



AWS re:Invent

CON215-S

Implementing Kubernetes on AWS with confidence

Jeremy Proffitt

Staff Site Reliability Engineer
LendingTree

Frank Reno

Senior Technical Product Manager
Sumo Logic

Agenda

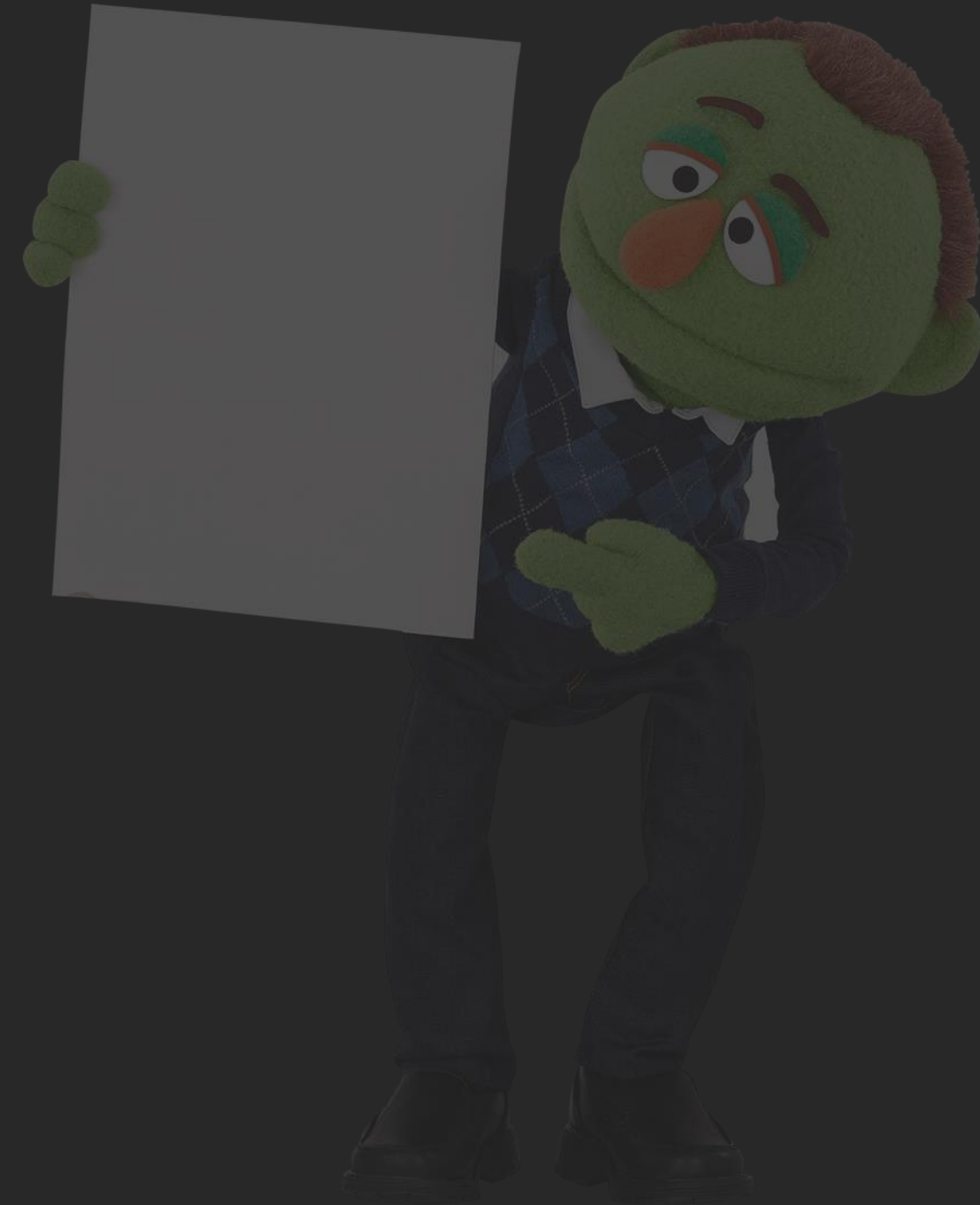
LendingTree's reliability revolution

The choice to migrate

Making a team of Kubernetes engineers

A single vision of reliability

Where we ended up and what's next



LendingTree's reliability revolution

Our reliability revolution

- One very bad week, the creation of the first SRE
- Tech-centric alerting
- A little Sumo Logic goes a long way
- Redundant alerting
 - Sumo Logic, New Relic, Zabbix, Adobe Analytics
- Relationships with revenue-centric units (Sales and Marketing)
- Open source in our monitoring and concern for bad commits



