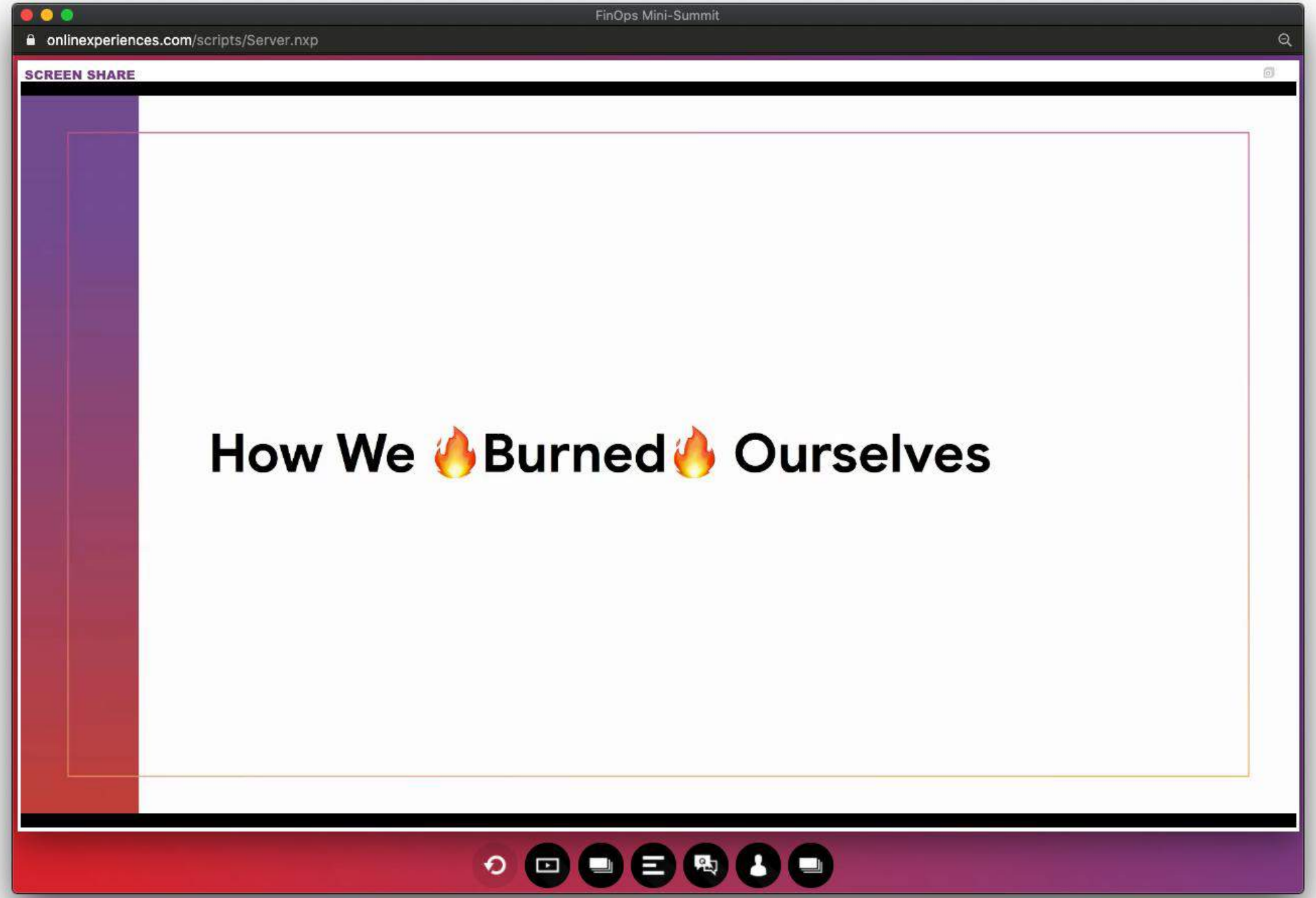
But sometimes you have to just play the game to learn it.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