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MARCH 4-7

INTERNET2

2024
COMMUNITY
exchange

**Rearchitecting the Cloud
with Guardrails**

March 5, 2024



Introduction



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Agenda

- The cloud journey at SLU
- Kion as part of the SLU cloud stack
- Q&A



2020: Getting our feet wet



Large ETL project for group in economics

- Purchased access to data source with 70-90 Gb data/day
- No resources on prem to store, much less compute

Planning for virtual data warehouse (VDW) of clinical data

- Used PROSERVE to configure the initial connection to the clinical sites providing the data
- Next step was to set up Compute and Data Flow

2021: At ease in the water



Put VDW into production

- Supported users with remote desktop access to EC2 instances
- Set up connections to S3 for data movement within VDW

Built a REDCap instance on AWS

- POC was rebuilt using Linux v2 and beanstalk with AMI
- Completed full HIPAA certification and audit

2022: Learning to paddle



Deployed several POCs

- Need to simplify experience of end users
- Automate account provisioning
- Mitigate security issues

Worked with vendor on their SAAS front end

- A lot of effort in modifications to the interface
- Security remediation an on-going headache

Omero on the cloud

2023: Up on the board



Request for a CMMC 2.0 compliant environment

- Exposed critical weaknesses of current SAAS

Started deployment of Kion

- More strait forward to configure a compliant environment
- Establishing baseline security rules that are inherited across environments

Lessons learned

- ☆ Do not put POCs into production
- ☆ Need for DEV and PROD environments that are nearly identical
- ☆ Security considerations up front
- ☆ Automation is key for sustainable growth
- ☆ Visible spend is important for end users

2024: Back on dry land



- Set up Kion behind SSO (Okta)
- Tagging all the resources
- Use tags in Kion to generate reports
- Automation with terraform



Higher Ed Cloud Challenges

Unique Needs	Academic <ul style="list-style-type: none">• Heavily guard-railed• Easy access to native cloud provider consoles• Ref. Architecture/Service Catalog deployed for students	Research <ul style="list-style-type: none">• Flexibility to easily add/remove users frequently• Align workloads toward specific compliance frameworks• Provide Self-Service model to get access to cloud• Enforce static spend thresholds aligned to grants and projects• Delegated access control to PIs	Administrative <ul style="list-style-type: none">• Easily provision/deprovision access to accounts across cloud providers• Easily audit and align to popular compliance standards• Traditional "IT" needs - host applications, patch servers, etc.
Common Challenges	<ul style="list-style-type: none">• High user turnover• Centralized and decentralized funding models - and strict budgets• Data retention and classification risks		
Goal	Secure, repeatable cloud operations that are aligned to budget.		

To rapidly scale cloud adoption, the future of cloud operations **must be governed by default** to reduce the complexity, chaos and busy work consuming teams.

