RSAC 2025 Conference

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SESSION ID:

GCP Organization Policies to Live By - And Their Implementation Pitfalls

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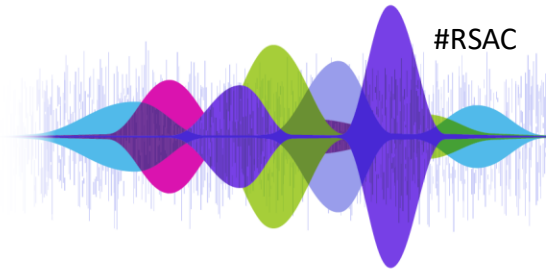

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About me

Kat Traxler

Security Research

- Vectra AI Principal Security Researcher
- IANS Faculty

*"Excited about exploring where technology **boundaries intersect** and are stitched together with protocols and assumptions"*

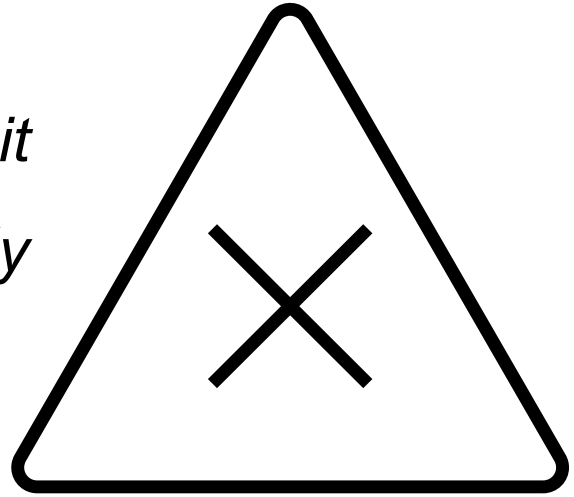
Agenda

- Mega Corp Moves to the Cloud
- Org Policy Constraints to Live By
  - Org Policies | 101
  - Great Guardrails for Risk Reduction
- When Cloud Gets Real
  - Implementation Challenges
- We Secure the Cloud We Have; Not the One We Want
  - Adapting Enforcement to Reality

Only Slightly Below Average Content

Brace Yourself, This Could Get Technical……or dry

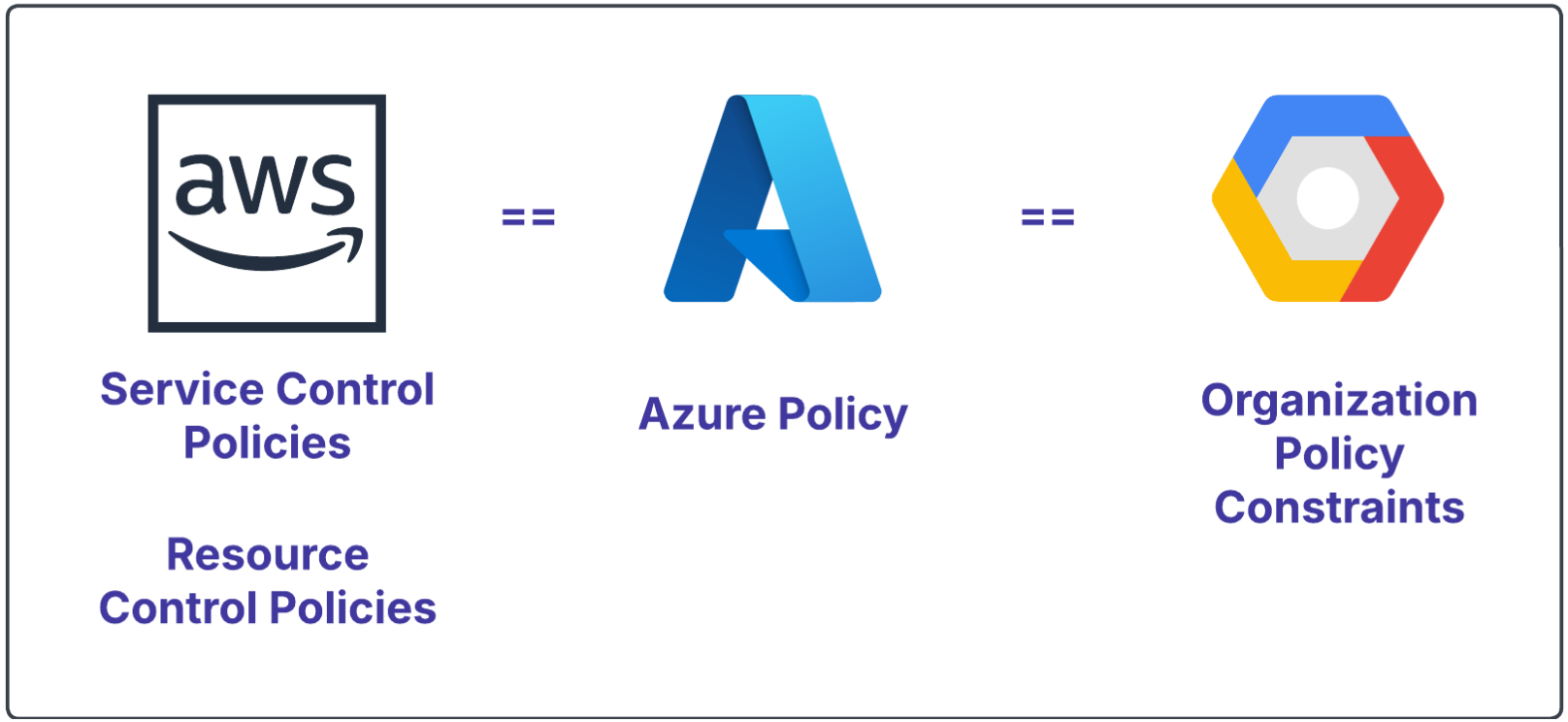
- *“Relevancy? Where was the so what?”*
- *“Not bad content but speaker could have been more engaging, it was very dry overall and for a technical presentation it gets really really dry if the person presenting isn't very enaging.”*
- *“She did a great job. The flow of her presentation was a little hard for me to follow at the beginning but it all came together at the end.”*



