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DPX enterprise data protection and migration appliance

Whitepaper

Hyperscalers with Catalogic Software®

Thursday, 28 July 2022

INTRODUCTION

Data protection and recovery has for a long time been the Achilles Heel of enterprise business continuity. Stories abound of well-known brand names unable to recover from data loss or damage in a timely manner. Exacerbating this problem is the new era of rapid infrastructure flexibility across multi-cloud operations, and the accelerated functional responsiveness made possible via DevOps.

Within most organisations the toolsets employed to protect, migrate, and secure critical data are not common or even integrated to any extent. Data protection tools are expected to operate invisibly and to perform flawlessly at some distant point in the future. Data and system migration tools operate more routinely but with little or no direct relationship to data protection processes and repositories.

Security across these activities unfortunately then becomes a reflection of the disparate mixture of toolsets and processes involved. Recent ransomware attacks have illustrated just how critical it is for organisations to always have access to timely copies of their data, as a final line of defence regardless of any other security or operations shortfalls that may exist.

Hyperscalers and Catalogic have observed the increasing overlap of protection and migration activities generally within the industry and have understood that a critical relationship exists between the two. Consequently, they have partnered to develop the DPX enterprise data protection / migration appliance. This is a pre-engineered, out-of-the-box solution for Protection, Migration and Recovery that provides a unified range of data management, infrastructure management and risk mitigation capabilities that is unmatched by any other product in the marketplace.
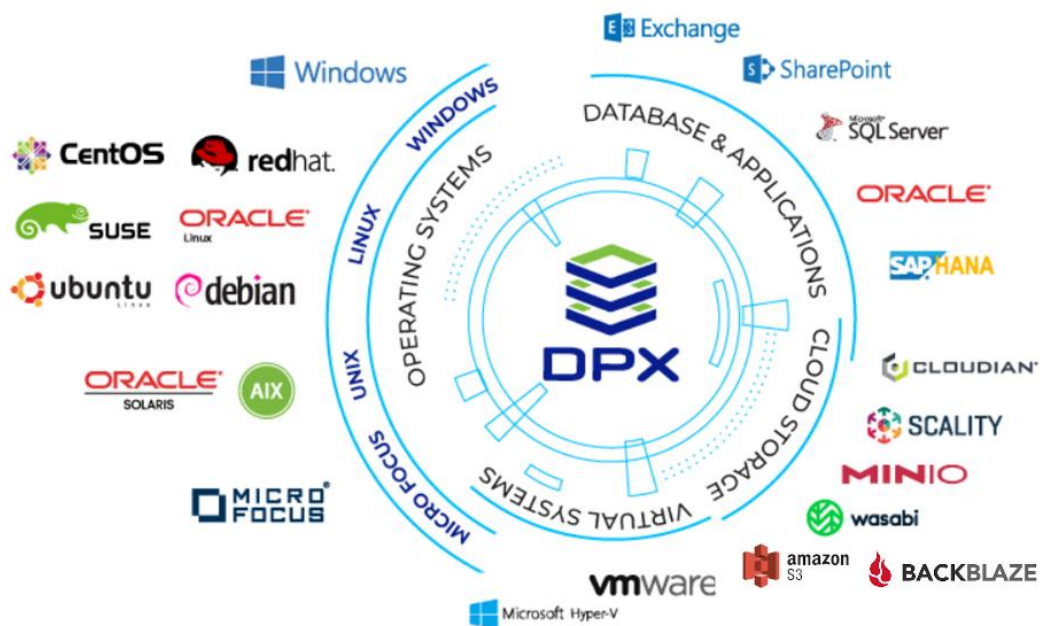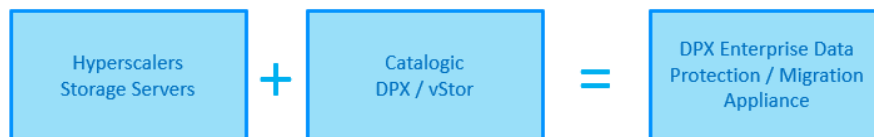

