



Next '24

Explore how Ambarella
offered ML Training as a
SaaS Service



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Agenda

- 
- 01 About Ambarella
 - 02 Ambarella Use Case
 - 03 Challenges with MLOps
 - 04 SaaS Accelerator Program
 - 05 Understanding SaaS framework
 - 06 Role of HCLTech - Certified SaaS Partner
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About Ambarella

- Founded 2004
- AI Vision processors
- Automotive, security, robotics, sports cameras
- >300M cameras enabled
- 960 Employees



Ambarella – Use Case



Problem Statement Customer Challenge

- Ambarella offers training optimization toolkit and dependencies packaged inside container images
- These toolkits are designed to improve performance on the silicon/chips

Key Objectives

- Protecting Ambarella's IP
- Maintain privacy of customer datasets
- Mechanism for faster debugging between customer and Ambarella support

Expected Outcomes

- Provide a cloud hosted training environment
- Help customers to optimize model using Ambarella toolkit & their datasets
- Frictionless onboarding

Why is ML deployment difficult?

Deploying ML models at scale is very challenging

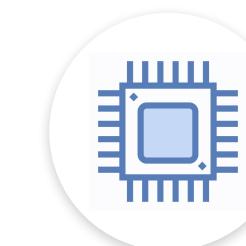
In an IT system

Behavior of system is defined by **Code**

In an AI/ML System



Organization - Managing different ecosystems like programming languages



Compute - Continuous and reliable compute resources (dedicated servers or cloud-only option)



Portability - Huge dependencies on legacy systems



Seasonality - ML workloads works in patches; this need auto scaling capabilities

Model Training as SaaS even possible?

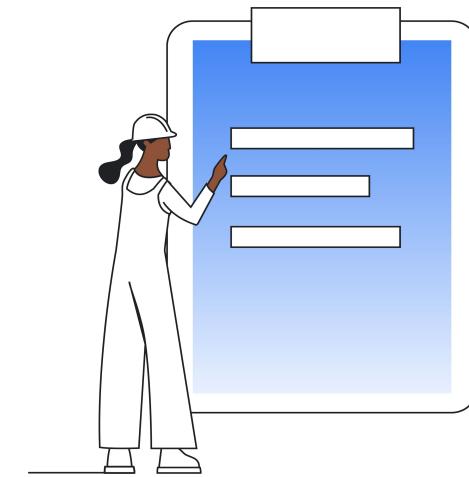
Enterprises love SaaS products, but SaaS often comes with its own challenges



Security



Protect IP



Control, Flexibility & Support



Operating as SaaS helps **bridge these gap and makes it easier** on Ambarella's engineering team



What if you could meet your model training & high performance compute requirements using a SaaS Business Model & make it Multi-Tenant?

Ambarella – ML as SaaS Solution



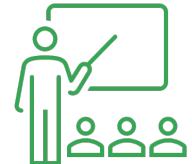
Cloud Environment

- A development platform to re-train Ambarella neural network model via JupyterLab environment
- Uses Google's global network & SaaS Framework to spin up training environments in the region where capacity is available



Salient Features

- Automated Tenant Onboarding, Billing & Metering
- Customers control authorized users and RBAC at Tenant level
- Customer Data & Ambarella IP protection enforced with license agreement.
- Lock customer data using CMEK



Solution Advantages

- Provide customers access to GPU training environment reducing training time from hours to minutes
- No infrastructure management overhead
- Designed for Growth

SaaS Accelerator Program Overview



What is it?

A proven, repeatable and structured approach to help ISVs accelerate their SaaS journey with GCP. Our SaaS Framework and assets can be used to successfully design, build and Monetize SaaS on GCP.

Program Benefits



**SaaS Multi
Tenant
Architectures**



**Access to SaaS
Experts**



**Certified GSI &
RSI partners**



**GTM Planning &
Funds***

What's in it for Customers?



