

First Look

Capacity Management and Performance Optimization with Smart Scale for Dell PowerProtect Appliances

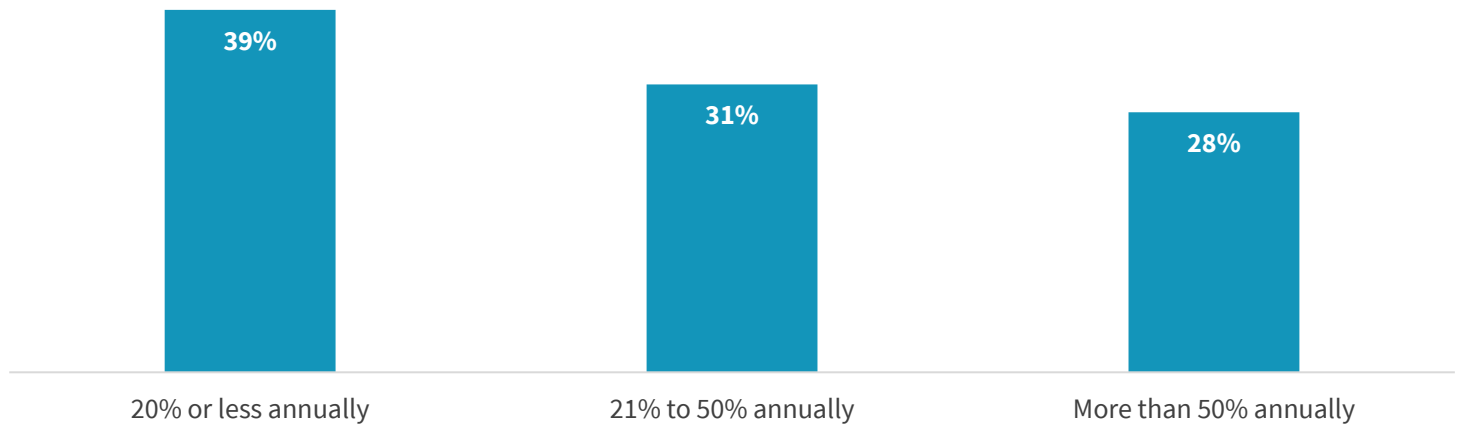
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Data Growth Challenges Continue

The amount of data created, captured, copied, and consumed continues to grow exponentially. According to ESG research, data growth has become a constant in modern IT environments, with 59% of survey respondents reporting that they believe their organization’s total volume of data is growing by 21% or more annually (see Figure 1).¹ But it is not just data growth that is an issue; it is data “multiplication” (i.e., copies of production data that are used for other purposes). This combination of accelerating data growth and multiplied copies of that data is creating a deluge, inundating the IT infrastructure with more complexity, cost, and cyber-risk from an expanded attack surface.

Figure 1. Overall Data Growth Continues

At approximately what rate do you believe your organization’s total volume of data is growing annually? (Percent of respondents, N=360)



Source: ESG, a division of TechTarget, Inc.

In addition to exponential data growth and increased risk, there are other challenges managing data backup, including data backup growth leading to multiple appliances, budget pressure, more workloads, and demanding service levels. Both intended and unintended changes to workloads can impact capacity use in unexpected ways, and such changes can be hard to identify and even harder to remediate. Changes in capacity and deduplication levels and trends may come from changes in application configuration such as database encryption settings or transaction log configuration as well as changes in backup and retention requirements and policies. Problems become even more acute when data is managed in large environments or across multiple data centers. Often, organizations must take projection of capacity needs and corresponding infrastructure configuration into account when making decisions. Without detailed guidance for capacity and configuration planning, organizations are making decisions with limited information as they manage their data protection environments, leaving them open to unexpected risks.

¹ Source: ESG Research Report, [The Evolution of Intelligent Data Management](#), January 2022.

