Data Sovereignty
Roadmap 2026

The Next Moves for Europe's Infrastructure

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NGX STORAGE

CEO
Statement

*"For over a decade, the **'Cloud-First'** mantra has been a siren song, luring organizations into a state of structural dependency that compromises both their security and their strategic independence. At NGX Storage, we refuse to accept the narrative that sovereignty is a 'tax' on performance. We engineered **HyperIO and ExaScale** to shatter the myth that digital autonomy requires a compromise in speed. Our mission is clear: to provide organizations with the agility of the hyperscalers, but with the absolute certainty that you alone hold the keys to your kingdom.*

*As the 2026 regulatory landscape takes shape -from the NIS2 Directive to the EU AI Act- **the cost of outsourced efficiency is no longer just operational; it is strategic.** Sovereignty today goes beyond data residency. It is about establishing architectural control in an increasingly unpredictable global environment. Whether safeguarding national infrastructure or advancing proprietary AI, NGX Storage ensures your infrastructure remains a strategic asset, not a liability. The priority is no longer managing dependency, but eliminating it. **We are here to help you build that future with confidence**."*

CEO of NGX Storage

Beyhan Çalışkan

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The Dependency Crisis: Why "Cloud-First" is Becoming "Sovereignty-First"

For the better part of a decade, the "Cloud-First" mantra was the undisputed north star for digital transformation. The pitch was simple: offload your infrastructure to the hyperscalers, trade capital expenditure for operational flexibility, and innovate at the speed of the internet.
However, the honeymoon phase has met a cold reality. What was once seen as outsourced efficiency is now being reassessed as unacceptable dependency.

This dependency is not accidental; it is structural. To understand the urgency of the sovereignty movement, we must look at the current state of market concentration:

70% of Europe's cloud market controlled by US providers

15% of Europe's cloud market is held by European providers

68% of new global cloud spending goes to the same hyperscalers

The shift toward "Sovereignty-First" isn't a rejection of the cloud's power, but a reaction to three systemic risks that have matured alongside the technology:

- **Geopolitical Weaponization:** Data is the new oil, and in a fragmented global landscape, it is subject to trade wars and sanctions. When a provider's home country changes its regulations (e.g., the U.S. Cloud Act), your data—stored halfway across the world—suddenly falls under foreign jurisdiction.
- **The "Hotel California" Effect:** Many organizations found themselves trapped by egress fees and proprietary APIs. The ease of "clicking to deploy" turned into the impossibility of "clicking to leave," creating a strategic bottleneck where the provider, not the customer, holds the leverage.
- **The Single Point of Failure:** While hyperscalers boast impressive uptime, a single regional outage or a sweeping policy change by one of the "Big Three" can paralyze entire national industries or government services overnight.

The Sovereignty Shift: Power Back to the Perimeter

The Sovereignty Shift: Power Back to the Perimeter
"Sovereignty-First" marks a pivot toward Digital Autonomy. It’s the realization that critical infrastructure requires more than just a login; it requires control. This new framework prioritizes three distinct pillars:

Pillar	Focus	The Goal
Data Sovereignty	Legal jurisdiction and residency.	Ensuring data is subject to the laws of the country where it is collected.
Operational Sovereignty	Visibility and intervention.	Ensuring a provider cannot access, delete, or move data without explicit, audited consent.
Software Sovereignty	Open standards and portability.	Avoiding vendor lock-in by using stack-agnostic tools like Kubernetes and open-source frameworks.

From Passive Consumption to Active Control

The "Dependency Crisis" has forced a strategic pivot. We are moving away from a world where we blindly trust the "black box" of the public cloud toward a Hybrid, Multi-Cloud, and Localized model.
The New Mandate: Organizations are no longer asking "How fast can we get to the cloud?" but rather "How can we leverage the cloud without losing the keys to our kingdom?"
This isn't just a technical upgrade; it's a fundamental reclaiming of digital agency. However, reclaiming control is only half the battle; the other half is ensuring that sovereign infrastructure can actually compete with the performance of the giants.

In the following section, NGX Storage CEO Beyhan Çalışkan discusses why this shift is happening now and how organizations can navigate the transition without sacrificing the speed and scale they've come to expect.

Interview: NGX Storage CEO Beyhan Çalışkan on Europe's Data Sovereignty Debate

1. What's driving Europe's data sovereignty shift?

Beyhan Çalışkan:
For a long time, data sovereignty was treated as primarily a regulatory or compliance topic. Today, it has become something much more fundamental.
Organisations are starting to realise that data is not just an asset, it directly impacts operational continuity, competitiveness, and even strategic independence. At the same time, global uncertainty, evolving regulations, and the rapid rise of AI are forcing companies to rethink how and where their data is managed.
The key question has changed. It's no longer "Are we compliant?"
It's "Who actually controls the infrastructure we depend on?"

