ProtectIO

Disaster Recovery as a Service by PrimaryIO

Introduction

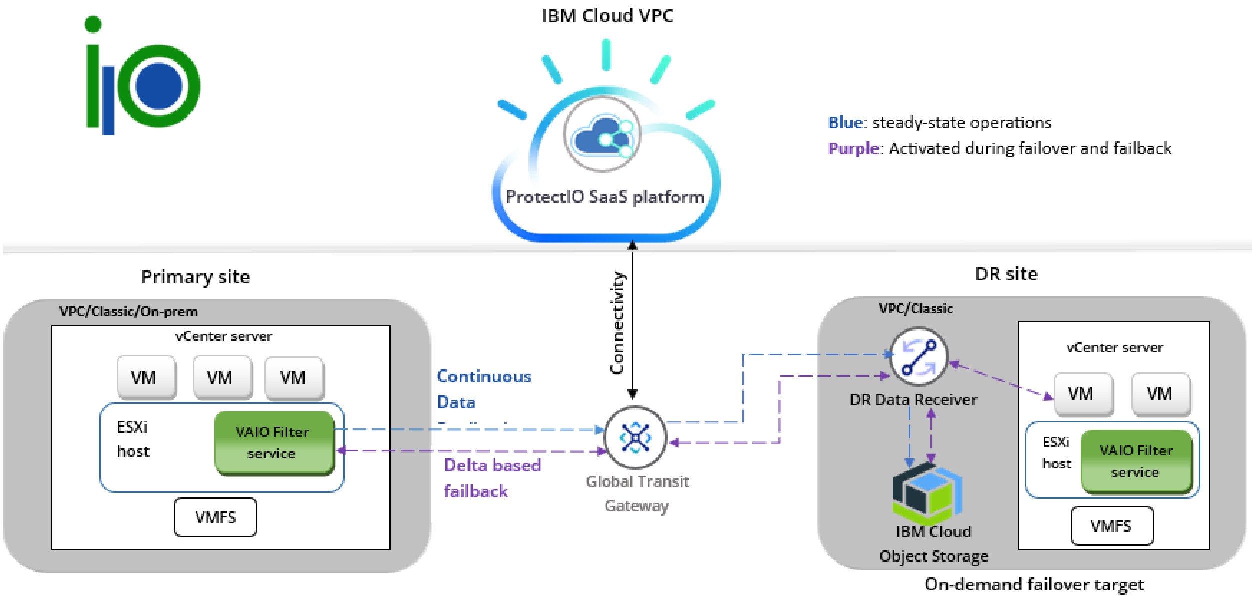
ProtectIO is PrimaryIO's on-demand disaster recovery as a service ("DRaaS") platform. ProtectIO is delivered as a web-accessible, multi-tenant, IBM Cloud-native Software-as-a-Service and helps customers by providing a robust disaster recovery solution while leveraging the latest cloud economics for an attractive Total Cost of Ownership.

ProtectIO has a Ransomware Recovery option, RecoverIO, taking advantage of immutable cloud storage to enable an organisation to roll back to a pre-ransomware/data corruption point-in-time.

ProtectIO protects primary site VMware workloads by replicating them to an IBM cloud VPC or IBM Classic target DR site. Using Continuous Data Protection via PrimaryIO's VAIO replication filter, changed I/O blocks are copied via a proprietary Block Stream Protocol into low-cost IBM Cloud Object Storage. Supported environments for protection of VMs include on-premises, IBM Classic and IBM VPC primary sites.

Architecture

ProtectIO has been designed to not only be robust in functionality, but also easily administrate from a centralized intuitive UI. This easy to navigate design negates the mandate to utilize and pay for a managed service provider without compromising its ability to deliver near-zero-seconds RPO for VMware-virtualized application workloads. The component architecture of ProtectIO is detailed in the diagram, below:



- The VAIO filter service is a replication filter built on VMware's VAIO framework. It is a service installed and running on each ESXi host where the virtual machines to be protected reside. The VAIO filter sends changed data blocks to the target site.

- The ProtectIO SaaS Platform (control plane + UI) is a multi-tenant, cloud-native component that presents a User Interface to consume the service offering and includes several disaster recovery orchestration capabilities to automate the disaster recovery process. The DRaaS manager enables the following tasks:
  - Create CDP (continuous data protection) policy
  - Connect to customer's site over IPsec tunnel or via IBM local/global transit gateway
  - Review the list of protected virtual machines
  - Initiate a failover in the case of a disaster
  - Monitor failover progress
  - Initiate failback process when the primary site is healthy
  - Monitor failback progress
- The DR receiver is a component running on the target site and is responsible for receiving data blocks sent by the VAIO filter and storing to either cloud object storage or block storage.

Deployment considerations:

The following are options and considerations when determining how to consume the ProtectIO disaster recovery service:

Protected/Primary site

ProtectIO supports on-premises or classic or VPC vCenter environments as a primary site.

Recovery/target site

Recovery/target site can supports both Classic or VPC. ProtectIO needs vCenter to be available for recovery. Changed I/O blocks are, by default, stored in low-cost Cloud Object Storage, delivering the most cost-effective DR site economics. At customer option, higher cost can be traded off for improved RTO, giving customers flexibility in price/performance.

The following table presents ProtectIO deployment details:

Parameter	Details
Backup Method	Continuous data protection
RPO	Near zero RPO
RTO with Block/NFS Storage*	15 minutes
RTO with Cloud object Storage*	1-10+ hours
Target site requirement	At least one ESXi host is required to be available on the DR site

* Note: NFS/Block storage vs. Cloud object storage is a trade-off between storage cost and RTO. With NFS/Block storage, rehydration process latency is eliminated. Cloud object storage dramatically lowers the costs but increases the RTO by rehydrating workloads only in the event a failover.