X-IO Technologies - ISE G4 User interface High level Product definition

Executive Summary

X-IO Technologies is a recognized innovator in the storage industry delivering high-performance high-reliability block storage arrays. The Intelligent Storage Element (ISE) systems are available in all-HDD, hybrid, and All-Flash variants.

Project overview

X-IO Technologies is seeking an outsourcing partner to develop a storage management interface for provisioning and management of the ISE G4 storage systems. The ideal development partner will have experience and expertise in developing management interfaces for storage projects. Enterprise storage arrays have similar workflows and fundamental operations which will minimize core design and task flow development.

Scope:

The scope of the solution will include development and testing of a Graphical user interface for management of X-IO ISE Storage arrays.

Interface development will utilize the ISE REST web services API (CorteX) which exposes all the primitives required to provision and manage an ISE system. Proprietary ISE firmware manages all backend components and implements all device control logic.

Fundamental operations include but are not limited to:

- Storage Volume Operations
    - Create/Modify/Delete volume (virtual disks or VDisks)
    - Present/Unpresent volume.
    - Create/Modify/Delete host object (logical grouping of WWN/IQN)
- Storage system operations
    - Login
    - Shutdown
    - Restart
    - Upgrade firmware
    - Add/Remove FRU components
    - Modify system settings
- Monitor system status
    - Health status
    - FRU monitoring
    - Event monitoring and reporting
    - Performance monitoring

ISE system details.

Each ISE G4 system contains a variable number of drives (HDD,SSD) which are CARVED into pools of usable capacity. Each ISE can have multiple storage pools each with varied capacity and perfromance capabilities. Users provision individual volumes from the storage pools and present the volumes to hosts for utiization. In addition to provisioning and managing storage volumes users require the ability to easily monitor and manage all system resources.

Primary user visible ISE resources. Each resource has attributes that need to be exposed to users.

Logical Storage Resources	Physical System Resources	Logical System Resources
• Storage Volumes • Hosts • HBA Ports • LUN Mapping • Storage Pools • Mirrors	• Array • Controllers • Media • Power Supplies • Batteries	• Network • Chronometer • Jobs • Subscriptions • Revision • Performance

Example console displays from current GUI for G3 ISE systems. These are for reference and not intended to influence UX design for the G4 interface.

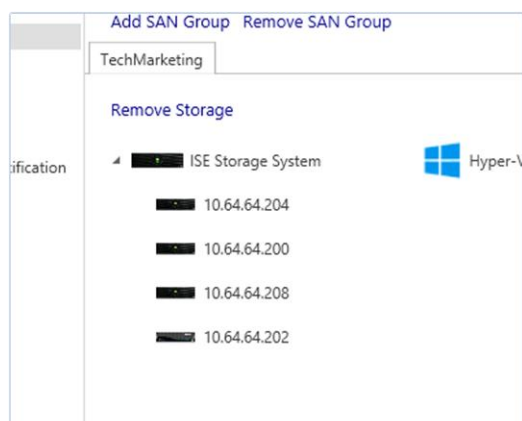Fig 1 SAN Group View showing ISE currently managed by IP address.

