PURESTORAGE®

Smarter Automation

Provision, manage, and optimize storage through policy-driven workflows and real-time telemetry.

Unified Data Fabric

Combine block, file, and object into one centrally managed, API-first virtualized cloud of storage.

Autonomous Governance

Apply and enforce compliance policies consistently across environments without manual intervention.

Enterprise Data Cloud: The Intelligent Control Plane

Operating data with intelligence, automation, and control

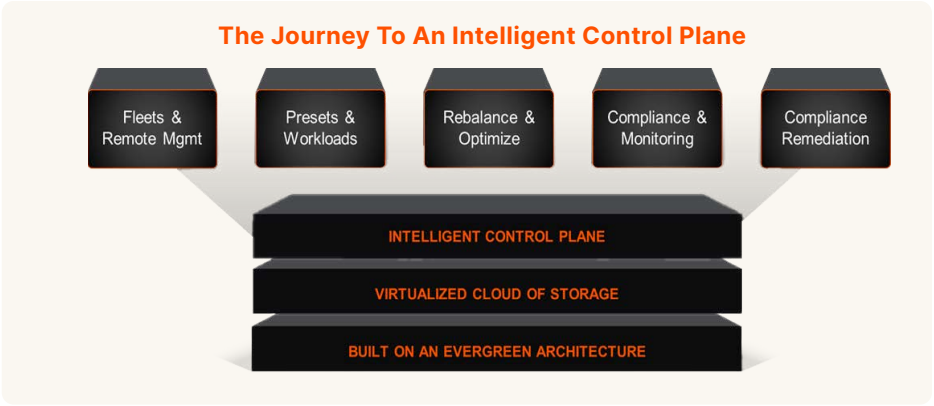
Executive Summary

As enterprise data environments scale across on-premises and cloud, traditional infrastructure models can no longer deliver the required speed, consistency, or data control. The Enterprise Data Cloud (EDC) introduces a new operating model—unifying all storage into a virtualized cloud of data that's managed through a single intelligent control plane. This paper explores how the control plane enables real-time automation, consistent workflows, built-in cyber resilience, autonomous governance, and AI-driven decision-making. For technical leaders, it represents a shift from managing infrastructure to delivering outcomes—faster, smarter, and with enterprise-grade assurance.

The Role of Intelligence in an Enterprise Data Cloud

An Enterprise Data Cloud is more than a storage strategy. It's a modern operating model for delivering, governing, and consuming data across hybrid environments. It brings the simplicity and agility of cloud to on-premises and multicloud deployments while maintaining enterprise-grade control. At its foundation, EDC virtualizes all storage into a global pool of data that can be provisioned, accessed, and managed consistently.

Within this model, the intelligent control plane plays a critical role. It's not a product or a feature. It is the connective tissue that turns the platform into a system. It combines infrastructure, policy, service delivery, and automation into a single operational layer. And it does so intelligently by ingesting telemetry, applying policy, and automating decisions based on real-time context.



With the intelligent control plane, IT teams move beyond managing infrastructure. They begin to operate the data itself. They move faster, act proactively, and gain control over performance, cost, protection, and compliance without getting lost in system-by-system complexity.

Why It Starts with a Virtualized Cloud of Data

An intelligent control plane depends on abstraction. It must see data across locations, workloads, protocols, and environments as a single system, not as fragmented arrays or disconnected cloud buckets. That visibility and consistency only happens when infrastructure is virtualized.

EDC makes that possible by decoupling data services from physical systems. Block, file, and object data become part of one logical data fabric, orchestrated by software and delivered as API-driven storage services. Arrays no longer operate as individual silos but as a unified global pool, abstracted and centrally managed.

A virtualized cloud of data turns static infrastructure into a responsive, service-driven platform. The control plane is what makes that platform operate intelligently.

From Foundation to Function: What the Intelligent Control Plane Enables

With a virtualized data cloud as its foundation, the intelligent control plane unlocks a new way to operate. It doesn't just centralize control—it delivers dynamic, policy-driven services that adapt in real time to the needs of your business. From provisioning and automation to resilience and governance, this control layer brings the power of the Enterprise Data Cloud to life.