A choice to migrate

The invisible deliverable

Perception

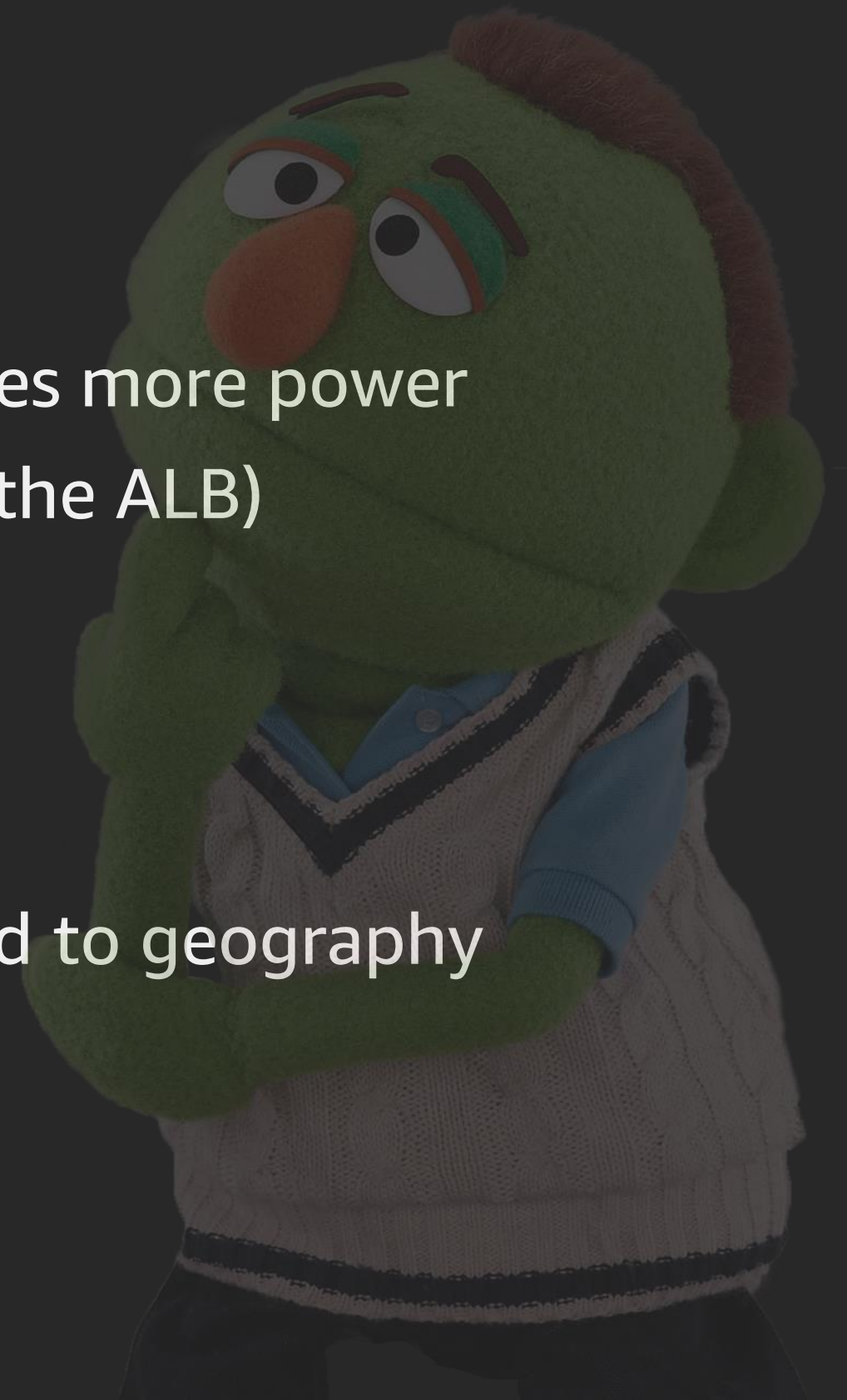
A way of regarding,
understanding,
or interpreting something

A mental impression



Why Kubernetes?