2. How should we interpret Europe's cloud dependency?

The numbers tell a clear story. Europe has a vast digital economy, yet most of its cloud infrastructure is run by providers based outside the region. US hyperscalers dominate due to their advanced, widely adopted platforms.
But this highlights a deeper issue: Europe lacks a strong ecosystem of large-scale, locally governed cloud providers. This is not just a competitive gap, but a structural dependency.
As organisations build critical systems on external infrastructure, the focus is shifting—from cloud adoption to how Europe can strengthen its own digital infrastructure and ecosystem.

Interview: NGX Storage CEO Beyhan Çalışkan on Europe's Data Sovereignty Debate

3. At what point does this dependency become a real business risk?

It becomes a risk when infrastructure shifts from a support layer to the foundation of the business.
Today, cloud environments run mission-critical systems—finance, healthcare, government, industry, and AI. When these depend on infrastructure governed خارج your own regulatory environment, the focus changes.
It's no longer just about performance or cost, but about control, resilience, and strategic autonomy.
This is driving growing interest in European cloud initiatives and regional providers operating within local frameworks.

4. AI seems to be accelerating this conversation. What role does it play in reshaping infrastructure decisions?

AI is accelerating this shift by increasing both the scale and sensitivity of infrastructure needs.
It requires massive data access, high throughput, and consistent low latency, while concentrating large volumes of sensitive data. If this runs on infrastructure you don't fully control, sovereignty quickly becomes a critical issue.
AI doesn't just raise demand—it exposes the limits of architectures not built for sustained, high-performance workloads.
As a result, organisations are rethinking the foundational layers of their infrastructure, not just the applications on top.

5. Where does NGX Storage fit into this evolving landscape? What is your approach to solving this challenge?

One of the key gaps in Europe's digital ecosystem is the limited presence of large-scale cloud infrastructure providers built on European technology.
At NGX Storage, we see our role as enabling that ecosystem.
As a European storage vendor, we design platforms for modern infrastructure environments, including cloud providers, AI platforms, and large-scale enterprise deployments.

Our portfolio includes:

- Unified storage arrays supporting SAN, NAS, and Object workloads
- Scale-out block storage platforms
- Scale-out object storage architectures

These platforms are built to serve as the storage foundation for cloud infrastructure.
Equally important is integration. Cloud environments require deep automation and orchestration. NGX platforms support this through:

- Comprehensive REST APIs
- Cinder driver support for OpenStack
- CSI drivers for Kubernetes

This makes it straightforward for European cloud providers to integrate NGX storage and operate at scale.

Ultimately, our goal is not just to deliver storage systems, but to provide open, high-performance building blocks that help European cloud providers grow and compete globally. Because strengthening Europe's digital sovereignty requires not only policy, but also scalable technologies built within the ecosystem itself.

The 8 Pillars: A Universal Rubric for Sovereign Infrastructure

If "Sovereignty-First" is the strategy, the 8 Pillars are the technical and operational blueprint. Adopting sovereign infrastructure is often mistaken for simply moving data to a local server. In reality, true sovereignty is a multi-layered architecture that ensures an organization remains the sole authority over its digital assets, regardless of geopolitical shifts or provider policy changes.

This rubric originates from the European Commission's Cloud Sovereignty Framework, establishing the Sovereignty Effectiveness Assurance Level (SEAL). This is now the universal standard used to evaluate whether an infrastructure is truly sovereign or merely "localized," moving beyond legal contracts to establish architectural certainty.

I. Strategic & Legal Pillars: The Foundation of Power

These pillars ensure that the "material" of your business—the data—is physically and legally protected.

- **1.Strategic Sovereignty:** Structural anchoring within local jurisdiction. This prevents "Change of Control" by non-local entities and ensures operations continue even under external geopolitical pressure.
- **2. Jurisdictional Residency:** Data must reside within the legal borders of the host nation, governed exclusively by local courts and shielded from extraterritorial laws like the U.S. CLOUD Act.

The 8 Pillars: A Universal Rubric for Sovereign Infrastructure

II. Data & Operational Pillars: Control & Access

These pillars define who can see, move, or modify systems and under what authority.

- **3. Data & AI Sovereignty:** Technical control over the collection and storage of data. This requires Cryptographic Autonomy—the organization must "Hold Your Own Key" (HYOK) to ensure the provider cannot decrypt or view confidential info.
- **4. Operational Autonomy:** Systems must be managed by local, vetted personnel. Sovereignty is compromised if a remote engineer from a foreign jurisdiction can "tunnel" into the environment for support.

III. Technical & Supply Chain Pillars: Independence

These pillars prevent "The Hotel California Effect" by ensuring you can leave as easily as you arrived.