Fig 2. Storage view showing ISE and volumes created on each system

Fig 3. Aggregate view of ISE displaying system details in table view

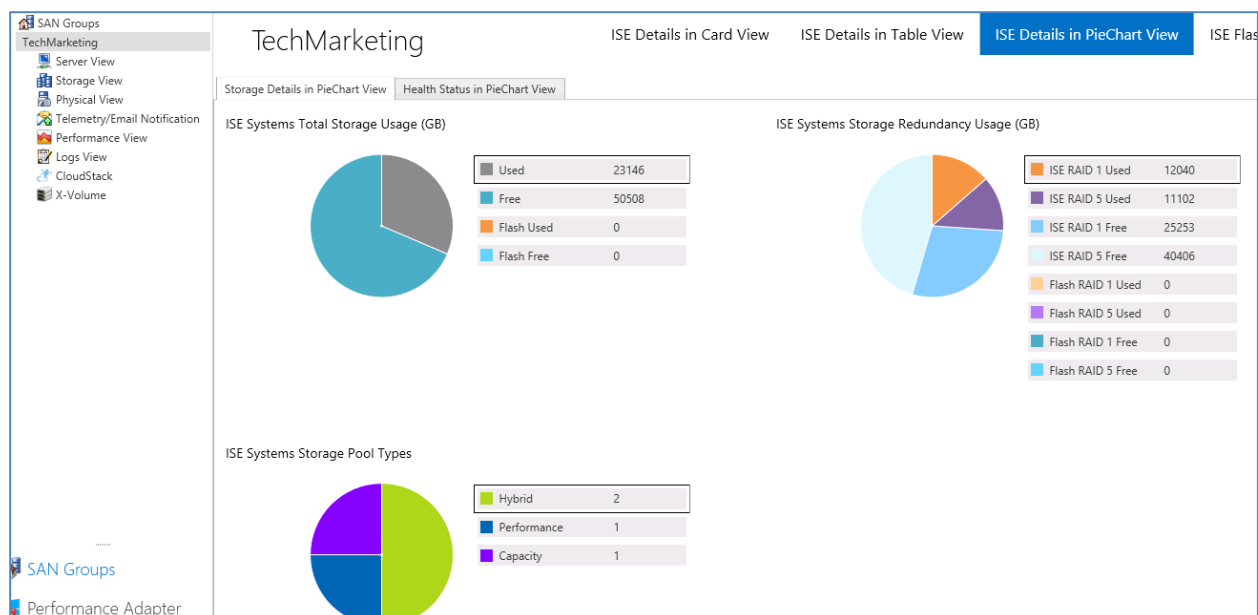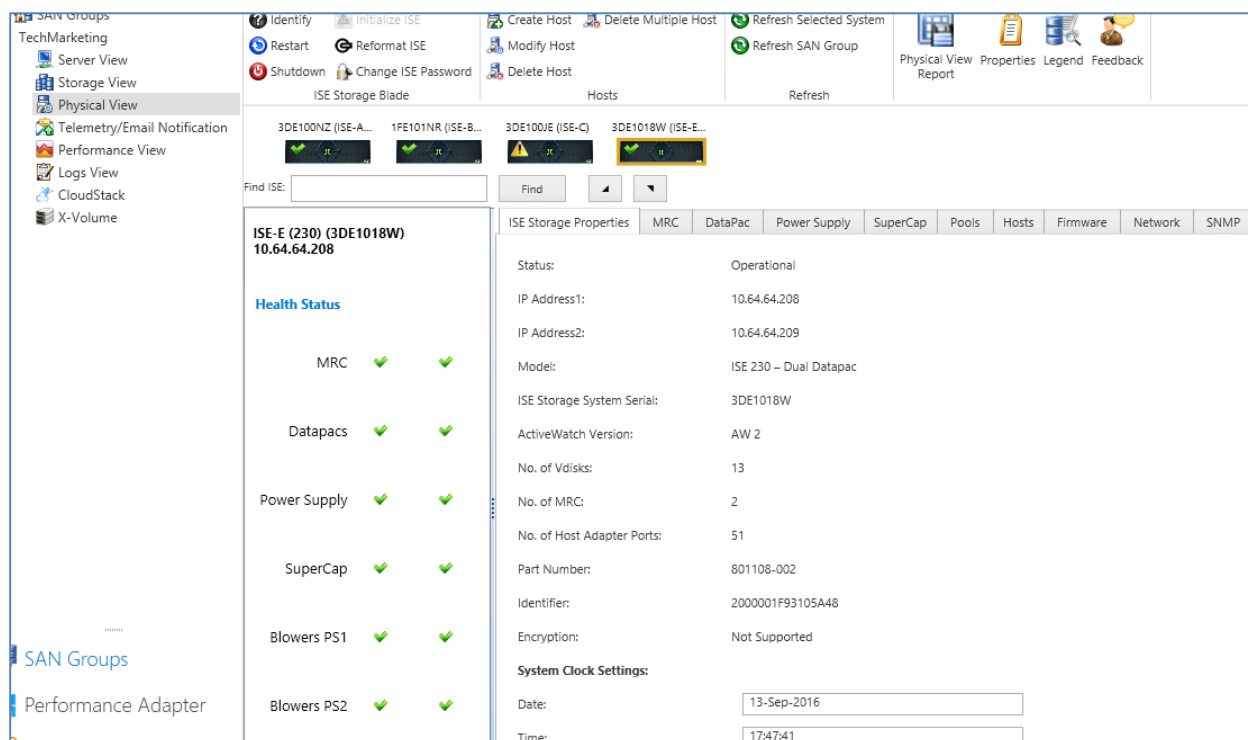Fig 4. Aggregate view of ISE details in chart view.