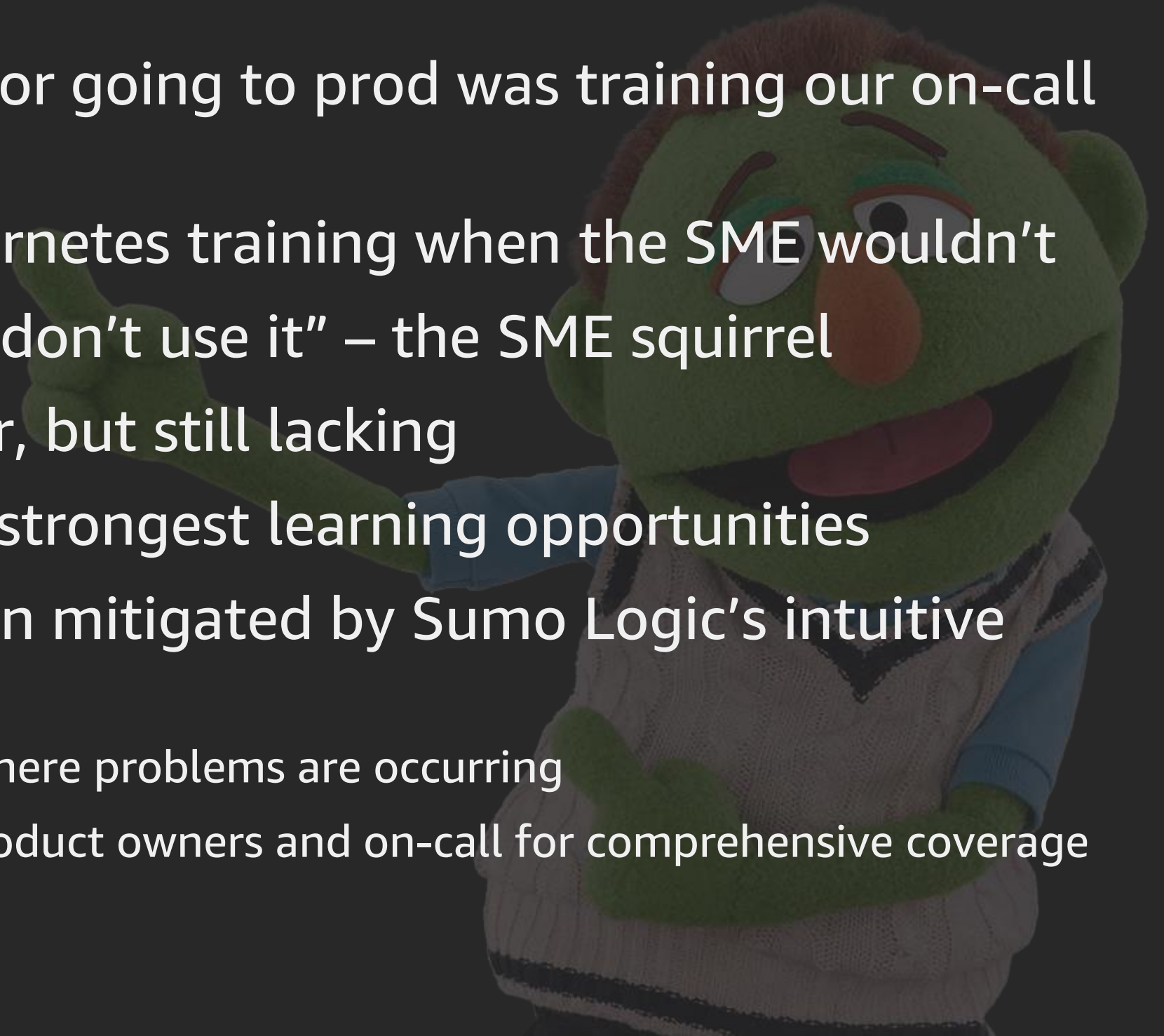
- Enhanced security
- Management of our own control plane provides more power
- Speed of routing internal to clusters (remove the ALB)
- Simple multi-region routing and reliability
- Better resource load balancing
- Production that is tested and proven
- Service discovery and the benefits when added to geography



Making a team of Kubernetes engineers

Our struggles of an SME and training

- Our single biggest struggle for going to prod was training our on-call staff to support it
- Ultimately, I scheduled Kubernetes training when the SME wouldn't
- "They also have this, but we don't use it" – the SME squirrel
- One-on-one training – better, but still lacking
- Self-study options provided strongest learning opportunities
- Reliance on the SME has been mitigated by Sumo Logic's intuitive Kubernetes system views
 - On-call technicians can easily see where problems are occurring
 - Directed monitoring can support product owners and on-call for comprehensive coverage



“I have never let my schooling
interfere with my education.”

—Mark Twain

In other words...

Nothing replaces the passion and fire
of engineers who discover for themselves



A single vision of reliability

The reliability of well-intentioned people

People are unreliable

Monitoring and alerting
coupled with knowledgeable
staff in an on-call rotation
equals reliability

Monitoring from multiple
applications increases
monitoring reliability!



What LendingTree uses to monitor

Systems hardware:

New Relic, Sumo Logic, and Zabbix

Log aggregation: Sumo Logic

Cluster/system view: Sumo Logic

APM: New Relic



Sumo Logic

**All your data. All your
insights. Together.**

Operations analytics

Security analytics

Business analytics

Your data



Apps



Micro-services



Cloud systems &
infrastructure



SaaS service



Mobile devices



3rd-party
systems & feeds

Our analytics



Multi-tenant



Scalable &
elastic



Machine
learning



API

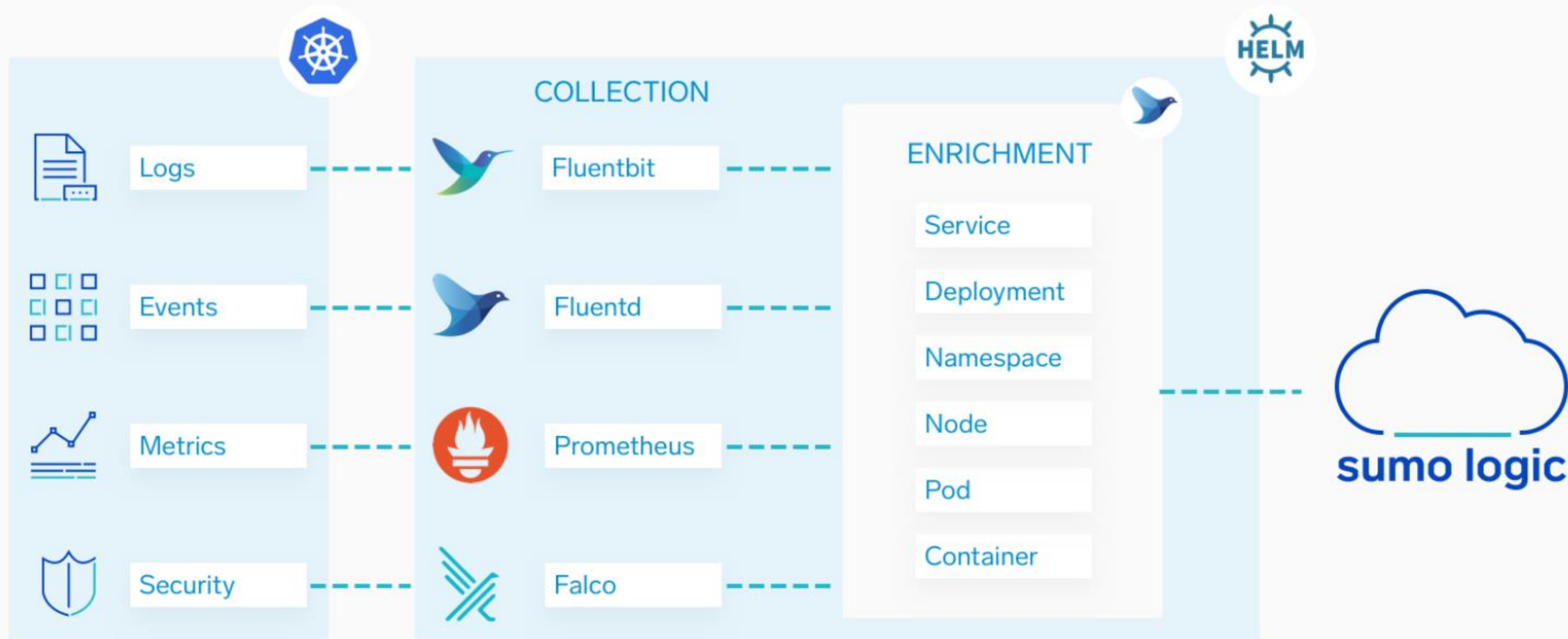


Advanced
analytics

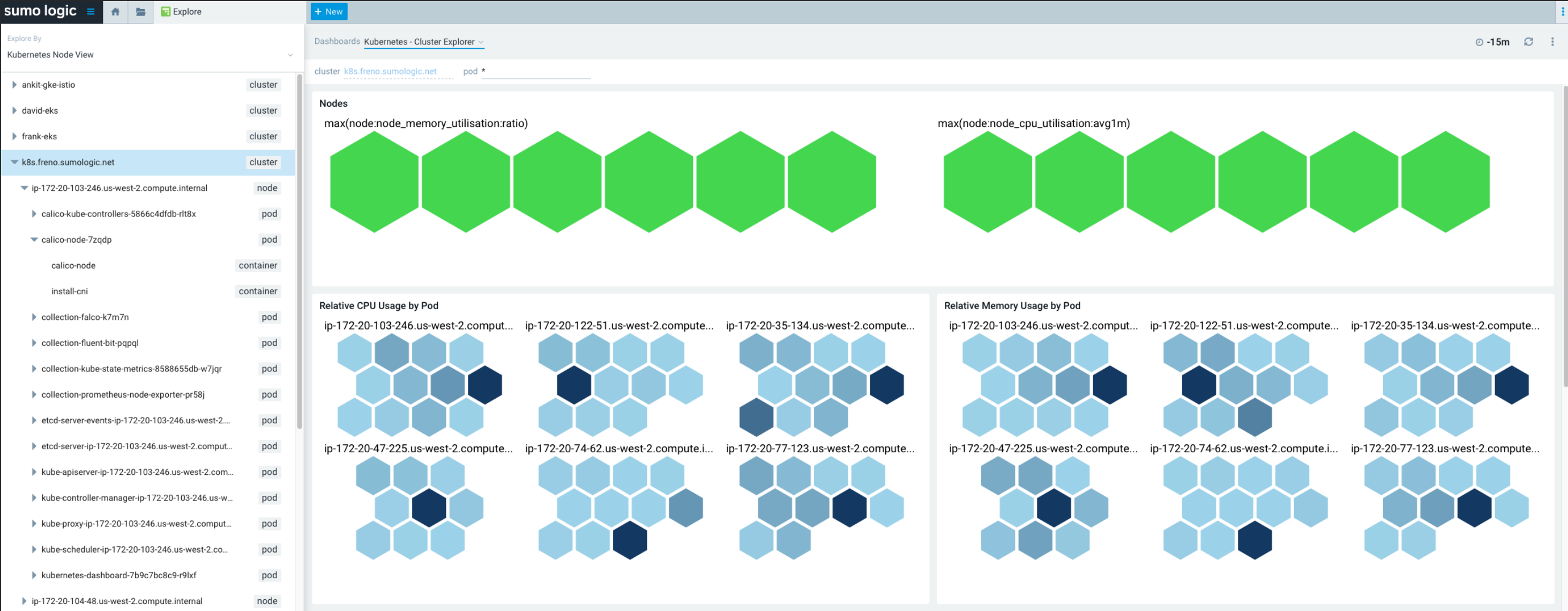


OOB security

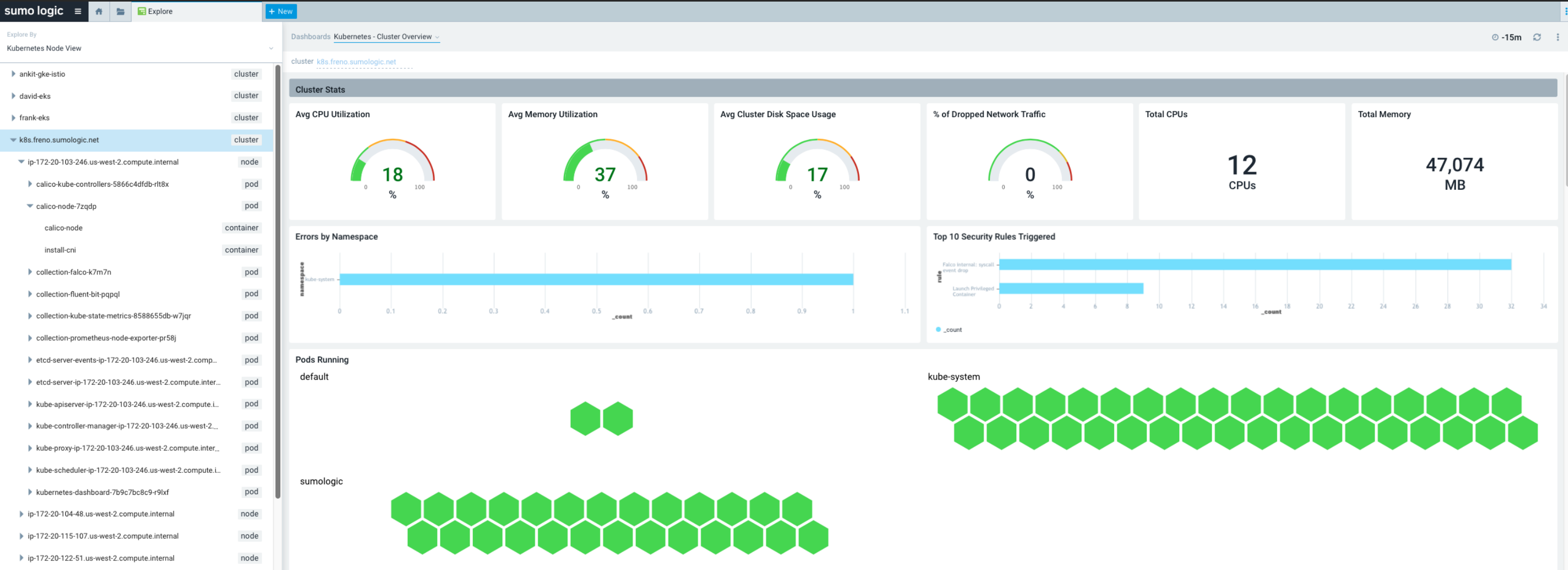
Comprehensive cloud-native data collection