In addition, today's organizations face strategic challenges as they modernize data centers and servers. Intel is driving platform innovation and next-generation capabilities across every infrastructure domain, from compute to storage to network to memory to accelerator technologies. With Intel architecture-based platforms, organizations have a clear path forward for the data-centric era.

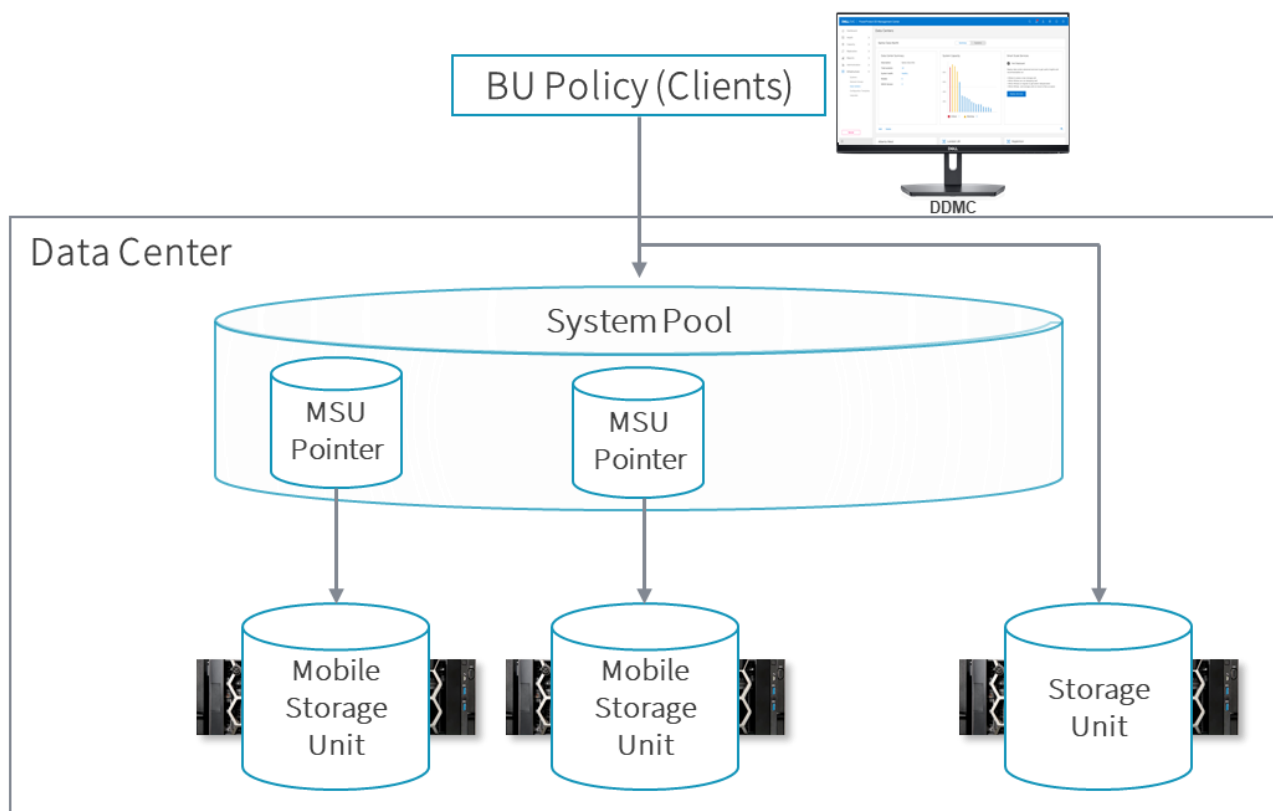


Smart Scale Overview

Smart Scale simplifies capacity management across multiple DD series appliances in a data center. Analytics provide capacity insights and actionable recommendations for capacity addition and placement and help to identify unexpected changes. By enabling Smart Scale services from PowerProtect DD Management Center (DDMC), the Smart Scale architecture pools together a set of DD series appliances into a group under the data center wherein they are coordinated with each other for space balancing. Smart Scale supports up to 32 systems in a System Pool and, when factoring in deduplication, yields more than 3EB of logical capacity. The actual placement of the backups is to one of the DD series appliances in the System Pool and is done by Smart Scale services (see Figure 2). The services then seamlessly redirect the backup software, eliminating the need for the backup administrator to modify backup policies with the risks involved when placements are changed. The integration of Smart Scale into the data center results in:

- Improved infrastructure management, including through appliance and workload lifecycle changes.
- Optimized capacity consumption.
- Simplified capacity management across multiple DD series appliances.
- Maximized deduplication among multiple storage units.
- Improved load balancing of multiple workloads across system nodes..
- Heightened ability to meet and surpass data protection SLAs.

Figure 2. Smart Scale Architecture Overview



Source: ESG, a division of TechTarget, Inc.

ESG Demo Highlights

ESG performed a detailed evaluation of Smart Scale by participating in an interactive demo hosted by Dell subject matter experts. The evaluation focused on highlighting the Smart Scale capacity management features and capabilities across multiple DD series appliances, including:

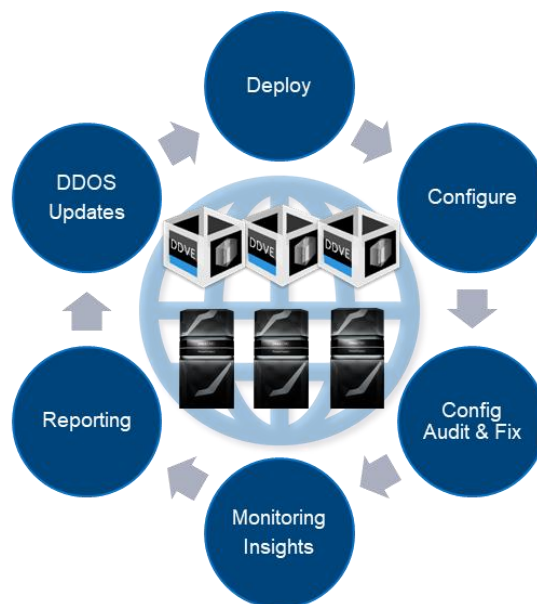
- **Appliance Management:** Provides the management of appliances as a single pool, using a unified namespace to organize storage to display and report based on data centers and storage pools.
- **Workload Optimization:** Enables the optimization of workload placement with intelligent and guided data mobility, including the placement of backup data to optimize capacity utilization and deduplication.
- **Capacity Insights:** Provides capacity insights and recommendations across the data protection environment using analytics for capacity trends and insights for better planning and decision making.
- **Mobile Storage Units:** Expands the storage unit concept by introducing mobile storage units (MSUs) that can be migrated from system to system within a pool, including mobile boost user security access.

Appliance Management

DDMC provides operational lifecycle management via single-pane-of-glass management with extensive REST APIs (see Figure 3). ESG validated the following capabilities:

- **Deploy:** Provides a Common Management Plane for multi-site, multi-pools, and individual systems, allowing different deployment topologies.
- **Configure/Config Audit & Fix:** Provides the ability to configure multiple DD series appliances via a simple configuration template, including auditing of the systems for configuration drift.
- **Monitoring Insights:** Provides monitoring and insights, including system health and replication status, plus current and projected capacity.
- **Reporting:** Provides autogenerated reports that are emailed, including system, Cloud Tier, and secure multi-tenancy.
- **DDOS Updates:** Provides the ability to distribute, pre-check, and execute DDOS updates, including scheduling future updates.

