TECHNICAL WHITEPAPER

SuiteAnvil Platform Architecture

How SuiteAnvil delivers fast, fault-tolerant and secure workloads at enterprise scale

Enterprise buyers evaluating SuiteAnvil tend to ask three questions: will it stay up, will it scale with us, and can our security team sign off on it? This whitepaper answers all three. It describes the reference architecture behind suiteanvil.com, the reliability engineering practices that keep it available, and the controls that...

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7	815 words	4 min

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Executive summary

Enterprise buyers evaluating SuiteAnvil tend to ask three questions: will it stay up, will it scale with us, and can our security team sign off on it? This whitepaper answers all three. It describes the reference architecture behind suiteanvil.com, the reliability engineering practices that keep it available, and the controls that protect customer data in transit and at rest.

KEY TAKEAWAYS

- **Multi-region by default.** Production workloads run active-active across at least two regions, with automated failover rehearsed every month.
- **Stateless services, durable events.** Business logic scales horizontally while an ordered event log guarantees that no write is lost.
- **Security as architecture.** Tenant isolation, encryption and auditability are properties of the platform, not optional add-ons.

02

The challenge

Most organizations reach a point where their operational tooling becomes the bottleneck. Data volumes double every 12 to 18 months, teams expect sub-second responses from every interface, and regulators expect a precise answer to the question "where is our data, and who can see it?"

Traditional single-region deployments force a trade-off between these goals. Scaling vertically postpones the problem, maintenance windows erode availability, and every new compliance requirement adds manual process. SuiteAnvil was designed to remove that trade-off.

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Architecture overview

The platform is organized into six layers. Each layer has a single responsibility, a published service-level objective and an owner on call around the clock.

Layer	Responsibility	Implementation
Edge	TLS termination, WAF, DDoS protection, rate limiting	Global anycast network
API gateway	Authentication, routing, per-tenant quotas	Envoy-based gateway

Services	Stateless business logic	Containers on managed Kubernetes
Event bus	Ordered, replayable event streams	Partitioned, Kafka-compatible log
Storage	Transactional records and analytics	PostgreSQL clusters and a columnar warehouse
Observability	Metrics, traces and structured logs	OpenTelemetry pipeline

Request lifecycle

1. The request reaches the nearest edge location, where TLS 1.3 is terminated and the web application firewall evaluates it.
2. The API gateway validates the token, resolves the tenant and applies quota and rate-limit policies.
3. A stateless service executes the business logic and writes an event to the log before acknowledging the request.
4. Consumers project the event into the transactional store, the search index and the analytics warehouse.
5. Every hop emits a trace span, so a single request can be followed end to end in under a minute.

Configuration as code

Every service is described declaratively. Capacity, service-level objectives and failover behavior are reviewed like any other code change, which makes the production environment reproducible and auditable.

YAML

```
service: billing-api
regions: [eu-central, us-east]
replicas:
  min: 6
  max: 48
slo:
  availability: 99.95
  latency_p99_ms: 250
failover:
  mode: active-active
  health_check: /healthz
```

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Reliability engineering

Availability is managed with explicit error budgets. When a service consumes its monthly budget, feature releases pause and the owning team prioritizes reliability work until the budget recovers.

- **Progressive delivery.** Changes ship behind feature flags and roll out to 1%, 10% and 50% of traffic, with automatic rollback when error rates or latency regress.
- **Failure rehearsal.** Region evacuation and dependency-failure drills run on a fixed calendar, not only after incidents.
- **Incident response.** A 24/7 on-call rotation, a documented severity model and a blameless post-incident review within five business days.
- **Capacity headroom.** Every tier is provisioned to absorb the loss of a full region at peak load.

Measured performance

Metric	Objective	Trailing 90 days
API availability	99.95%	99.98%
Median latency (p50)	80 ms	41 ms
Tail latency (p99)	250 ms	187 ms
Recovery time objective	15 min	6 min (last drill)
Recovery point objective	60 s	under 5 s

> **NOTE**
> The figures above are illustrative reference values. Replace them with the numbers from your own monitoring before you share this document.

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Security model

Security controls are enforced at the infrastructure layer so that individual teams cannot accidentally opt out of them.

- **Encryption.** TLS 1.3 in transit and AES-256 at rest, with keys managed in a hardware-backed key management service and rotated automatically.
- **Identity.** SAML 2.0 and OIDC single sign-on, SCIM provisioning and role-based access control with least-privilege defaults.
- **Isolation.** Tenant-scoped encryption keys and row-level security policies ensure that one customer's data can never be returned to another.
- **Auditability.** Immutable audit logs record every administrative action and can be streamed to the customer's SIEM.

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Deployment options

SuiteAnvil is available in three models so that architecture can follow policy rather than the other way around.

- **Multi-tenant cloud** for the fastest time to value, with regional data residency in the EU or the US.
- **Dedicated tenancy** with isolated compute and storage for regulated workloads.
- **Private connectivity** through private network links for customers who require traffic to stay off the public internet.

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Conclusion

SuiteAnvil combines horizontally scalable services, a durable event backbone and security controls built into the platform itself. The result is infrastructure that grows with your business without forcing a choice between speed, availability and compliance.

To schedule an architecture review with our solutions engineering team, visit **suiteanvil.com**.