- **5. Supply Chain Transparency:** Traceability of the physical hardware and firmware. It ensures that the controllers, drives, and components contain no "backdoors" or foreign-controlled code.
- **6. Technology Sovereignty:** The use of open standards and non-proprietary APIs. This prevents vendor lock-in and ensures the infrastructure can be migrated or rebuilt without reliance on a single provider.

The 8 Pillars: A Universal Rubric for Sovereign Infrastructure

IV. Resilience & Security Pillars: Continuity

These pillars ensure that sovereignty doesn't come at the cost of business survival or safety.

- **7. Security & Compliance:** Localized Security Operations Centers (SOC) and compliance controls that align with national security mandates rather than foreign corporate policies.
- **8. Performance & Sustainability:** Often called the "Sovereignty Tax" pillar, this ensures that sovereign stacks match public cloud speeds. High-performance engineering -like NGX ExaScale- is required to ensure that staying local doesn't mean staying slow.

Evidence: Why the Rubric is Non-Negotiable in 2026

To understand why these pillars have moved from "IT concerns" to "Board-level priorities," consider the shifting global landscape:

- **$80 Billion Surge:** Worldwide spending on Sovereign Cloud IaaS is hitting $80 billion in 2026, a massive 35.6% increase from last year (Gartner).
- **20% "Geopatriation":** 20% of current enterprise workloads are being migrated from global hyperscalers back to local providers to gain digital and technological independence.
- **The 4% Risk:** Under NIS2 and evolving data laws, a jurisdictional breach can result in fines of up to 4% of global annual turnover, making compliance-by-design a financial necessity.

The SEAL Standard: By auditing an environment against these 8 Pillars, organizations can achieve SEAL-4 (Full Digital Sovereignty), where technology and operations are fully under their own control.

A 5-Step Guide to Sovereign Infrastructure: The Cloud-to-Local Roadmap

While the 8 Pillars provide the structural rubric, the transition from a traditional "Cloud-First" model to a "Sovereignty-First" architecture requires a staged implementation.

This guide ensures that "geopatriating" your data doesn't just meet legal requirements, but actually improves operational performance.

1

STEP 1 : Workload Audit & Data Classification

Before moving hardware, you must understand the legal and technical weight of your data.

- **Jurisdictional Mapping:** Identify which datasets are subject to "Foreign Reach" laws (like the U.S. CLOUD Act) and classify them as Sovereignty-Critical.
- **Technical Tiering:** Distinguish between static archival storage and High-I/O workloads (like AI training or real-time analytics) that require specialized local performance.

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STEP 2: The Data Gravity Assessment

Sovereignty often hits a wall called "Data Gravity", the difficulty of moving massive datasets out of hyperscale silos.

- **The Exit Strategy:** Calculate the time and cost -specifically Egress fees- of moving large datasets.
- **Transfer Strategy:** For PB-scale data, implement "Physical vs. Network" transfer strategies to bypass bandwidth bottlenecks and ensure a secure, offline transition to local control.

3 STEP 3: Architecting for Parity

The most common failure in a local transition is losing "Cloud Agility." Your on-prem setup must feel like the cloud.

- **Software Agency:** Build your on-prem environment around open APIs and standard data interfaces, not vendor-specific technologies. Use S3-compatible object storage for cloud-aligned data access Orchestrate storage via Container Storage Interface to stay vendor-agnostic Enable portability with standard replication and data formats
- **Cloud-Like Scalability:** Deploy architectures like NGX ExaScale and NGX HyperIO that provide the ability to scale capacity and performance linearly on-site, matching the elasticity of the public cloud without the associated dependency risks.

4 STEP 4: Solving the Latency Bottleneck

True sovereignty must solve the "Sovereignty Tax." Moving data locally should make it faster, not slower.

- **P99 Latency Optimization:** Tune the infrastructure -including network, cache, and flash layers- to ensure AI models perform better locally than they did in the cloud.
- **The ExaScale Advantage:** Use high-performance layers like NGX ExaScale to eliminate the performance gap, delivering the sub-millisecond response times required for modern 2026 applications.

5 STEP 5: Hybrid-State Finalization & DR

Sovereignty isn't about isolation; it's about control. The final step is establishing a "Local-First" gateway.

- **Operational Autonomy:** Set up a local-first management plane that ensures systems remain functional even if global management consoles go offline.
- **Resilient Sovereignty:** Ensure local control is backed by secure, sovereign Disaster Recovery (DR) sites that also adhere to the 8 Pillars, preventing a single point of failure.

Solving the "Sovereignty Tax" with NGX HyperIO & NGX ExaScale

Historically, "going sovereign" meant making a compromise. Organizations often faced the Sovereignty Tax: a hidden cost paid in higher latency, reduced scalability, and fragmented management compared to the seamless experience of global hyperscalers. To achieve true digital autonomy, local infrastructure cannot simply be "secure"—it must be faster.

