

ESG SHOWCASE

Dell EMC CloudIQ: Intelligent, Proactive Insights Across Your IT Environment

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ABSTRACT: Modern IT is increasingly diverse and distributed, resulting in complexity that is often not sustainable at today's required scale. New technologies such as machine learning are thus essential to help IT managers keep pace. Dell EMC CloudIQ, from Dell Technologies is changing the infrastructure management game, providing insights across a breadth of technologies in a modern IT environment while aligning those insights and activities to the operational objectives of the business. This helps often-overworked IT staff to keep the entire IT environment running properly. If you use Dell Technologies products, you should also be leveraging CloudIQ.

Overview

As businesses become more digital, the scale, diversity, and complexity of their IT environments are increasing. Organizations are also struggling to find personnel with the necessary skill sets. Unfortunately, simply hiring more staff is often not a viable option, as increased demands for technical skill have resulted in a shortage of IT talent.

For organizations to keep pace, IT *itself* must therefore become more productive—with technology becoming smarter to augment scarce personnel. IT organizations need to pursue this proactive approach. They must seek out tools that provide them with insight. Consider the data center modernization investment priorities of IT managers for 2021 surveyed by ESG:

- 33% say they will be investing in more remote monitoring/management technology to manage their data center infrastructure.
- 25% say they will be investing in more data center automation tools¹ to help with systems management tasks such as detecting anomalous resource utilization, proactive failure alerts, or automatic policy management.

The future lies in the use of machine learning technology combined with detailed telemetry data to give smart people the insights they need to do more. These tools will not only understand individual infrastructure elements, but also provide comprehensive data center visibility, helping expedite IT operations and accelerating issue identification and diagnosis.

What if a tool like that were included with the infrastructure that you are already using—a tool that is able to span multiple technologies to provide a more complete vision? It might be, in the form of [CloudIQ](#).

¹ Source: ESG Research Report, [2021 Technology Spending Intentions Survey](#), January 2021. All ESG research references and charts in this showcase have been taken from this research report, unless otherwise noted.

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With the Rise of IT Complexity, Digital Businesses Must Expect More

Three-quarters (75%) of IT managers surveyed by ESG said IT is more complex now compared with two years ago, with 38% of those organizations identifying higher data volumes as a top driver of the complexity increase. More data translates into more infrastructure, more applications, and more demands on data from users.

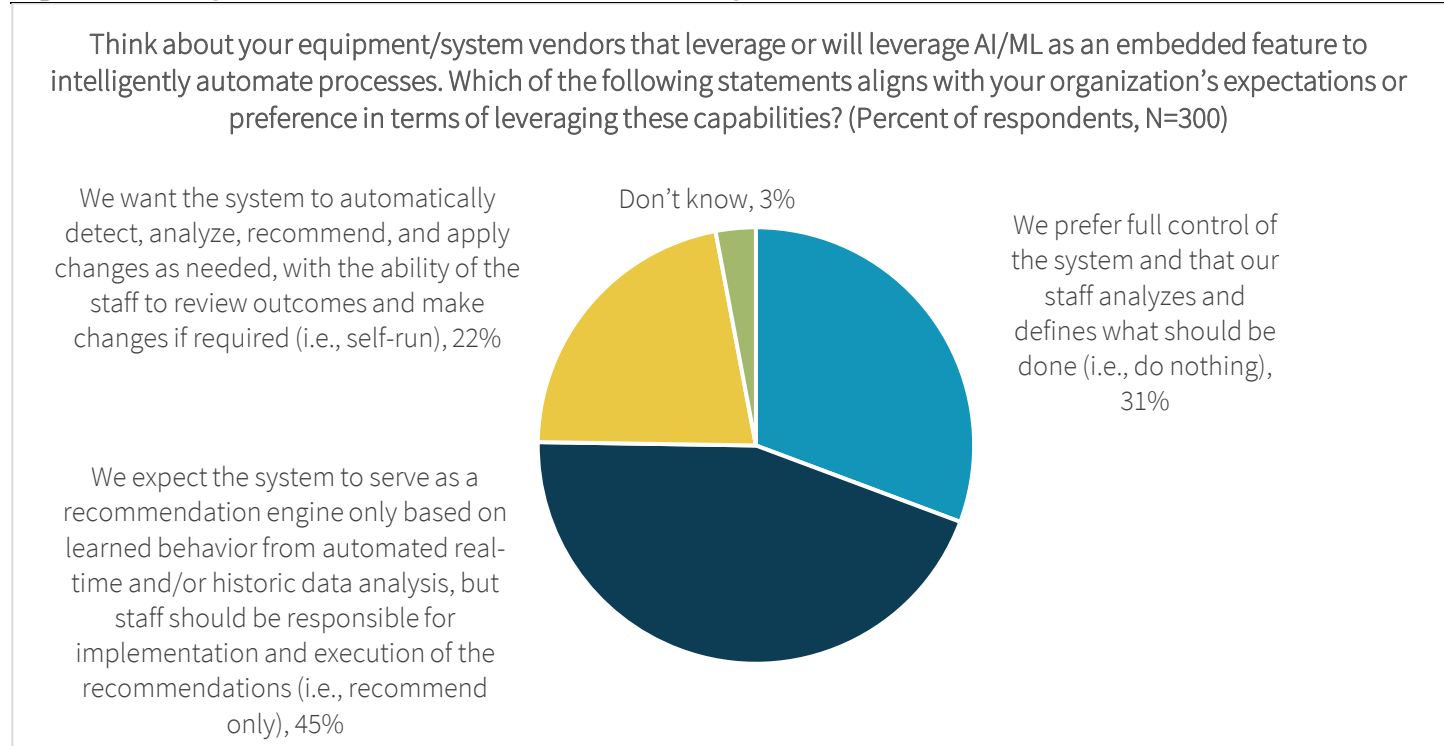
Given the massive scale of modern IT environments and the diverse breadth of technologies in use, solving any problem has simply become more complex and more time-consuming. That complexity comes with a cost. Activities take longer than they should, and too many personnel are being consumed by day-to-day maintenance activities.