Figure 1 Catalogic DPX enterprise compatibility matrix

Rather than to depend on an 'all-or-nothing' migration strategy, where the source data/system must always be available, DPX supports intermediate storage of snapshot images such that decisions can be made dynamically as to whether any given snapshot should be migrated towards another environment/technology type, used to roll-back to an existing environment or used instead to recover into another environment of the same type as the original source. This interrelationship between Snapshot, Storage, Migration and/or Restoration activities and supported technology types is what makes the DPX appliance unique in terms of providing options that are not available in other migration and protection products. These capabilities are shown at a high-level in the following illustration:
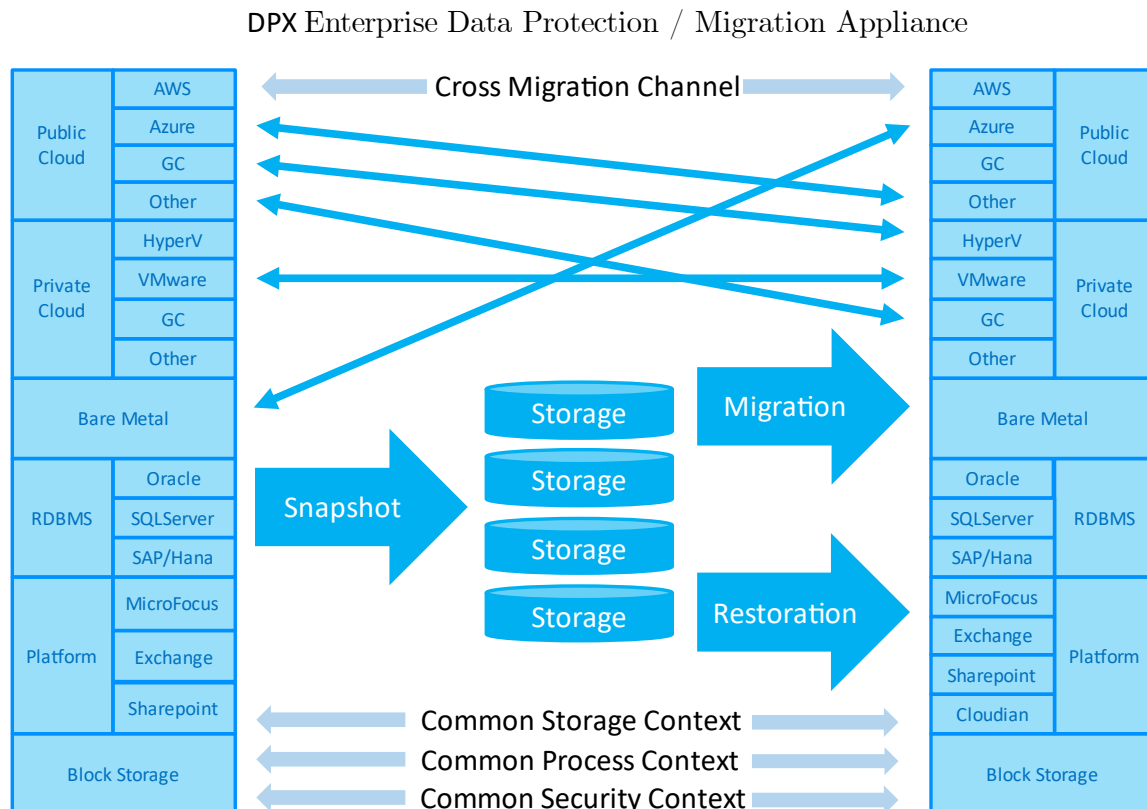

Figure 2 High-level overview of DPX Enterprise Data Protection

The following diagram illustrates both the DPX appliance system architecture and some key high-level business requirements that can be fulfilled by the DPX enterprise data protection appliance.