Better defaults

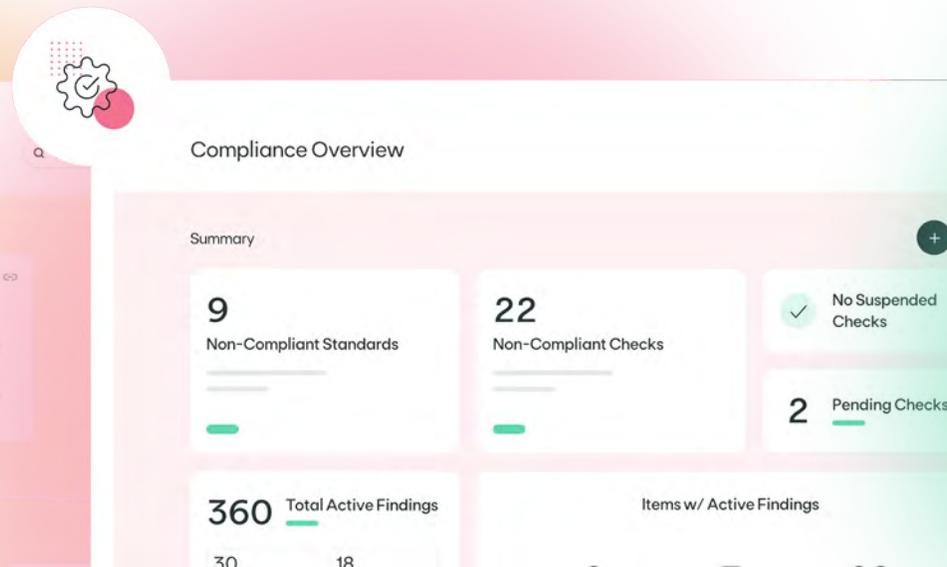
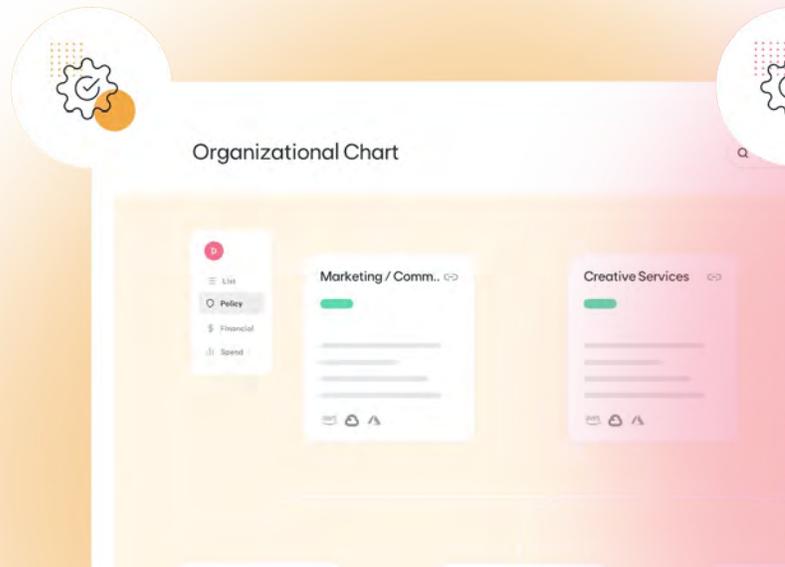
Set policies, permissions and rules to control cloud security, identity and spend automatically for all new projects

Cloud confidence

Whether you're a CCOE, SRE, or a DevOps team of "just me" enables your team to make confident decisions and scale best practices.

Unified approach

True multi-cloud, multi-org, and multi-account visibility and controls with a self-hosted platform for complete privacy



Introducing Kion

How Kion works



Visibility

View security and financials across all your cloud orgs, accounts, tenants, projects, and resources — in one place with integrations to popular observability tools.