Orchestration and Automation Deficiencies Drive Demand for AI/ML

Although automation tools help, they don't provide a complete answer. Consider the 32% of senior IT decision makers who reported experiencing problematic shortages of expertise in the area of IT orchestration and automation. Obviously, their teams need better insight, first and foremost. Hence, we see the rise of artificial intelligence and machine learning. In fact, in the same survey, ESG found that 28% of senior IT decision makers identified leveraging AI/ML to support systems management tasks as a top area of data center modernization investment.

As part of a separate research study, ESG solicited the opinions of 300 IT decision makers about equipment and systems that leverage AI/ML as an embedded feature for intelligently automating processes. Forty-five percent of those respondents indicated they prefer systems that offer recommendations based on learned behavior from automated real-time and/or historic data analysis, with staff then executing the recommendations (Figure 1).²

Figure 1. Nearly Half of IT Decision Makers Desire Analysis-based Recommendations



Source: Enterprise Strategy Group

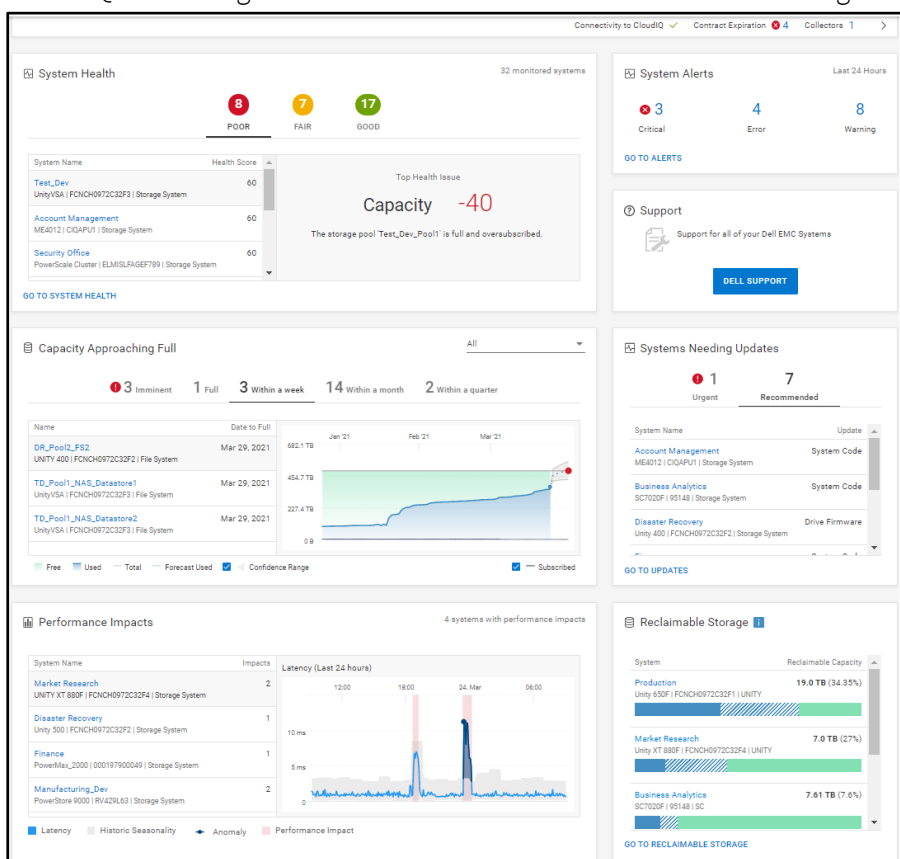
² Source: ESG Master Survey Results, [Artificial Intelligence and Machine Learning: Gauging the Value of Infrastructure](#), March 2019.

