



[Home](#) [Licensing](#) [Patents](#) [Articles](#)

Bunny CDN Delivers Content Globally. Cache Governance Is Still Central.

by [Nick Clark](#) | Published March 28, 2026 | [PDF](#)

Bunny CDN built a global content delivery network that competes with providers many times its size by offering fast edge delivery, real-time image optimization, and edge scripting capabilities at competitive pricing. The network spans edge locations across every continent. But cache governance — when to purge, what to cache, how to route, when to pull from origin — is defined centrally through pull zone configurations and propagated to edge nodes. The edge delivers content. It does not govern what it holds. The structural gap is between content delivery and scope-governed namespace authority.

Bunny CDN's performance-to-cost ratio is impressive. The Bunny Optimizer, edge storage, and stream platform extend beyond basic CDN functionality. The gap described here is about cache and namespace governance, not delivery performance.

Pull zones define governance centrally

A pull zone in Bunny CDN defines the origin, caching rules, edge scripting configuration, and delivery policies for a set of content. Edge nodes serve content according to the pull zone configuration. When configuration changes, the control plane propagates the update to all edge nodes.

Edge nodes do not independently decide what to cache, when to invalidate, or how to route. They execute the policies defined in the pull zone. The governance is central; the execution is distributed.

Purge propagates from center to edge

When content needs to be invalidated, a purge request is sent to Bunny's API. The control plane then propagates the purge to all edge locations holding the content. The edge node cannot independently determine that content is stale. It must be told by the control plane.

This propagation model means there is always a window between the purge request and the last edge node clearing its cache. During that window, some users see stale content. The edge has no mechanism to govern its own cache validity.

What scope-governed indexing provides

In a scope-governed model, each edge region or content group would be a namespace scope with local anchors governing cache policy. Cache invalidation would be a governed mutation validated through scoped consensus among the anchors responsible for that content region. Edge nodes would participate in governance rather than just executing propagated policies.

The namespace would adapt structurally to content delivery patterns: splitting high-demand content regions across additional governance scopes and consolidating low-traffic regions. Cache validity would be locally determined through governed consensus rather than centrally propagated purges.

The remaining gap

Bunny CDN delivers content globally at impressive speed and cost. The remaining gap is in cache governance: whether edge nodes can participate in governing what they hold rather than executing centrally defined policies.

[Adaptive Indexing All 21 steps →](#)

Resolution without global consensus. Anchor-governed self-organization.

Patent

[US 19/326,036](#) · published

Primary Technical Disclosure

[◦ The Adaptive Index: A Scalable Foundation for Decentralized Systems](#)

Secondary Technical

[◦ Anchor-Governed Hierarchical Nesting: Recursive Semantic Containers at Unlimited Depth](#)[◦ Entropy-Triggered Index Splitting: Deterministic Partitioning Under Mutation Load](#)[◦ Dormant Index Merging: Recursive Consolidation of Low-Entropy Subindices](#)[◦ Elastic Anchor Group Management: Governance That Scales With Criticality](#)[◦ Trust-Weighted Quorum Voting: Consensus Where Weight Reflects Earned Trust](#)[◦ Asynchronous Consensus Coordination: Offline Vote Completion With Reconciliation](#)[◦ Best-Match Alias Querying: Longest-Match Resolution With Stepwise Delegation](#)[◦ Action-Typed Aliases: Behavioral Intent Embedded in the Namespace](#)[◦ UID Persistence Through Alias Mutation: Stable Identity Across Structural Change](#)[◦ Lineage-Preserving Structural Mutation: Cryptographic History Through Every Change](#)[◦ Proximity-Based Routing With Trust Scoring: Dynamic Path Selection in Decentralized Networks](#)[◦ Dynamic Device Hash for Pseudonymous Authentication: Volatile Identity Without Stored Credentials](#)[◦ On-Demand Adaptive Caching: Cache Instances That Follow Usage, Not Configuration](#)[◦ Predictive Cache Prefetching: Forecasting Models That Proactively Instantiate Caches](#)[◦ Contextual Access Enforcement: Policy Graphs Evaluated With Real-Time Telemetry](#)[◦ Mutation Router With Contextual Signals: Policy-Aware Propagation Path Selection](#)[◦ Impact Simulation During Mutation Staging: Pre-Execution Analysis of Proposed Changes](#)[◦ DNS Bidirectional Fallback: Hybrid Resolution With Legacy DNS Compatibility](#)[◦ Asset Versioning as First-Class Metadata: Version Entries Under UIDs With Lineage Tracking](#)[◦ Telemetry-Driven Topology Mutation: Autonomous Network Reconfiguration From Operational Data](#)

Applications (General)

[◦ Applying Adaptive Indexes to Legacy Decentralized Systems](#)[◦ Why Edge Platforms Still Depend on a Central Authority](#)[◦ Supply Chain Tracking Through Governed Namespace Resolution](#)[◦ Social Media Platforms Without Central Namespace Authority](#)[◦ Healthcare Data Federation Through Scoped Governance](#)[◦ Government Identity Infrastructure at Scale](#)[◦ Financial Market Data With Governed Resolution](#)[◦ Gaming and Metaverse Namespace Governance](#)

Applications (Specific)