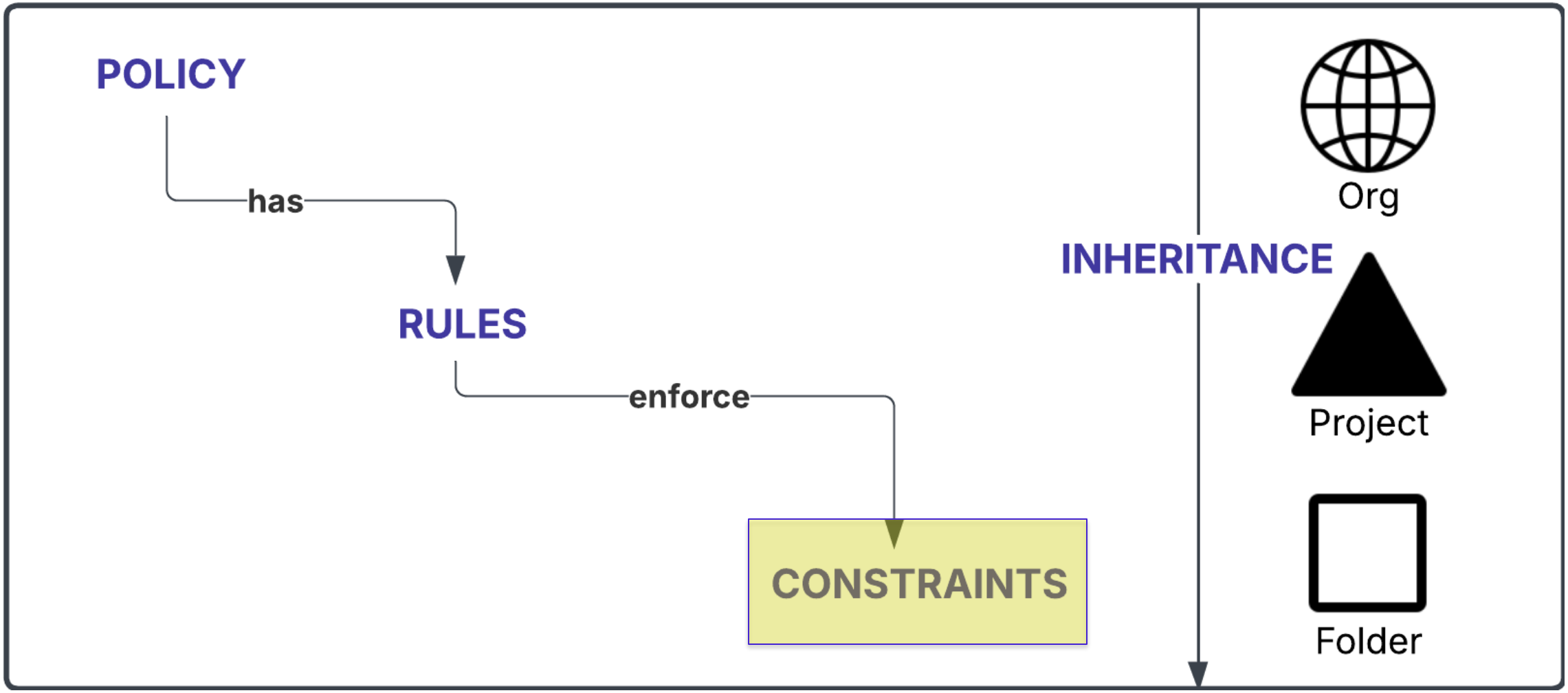
Mega Corp Moves to the Cloud

Guardrails for your Cloud

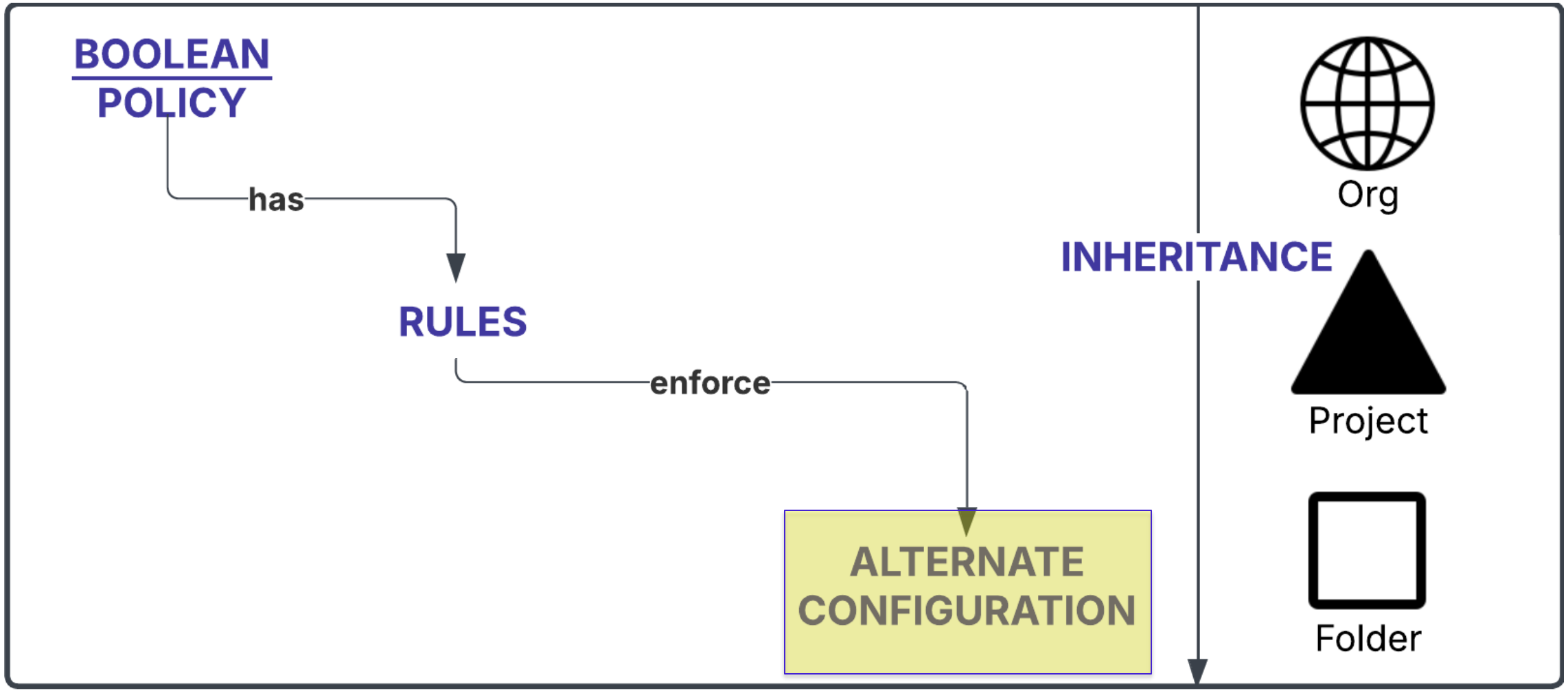
- A GCP Organization Policy is a set of **rules and constraints** that govern how resources in your Google Cloud environment can be used.