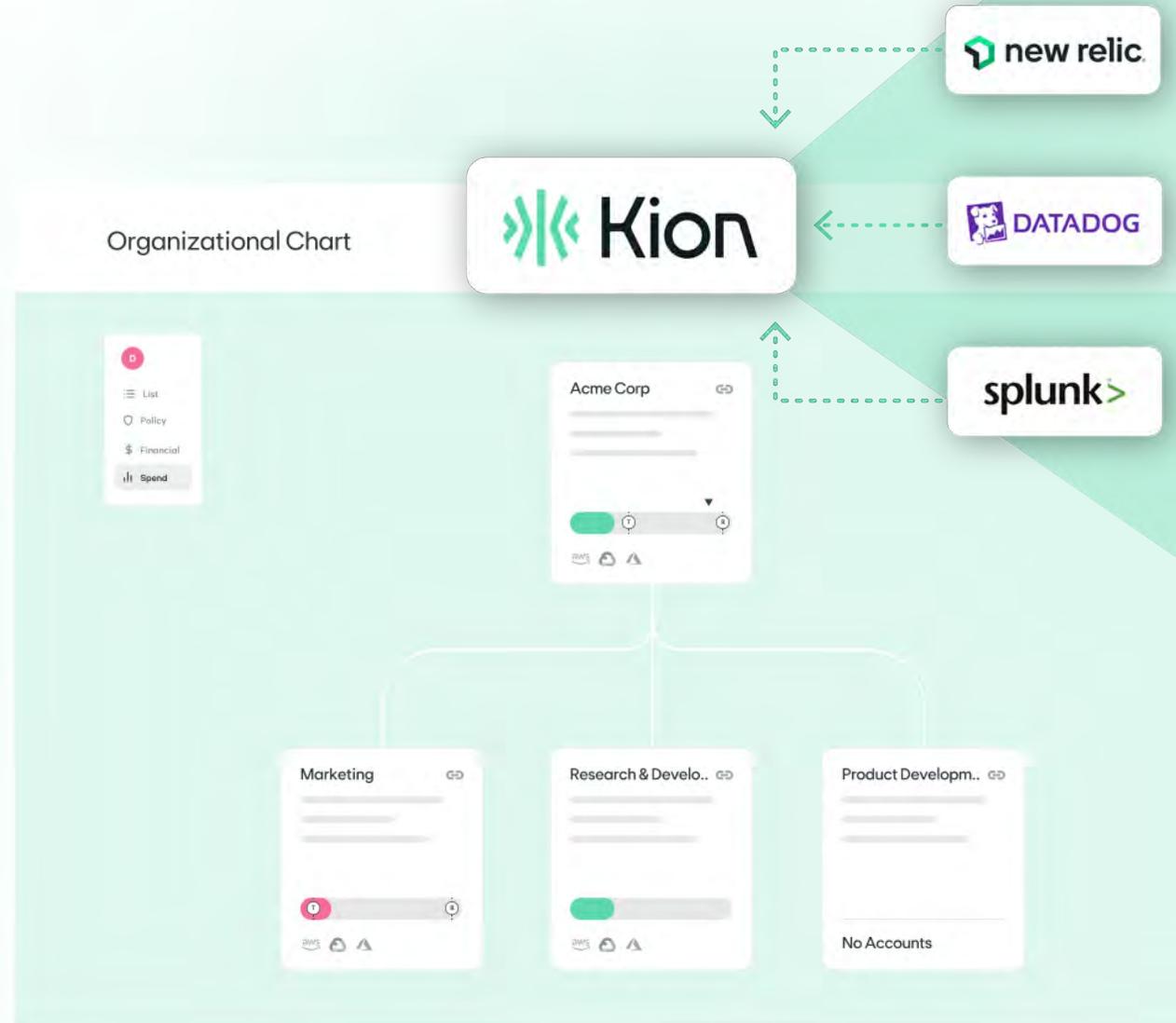
Guidance



Guardrails



Automation



How Kion works



Visibility



Guidance

Get tailored recommendations on how to improve your CloudOps practice.