NGX Storage has eliminated this tax by engineering two core architectural breakthroughs that ensure sovereignty and high performance are no longer mutually exclusive.

NGX ExaScale: Hyperscale Agility on Your Terms

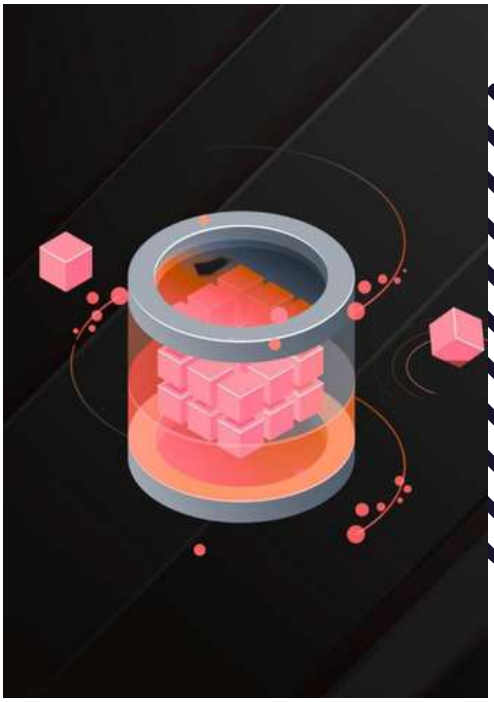
The biggest performance drain in traditional sovereign stacks is the "I/O bottleneck"—the delay between data storage and processing. ExaScale is our answer to the ultra-low latency requirements of 2026.

- **Massive Parallelism:** By utilizing an end-to-end NVMe-over-Fabrics (NVMe-oF) architecture, ExaScale bypasses traditional protocol overhead, delivering millions of IOPS at sub-millisecond latencies.
- **AI-Ready Throughput:** For AI training and real-time analytics, ExaScale provides the sustained throughput necessary to keep GPUs saturated, ensuring that sovereign AI models perform better than they would in a shared public cloud environment.
- **Zero-Copy Efficiency:** By reducing CPU overhead for data movement, ExaScale preserves system resources for your actual applications, effectively turning your infrastructure into a performance accelerator.

Solving the "Sovereignty Tax" with NGX HyperIO & NGX ExaScale

HyperIO: True Scale-Out, High Performing Object Storage for the Sovereign Edge Operational Simplicity

Sovereign infrastructure is no longer just about control, it's about scaling that control without compromise. Traditional architectures struggle as data grows, creating complexity, fragmentation, and performance trade-offs. HyperIO is built to eliminate those limits.



True Scale-Out Architecture
A distributed object storage platform where capacity and performance scale together, seamlessly and without disruption.

Optimised for Unstructured Data
From AI datasets to backups and cloud-native applications, HyperIO handles large-scale unstructured data with efficiency and consistency.

Sovereign by Design
Deploy within your own environment, under your own jurisdiction, without dependency on external cloud platforms.

Operational Simplicity
Simple and API driven management allowing automation across large infrastructures.

Sovereignty Without Sacrifice

By integrating HyperIO and ExaScale, NGX Storage turns the 8 Pillars from a compliance requirement into a competitive advantage, proving that "local-first" doesn't mean slower.
The new standard: In 2026, the best infrastructure isn't the one with the largest global footprint, but the one delivering the highest performance within your control.
With this performance baseline in place, the following 2026 Compliance Checklist helps you assess where you stand on the path to full digital autonomy.

The 2026 Data Sovereignty Checklist: A Strategic Audit

Under the NIS2 Directive and the EU AI Act, data sovereignty is now a legal mandate. Failure to prove the "Technical Truth" of your data flows can result in penalties of up to 4% of global annual turnover. Use this unified checklist to assess your organization’s exposure to the "Dependency Crisis."

1. Data & Metadata Residency

- Do you know exactly where your data is physically stored?
- Are metadata and backups kept within the same jurisdiction?

2. AI & Model Sovereignty

- Are AI workloads processing sensitive data outside your control?
- Are models and weights stored and operated locally?

3. Legal Control & Access

- Is your provider exposed to foreign jurisdiction (e.g. extraterritorial laws)?
- Do you fully control your encryption keys (HYOK)?

4. Exit Readiness

- Can you migrate all data within 30 days without major cost or friction?
- Does your architecture rely on open, vendor-neutral standards?

5. Infrastructure Integrity

- Do you have immutable ransomware protection in place?
- Is your infrastructure certified and supply chain fully transparent?

NGX STORAGE

Take the next step in data sovereignty with NGX Storage.

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