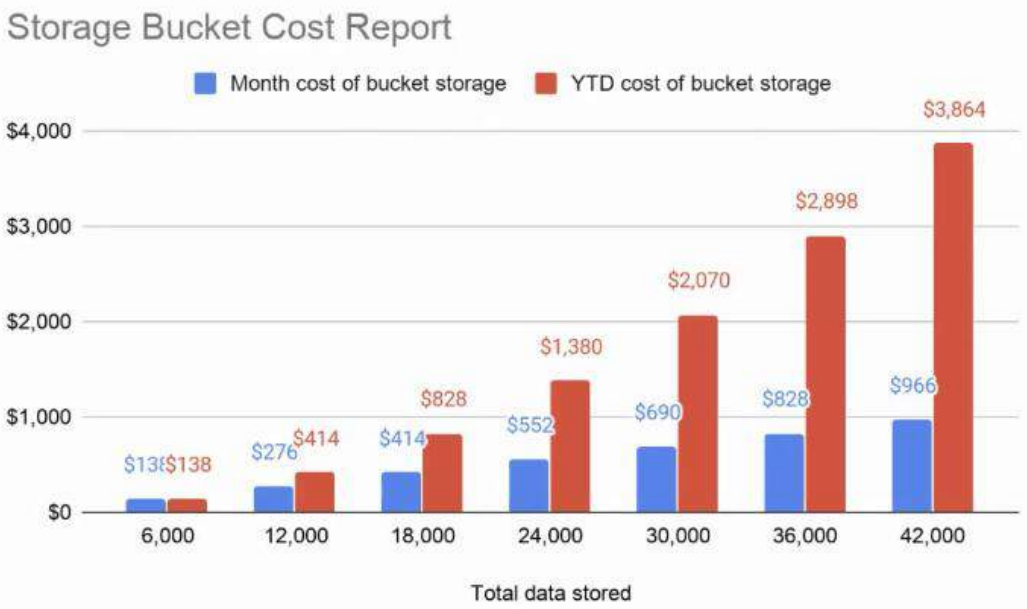
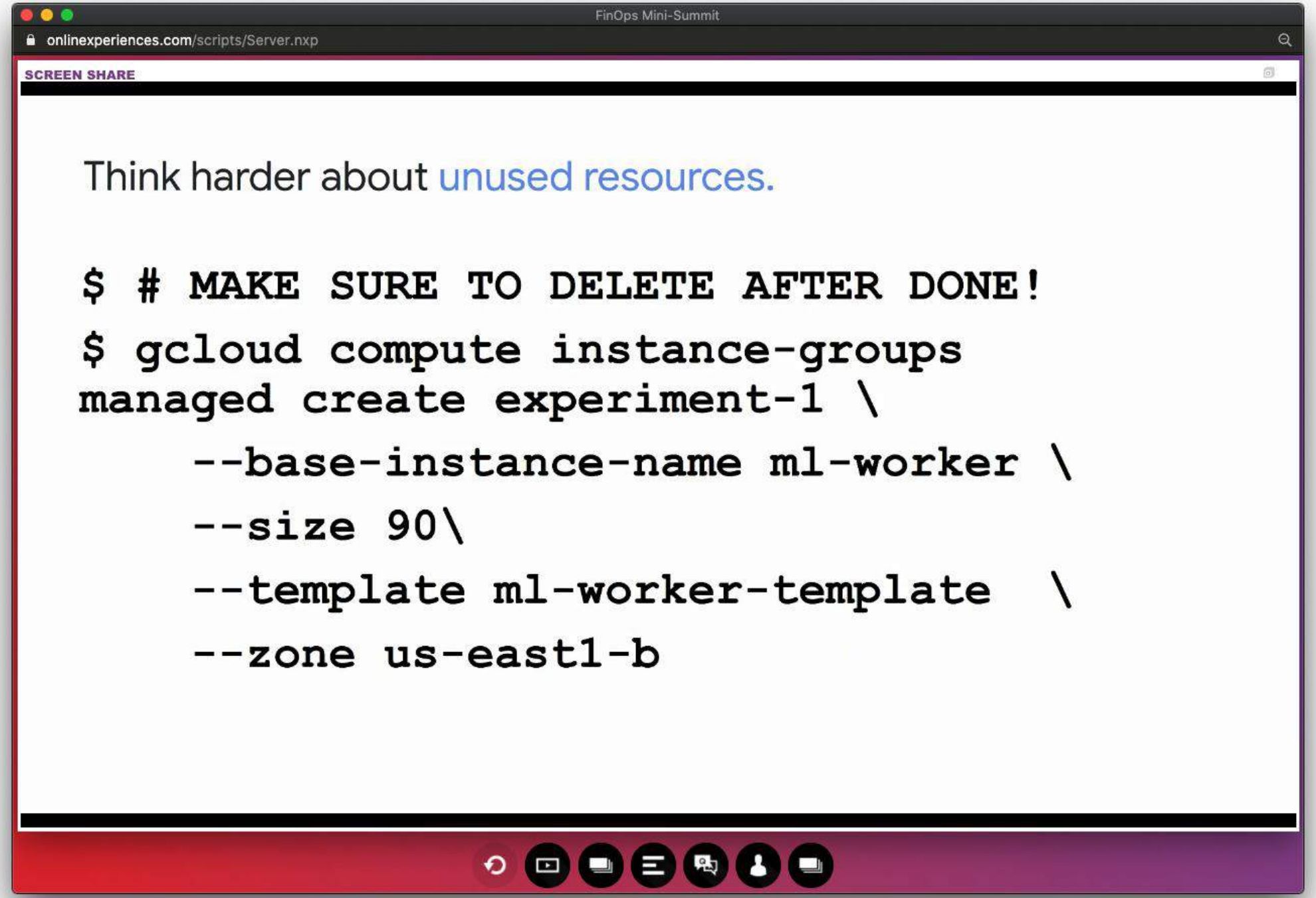
How We 🔥Burned🔥 Ourselves