Faster Time to Market



Grow Top Line Revenue



**Build Differentiated
Offerings**

* Subject to Google Cloud approval

SaaS Framework - Unique Features



Hybrid and multi-cloud orchestration

Bring application where the data is rather than asking the customers to bring data to the application while still maintaining a central control plane



Tenant isolation at infra level

Workload isolation at all levels helps adhere to governance and compliance requirements for large enterprises

Negates the need to refactor application for multi-tenancy hence quick path to monetize



Consumption based metering for each tenant

Offer each tenant visibility into their resource consumption and billing



Consistent Security principles

Apply consistent security principles across all tenants while allowing tenants to choose Identity platforms for AuthN and AuthZ



Google's network

GCP uses Google's private network backbone offering low latency, multi-region high availability, and security

The cleanest cloud: energy efficient, renewable energy matching, carbon footprint reporting

SaaS Framework Value Proposition



Quick Onboarding

- Cloud Build
- Terraform
- GKE config management



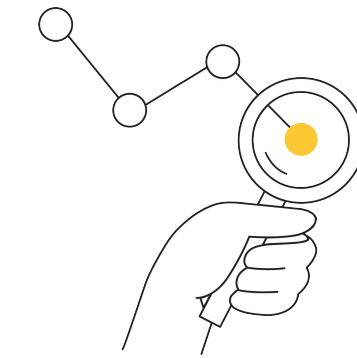
Simplified Day 2 ops

- Google Kubernetes Engine (GKE)
- Autopilot mode of operation
- Integrated CI/CD & MLOps pipeline
- In-place upgrades and more



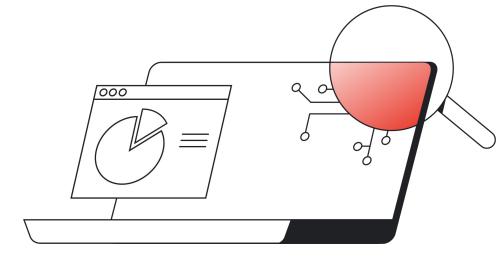
Security at scale

- GKE policy controller
- Identity aware proxy
- Identity platform



Meet SLOs 24x7

- Cloud service mesh
- HA Architecture
- 99.99 % SLA
- AI integrated Control Plane



Metering & chargeback

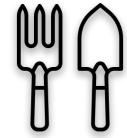
- GKE Enterprise
- Apigee
- Looker Dashboard



How **HCLTech** helped deploy
the SaaS framework

HCLTech

How HCLTech helped deploying SaaS Framework



Journey Background

- Protecting Ambarella's IP
- Faster Debugging
- Privacy & Data Sovereignty
- Multi-Tenant
- Security and Compliance



Benefits

- Sustainability – significant reduction in carbon footprint due to leveraging the Google Compute instances.
- Scalability and Agility
- 35% reduction in time to deploy using HCL's Accelerators
- **SaaS architecture provides** a flexible framework for hosting and managing the Customer's application



Key Solution Highlights

- Automated deployment of GPU based GKE private cluster with all security best practices.
- Deployment of AI/ML workloads using GitOps approach (Jupyter Hub)
- Onboarding of tenants (shared & dedicated) using SaaS Portal to secure the Ambarella IP



Efficiency Levers

- Security compliant Framework
- Automated playbooks for model and training
- Cloud Governance and FinOps



Modernization

- MLOps as a Service
- GKE GPU workloads powered by AL/ML models
- Data driven Intelligent apps



ISV / SaaS Offerings

Secure Landing Zone

OneClick Solution to Build & Deploy Enterprise Ready Foundation

SaaS Multi-tenant Framework Deployment

Take advantage of HCLTech's success deploying the SaaS multi-tenant framework for multiple ISVs

SaaS Security Consulting and Deployment

Employs robust security protocols to shield data from potential threats, preserving its integrity and confidentiality across tenants