In any case, the point is that IT needs to leverage infrastructure elements that collect the right level of telemetry information and then combine it with machine learning to produce advanced insights for administrators to either act on or oversee. In other words, IT organizations need *real machine learning*, not just traditional reporting tools. CloudIQ, for example, offers impressive levels of intelligence that can analyze, understand, and provide forecasting across the IT environment, while offering an excellent step along the path to enabling autonomous infrastructure.

Dell EMC CloudIQ

Dell EMC CloudIQ is a cloud-based service hosted by Dell Technologies that leverages AI/ML to provide proactive monitoring and measuring based on telemetry data from Dell Technologies infrastructure systems. It is included with Dell Technologies ProSupport Enterprise Suite support contracts. Being cloud based, CloudIQ doesn't require users to install or maintain any software whatsoever and is enabled by turning on the standard secure telemetry conduit from the user's equipment to the Dell Technologies secure data center.

CloudIQ users can grant Trusted Advisor access to their Dell Technologies or reseller account teams, enabling them to



share their CloudIQ interfaces and provide relevant best-practice recommendations, optimization guidance, proactive issue recognition, and remediation advice. According to Dell Technologies, Trusted Advisors report being able to resolve like-for-like issues an average of *three times faster* using CloudIQ.³

CloudIQ supports a broad mix of Dell EMC storage (PowerMax, PowerScale, PowerVault, Unity XT, XtremIO, and SC Series), SAN switching (Connectrix), data protection (PowerProtect DD and PowerProtect Data Manager), converged and hyperconverged infrastructure (VxBlock and VxRail) and legacy products for a consolidated view across the data path and provides a multiplier effect for CloudIQ's value. Dell Technologies has stated its intention to further extend CloudIQ support across its infrastructure product portfolio.

State of All Systems at a Glance: Core, Edge, and Cloud

Accessible via PC browsers and mobile devices, CloudIQ features impressively quick and easy monitoring and analytics capabilities for systems at your data centers, disaster recovery sites, and edge locations as well as assets on public cloud. A neatly formatted overview dashboard provides fleetwide summaries of systems' health, capacity, performance,

³ Based on a Dell internal survey of Trusted Advisors (Dell Technologies account team and partners), conducted March 2020, comparing issue resolution with and without CloudIQ. Actual results may vary.

reclaimable storage, and life cycle upgrades. This simplifies troubleshooting, and from there, you click for details and prescribed steps for remediation.