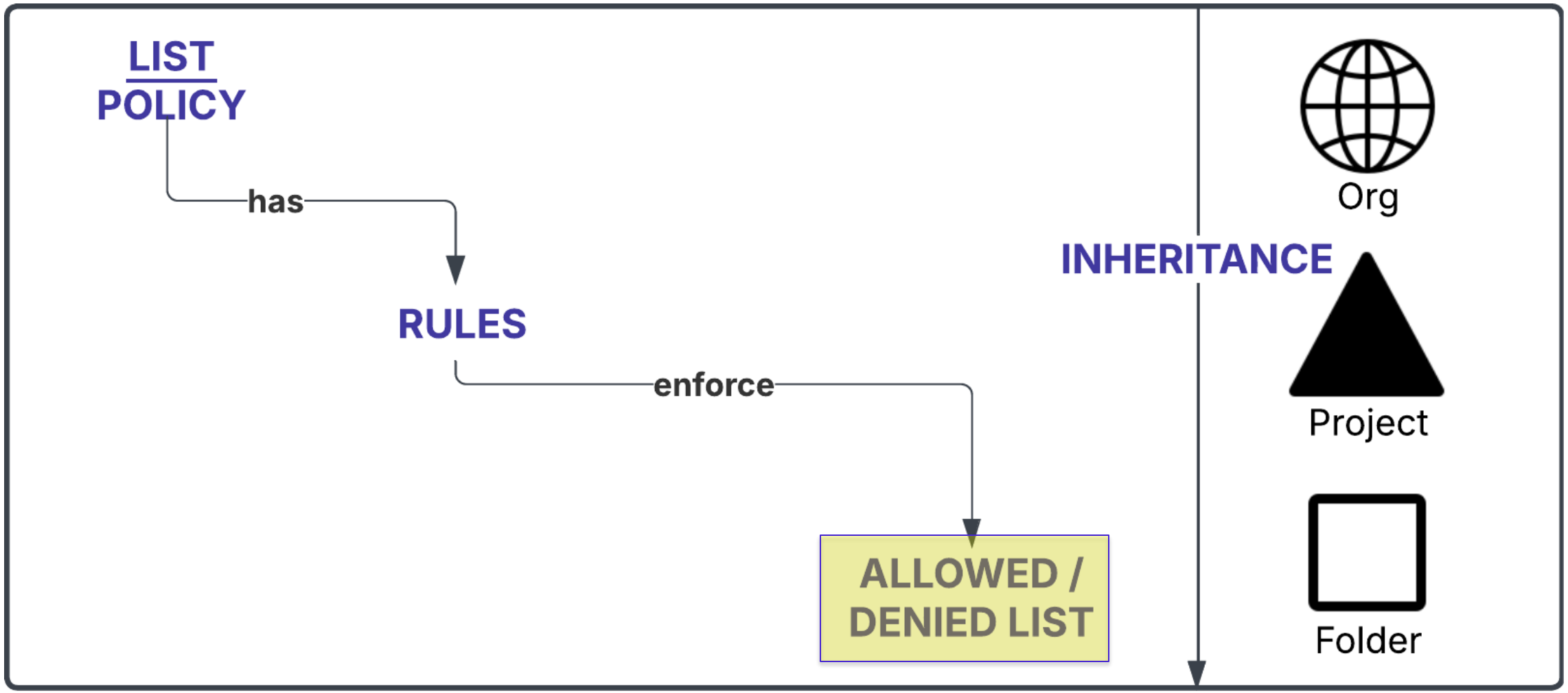
Organization Policy Concepts



Organization Policy Concepts – Boolean Constraints



Organization Policy Concepts – List Constraints



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Great Guardrails

Policies to Shape Your Exposure to Risk

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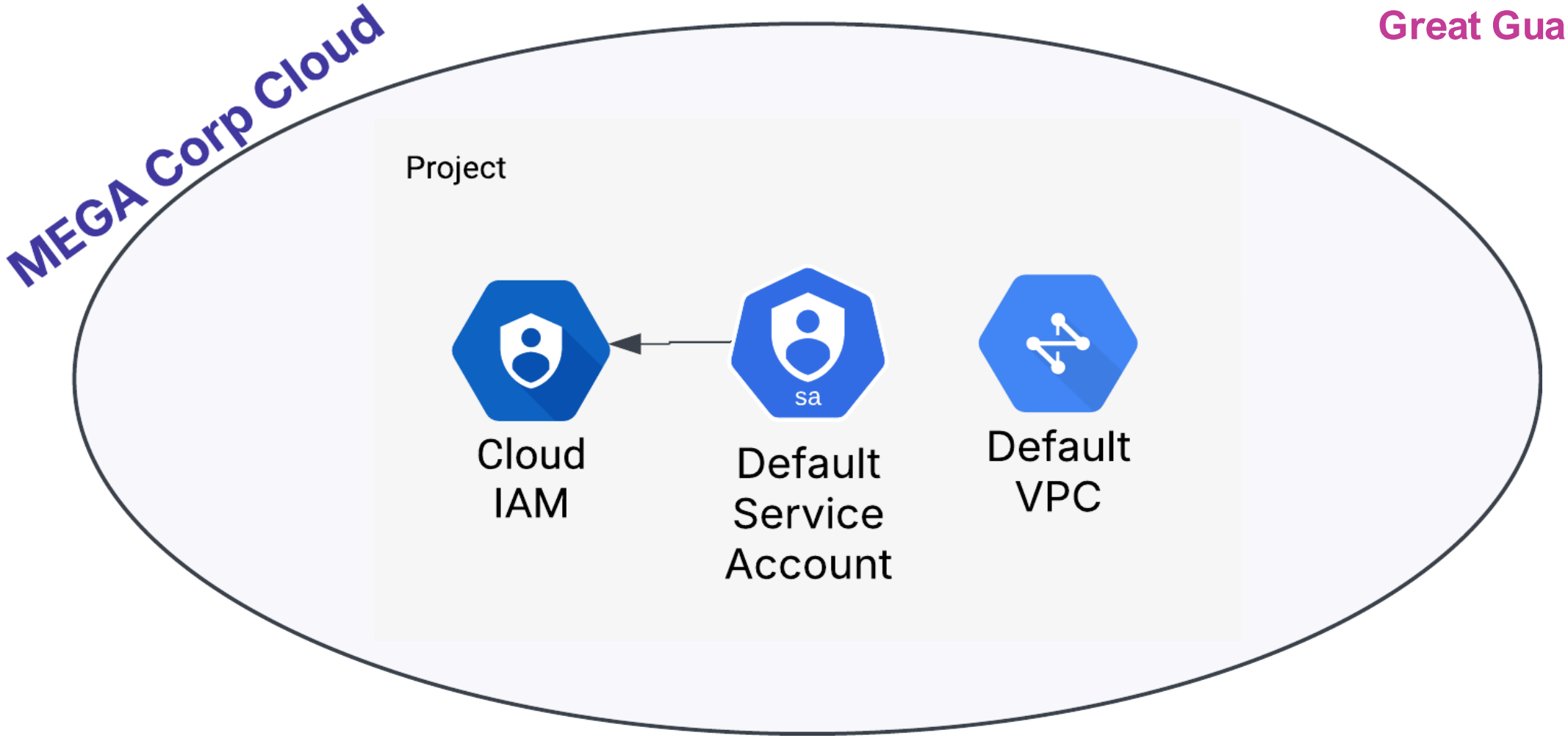
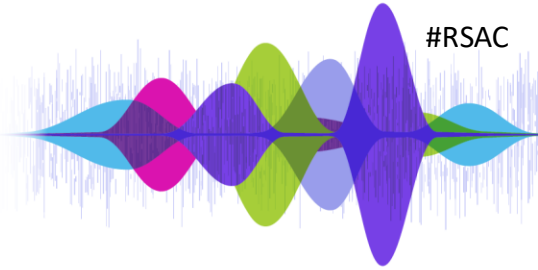
Disable Risky Defaults