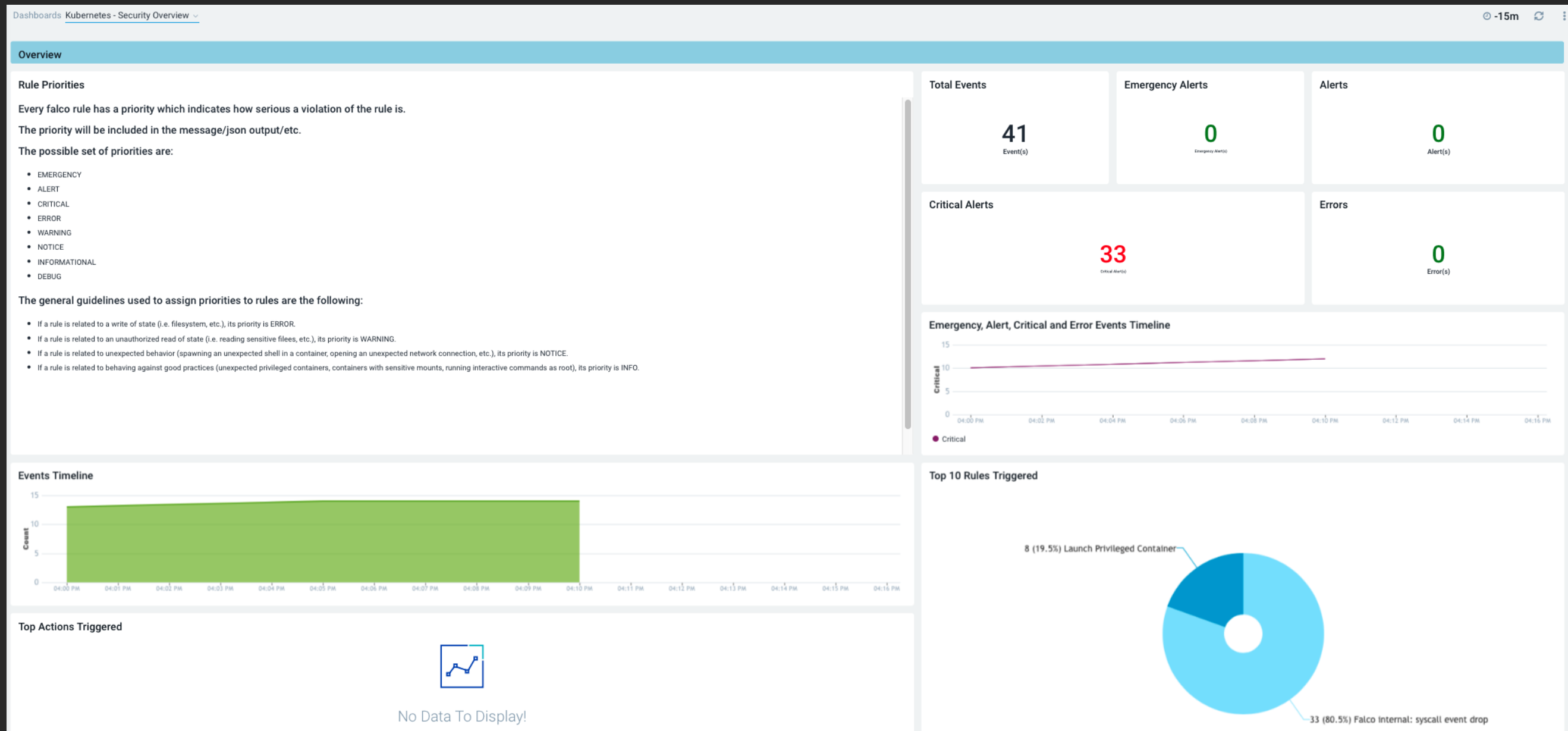
Single pane for Kubernetes where it runs



Cloud-native DevSecOps platform



Security insights built in

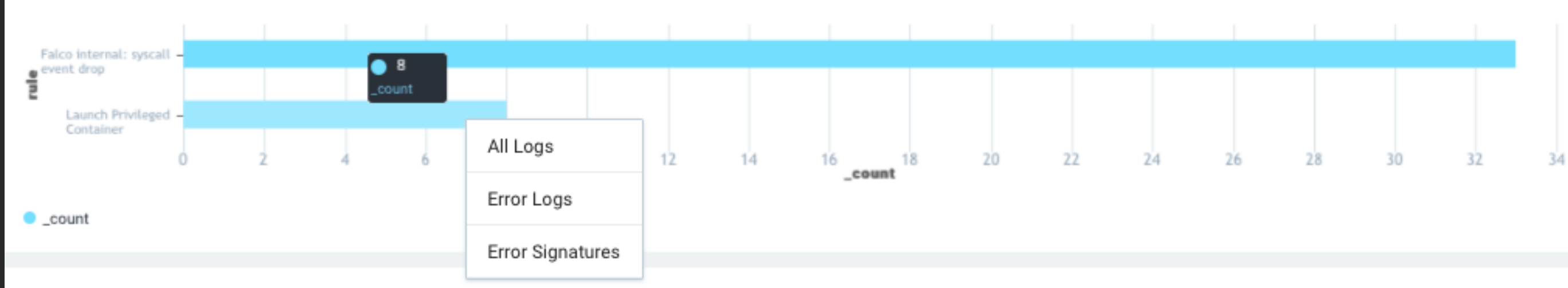


Seamlessly pivot between signals

CPU % Limit by Pod



Top 10 Security Rules Triggered



Sumo Logic app catalog

App Catalog

Apps help you get started gaining insights from your data source by providing example searches and dashboards for common use cases. Feel free to edit them as you need to get the results you want.

