

# Choosing Between Persistent and Non-Persistent Storage in SAS Viya 4.0 Kubernetes Deployments

In the landscape of SAS Viya 4.0 deployed on Kubernetes, storage plays a pivotal role in ensuring the availability, scalability, and resilience of data for analytical workloads. When setting up a SAS Viya 4.0 environment on Kubernetes, understanding the nuances between persistent and non-persistent storage options becomes paramount for designing an efficient and reliable system architecture.

## Non-Persistent Storage:

In the context of SAS Viya 4.0 Kubernetes deployments, non-persistent storage typically refers to storage that exists only for the duration of a container's lifecycle. This ephemeral storage is ideal for stateless components or transient data that do not require persistence beyond the lifespan of individual containers. Examples include ephemeral pods for processing data or running stateless microservices.

### **When to Choose Non-Persistent Storage in SAS Viya 4.0:**

**Stateless Components:** Non-persistent storage is suitable for stateless components of SAS Viya 4.0, such as stateless microservices or transient data processing pods.

- **Temporary Data:** For temporary data that can be recomputed or regenerated as needed, ephemeral storage offers simplicity and performance benefits.

- **Compute-Intensive Workloads:** Ephemeral storage is often preferred for compute-intensive workloads where performance is a primary consideration, and data persistence is not a requirement.

## Persistent Storage:

Persistent storage in SAS Viya 4.0 Kubernetes deployments refers to storage that persists beyond the lifecycle of individual containers or pods. This type of storage is essential for stateful components of SAS Viya 4.0, such as databases, file repositories, and shared filesystems, which require data durability, persistence, and shared access across multiple instances.

### **When to Choose Persistent Storage in SAS Viya 4.0:**

- **Stateful Components:** Persistent storage is indispensable for stateful components of SAS Viya 4.0, including databases, file repositories, and shared filesystems, where data persistence is crucial.
- **Data Durability:** For applications that require data durability and resilience against pod or node failures, persistent storage ensures data integrity and availability.
- **Shared Data Access:** Persistent volumes enable shared data access across multiple SAS Viya 4.0 components, facilitating collaboration and data sharing within the analytics environment.

## Conclusion:

In SAS Viya 4.0 Kubernetes deployments, the choice between persistent and non-persistent storage depends on the specific requirements of individual components and workloads. While non-persistent storage offers simplicity and performance advantages for stateless components and transient data, persistent storage is essential for ensuring data durability, resilience, and shared access for stateful components.

By understanding the differences between persistent and non-persistent storage options and considering the data requirements of SAS Viya 4.0 workloads, organizations can design robust and scalable architectures that meet the needs of their analytics workflows. Whether optimizing for performance with non-persistent storage or ensuring data resilience with persistent storage, choosing the right storage solution is critical for achieving the full potential of SAS Viya 4.0 on Kubernetes.