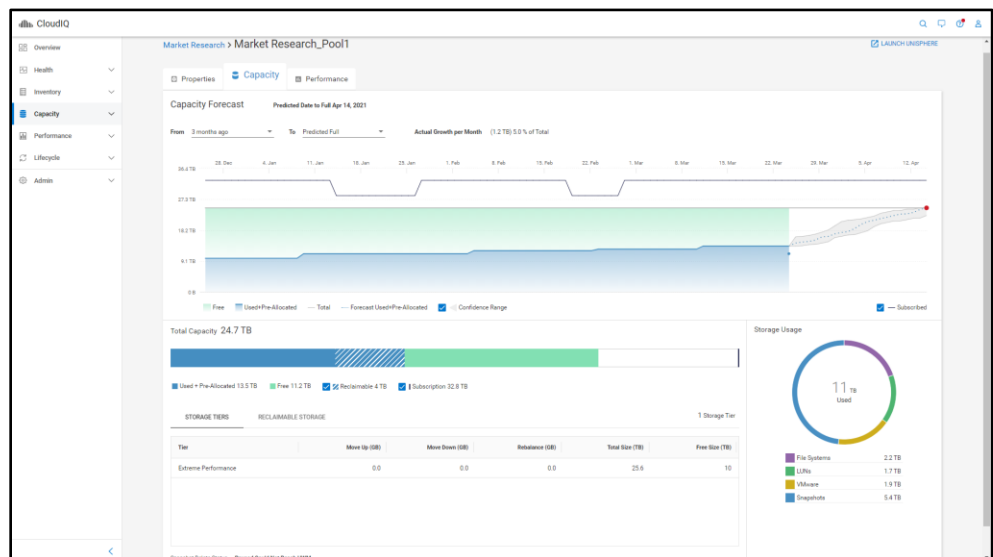
System Health Scores, Notifications, and Reports

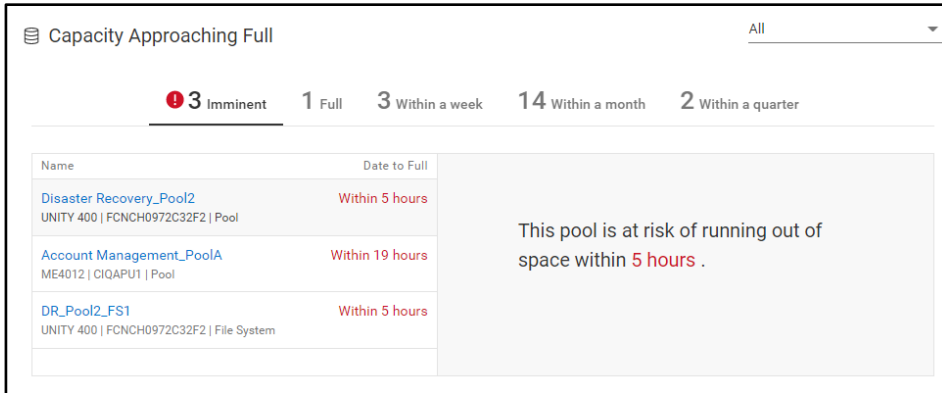
CloudIQ compiles the insights about each monitored system into a single health score that is intuitive to understand and clickable for granular details and recommendations for remediation based on engineering expertise for each system and specific model. Health scores are based on a set of categories, including components, configuration, capacity, performance, and data protection. Any change in health issues triggers health notifications sent to users via email and/or the mobile app, depending on the user’s selection. CloudIQ offers the ability to customize reports and incorporate data for other sources to optimize communications and collaboration across IT teams, executives, and line-of-business stakeholders. Webhook can push information, such as health alerts, to third-party applications, including ticketing systems, like ServiceNow, or communications platforms, like Slack, for further efficiencies.



Intelligent Capacity Tracking, Anomaly Detection, and Forecasting

CloudIQ possesses advanced machine learning capabilities for capacity tracking and prediction. It uses an ML algorithm that leverages a seasonal decomposition model to feed a forecasting algorithm as the foundation of its storage capacity forecasting. CloudIQ trains this ensemble model across all connected systems to further enhance the algorithm for more reliable capacity utilization forecasting, indicating to IT administrators when systems are reaching full capacity.