Little Mistakes Add Up

```
$ aws s3 mb s3://my-app-data
```

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Think harder about unused resources.
$ # MAKE SURE TO DELETE AFTER DONE!
$ gcloud compute instance-groups managed create experiment-1 \
--base-instance-name ml-worker \
--size 90\
--template ml-worker-template \
--zone us-east1-b

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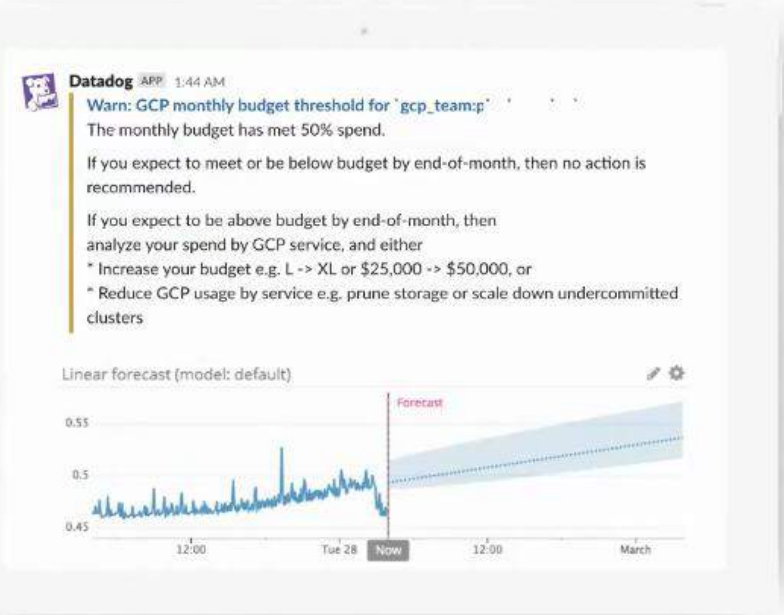
Think harder abo

```
$ # MAKE SU                                    R DONE!
$ gcloud co                                    oups
managed cre                                    \
     --base-                                   worker \
     --size
     --templ                                   plate  \
     --zone
```

Cost Monitoring and Alerting

- Problem existed prior to release of GCP Budgets API
- BigQuery + Datadog + Slack
- Real-time cost monitoring + forecasted spend + alertinç
- Manual escalation path