Fig 5. Physical view allows users to monitor all attributes of the system componants.

Primary user tasks : Storage provisioning

1) Login

      User provides name and password

1.a User accounts:

      Full control (Admin) and read-only (Guest) account types

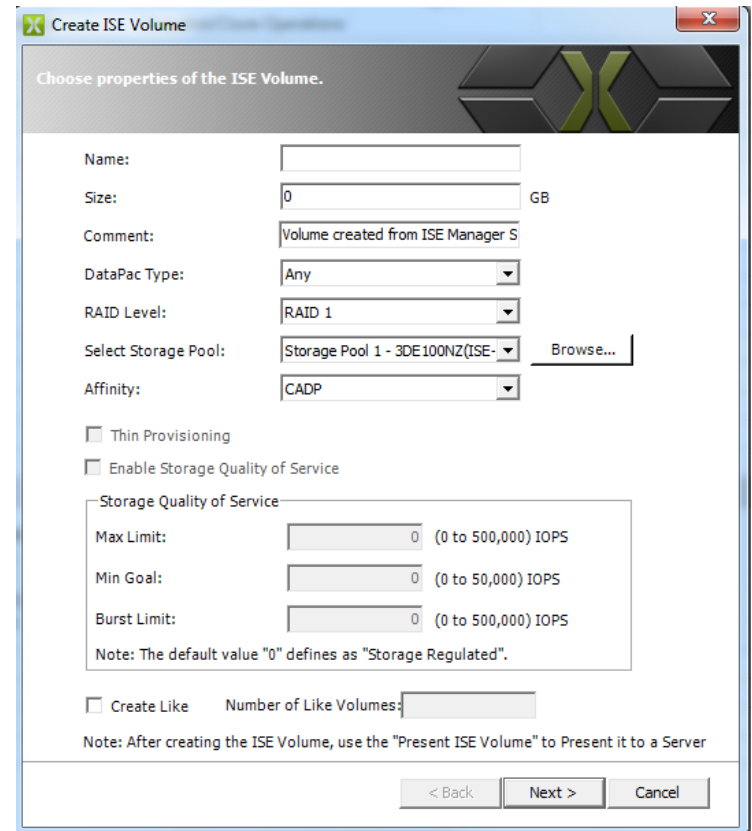   Administrator can create user accounts

2) Display

      Once logged in interface shows all systems being managed by instance

      Display data includes; health status, configuration settings, utilization, performance, etc

3) Create ISE Volume

User creates a volume from a pool on a storage system.