Great Guardrails



Enforce a More Mature Cloud

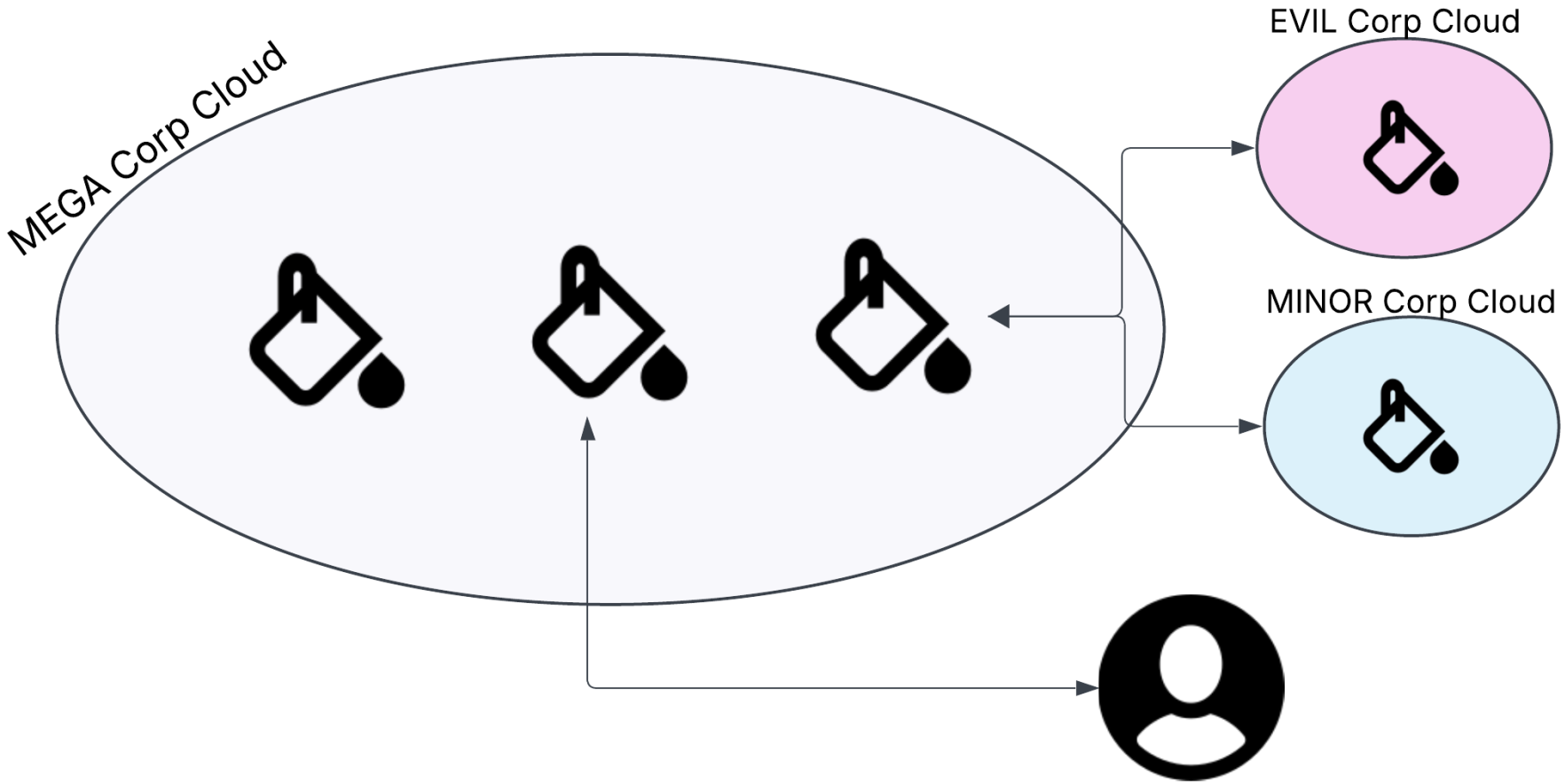


Great Guardrails

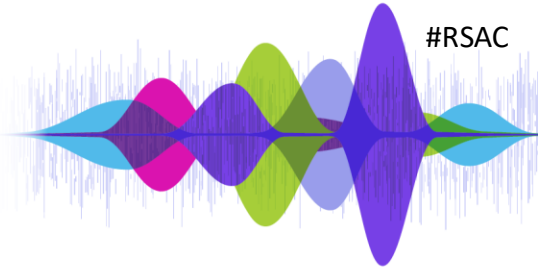
- Default Service Accounts
  - Disable Automatic IAM Grants for Default Service Accounts
    - `constraints/iam.automaticIamGrantsForDefaultServiceAccounts`
  - Disable Create Default Service Account (Cloud Build)
    - `constraints/cloudbuild.disableCreateDefaultServiceAccount`
- Skip default network creation
  - `constraints/compute.skipDefaultNetworkCreation`