Guardrails



Automation

Savings Opportunity Overview

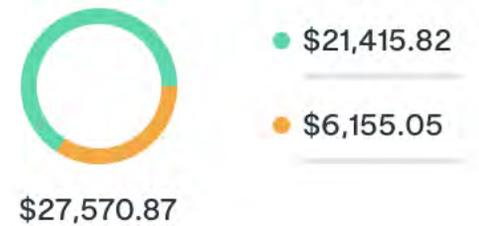
Monthly Annual

Search by keyword

Cost



Savings



How Kion works



Visibility



Guidance

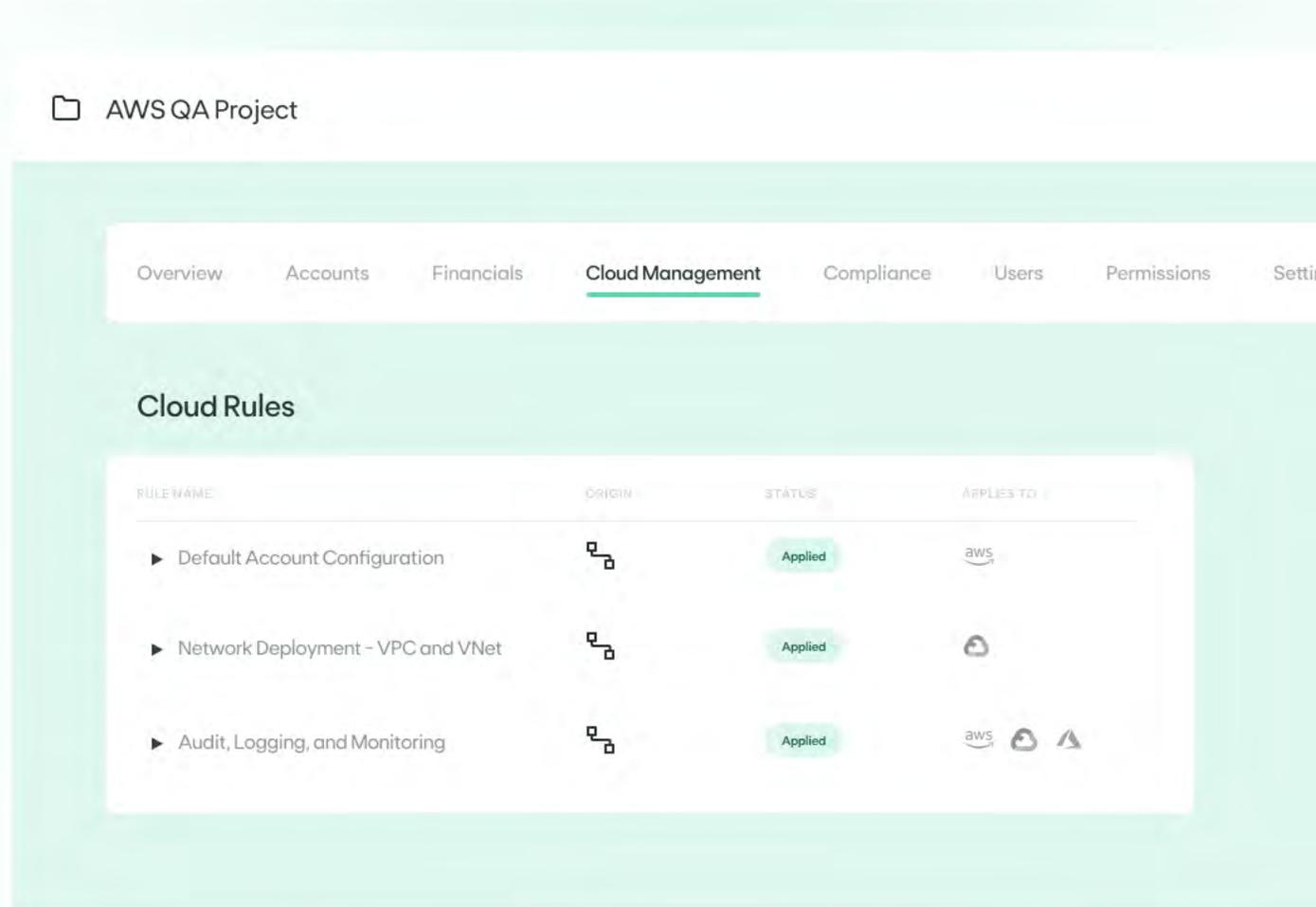


Guardrails

Set controls that define what accounts and roles can or can't do.



Automation



How Kion works



Visibility



Guidance



Guardrails



Automation

Enforce guardrails, remediate drift, and stop the reactive busy work.

Compliance Checks

43

Non-Compliant

51

Compliant

46

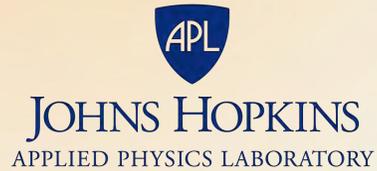
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<input type="checkbox"/> ebs-volume-with-compliant-tags <small>aws LOW</small>	██████████ ██████████ ██████████

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Q&A

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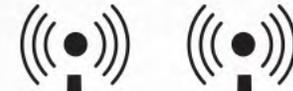


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