

# How WP Engine uses Istio to Accelerate Building Products

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#IstioCon



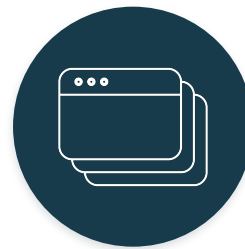
**1,000**  
EMPLOYEES



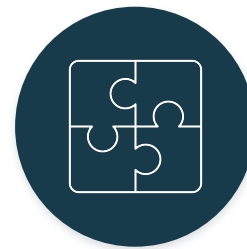
**175,000**  
CUSTOMERS



**150**  
COUNTRIES



**1.5M+**  
WEBSITES



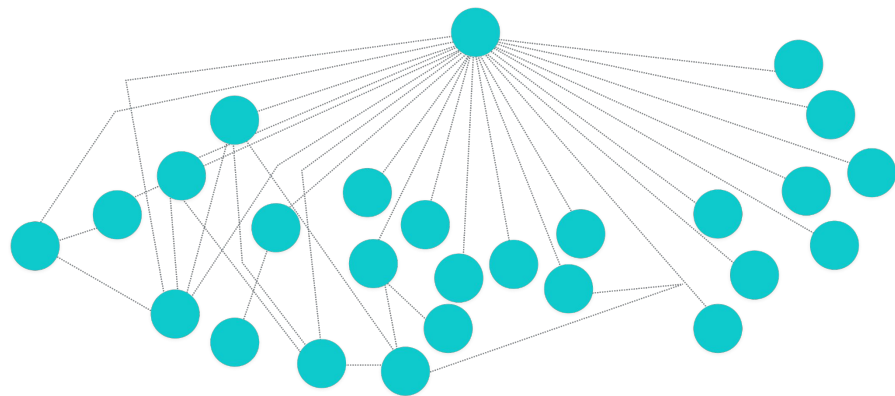
**5,000+**  
AGENCY PARTNERS

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# Software Delivery Platform

- Multi-tenant platform for REST and gRPC services
- Powered by Istio (managed via GCP Anthos Service Mesh)
- Containerized build pipelines, GitOps deployments, and policy enforcement



# Software Delivery Platform

30+  
services

20+  
engineering teams

~750  
deployments  
PER QUARTER

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# Platform Goals



Streamline processes for building, delivering, and operating services



Provide a self-service model for consuming platform features



Increase consistency between services



Provide secure-by-default configuration with least privilege



Reduce amount of code needed to create a service



**WP**engine®

# Platform benefits



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# Observability



- Logging, metrics, and tracing out-of-the-box
- Golden signal dashboards cover 80% of observability
- Topology graph shows dependencies
- Single pane of glass with Google Cloud Operations suite
- Service catalog via Anthos Service Mesh console



# Security



- Service-to-service auth simplified via Istio mTLS capabilities
- Load balancing and ingress gateway managed by platform team
- Google service account tokens used to authorize external systems
- Namespaces used for tenant isolation
- OPA Gatekeeper policy to prevent Istio routing conflicts/ambiguity





# Reliability



- Managed Anthos Service Mesh reduces operations burden
  - Automated Istio control plane upgrades
  - Automated Istio data plane upgrades
- Global rate-limiting service ensures stability of services
- Multi-zone GitOps deployments to mitigate zonal outages



# Lessons learned



# Lessons learned



Sidecar handles

**1,000 RPS**

with 1 CPU / 256M



# Lessons learned

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Ingress Gateway handles

**1,500 RPS**

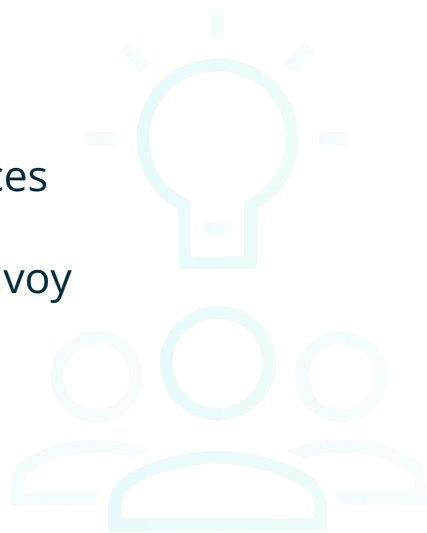
with 1 CPU / 256M



# Lessons learned



- Don't overload `istio-system` with tenant-specific resources
- Advanced usage of Istio requires solid understanding of Envoy
- Rate limiting is not “batteries-included”
- Envoy Admin API is useful when troubleshooting
- Sidecar termination for k8s jobs must be programmed



# Future plans



CANARY  
DEPLOYMENTS



CHAOS  
ENGINEERING  
DRILLS



USE OPEN POLICY AGENT  
FOR AUTH



PREVIEW  
DEPLOYMENTS



EXTEND MESH BEYOND  
KUBERNETES



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# We're hiring!

WP Engine is hiring a variety of  
Product & Engineering positions  
across multiple functions and  
locations (including 100% remote).



<https://wpengine.careers>



# Thank you!

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