Tackle Data Exfiltration Risks in PaaS

Great Guardrails



Define an Identity Perimeter with Org Policies

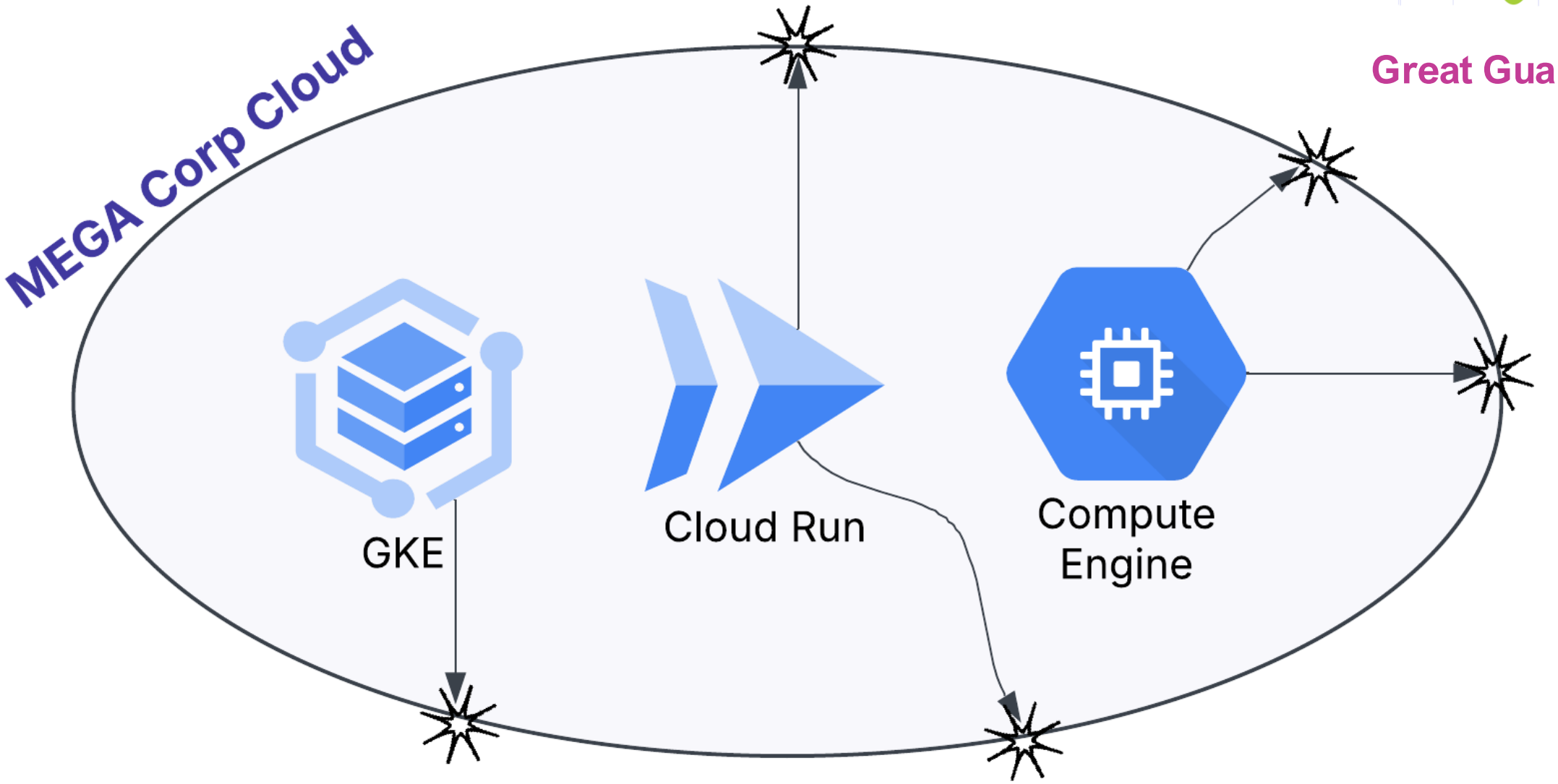


Great Guardrails

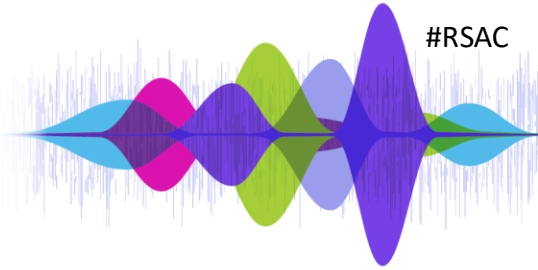
- Allowed external Identity Providers for workloads in Cloud IAM
  - `constraints/iam.workloadIdentityPoolProviders`
- Allowed AWS accounts that can be configured for workload identity federation in Cloud IAM
  - `constraints/iam.workloadIdentityPoolAwsAccounts`
- Domain restricted sharing
  - `constraints/iam.allowedPolicyMemberDomains`
- Cloud Storage - restrict authentication types
  - `constraints/storage.restrictAuthTypes`