Figure 3. Appliance Management

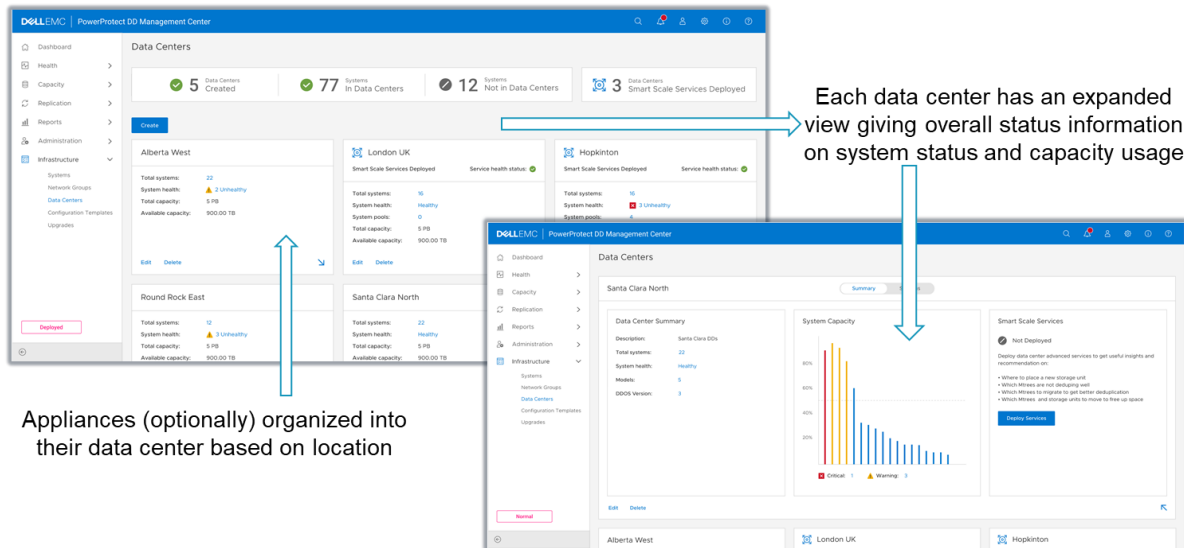


Source: ESG, a division of TechTarget, Inc.

Workload Optimization

DDMC provides an infrastructure tab for the data centers (see Figure 4, screen shot on left side). Users are able to drill-down into each of the data centers to see additional status information (see Figure 4, screen shot on right side). This additional status information includes a data center summary, including data center name, total systems, system health, models, DDOS version, and system capacity usage.

Figure 4. Workload Optimization



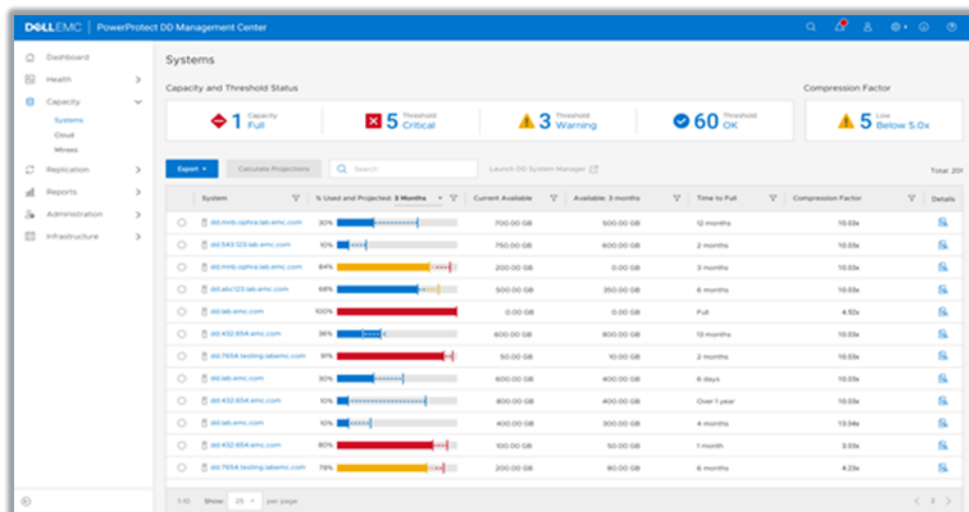
Appliances (optionally) organized into their data center based on location

Source: ESG, a division of TechTarget, Inc.

