GATEWAY DOMAIN-CENTRIC ROUTING

GDCR

The Semantic Domain Gateway of the SDIA Ecosystem

A vendor-neutral semantic gateway model for stable API governance

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90%	99%	5	0
PROXY REDUCTION	VENDOR ONBOARDING	PLATFORMS VALIDATED	ROUTING-LOGIC FAILURES
41 → 4 proxies	Hours → <30 seconds	SAP · AWS · Azure · Kong · Zuul	~2M requests validated

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THE PROBLEM

API Governance Indexed by Technology

BEFORE — INDEXED BY TECHNOLOGY

41 proxies for 4 domains

One per backend — each with its own contract, policies, and lifecycle

- URLs expose topology

/salesforce-prod-347/customers/v2

- Every vendor change breaks consumer contracts
- **90%** of governance effort absorbed by proxy maintenance
- Security surface leaks infrastructure details

AFTER — INDEXED BY DOMAIN INTENT

4 proxies for 4 domains

One proxy per business domain — immutable, permanent, vendor-agnostic

- URLs express business intent

/sales/orders/create/salesforce

- Backend changes absorbed by metadata — zero proxy impact
- Governance operates on **business semantics**
- Infrastructure hidden behind semantic abstraction

Business thinks in domains. Gateways are organized by systems. This structural mismatch produces compounding failure patterns — proxy sprawl, URL drift, vendor lock-in, and governance that scales linearly with backend complexity.

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GDCR: THE SEMANTIC GATEWAY FACADE

LAYER 1 — CONSUMPTION

Semantic Facade

CONSUMER-FACING

One proxy per domain. Immutable artifacts. Consumer sees intent — never infrastructure.

/domain/entity/action/target

LAYER 2 — CONTROL PLANE

Metadata-Driven Resolution

DDCR RUNTIME

KVM · Redis · DynamoDB — backend URLs, vendors, versions. Evolves without touching the proxy.

DDCR resolves targets deterministically

LAYER 3 — EXECUTION

Backend Orchestration

BACKEND

SAP CPI · AWS Lambda · Microservices. Backend variability externalized. Vendor swap = one metadata entry.

The proxy never contains a backend URL

CORE INVARIANTS

- One Proxy Per Domain
- Immutable Facade
- Semantic URL
- Metadata-Driven Resolution

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VALIDATION AND STRUCTURAL IMPACT

90%
PROXY REDUCTION · 41 → 4

95%
DEPLOYMENT TIME · 273 → 14.5 min

99.99%
SUCCESS RATE · ~2.07M requests

0
ROUTING-LOGIC FAILURES

VALIDATED PLATFORM MATRIX

Platform	Policy Language	Metadata Store	Status
SAP API Management	JavaScript (Nashorn / V8)	KVM (KeyValueMap)	PROVEN — E2E CPI
AWS API Gateway	Python Lambda	DynamoDB	PROVEN — E2E CPI
Azure API Management	C# Policy Expressions	Redis / Named Values	PROVEN — E2E CPI
Kong Gateway	Lua (custom plugin)	Redis	PROVEN — E2E CPI
Netflix Zuul	Java (Filter)	HashMap / external	PROVEN

⚠ SCOPE BOUNDARY — METHODOLOGICAL HONESTY

Validation did **not** include direct gateway-to-ERP consumption of vendor-standard SAP S/4HANA OData/SOAP or Workday APIs without intermediate orchestration. In such scenarios, the GDCR facade remains architecturally valid, but the abstraction economics change — the vendor already dictates the contract. GDCR's proven value is strongest for enterprise-owned semantic facades, custom APIs, multi-vendor landscapes, and any facade that must remain stable while backends evolve.

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A PARADIGM SHIFT IN API GOVERNANCE

GDCR makes the **business domain** the stable organizing principle of the API gateway. Technology moves into the background. Governance becomes **semantic, measurable, and durable**.

Domain as Primary Key

The invariant that outlasts every vendor. Technology changes quarterly. Business processes last decades.

Immutable Facade

One proxy per domain. Metadata absorbs all backend change. Zero redeployment vendor onboarding.

Semantic Continuity

The same domain token flows unchanged through every SDIA layer — gateway to events to data.

VALIDATED SCOPE

4	5	~2M	42
DOMAINS	PLATFORMS	REQUESTS VALIDATED	ENDPOINTS
Sales · Procurement · Logistics · Finance	SAP · AWS · Azure · Kong · Zuul	Zero routing-logic failures	One semantic contract per domain

GDCR is a vendor-neutral reference architecture for semantic gateway governance — not a prescriptive product template.

Published under CC BY 4.0 on Zenodo. DEIP Ecosystem DOI: 10.5281/zenodo.19004802