Limit Exposed Endpoints

Great Guardrails



Restrict your Network Perimeter with Org Policies

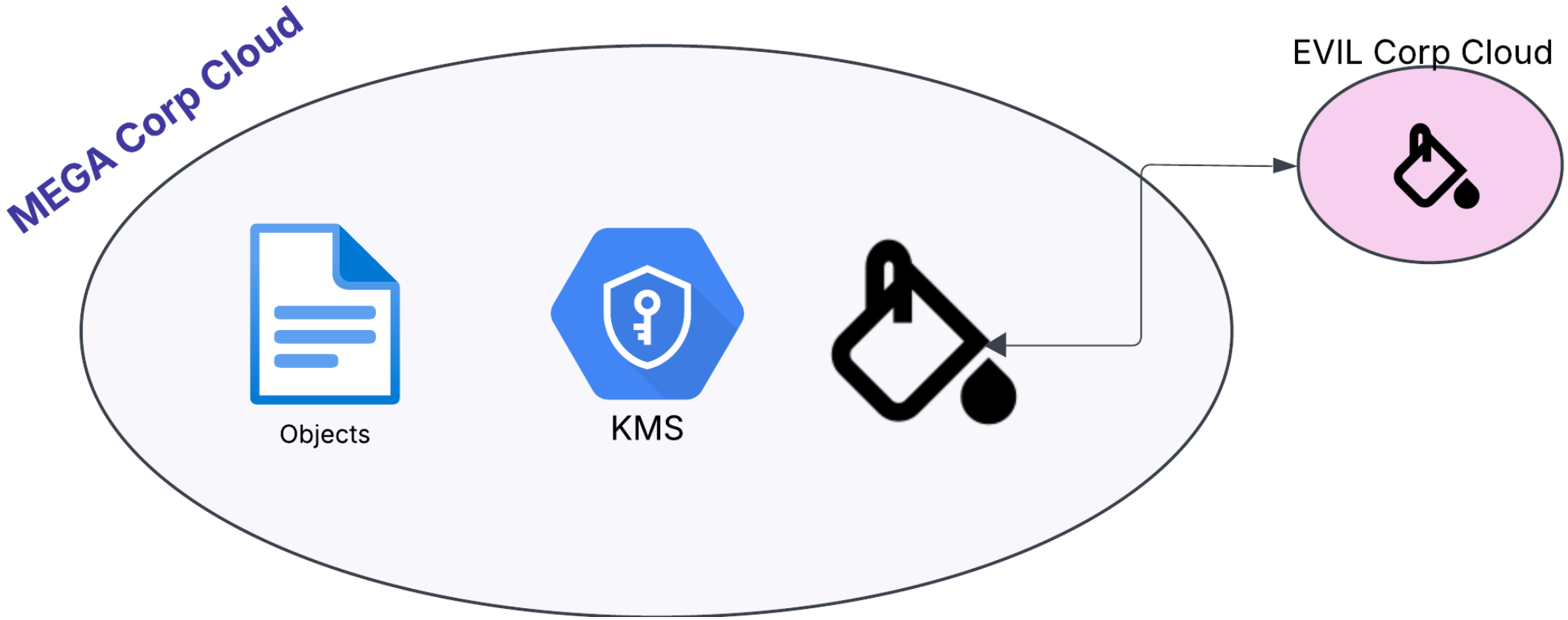


Great Guardrails

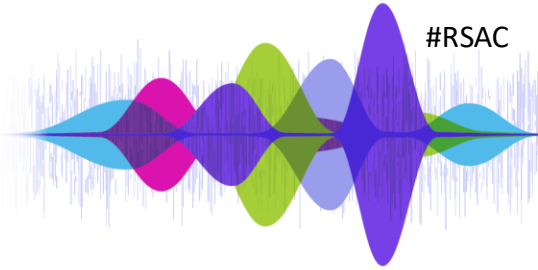
- Define allowed external IPs for VM instances
  - `constraints/compute.vmExternalIpAccess`
- Restrict Public IP access on Cloud SQL instance
  - `constraints/sql.restrictPublicIp`
- Allowed ingress settings (Cloud Run)
  - `constraints/run.allowedIngress`
- Skip default network creation
  - `constraints/compute.skipDefaultNetworkCreation`

Ransomware - Preventing the 2am Call

Great Guardrails



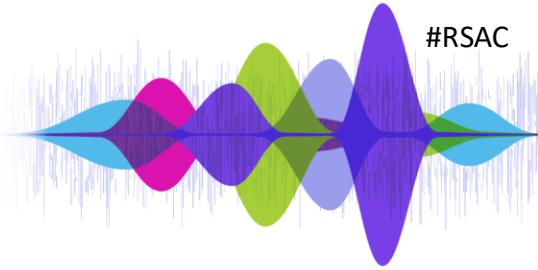
Data-centric Security with Org Policy



Great Guardrails

- Storage Bucket Constraints
  - Enforce Public Access Prevention
    - `constraints/storage.publicAccessPrevention`
  - Enforce uniform bucket-level access
    - `constraints/storage.uniformBucketLevelAccess`
- KMS Key Constraints
  - Minimum destroy scheduled duration per key
    - `constraints/cloudkms.minimumDestroyScheduledDuration`
  - Restrict which projects may supply KMS CryptoKeys for CMEK
    - `constraints/gcp.restrictCmekCryptoKeyProjects`

Classes of Vulnerabilities Prevented



- Over-permissioned Default Service Accounts
- Publicly Exposed Resources
- Unauthorized Access Outside of Mega Corp Domain
- Open Management Ports
- Cloud-Native Ransomware Tactics

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Implementation Challenges

When Cloud Gets Real

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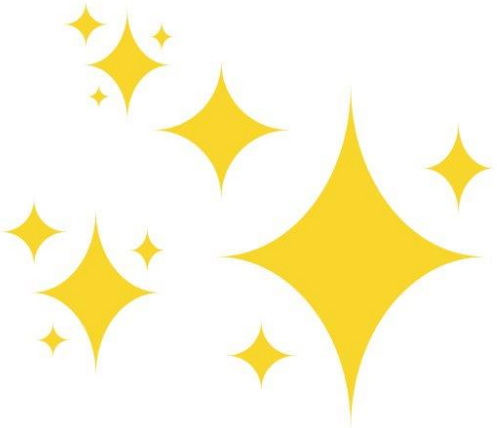
Mega Corp Builds the Perfect Greenfield Cloud

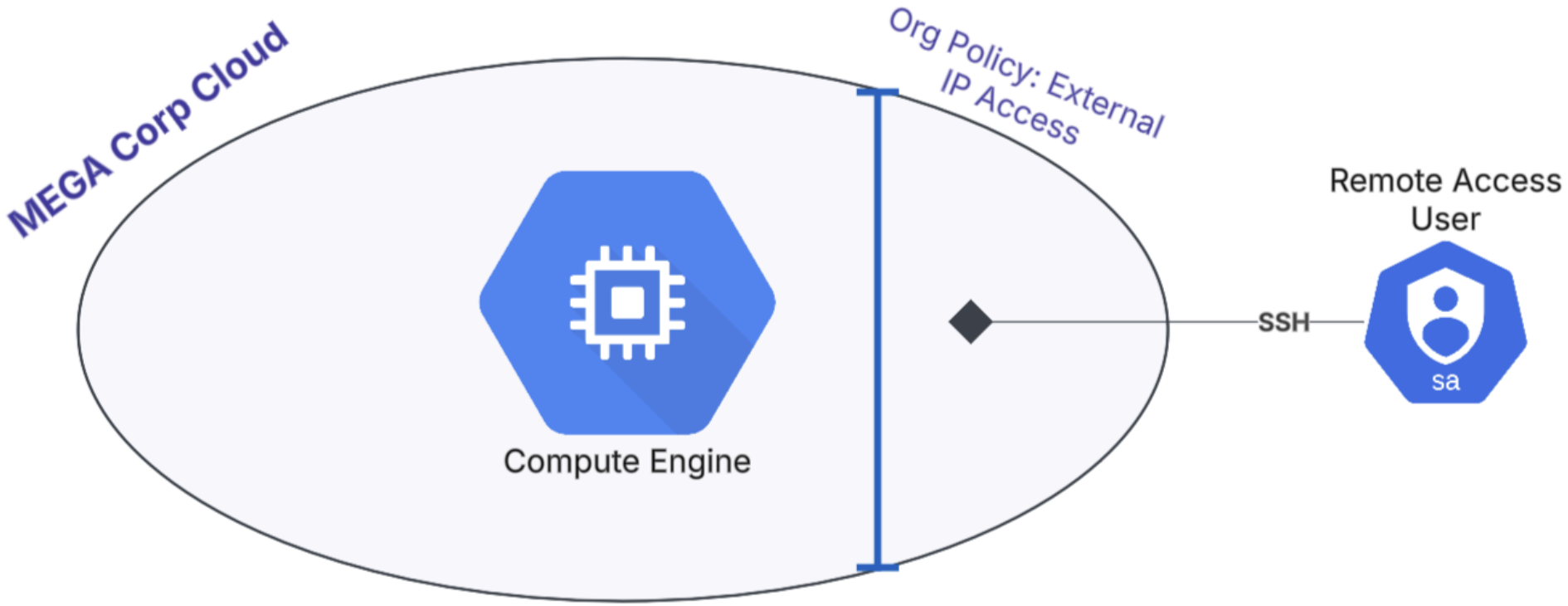
A perfectly hardened cloud environment has been molded using **Organization Policies**, constraining the environment, effectively banning the riskiest configurations and behavior.