Capacity Insights

DDMC also provides capacity insights, including current and projected capacity statistics (see Figure 5). Users can view all systems and can quickly filter to systems of concern. Users can view current, historical, and projected space usage; view available capacity on any future date; and view critical statistics like time to full. In addition, charts can be undocked and viewed on a full page.

Figure 5. Capacity Insights

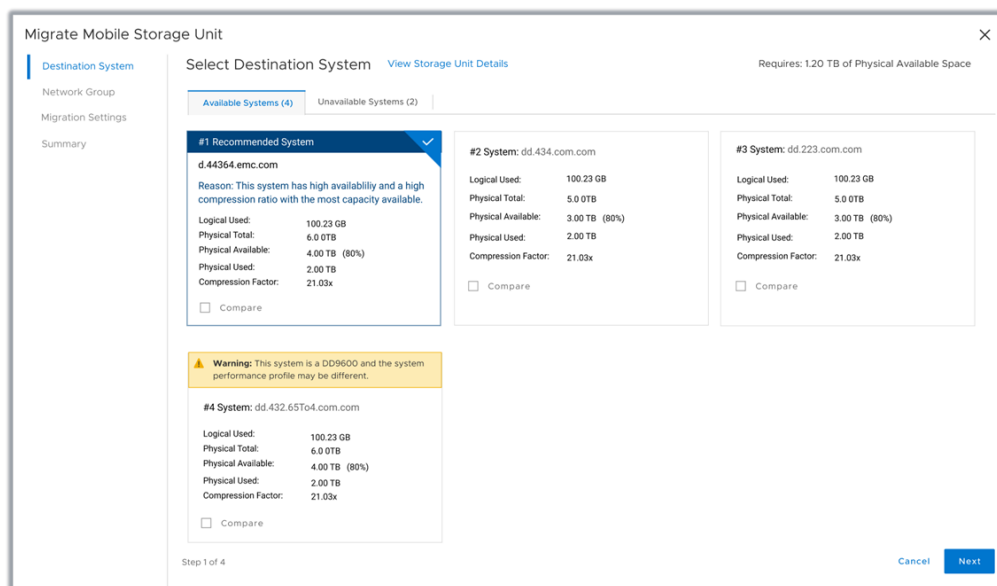


Source: ESG, a division of TechTarget, Inc.

Mobile Storage Units

The Mobile Storage Unit (MSU) contains groups of workload data and provides the capability to select which MSU to move off the system using a manual guided migration, including mobile boost user security access (see Figure 6). The guided migration helps select which MSU should be moved and recommends where to move it to, along with information about where not to move it to and why. The user can also set the move to perform a fast transfer, minimum system impact transfer, or a balanced transfer to optimize migration performance. The final step of the migration provides a Review and Commit screen, which includes several migration statistics (e.g., logical capacity used, physical capacity used and available, and compression factor). By using the analytics, users can optimize appliance and workload lifecycles.

Figure 6. Migrating Mobile Storage Units



Source: ESG, a division of TechTarget, Inc.

First Impressions

The combination of accelerating data growth and copies of that data is creating a deluge, inundating the IT infrastructure with more complexity, cost, and cyber-risk from an expanded attack surface. Additionally, ESG expects to see technology vendors not only continue to innovate with technologies that optimize the management, cost, and placement of this existing pool of data, but also provide data reduction solutions.

ESG performed a detailed evaluation of Smart Scale focused on highlighting the Smart Scale capacity management features and capabilities across multiple DD series appliances, including appliance management, workload optimization, and capacity insights.

ESG's first impression is that Smart Scale was designed to provide organizations a single-pane-of-glass management system for day-to-day capacity and operational lifecycle management, which includes a federated system deployment model for new and existing data center deployments. The solution provides organizations with the management of appliances as a single pool, enables the optimization of workload placement with intelligent and guided data mobility, provides capacity insights and recommendations across the data protection environment, and introduces mobile storage units (MSUs). Organizations looking to simplify capacity management, including the optimization of appliance and workload lifecycles across multiple DD series appliances, should include Smart Scale in their evaluation process.



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