These include:

- Agentless Backup/restore/migration and data retention
- Agent based Backup/Restore and data retention
- BareMetal Recovery
- Network Attached Storage integration
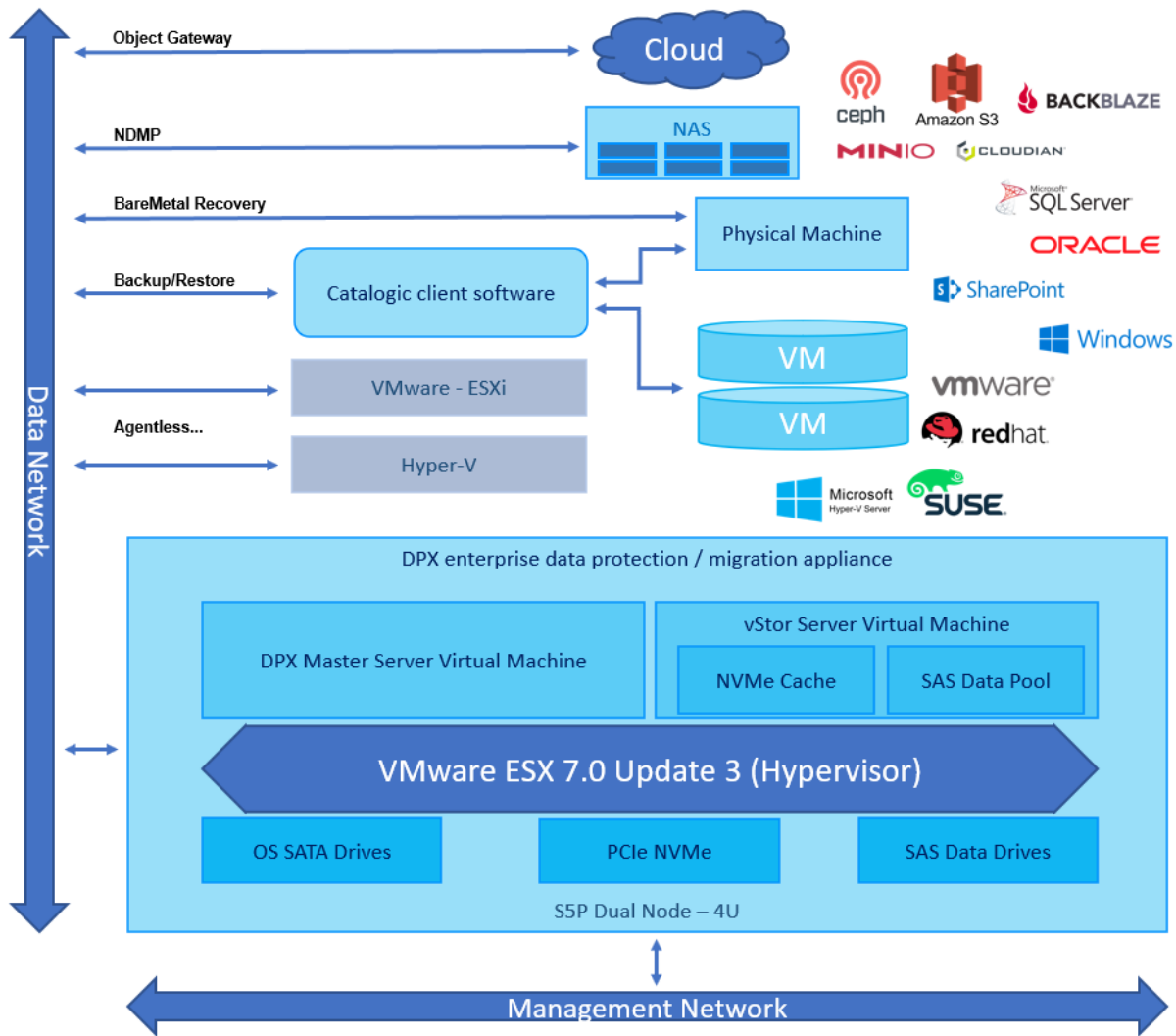- Cloud integration