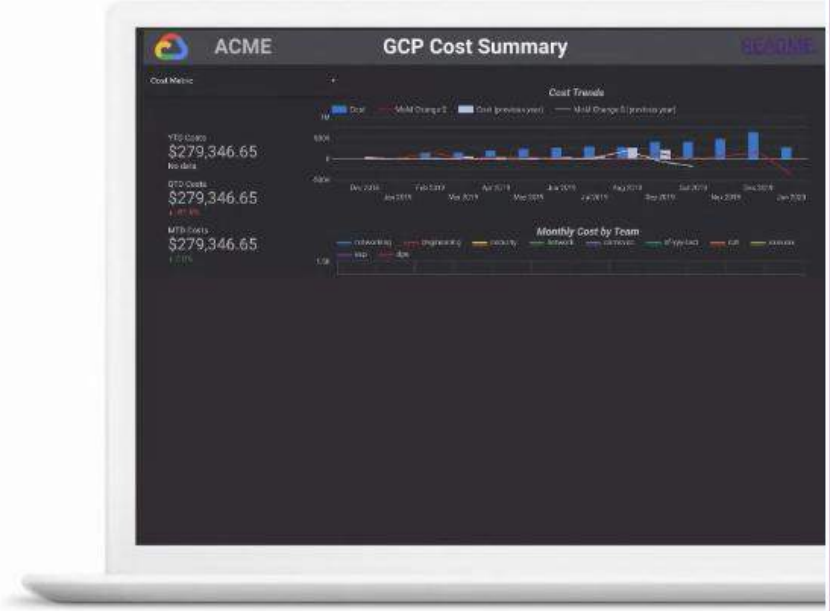


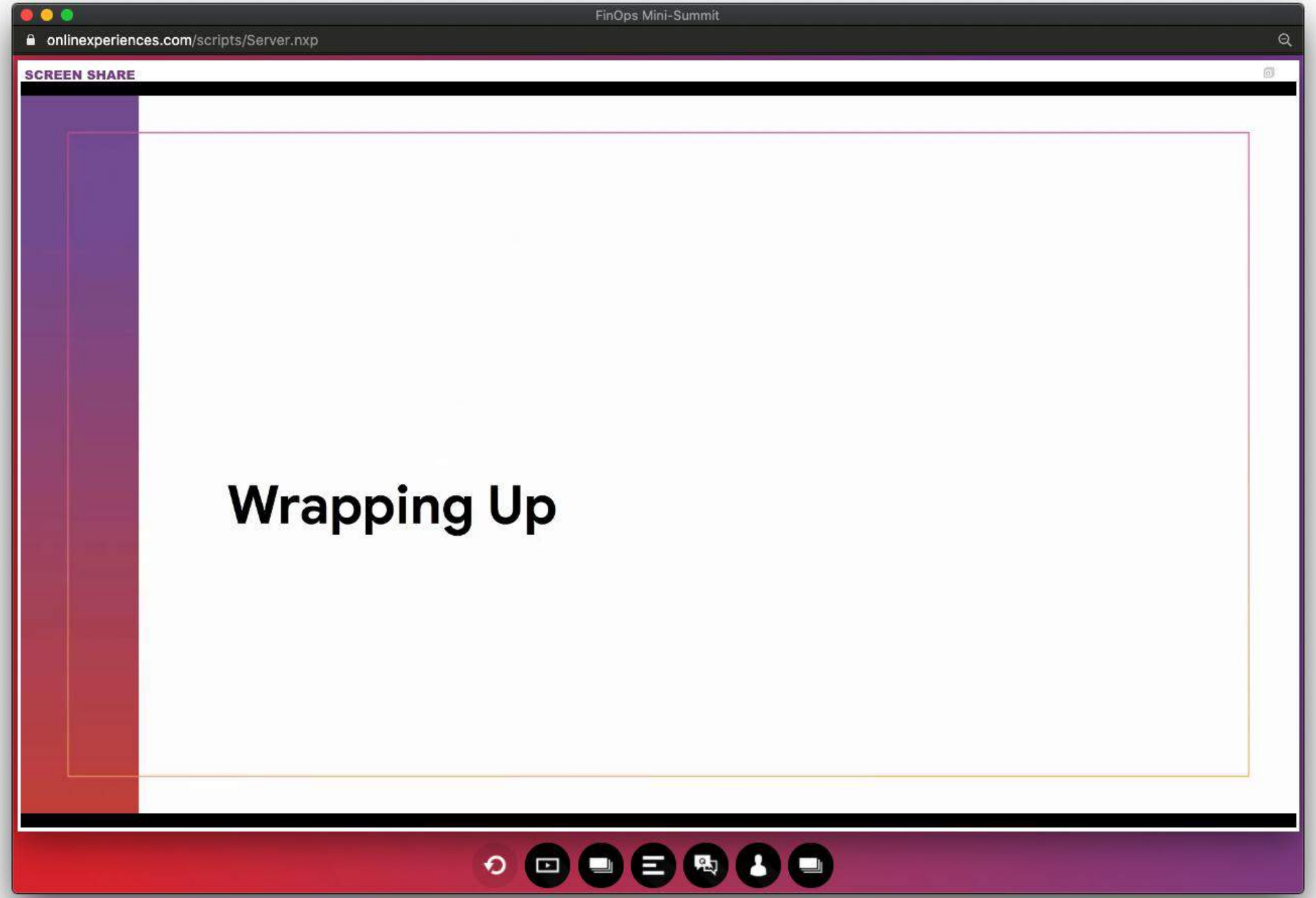
Cost Management Platform

- Build or hire?
- Use of GCP's tools for budget management
- Use of a 3rd party cloud cost management platform
- Homegrown App, Tableau, Jupyter Notebooks
- Where did we land? A combination of these