Q

All Categories

Amazon Web Services

Compliance and Security

Database

DevOps

IT Infrastructure


Kubernetes

Operating System


Storage

Sumo Logic


Web Server




AWS CloudTrail




AWS Config




AWS Elastic Load Balancer - Application




AWS Elastic Load Balancer - Classic




AWS Elastic Load Balancing Metrics




AWS Elastic Load Balancing ULM - Application




AWS Elastic Load Balancing ULM - Classic




AWS Lambda




AWS Lambda ULM




AWS Security Hub




AWS WAF




Active Directory




Akamai Cloud Monitor




Amazon CloudFront




Amazon DynamoDB




Amazon ECS




Amazon EKS - Control Plane




Amazon ElastiCache Redis ULM




Amazon GuardDuty




Amazon GuardDuty Benchmark




Amazon Inspector




Amazon Kinesis - Streams




Amazon RDS Metrics




Amazon Redshift ULM




Amazon S3 Audit




Amazon SES




Amazon SNS




Amazon SQS




Amazon VPC Flow Logs




Apache




Apache Tomcat




Aqua Security




Artifactory




Audit




Aurora MySQL ULM




Aurora PostgreSQL ULM




Auth0



Azure Active Directory



Azure Audit



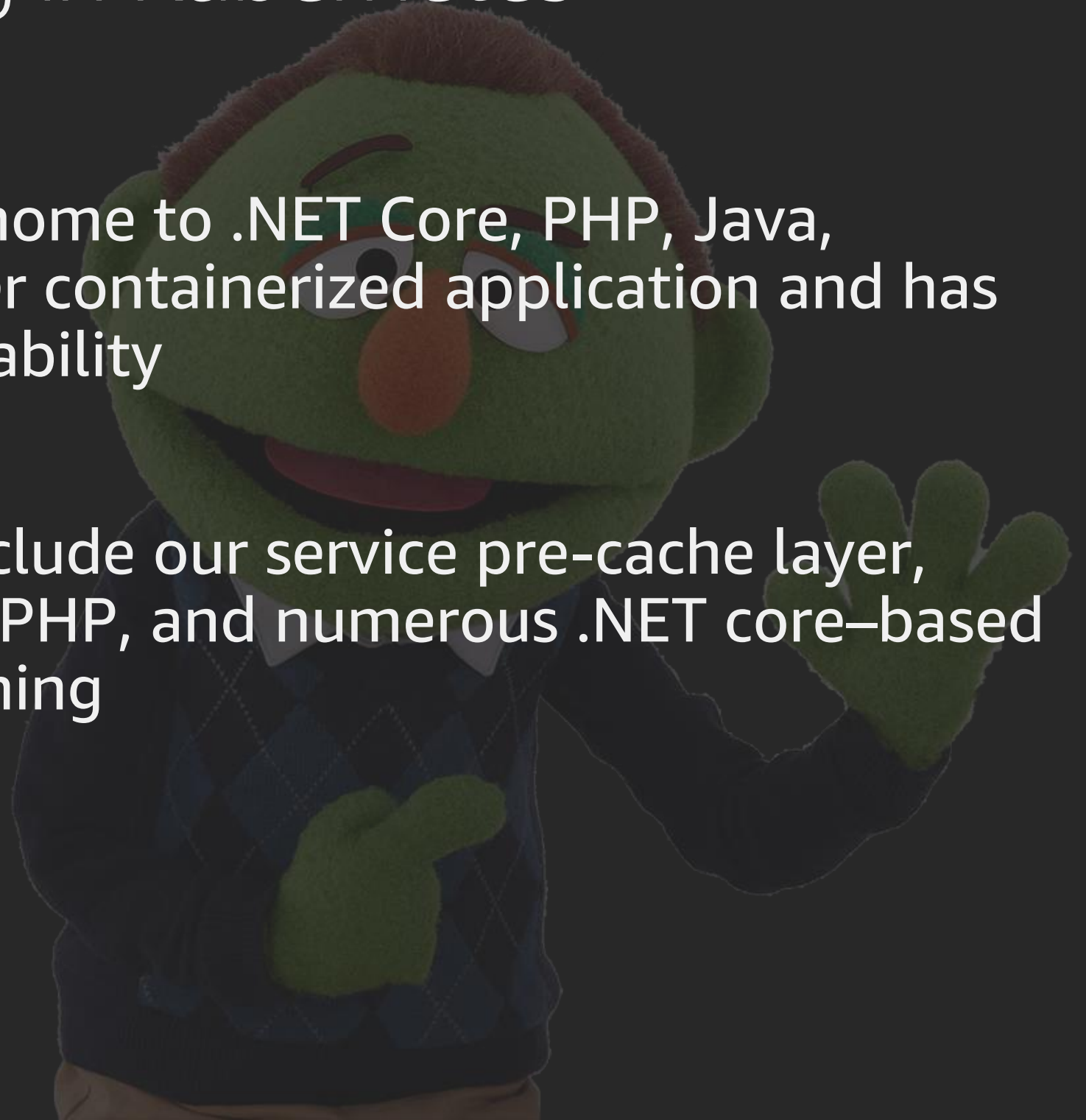
Azure Kubernetes Service (AKS) - Control Plane

Where we ended up and what's next

What we ended up running in Kubernetes

Our Kubernetes cluster has become home to .NET Core, PHP, Java, NGINX, Apache, and a myriad of other containerized application and has solved unique needs and provided stability

Our production workloads to date include our service pre-cache layer, WordPress, semi-static web content, PHP, and numerous .NET core-based web services, but it's far from everything



Data storage distribution – it's what's next!