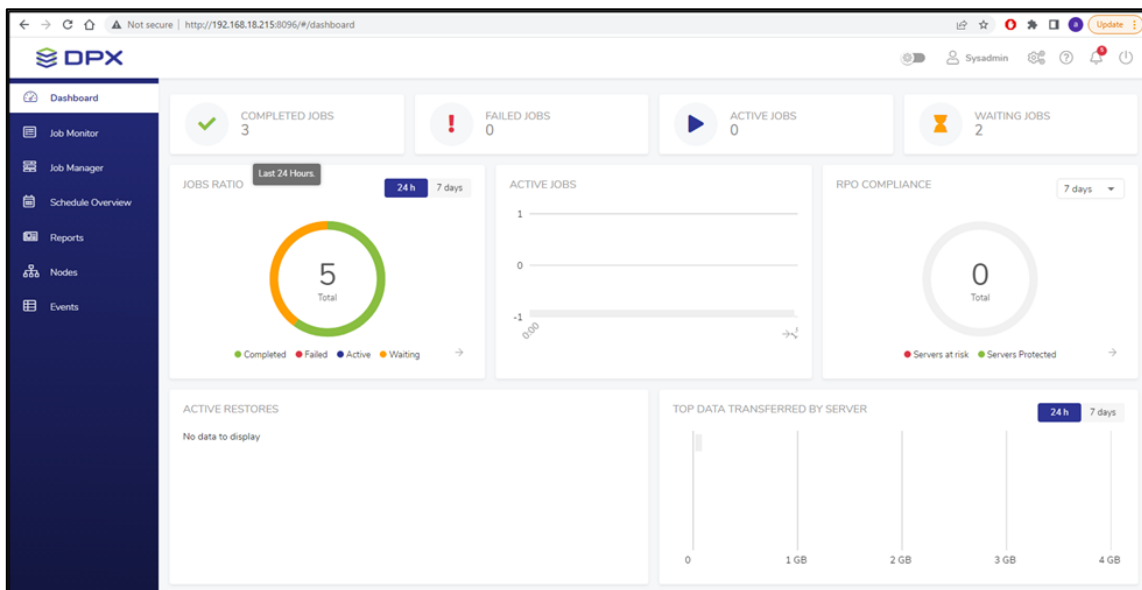*Figure 3 System architecture for Data Protection using DPX*

Figure 4 DPX HTML5 Dashboard

The DPX appliance works with both structured and unstructured data residing on physical or virtual storage. In many cases DPX can determine key structural metadata located within items such as virtual machines, databases, operating systems, storage volumes and various software platform architectures. This deep structural knowledge of numerous product/technology types allows DPX to provide advanced end-to-end snapshot, storage, migration, and restoration capabilities including cross-migration and recovery across cloud, operating system, platform, and bare metal product/technology types.