[◦ Cloudflare's Edge Has a Namespace Problem](#)[◦ DNS Is 40 Years Old and Still Running the Internet](#)[◦ ENS Solved the Wrong Half of the Naming Problem](#)[◦ Handshake Decentralized the Root, Everything Below It Is Still Ungoverned](#)[◦ IPFS Solved Content Addressing, It Didn't Solve Naming, Persistence, or Governance](#)[◦ Fastly Built the Fastest Cache Invalidation in the Industry, The Authority to Invalidate Still Lives in One Place](#)[◦ Akamai Built the Internet's Delivery Infrastructure, It Was Designed for a World That Needed Central Control](#)[◦ Bluesky Identified the Right Problem, The Architecture That Solves It Is the Adaptive Index](#)[◦ Consul's Service Catalog Is Brilliant Infrastructure, It Is Still a Central Registry](#)[◦ Istio Solved Programmable Traffic Policy, The Namespace That Routes Traffic Is Still Central](#)[◦ Unstoppable Domains Proved NFT Ownership Works, The Namespace Governance Model Is Still Unresolved](#)[◦ The Graph Built the Index Layer for Web3, The Index Itself Still Has a Governance Problem](#)[◦ Filecoin Proved Verifiable Storage, Discovery and Namespace Governance Are Still Unsolved](#)[◦ Arweave Made Data Permanent, It Has No Governance Model for What Permanent Data Means Over Time](#)[◦ Ceramic Built Mutable Data Streams for Web3, The Governance of Those Streams Is Still Not Local](#)[◦ Kubernetes Service Discovery Resolves Within Clusters, Cross-Cluster Namespace Is Central](#)[◦ Amazon Route 53 Is the Most Reliable DNS on Earth, It Is Still DNS Architecture](#)[◦ HashiCorp Nomad Distributes Scheduling, The Namespace That Organizes It Is Still Central](#)[◦ ZooKeeper Coordinates Distributed Systems, The Coordinator Is a Single Point of Authority](#)[◦ etcd Stores the State of Kubernetes, The State Store Has No Scoped Governance](#)[◦ Consul KV Distributes Configuration, The Distribution Authority Is Still Central](#)[◦ Raft Made Consensus Understandable, It Did Not Make Consensus Scope-Aware](#)[◦ Paxos Proved Consensus Is Possible, It Did Not Address Namespace Governance](#)[◦ Cosmos Tendermint Enabled Sovereign Blockchains, The Namespace Between Them Is Ungoverned](#)[◦ AWS Cloud Map Discovers Services, The Discovery Authority Lives in One Region's Control Plane](#)[◦ Azure Traffic Manager Routes Globally, The Routing Authority Is Centrally Defined](#)[◦ GCP Service Directory Centralizes Service](#)

[Registration. Registration Is Not Governance.](#) ◦ [Netlify DNS Simplifies Deployment Routing. The Namespace Authority Is Still Netlify's.](#) ◦ [Vercel's Edge Network Executes at the Boundary. Routing Authority Does Not.](#) ● [Bunny CDN Delivers Content Globally. Cache Governance Is Still Central.](#) ◦ [KeyCDN Optimized Content Delivery. The Delivery Namespace Is Centrally Controlled.](#) ◦ [Limelight Networks Built Private Infrastructure for Delivery. The Namespace Governance Is Still Central.](#) ◦ [StackPath Combined CDN With Edge Computing. Namespace Authority Remained Central.](#) ◦ [Envoy Proxy Made Service Mesh Data Planes Programmable. The Control Plane Still Governs.](#) ◦ [NGINX Powers the Web's Reverse Proxy Layer. Its Configuration Is Statically Defined.](#) ◦ [Traefik Discovers Services Automatically. The Discovery Namespace Is Still External.](#) ◦ [Linkerd Simplified the Service Mesh. The Namespace It Meshes Is Still Kubernetes.](#) ◦ [Namecheap Made Domain Registration Accessible. Domain Governance Remains the Registrar Model.](#) ◦ [GoDaddy Registered More Domains Than Anyone. The Namespace Model Has Not Changed.](#) ◦ [DNSimple Made DNS Management Developer-Friendly. The Governance Model Is Still DNS.](#) ◦ [Datadog Observes Everything. The Namespace It Observes Has No Governed Structure.](#) ◦ [Grafana Unified Observability Visualization. The Data Namespace It Queries Has No Governed Structure.](#) ◦ [Prometheus Defined Cloud-Native Monitoring. Its Metric Namespace Has No Governance Layer.](#) ◦ [New Relic Pioneered APM. The Telemetry Namespace It Built Is Centrally Indexed.](#) ◦ [Splunk Indexes Machine Data at Scale. The Index Namespace Is Centrally Administered.](#)
[Adaptive Indexing overview →](#)

AQ

deterministic
autonomy

Legal

Subject to one or more pending U.S. and international patent applications, see [Patents](#) for the current list and status. No license, express or implied, is granted. Any use requires a separate written agreement—see [Licensing](#). Patent applications referenced on this site are pending. Claim scope, if any, is subject to examination and may issue in altered form or not at all. See [Legal](#) for terms and conditions.

Adaptive Query™ is a trademark of Nicholas Clark. U.S. federal registration is pending. federal registration. AQ™, AQ Inside™, Adaptive Index™, Adaptive Network™, Semantic Agent™, @AQ™, AQID™, and Adaptive Coin™ are used as trademarks in connection with the Adaptive Query platform and brand. Other names may be trademarks of their respective owners.

Platform operated by Adaptive Query LLC, which provides patent and trademark licensing services. Copyright © 2025-2026 Nicholas Clark. All rights reserved.

Last updated: 2026-03-03



- [Inventive Steps](#)
- [Licensing](#)
- [Patents](#)
- [Articles](#)
- [Legal](#)
- [Opportunities](#)
- [Sitemap](#)



-
- nick@qu3ry.net
- 72 28 14 36 01



[Invented by Nick Clark](#) | Founding Investors: Devin Wilkie