

ESG SHOWCASE

Dell EMC CloudIQ: Proactive Insights and Analytics Anywhere, at Any Time

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ABSTRACT: Modern IT has become so complex that keeping pace with basic management, updates, and optimizations is often not sustainable at today's required scale. That's why new technologies, such as machine learning, are now essential to help IT managers efficiently analyze, optimize, maintain and troubleshoot their infrastructure while minimizing the number of personnel needed. Fortunately, Dell EMC CloudIQ is changing the infrastructure management game—helping overworked IT personnel keep their environments running properly. If you use Dell EMC products, for no added cost, you should also be leveraging CloudIQ.

Overview

As businesses become more digital, the complexity of their IT environments is increasing. In the wake of that mounting complexity, IT organizations are struggling to find personnel with the necessary skill sets. Unfortunately, simply hiring more staff is often not viable. An increased demand for technical skill, whether it's for application developers, infrastructure architects, or data scientists, has created many new professional opportunities but also has resulted in shortages of IT talent which hinder effective data center management and prolong issue resolution.

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

- **23%** say they are prioritizing the leveraging of artificial intelligence/machine learning (AI/ML) to help with systems management tasks such as detecting anomalous resource utilization, proactive failure alerts, automatic policy management, etc.
- **21%** say they are implementing a “software-defined data center” strategy (i.e., using new software technologies to share, abstract, and automate infrastructure elements across compute, storage and networking).¹

The net finding is that 37% of surveyed organizations say their data center modernization investment priorities over the next 12 to 18 months involve leveraging newer and emerging approaches to systems management. Basically, 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? It might be, in the form of [Dell EMC CloudIQ](#).

¹ Source: ESG Master Survey Results, [2020 Technology Spending Intentions Survey](#), January 2020. All ESG research references and charts in this showcase have been taken from this research report unless otherwise noted.

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

Nearly half (47%) of IT managers surveyed by ESG said IT is somewhat more complex now compared with two years ago, and 17% believe it's *significantly* more complex. Their most commonly identified complexity driver is higher data volumes (cited by 37%). More data translates into more infrastructure, more applications, and more demands on data from users.

ESG has found organizations that have mature digital transformation initiatives are three times more likely than those with no digital transformation initiatives (29% versus 9%) to consider IT to be significantly more complex today. Given the massive scale of modern IT environments and the diverse breadth technologies in use, solving problems has just become simply more complex and more time consuming than they were previously. This complexity has a cost—activities take longer than they should and too many personnel are consumed by day-to-day maintenance activities.

Addressing the Scarcity of IT Personnel

Even as IT demands are increasing, talent is becoming scarcer. There isn't time anymore to waste precious personnel cycles on time-consuming, low ROI tasks. About one-third of senior IT decision makers surveyed by ESG reported that they are dealing with staff shortages in the areas of IT architecture/planning (32%), and/or cloud architecture/planning (33%) (see Figure 1). Spending valuable resources to simply maintain operations is unsustainable given the increasing digital demands required by modern businesses.

Figure 1. Top Five Most Common Problematic IT Skill Shortage Areas

In which of the following areas do you believe your IT organization currently has a problematic shortage of existing skills? (Percent of respondents, N=647, multiple responses accepted)



Source: Enterprise Strategy Group

In an effort to address the personnel issues, IT organizations are making significant data center modernization investments related to increasing their use of IT infrastructure orchestration/automation tools (cited by 25% of organizations) and/or leveraging AI/ML to help with systems management (23%).

The Current State of IT Intelligence and Automation is Insufficient

Although automation tools help, they don't provide a complete answer. Consider the 34% of senior IT decision makers who reported experiencing problematic skill shortages in the area of IT orchestration and automation expertise. Obviously, their organizations need better insight, first and foremost. Hence, we see the rise of artificial intelligence and machine learning. In the same survey, ESG found that 23% of surveyed 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 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.²

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 AI*, not just traditional reporting tools. Dell CloudIQ, for example, offers impressive levels of intelligence, able to analyze, understand, and provide forecasting across the IT environment, while offering an excellent step along a path to enabling autonomous infrastructure.

Dell EMC CloudIQ

Dell EMC CloudIQ is cloud-native software with nothing to install; it is turned on as a result of enabling the standard secure telemetry. It leverages machine learning to provide proactive monitoring and measuring based on telemetry data captured by Dell EMC systems.