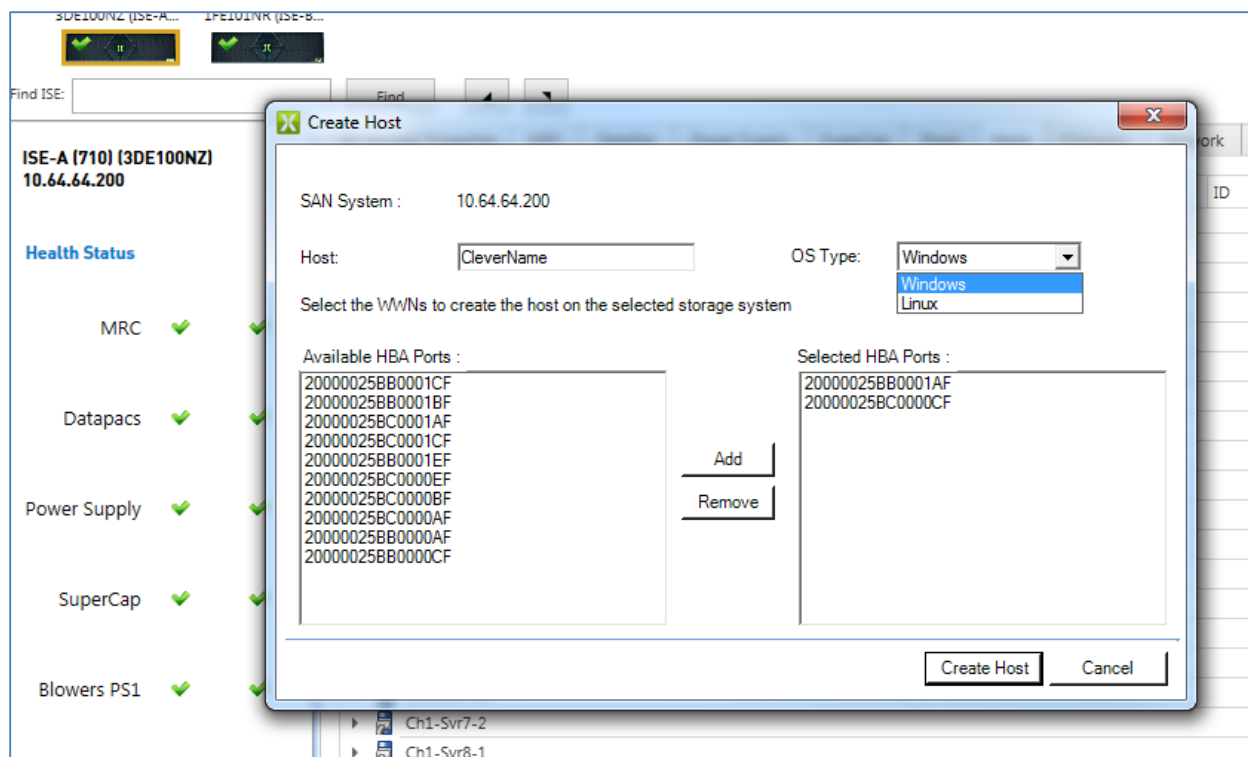| Create ISE Volume |
| --- |
| **User input** |
| -Name |
| -Size |
| -Comment |
| -DataPac Type |
| Dropdown |
| -RAID Level |
| Dropdown |
| -Select Storage Pool |
| Browse list |
| -Affinity |
| Dropdown |
| -Thin Provisioning |
| -Enable Quality of Storage |
| QoS Settings |
| -Create multiple volumes |

3) Present ISE Volume

Once a volume is created it is presented to a host (Fibre Channel or iSCSI).
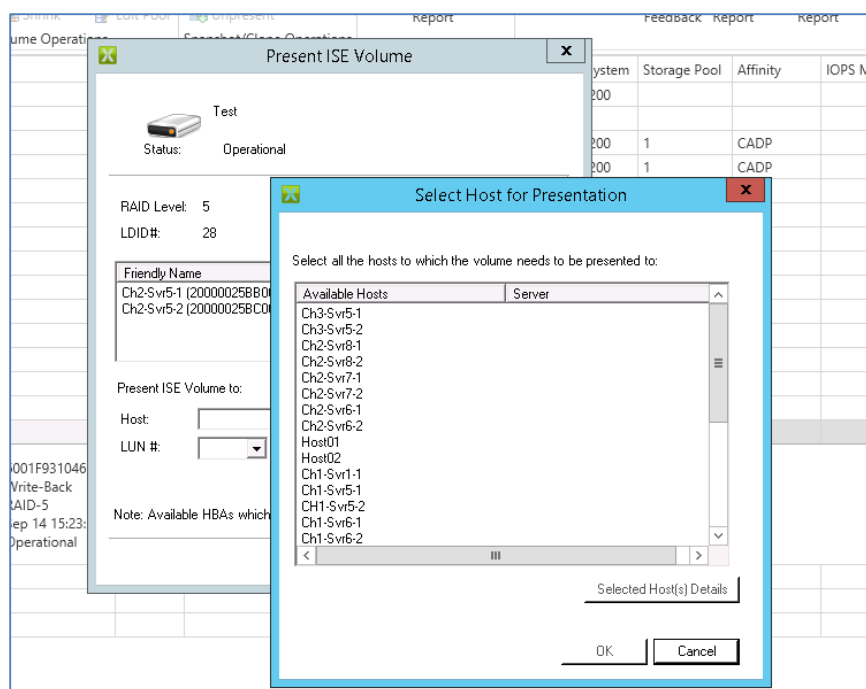
4) Create Host

Hosts are logical objects grouping FC WWNs or iSCSI IQNs. Physical servers often have multiple ports for redundancy, assigning the individual ports to a single friendly-named host simplifies lun level presentations (LUN masking).

Media affinity

https://www.youtube.com/watch?v=iCGpwYxSvno

ISE Manager

https://www.youtube.com/watch?v=yJnURStj7z0

https://www.youtube.com/watch?v=CPvVUzRIPiU

https://www.youtube.com/watch?v=eD8a7IY9d5c