Failing to Provide Alternatives to Defaults – Remote Access

Implementation Challenges

- Compute VM that are allowed to use external IP addresses
  - `constraints/compute.vmExternalIpAccess`



Failing to Provide Alternatives to Defaults – Resource Identity

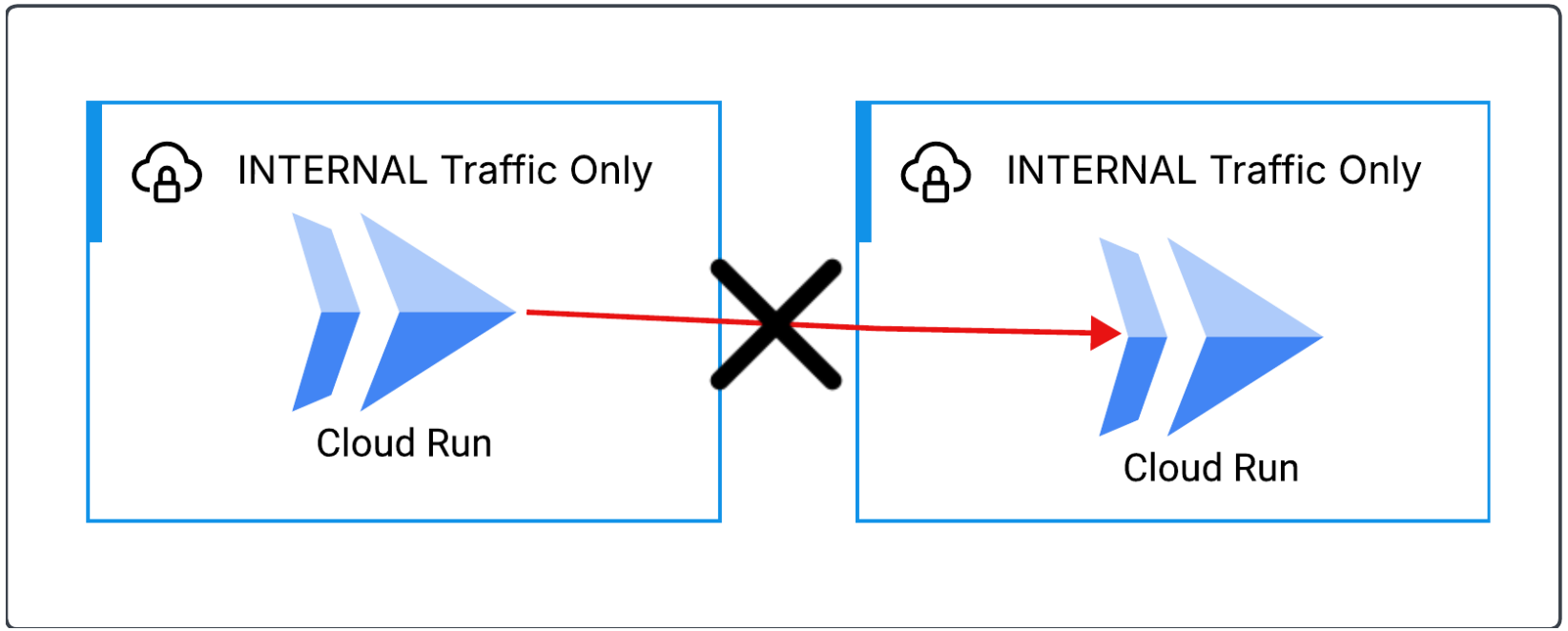
Implementation Challenges

- Disable Automatic IAM Grants for Default Service Accounts
  - `constraints/iam.automaticIamGrantsForDefaultServiceAccounts`
- Disable Create Default Service Account (Cloud Build)
  - `constraints/cloudbuild.disableCreateDefaultServiceAccount`

Unintended Consequences – Breaking Patterns

Implementation Challenges

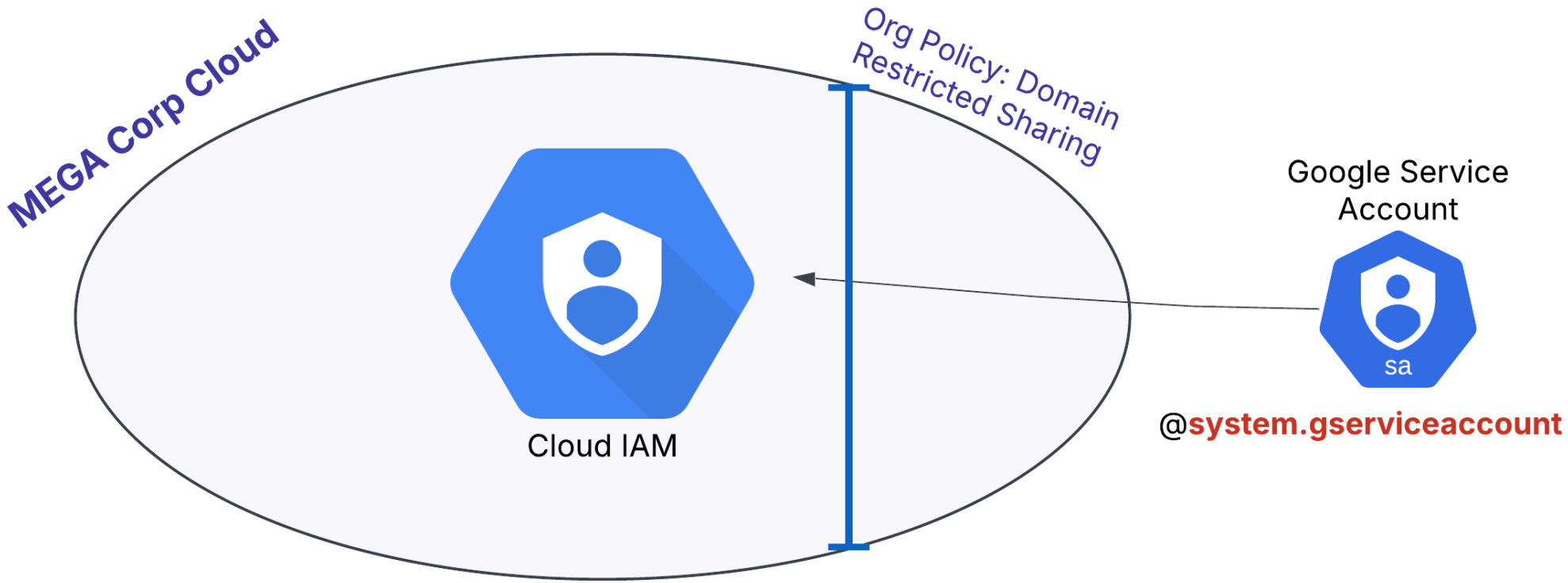
- Allowed ingress settings (Cloud Run)
  - `constraints/run.allowedIngress`



Unintended Consequences – Wait, I Can't Integrate with Google?