The DPX appliance supports snapshot-based capture of your structured and unstructured data from virtual and physical devices, with fine-grained control of storage within DPX across multiple storage technologies and locations (it is possible also to direct backups to cloud or to a secondary DPX appliance). De-duplication and compression are employed to ensure efficient use of storage capacity, and snapshot version control management allows point in time migration and recovery actions to be taken. These capabilities provide protection from hardware and software failures, operational mistakes, hacker activity and natural disasters - enabling you to reliably return your systems and services back to the same state as when stopped or to a specific snapshot restore point.
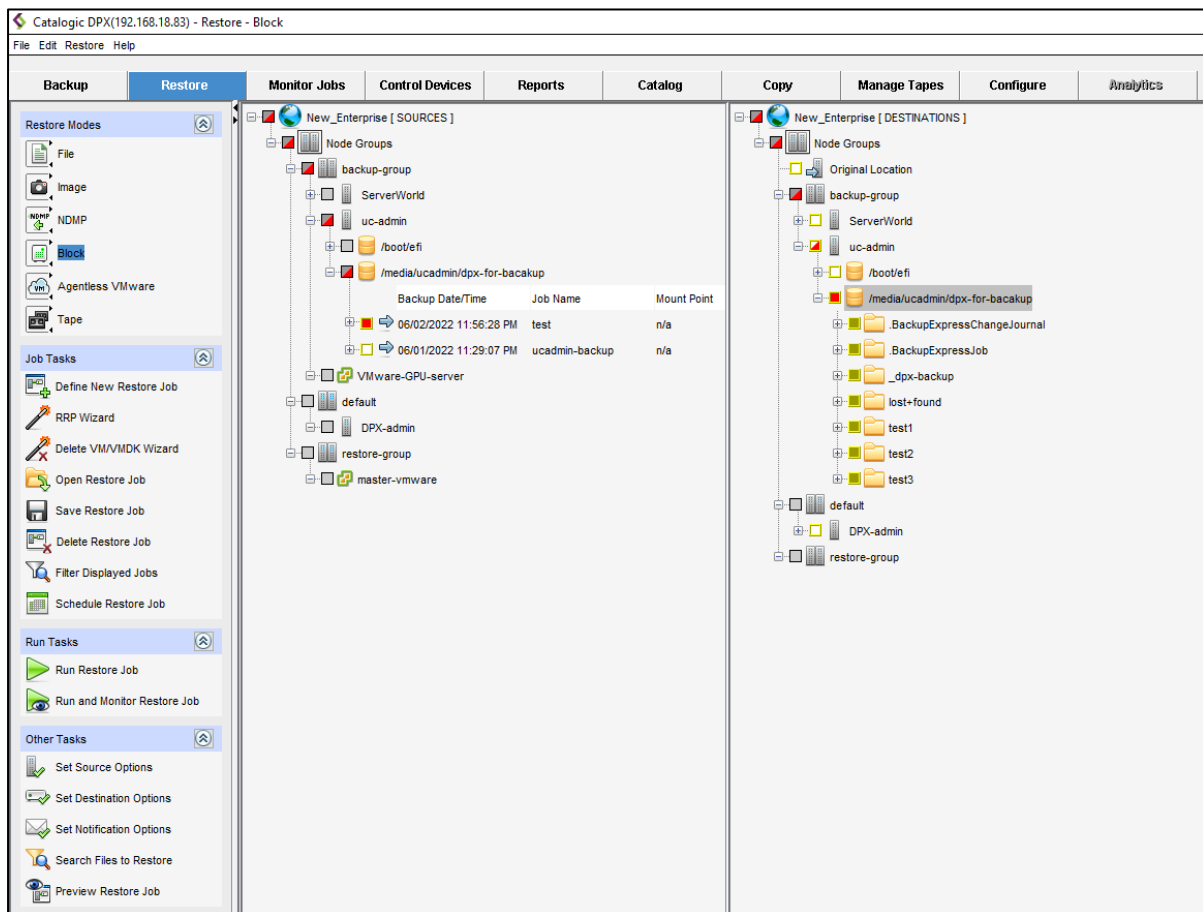

Figure 5 Block storage restore to original or target location

DPX Rapid Recovery allows a VM to be brought back online before full recovery has been completed because the hypervisor can reference the VM volume(s) directly from DPX storage while restoration into hypervisor storage is ongoing. Additionally, the DPX appliance can work on an agentless basis (something not supported by other migration platforms), including when working with VMware and Hyper-V. The combination of Rapid Recovery and Agentless Operation enables very fast restoration of services including into new cloud domains that have not been configured for DPX operation. If

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something unexpected ever does happen at either of the source or target endpoints, the DPX appliance can provide concrete assurance that at least one copy of your source data is always available.