How We Progressed

- Data Studio Dashboards
- Need more detail!
- Tableau
- Need alerting, GKE metrics, Ease of Use... Let's Build our own!
- Cost Management Platform

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Wrapping Up

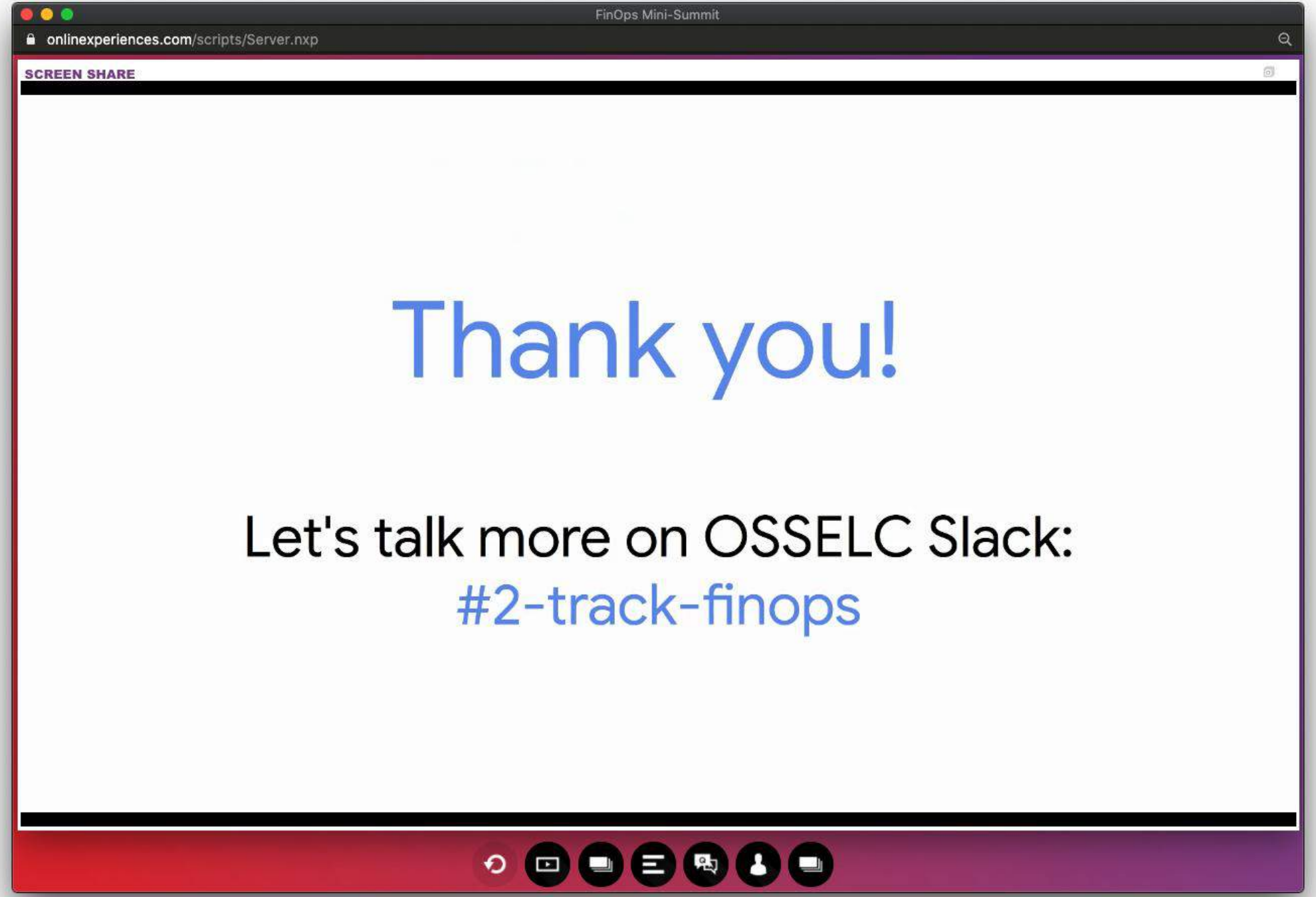
Conclusion

Consider cost as an architectural consideration when architecting new software for public cloud

Monitor your cost just like you monitor your app - be ready for surprises

You'll be collaborating with finance more - embrace the relationship

Remember to keep having fun - cloud makes everything move faster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Thank you!
Let's talk more on OSSELC Slack:
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