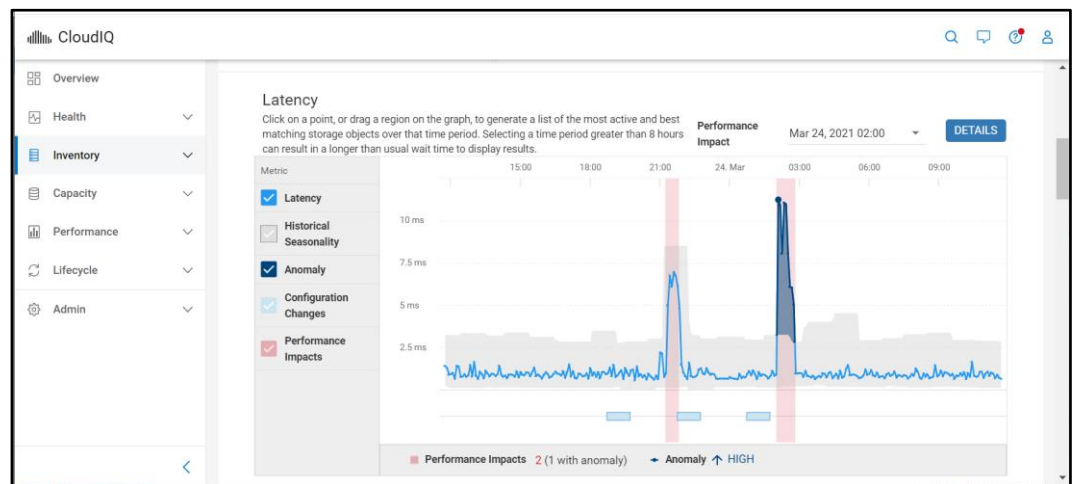




CloudIQ can also identify sudden anomalies in thinly provisioned storage pools' capacity consumption, including spikes that pose a threat of imminently reaching full capacity. This capability helps administrators see that they need to take immediate action to avoid data unavailability due to oversubscription.

Intelligent Performance Tracking and Anomaly Detection

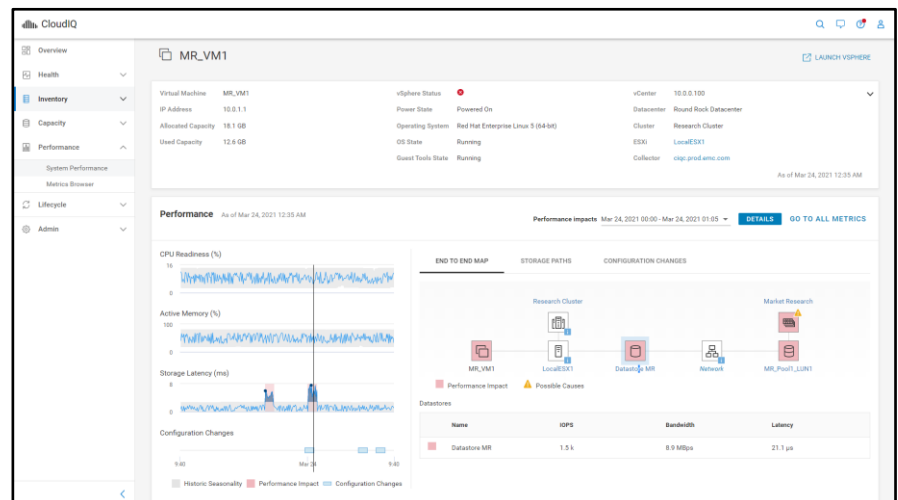
CloudIQ samples performance telemetry data every five minutes, leverages a machine learning algorithm that learns normal storage performance patterns over a given time period, and then indicates whenever a performance metric (an anomaly) falls out of those bounds.



Using a set of advanced machine-learning and time-series correlation algorithms and integrated visualization, CloudIQ helps administrators more quickly conduct performance troubleshooting—giving them a deeply informed understanding of performance deviations that have recently occurred, plus detailed insights on potential resource contention. A performance impact will be identified, for example, when there is high latency and a corresponding drop in IOPs and/or bandwidth. Furthermore, CloudIQ shows the likely storage objects contending for the same storage resource and causing the impact. This helps administrators differentiate which existing workloads are demanding more resources or if a newly added workload is impacting shared resources.

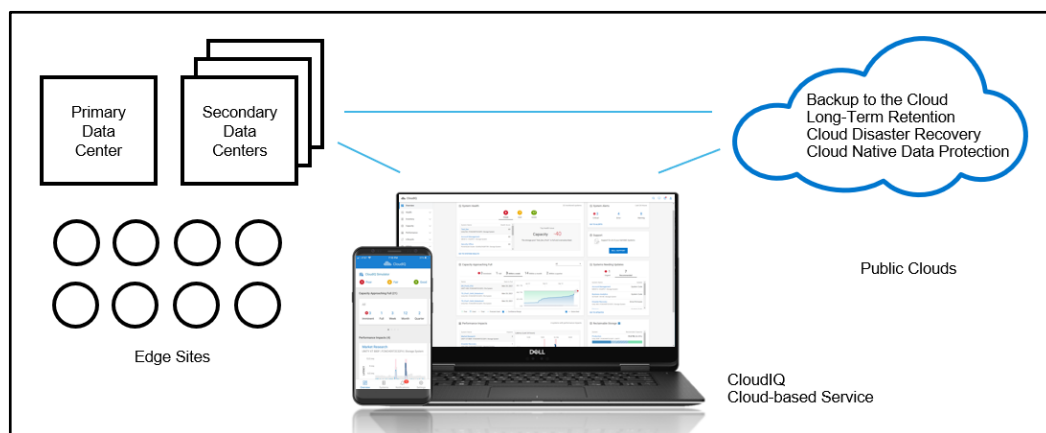
Virtual Machine Awareness and Workload Contention Analysis