SaaSification

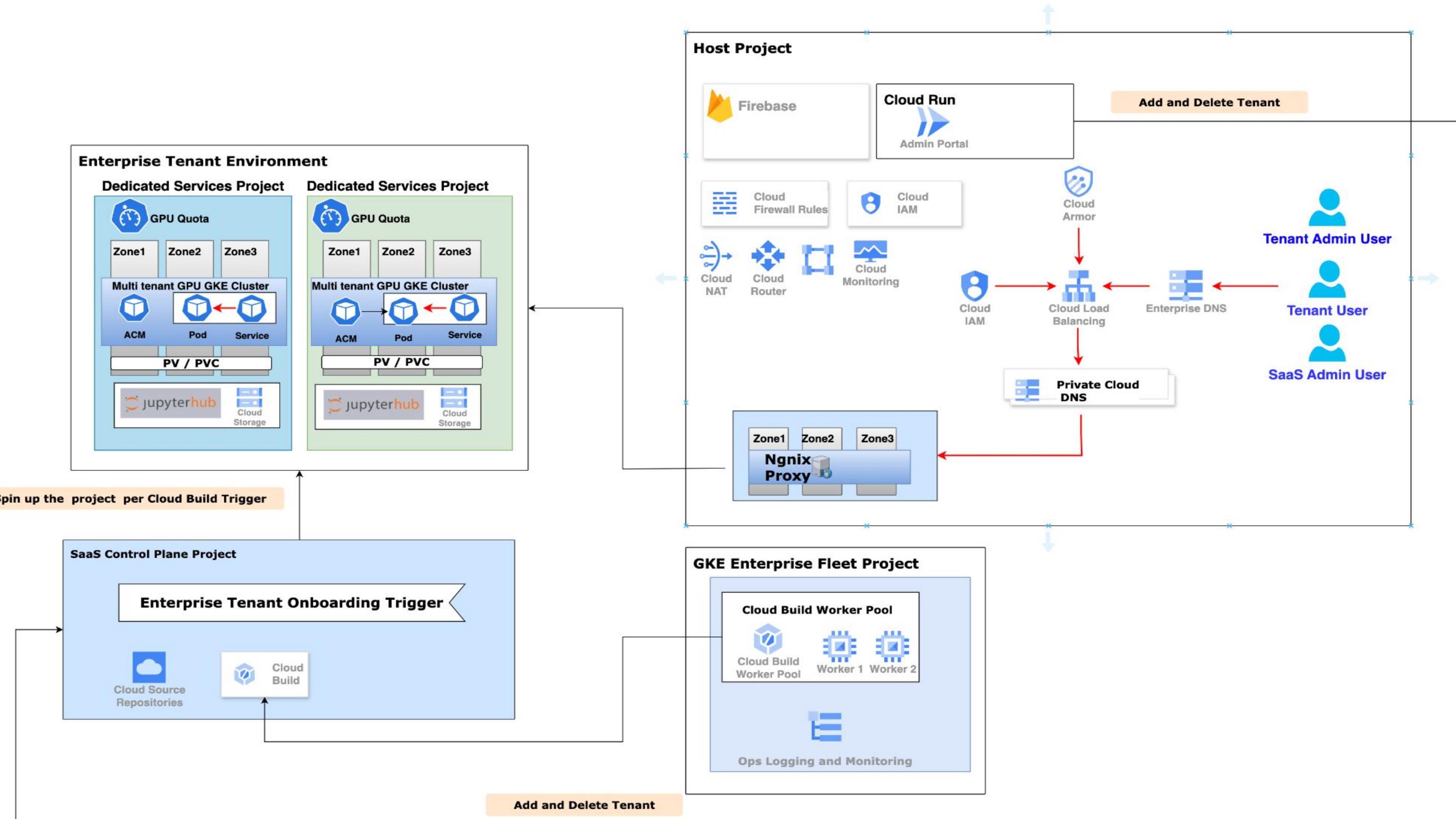
Development of commercial models by SaaSifying your product with ingrained Finops practices

Google Marketplace integration support

Launch your product through Google marketplace with billing integration

Demo

Ambarella SaaS Blueprint





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Explore how customer **Ambarella** offered
ML Training as a SaaS Service

Take Away - Next Steps

- Framework applicable for any Industry
- Completely customizable to your needs
- No App Re-factor required for Multi-Tenancy
- Use framework internally to offer “Environment as a Service”