Cost optimisation is a key business driver for the use of cloud technologies and therefore the ability to move safely and transparently between cloud providers (and/or back to on-premises) is critical. The DPX appliance provides a common pathway for rapid and safe migration in this context, with the safeguard protections provided by the DPX appliance inherently forming a part of all migration operations.
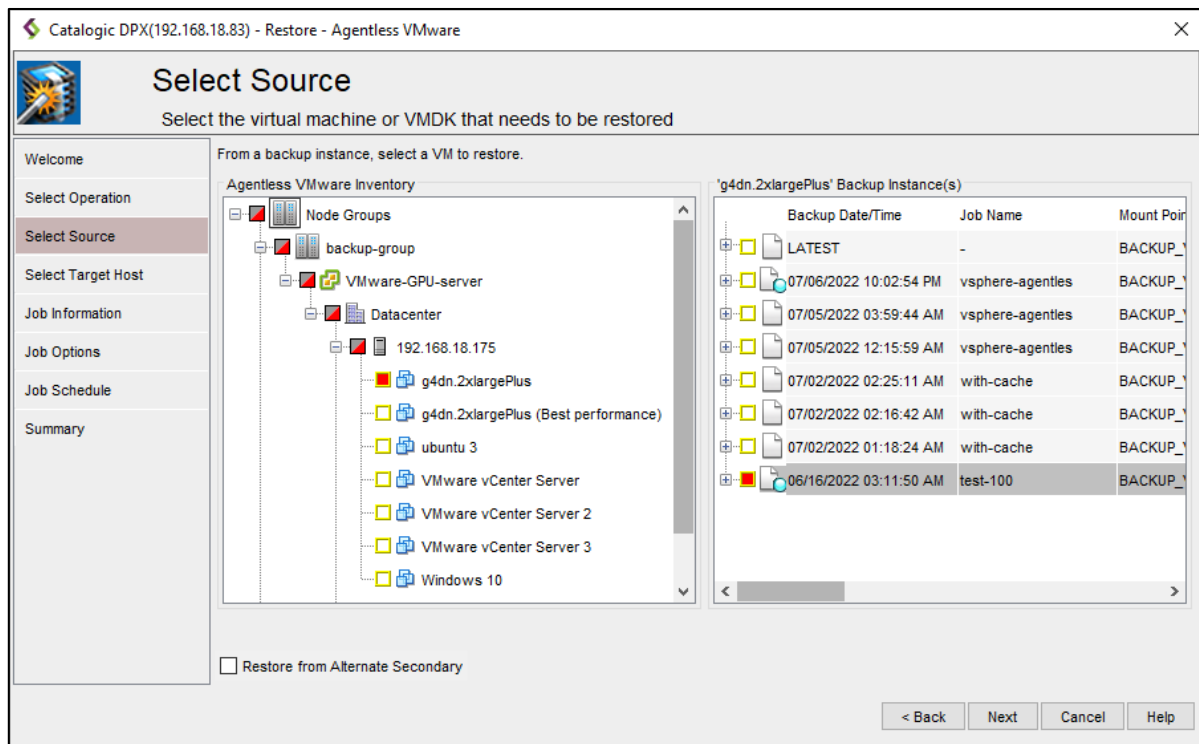

Figure 6 Version control in DPX

Ransomware attacks have had a very high profile in recent years, and mitigation against these attacks must be regarded as a key priority for any enterprise. Security is a key capability within the DPX architecture and access to all data protected and stored by DPX can be made subject to ownership of specific DPX user access rights. Additionally, all snapshot data objects stored within DPX can be configured such that a specific password is required to obtain access, thereby preventing tampering by undetected hackers. Configuration of critical DPX settings such as password values is restricted to a higher class of DPX administration user. The DPX appliance also supports creation of a backup of a backup (replication) of a backup onto different storage targets or locations, as many times as the risk profile of the business requires.

Comprehensive capabilities are supported by the DPX appliance for management dashboard viewpoints, reporting, event notification and logging – ensuring that you can always see and know what is happening across your protection and migration activities.