It all starts with how workflows are automated and made intelligent by design.

Intelligent Automation and Workflows

The intelligent control plane brings automation that is not only fast but workload-aware and adaptable. Instead of building brittle, one-off scripts or relying on fragmented tools, IT teams operate through declarative policies and orchestration frameworks that span the entire data estate.

Provisioning is policy-based and template-driven. Storage can be deployed and tuned based on application profiles, business priorities, or data protection requirements. Need high performance with multi-site replication for a critical app? That's a policy. Need secure test environments spun up nightly? That's a policy, too.

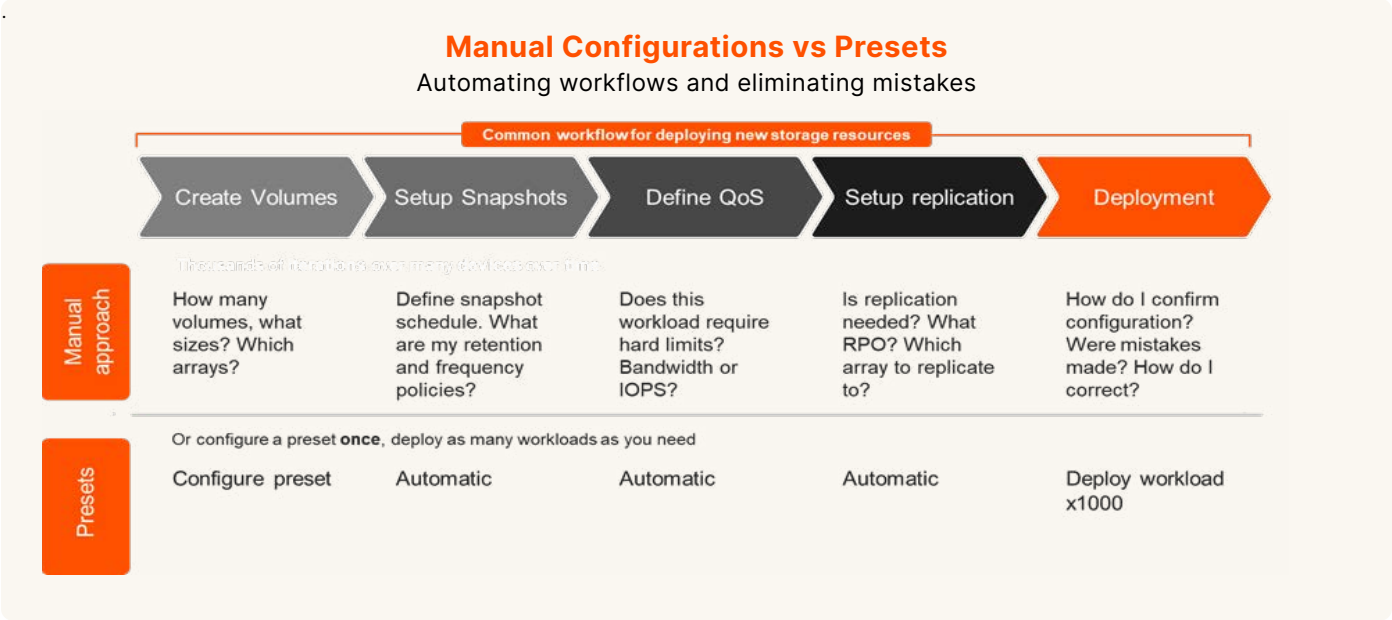


FIGURE 1 The power of workload presets

Behind the scenes, real-time telemetry fuels this automation. The control plane constantly observes usage patterns, performance behavior, latency shifts, and capacity consumption. When it detects drift or risk, it can rebalance workloads, apply tiering rules, or even surface performance bottlenecks before users notice.

A customer's global storage footprint can be automated according to corporate policy, reducing operational burden while increasing consistency across environments. This shifts IT's focus from executing tasks to defining intent, enabling automation to enforce outcomes automatically.