Kubernetes has brought to light our need to have more distribution of data across geography

Our next phase for Kubernetes is more about data than compute

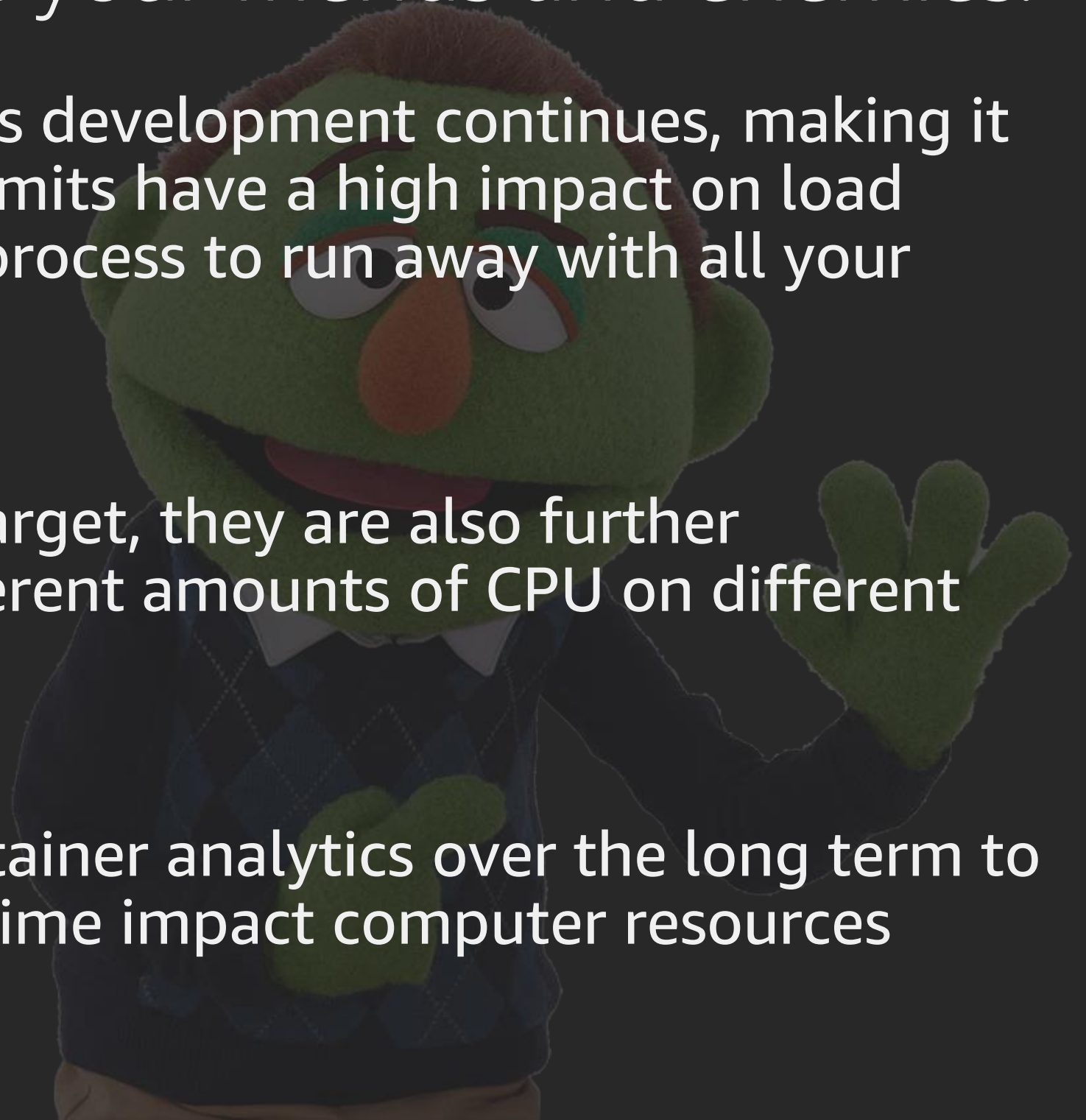


Memory and CPU limits are your friends and enemies!

Memory limits are always changing as development continues, making it a moving target, and poor memory limits have a high impact on load balancing, while no impact allows a process to run away with all your memory

While CPU limits are also a moving target, they are also further complicated by values, meaning different amounts of CPU on different instance types

We are looking to start compare container analytics over the long term to analyze how software changes over time impact computer resources



Thank you!

Jeremy Proffitt

Jproffitt@tree.com



Please complete the session
survey in the mobile app.