The DPX scheduler supports a wide variety of scheduling options, allowing critical jobs to be configured with specific priority within the DPX scheduler such that they are always completed in preference to lower priority work.
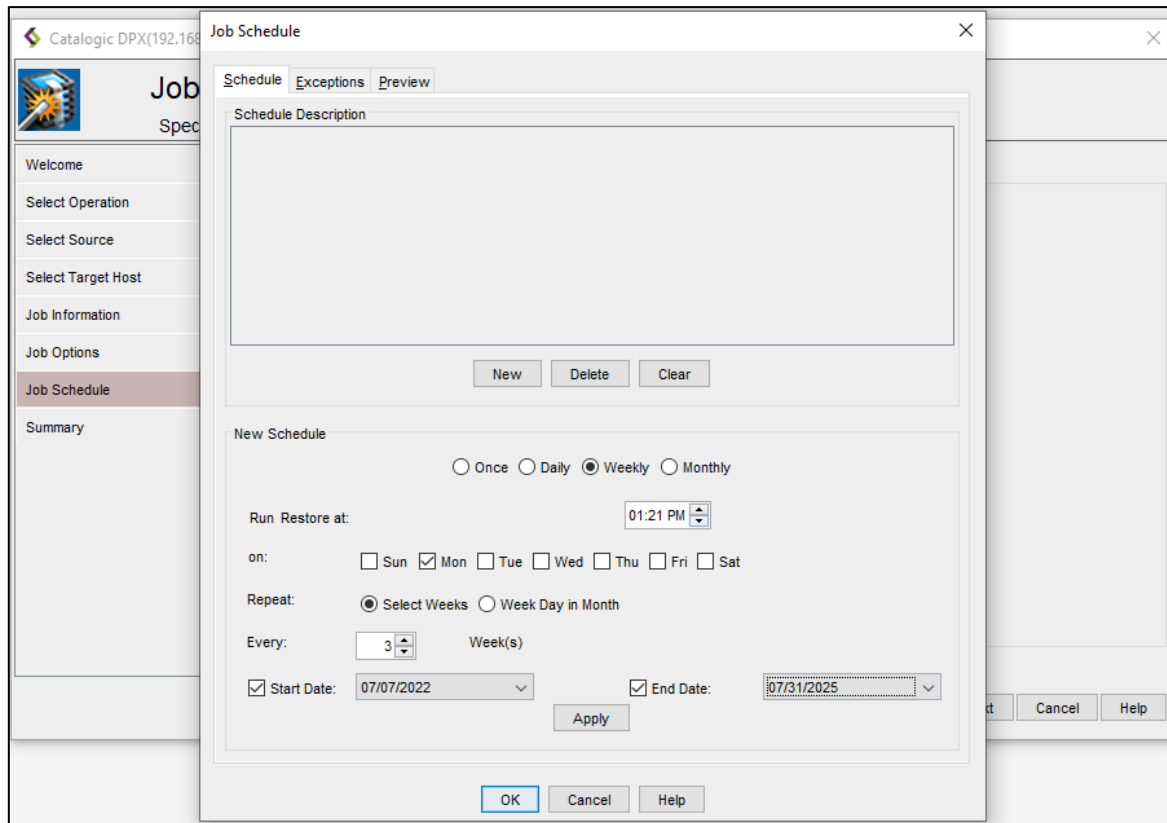
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Figure 7 Job scheduling in DPX

The DPX appliance supports integration with any block, object, file, NAS, tape, and cloud storage domains within your network. DPX is a completely storage-independent solution leveraging on-premises heterogeneous storage in addition to cloud storage. All backup and recovery functions including application-consistent backup and recovery of specific applications (e.g. Microsoft® SQL, Microsoft® Exchange, Microsoft® SharePoint, Oracle®) are performed using the centralised DPX management console.

Any modern enterprise needing to migrate and protect valuable data and workloads across any combination of public/private/hybrid cloud or on-premises equipment, RDBMS, software platform or even just plain block storage can benefit from the flexibility, performance, security, manageability, and reliability of the DPX appliance.

The DPX appliance is equally of benefit to large, medium, and small corporate users, cloud and telco providers, government, defence, and academic institutions.

Hyperscalers is the world's first open supply chain Original Equipment Manufacturer- OEM, solving Information Technology challenges through standardization of best practices and hyperscale inspired practices and efficiencies. Hyperscalers offers choice across two open hardware architectures:

- Hyperscale - high efficiency open compute equipment as used by macro service providers
- Tier 1 Original – conventional equipment as per established Tier 1 OEM suppliers.

Each architecture is complete with network, compute, storage, and converged GP GPU infrastructure elements, and is open / free from vendor lock-in.