And because it's API-first, the intelligent control plane fits naturally into broader workflows—CI/CD pipelines, service catalogs, compliance dashboards, and more. You're not just automating infrastructure. You're embedding storage directly into how your business operates.

This means faster time to value, fewer human errors, and an operations team that can focus on delivering business outcomes instead of managing configurations.

Built-in Cyber Resilience

Cyber resilience in traditional environments is often reactive and fragmented. Protection is bolted on with backup tools, encryption is handled per system, and threat detection is slow. The intelligent control plane enables a new model where security is built in, always on, and policy-driven.

The control plane embeds data protection best practices through automated enforcement at the platform level. Immutable snapshots are created and retained without manual steps. Replication is tied to provisioning workflows. Clean recovery points are scheduled proactively before patch windows or major changes.

FIGURE 2 Built-in cyber resiliency

Telemetry plays a critical role here. AI algorithms monitor for behavioral anomalies such as unexpected access spikes, unusual write patterns, or encryption activity—early indicators of ransomware or insider threats. Because the control plane is integrated with provisioning and recovery, it can automate mitigation steps, from locking down volumes to spinning up clean environments for restoration.

Resilience is no longer just about backup. It is about reducing recovery time, containing threats, and ensuring data integrity across every workload. With the intelligent control plane, you're not just reacting to an incident. You're already prepared to recover before damage takes hold.

Autonomous Governance

Governance often breaks down in hybrid environments. Policies may exist, but they're inconsistently applied and difficult to enforce manually. The intelligent control plane changes that by shifting governance into a proactive, policy-defined system. Instead of managing data by task or tool, IT defines intent. Rules that are enforced automatically across the entire platform.

It starts with policy-based control. Access permissions, retention timelines, data classification, and compliance rules are defined once and applied universally. New workloads inherit rules automatically. Sensitive assets can be tracked wherever they move, with encryption and access limits applied in real time.

Because the control plane spans the entire environment, it can identify gaps and misalignments instantly. Missing tags, policy drift, unauthorized access—all become actionable insights, not post-mortem findings. And thanks to deep integration with compliance ecosystems, the platform can support a wide range of standards without bolt-on tools or custom integrations.

Autonomous governance reduces risk without slowing teams down. It frees IT to focus on managing policies, not enforcing them.

AI Telemetry: Turning Signals Into Decisions

At the control plane's heart is telemetry, not just logs and counters. This deep, AI-driven telemetry provides operational intelligence across the whole environment. It sees everything, correlates events, and makes decisions faster and more precisely than any manual process.

This telemetry spans every data platform layer: I/O patterns, latency trends, hardware anomalies, policy drift, SLA adherence, and user behavior. Machine learning models trained on large fleet data sets turn that signal into prediction and action.

Instead of just sending alerts, the control plane can:

- Predict capacity constraints or SLA risks
- Detect ransomware behavior early
- Recommend resource rebalancing or policy adjustments
- Flag security gaps before they become incidents
- Identify opportunities to reduce cost or optimize performance

AI telemetry also powers personalized recommendations. IT teams get insights specific to their environment and tied to actions they can take immediately. That shortens resolution times, prevents downtime, and improves operational efficiency.

As your environment grows, this type of telemetry becomes indispensable. It transforms the control plane into an adaptive system that learns continuously and operates predictively, not just reactively.

The Bottom Line

The intelligent control plane is what makes the Enterprise Data Cloud operationally real. It transforms a virtualized data cloud into a responsive, secure, and policy-driven platform capable of delivering consistent outcomes across any environment.

It gives IT leaders the visibility to understand, the intelligence to predict, and the automation to act. Workflows are faster. Risks are lower. Governance is enforced by design, not after the fact.

With AI telemetry, autonomous control, and built-in resilience, the intelligent control plane enables a new kind of IT focused on delivering business outcomes, not managing storage infrastructure.

This is not just smarter storage. It's smarter data. And it's how the enterprise data cloud delivers lasting advantage.

To learn more, visit the Pure Storage EDC page.

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