



# ATOM Backup and Recovery

## **Backup Mechanism**

### **Pre-requisites:**

It is advisable to go through the atom-deployment guide to understand the platform Architecture of Atom and various deployment scenarios. At a high level Anuta ATOM platform consists of a series of microservices, each providing a specific function such as discovery, provisioning, telemetry, analytics, or assurance. Through the deployment of microservices on k8s cluster, ATOM supports rolling upgrades and integration with other enterprises software applications.

### **Replication**

Atom uses a CSI storage provisioner which provides synchronous data replication for minimal interruption, automatic fail-overs between sites to ensure minimal downtime when an outage occurs.

#### **Features of Replication Backup:**

- Data volumes used by various atom components are replicated synchronously by a default factor of 2 (i.e, each volume has a synchronous replica). Anything written to data volumes is mirrored and the replication factor can be controlled and if desired, can be increased during the installation time.
- Replicas are placed on different nodes and different sites, if the kubernetes cluster is deployed across multiple sites. This will enable atom availability even if there is worker node failure or a site failure, if the kubernetes cluster is stretched across a minimum of three sites.
- Data volume snapshots are taken during the upgrades which will enable rollback to the previous state if there is an issue with upgrade.
- Atom Application takes care of the replication and does not require any manual step to be performed by the customer.

### **Snapshot based Backup**

The earlier approach is not a backup solution, but is a real time replication solution. We still recommend node level backups which can backup the whole kubernetes cluster, along with the data volume replication which accounts for Site level failures.

- Atom application can be backed by using VM snapshot based backups (if the kubernetes cluster is deployed on vms running on hypervisor vmware)
- It provides the flexibility for a faster roll-back to a previous point-in-time and can be used as a short-term failback during patching and software upgrades
- VM snapshots are an ideal fit for backing up the complete application for a disaster recovery scenario.

- It preserves the state and data of a virtual machine at a specific point in time. The data includes all of the files that make up the virtual machine. This includes disks, memory, and other devices, such as virtual network interface cards.
- The VM snapshots are the customer's responsibility and have to be scheduled based on upgrade windows or backup cycles.