Hyperscalers' appliance solutions are packaged complete with hardware, software and pre-built (customisable) configurations. These were all pre-engineered using an in-house IP Appliance Design Process and validated in partnership with associated major software manufacturers. Many can be "test-driven" using Hyperscalers Lab as a Service (LaaS). Hyperscalers appliance solutions are ideally suited to IaaS PaaS and SaaS providers looking to implement their services from anywhere.
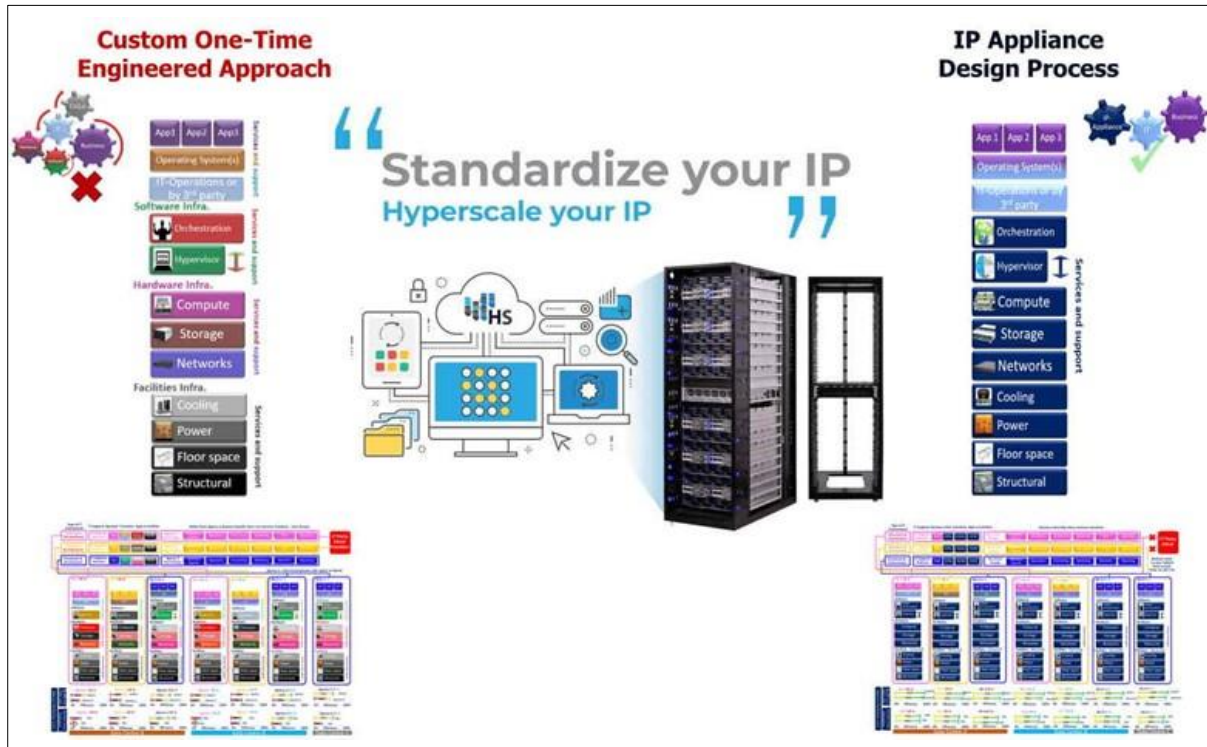
Catalogic Software prides itself on its constant innovation to deliver the highest performing and most efficient solution for customers to protect their data and all its copies by leveraging the storage and virtual infrastructure investments they have already made.

Catalogic Software's DPX data protection architecture further accelerates the innovation necessary to help customers meet the challenge of protecting large amount of data in a paradigm that can no longer afford long backup or recovery times, at the same time delivering the lowest impact and highest efficiency from an infrastructure standpoint. Ultimately, DPX can deliver the best TCO as compared to any other migration / recovery architecture. The Catalogic Software solution provides a level of migration and recovery capability that is unmatched in the industry at present yet is built upon a sound architecture that can scale significantly as data environment requirements grow. DPX can deliver value beyond anything that customers are currently expecting.

Documents, Reference Architectures, and Solution Demonstrations

Hyperscalers reference architectures and appliance / solutions demonstrations are available at:
https://www.hyperscalers.com/OCP-hyperscale-rack-solutions

For technical queries regarding this document and for managing virtualized, mobile, and cloud technologies, you can contact Hyperscalers technical support at support@hyperscalers.com

In addition to the official appliance document, the Catalogic Software Data Protection product details can be found in the link https://www.catalogicsoftware.com/products/dpx/

Hyperscalers have identified the hardware configurations or building blocks that can be categorised based on the customer use cases. DPX enterprise appliance to back-up the datacentre storage and long-term data retention can be deployed in any of these high performance ultra-dense storage servers.

Storage intensive DPX appliance (High storage needs)
UPTO 1.4 Petabytes

Balanced performance DPX appliance (Scalable and flexible storage needs)
UPTO 216 Terabytes

Space optimized DPX appliance (1 Rack Unit ultra-dense storage needs)
UPTO 78 Terabytes