- Talk to our SaaS GTM Specialists



- Developing a SaaS service?
Interested in UXR



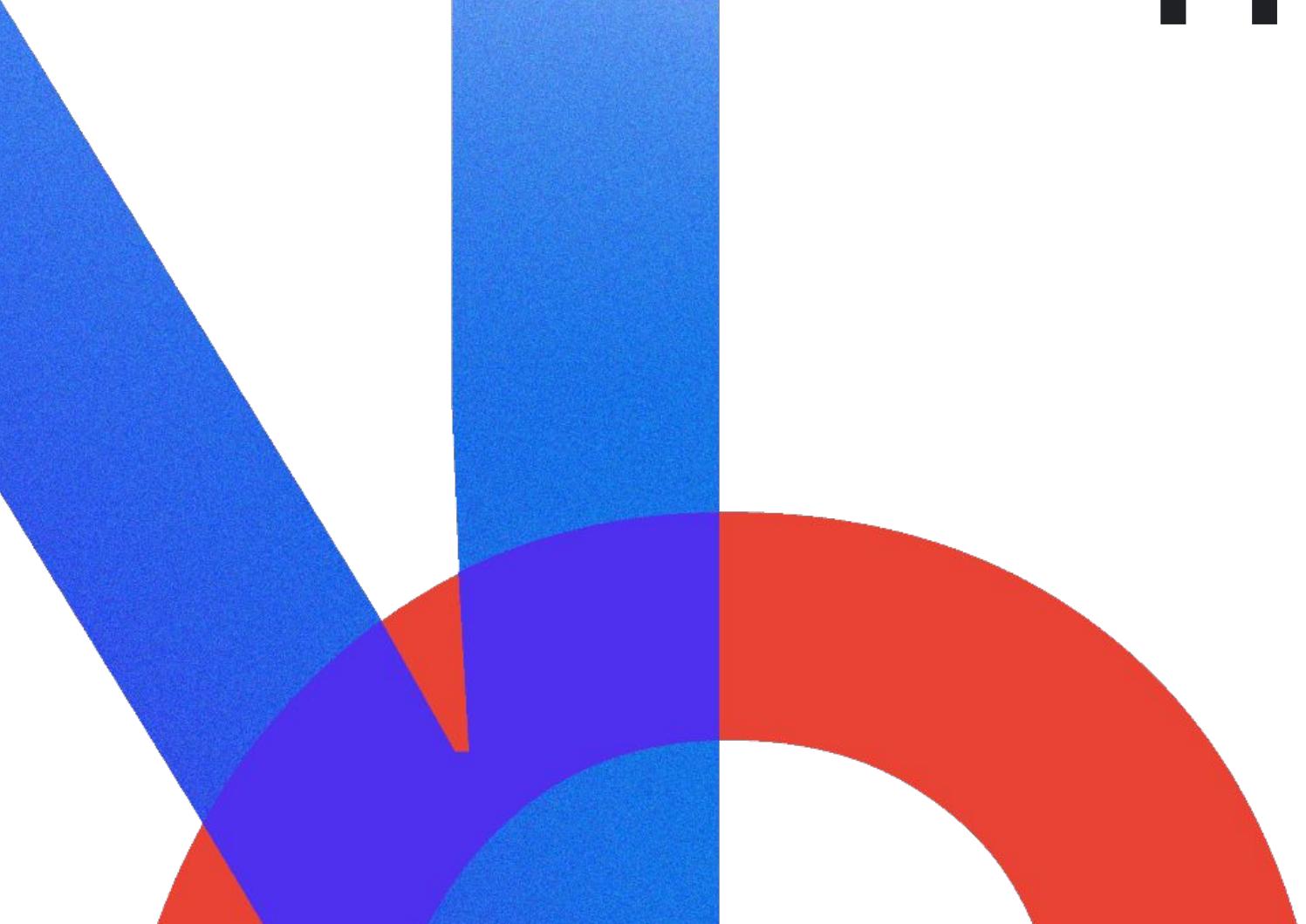
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Thank you





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Continue your learning journey!



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