CloudIQ offers integration with VMware to understand relationships between the individual virtual machines and the supporting infrastructure for broader perspectives on performance and workload contention. By understanding these relationships, CloudIQ can isolate issues such as performance latency spikes causing workload contention and then highlight the specific component(s) in the data path that are the likely root cause. An



end-to-end map shows each virtual machine, server, network, storage system, and specific objects (e.g., storage LUN). Key performance indicators for latency, IOPs, and bandwidth are also shown with the end-to-end map with CPU and memory KPIs and configuration changes to further speed troubleshooting. Given the complexity of today's infrastructure environments, this ability to automatically identify the probable root cause of issues will significantly reduce the impact on personnel, freeing high-value IT staff to focus on other, value-added projects.

Extension to Public Cloud



With the proliferation of hybrid cloud deployments, IT needs a way to normalize monitoring and problem solving across private and public cloud environments to reduce complexity. CloudIQ's first step in this direction leverages its integration with Dell Technologies' PowerProtect data protection products, which

enable tiering of on-premises VMs, file systems, workloads, and applications to public clouds, as well as in-cloud data protection for cloud-native assets. CloudIQ shows its power to simplify operations by monitoring those assets deployed on-premises and in the cloud along with associated primary storage.

CloudIQ's stands to increase its value to users as Dell Technologies fulfills its strategy to expand CloudIQ monitoring across its full infrastructure portfolio.

CloudIQ Simplifies IT Infrastructure

The capabilities of CloudIQ are advanced enough to translate into a clear set of real-world, business-level benefits. With the help of CloudIQ, IT can:

- **Get a single consolidated view of systems across the core (data center), edge, and cloud, including health**, alerts, and ability to compare systems' key performance indicators to assist with infrastructure-related planning decisions.
- **Quickly and easily determine system risk** when demands are exceeding system capacity or performance.
- **Ensure that hosts always have high-availability access** to resources.
- **Quickly isolate performance impacts**, performance anomalies, and resource contention.
- **Automatically identify the highest-performing objects and the top consumers of resources**, ensuring they align with business priorities.
- **Find reclaimable storage** that might be unassigned or inactive, freeing up capacity.
- **Create customizable reports** to improve collaboration and engagement with IT personnel across, line-of business stakeholders and executive teams.

- **Automatically identify when system updates are recommended** to ensure compliance with best practices and product robustness.
- **Examine findings that are presented to them securely on their mobile devices** or via email, focused on the most relevant information, such as changes that have occurred, without needing to log into the system.
- **Attain greater infrastructure insights in an economical way**, as CloudIQ is included in standard infrastructure systems support contracts.

The Bigger Truth

IT is complicated, and skilled infrastructure experts have been in short supply for a while. As IT leadership tries to overcome these problems, the problems only become more urgent.

Businesses' demands for IT services will only increase. Application environments will continue to become more diverse and more demanding. Similarly, IT infrastructure environments will continue to become larger and more disaggregated. In the wake of these transformations, tasks that were once simple now take too long and consume too many precious personnel resources—resources that are already scarce and becoming scarcer given the high demand for technical talent. As a result, remote monitoring and intelligence have never been more crucial.

IT organizations need tools like Dell Technologies CloudIQ that offload tedious and burdensome tasks without adding complexity. Tools that can automatically collect comprehensive levels of telemetry information and combine it with analytics powered by machine learning to provide actionable insights are essential for administrators to help keep the business running efficiently. CloudIQ leverages advanced learning techniques to analyze and advise, providing predictions on future needs while helping to quickly isolate and diagnose problems. CloudIQ saves precious time and frees critical personnel resources for higher-value tasks.

If you use Dell Technologies infrastructure technology, you should also be leveraging CloudIQ.

For more information, visit [DellTechnologies.com/CloudIQ](https://www.delltechnologies.com/cloudiq).

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