Dell Technologies customers can grant their account teams Trusted Advisor access, which enables the Dell Technologies account team to provide their customers with best practice recommendations, optimization guidance, along with proactive issue recognition and remediation. According to Dell Technologies, Trusted Advisors report being able to **resolve like for like issues on average of three times faster using CloudIQ.**³



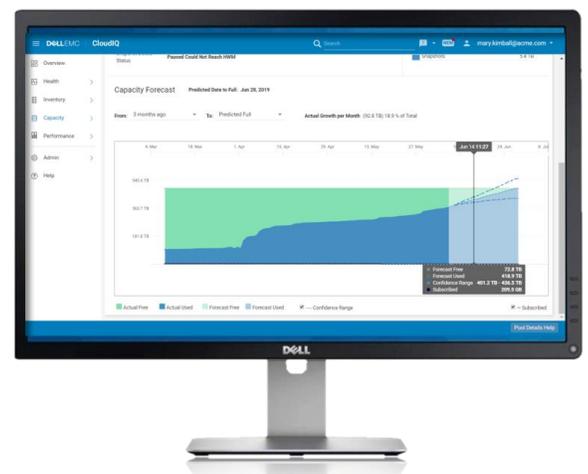
CloudIQ supports a broad portfolio of Dell EMC products encompassing more than just storage. It spans converged infrastructure elements and networking infrastructure components including Dell EMC Unity XT, SC Series, PowerStore, PowerVault, VxBlock, PowerMax, Isilon, XtremIO, and Connectrix switches. Looking ahead, Dell Technologies recently announced that CloudIQ will increase support to the rest of the Dell EMC infrastructure portfolio in future releases.

Secure Analysis Capabilities

CloudIQ features impressively quick, easy analysis capabilities, compiling the insights that it identifies into a single health score that is intuitive to understand. All communication is secure, and the AI analyses occur within the Dell Technologies secure data center, not on third-party public cloud infrastructure. Admins can securely access the platform via mobile device, making it easier for them to collect and relay relevant findings to IT executives and other stakeholders.

Intelligent Capacity Tracking, Historical Tracking, Anomaly Detection, and Forecasting

As mentioned, CloudIQ possesses advanced machine learning capabilities. It uses an ML algorithm that leverages a seasonal decomposition model to feed the forecasting algorithm as the



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

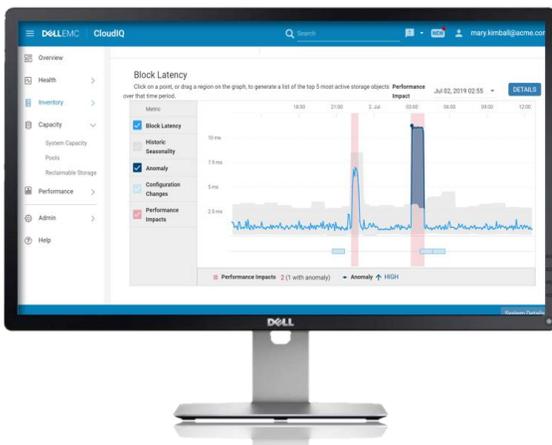
³ Based on a Dell internal survey of Trusted Advisors (Dell Technologies account team and Partners) conducted March 2020, comparing issue resolution with and without CloudIQ. Actual results may vary.

foundation of its 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. The solution also delivers current and historical tracking information.

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

In these ways, CloudIQ helps IT admins avoid out-of-space situations and oversubscription issues that can slow deployments and lead to data-unavailability conditions.

Intelligent Performance Tracking, Anomaly Detection, and Contention Analysis



CloudIQ samples telemetry data every five minutes, and then leverages a machine learning algorithm that learns normal performance patterns over a given time period, and then tells the IT admin whenever performance activity falls out of those bounds. CloudIQ can also automatically identify workloads with similar performance intensities to highlight potential contention issues.

To accomplish such advanced analysis, CloudIQ uses a statistical method called raw Seasonal Decomposition by Loess to construct the boundaries of normal behavior over a recent period (e.g., 24 hours) based on previous history (e.g., around three weeks) to provide a basis to detect anomalies.

Conversely, when conducting a performance impact assessment, CloudIQ uses a different algorithm—an automated time-series correlation algorithm building on Little's Law—to determine if the latency is due to an impact or a change in workload characteristics.

Through these advanced machine learning techniques, CloudIQ helps admins more quickly conduct performance troubleshooting—giving them a deeply informed understanding of performance deviations that have recently occurred, plus detailed insights on potential resource contentions.

CloudIQ Simplifies IT Infrastructure

The artificial intelligence 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:

- **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.
- **Find unused storage that might be unassigned** or not active, freeing up capacity.
- **Automatically identify when system updates are necessary.**
- **Automatically identify the highest-performing objects and the top consumers of resources**, ensuring they align with business priorities.

- **Get a single consolidated view of health**, including alerts, as well as compare systems across key performance indicators to assist with infrastructure-related planning decisions.
- **Examine findings that are presented to them securely on their mobile devices** (or delivered via regular email updates), with only relevant information, such as when changes occur, without needing to log in.
- **Attain greater infrastructure insights in an economical way**, as CloudIQ is included for no extra charge with relevant Dell EMC infrastructure solutions.

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 this transformation, tasks that were once simple now take too long and consume too many precious personnel resources—personnel 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 critical.

IT organizations need tools, like Dell EMC's CloudIQ, that offload burdens without adding complexity. Tools that can automatically collect comprehensive levels of telemetry information, combine it with machine learning, and provide advanced 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 assisting to quickly isolate and diagnose issues. CloudIQ saves precious time and frees critical personnel resources for higher-value tasks.

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

For more information, visit DellTechnologies.com/CloudIQ.

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