Implementation Challenges

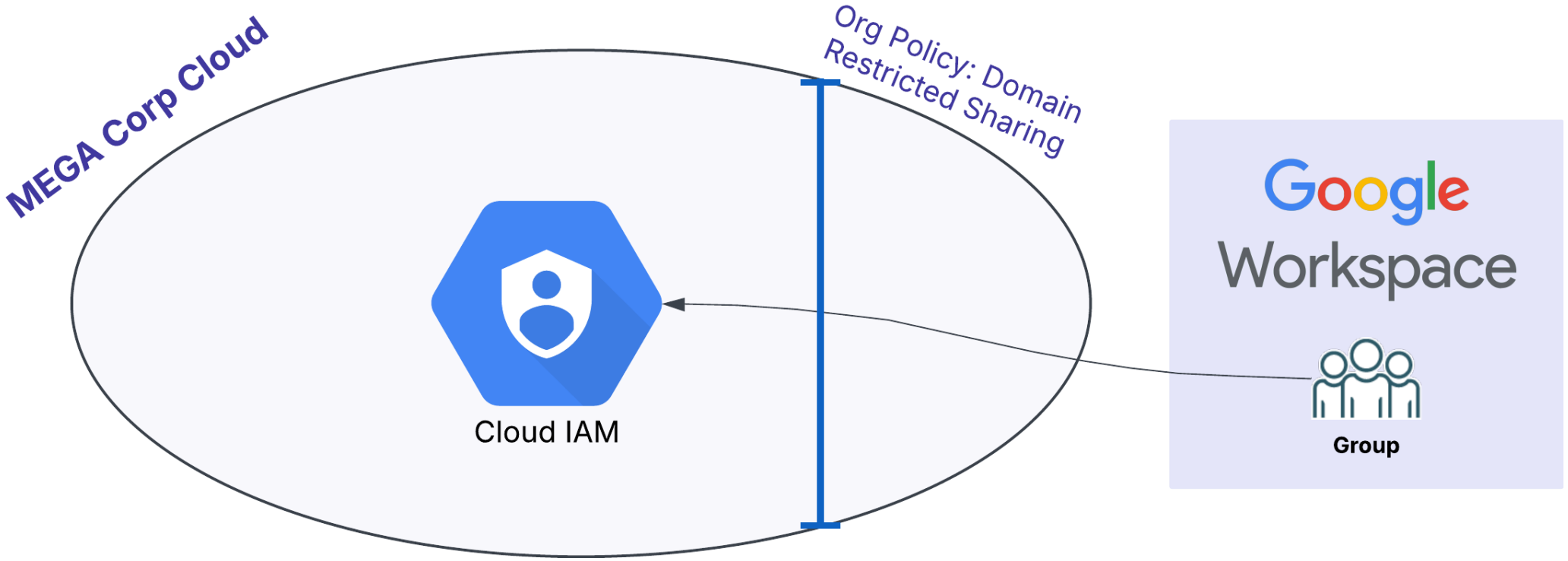
- Domain restricted sharing
  - `constraints/iam.allowedPolicyMemberDomains`



Organization Policy Bypasses

Implementation Challenges

- Domain restricted sharing
  - `constraints/iam.allowedPolicyMemberDomains`



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We Secure the Cloud We Have

Not The One We Want

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Mega Corp Adapts To Their Cloudy Reality

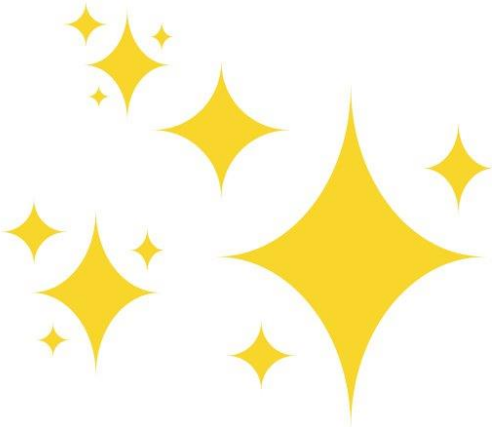
Exception requests are drowning Security Teams and slowing the speed of cloud adoption. How will Mega Corp **manage these invariants**?

Adapting Organization Policy Enforcement

- **The ‘Toggle Method’**
  - Organization Policies are not retroactive – toggling a policy on/off can be used for exceptions
  - Results in a loosely documented non-compliant configuration
- **Architect Dual Enforcement Zones**
  - Apply policies at the folder-level, leverage inheritance to define separate policy zones
  - Organic growth is inevitable, coloring in the lines is hard.

Preventative Controls Match Cloud Maturity

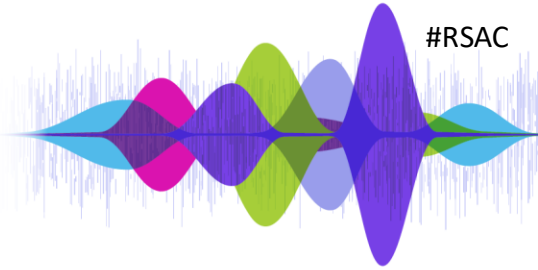
Organization Policy **enforcement is aligned with cloud maturity**. As Mega Corp disseminates known-good patterns, only then can they move beyond defaults and operate in a more secure configuration



Organization Policy Enforcement in your OKRs

- **Objective:** Strengthen Google Cloud security configuration and ensure compliance with industry best practices.
  - **Key Result 1:** Achieve 100% enforcement of the "Restrict Public IP Addresses" Organization Policy across all projects within the production folder by the end of Q3.
  - **Key Result 2:** Reduce the number of exceptions to the "Default Cloud Build Service Account" Organization Policy by 50% within the development folder.
  - **Key Result 3:** Implement and enforce the "Enforce uniform bucket-level access" Organization Policy for all Buckets in the PCI-DSS compliant folder.
  - **Key Result 4:** Automate the detection and remediation of violations against the "Domain Restricted Sharing" Organization policy, with a maximum remediation time of 5 day.

Apply Org Policies with Eyes Wide Open



- Next week you should:
  - Know which Org Policies are **currently enforced** in your GCP environment
  - Understand the safety guardrails Org Policies can bring to your cloud
- In the first three months following this presentation you should:
  - Identify Org Policies as goals and **codify as KPI's**
  - Alert business to possible pitfalls and challenges when enforcing Org Policies
  - **Develop a plan** for maturing cloud to allow for smoother Org Policy implementation
- Within six months you should:
  - Achieved the **enablement of a key Org Policy** with minimal business disruption

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For more information:

www.vectra.ai/about/author/kat-traxler